A TEACHER-TO-TEACHER INTERVENTION ON SCHOOL-BASED VEGETABLE GARDENS TO SUPPORT RESILIENCE

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A teacher-to-teacher intervention on school-based vegetable gardens to support resilience

by

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PRETORIA
July 2021

Dedication

I dedicate this work and journey to the phenomenal anchors in my life.

In memory of my late grandmother, Mbuya Letty Run'anga Muradzikwa. Your love, kindness and teachings have made me the woman that I am today. You are loved and remembered.

My dear mother, sister and friend, Rumbidzai Jaison. You have always been a pillar of strength and love. Your resilience and boldness continue to inspire me. Thank you for all the encouragement and support throughout life.

Dearest self, Cleopatra Nyarai Musere Chambati, this is for you. Thank you for persevering against all odds. You have walked in humility and faith. So very proud of the woman you continue to become.

My dearest son Divine. I hope this will serve as a source of inspiration and a beacon of light as you walk your own journey. May you find your path, walk in your own stride and write your own story.

---oOo---

Acknowledgements

- To God my Potter, Mwari Musikavanhu (The Creator): My Way Maker, thank you for continuously moulding me and choosing me for this journey. Without your Strength, Favour and Grace I would have not made it this far.
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- To the National Research Foundation (NRF): Thank you for making the research possible through financial support. This study was completed as part of the Food Intake and Resilience Support: Gardens as Taught by Educators (FIRST-GATE) research project, funded by the NRF (project number 93320). The content of this thesis is however the sole responsibility of the researcher (part of the research team) and cannot be taken to reflect the views of the NRF.
- To my language editor, Prof. Tinus Kühn, and technical editor, Ms Estelle Botha: Thank you for your hard work and professional commitment to my thesis with regard to the editorial work.
- To all my dear friends and family for your tireless support in any manner of form throughout this journey: Thank you. I could never have done it without you believing in me or without your prayers. Thank you for cheering me on and believing that I could see this journey to the end.

Declaration of Originality

I, Cleopatra Nyarai Chambati, declare that the thesis, which I submit for the degree Philosophiae Doctor 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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Cleopatra Nyarai Chambati

12 July 2021

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Ethical Clearance Certificate

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APPROVAL TO COMMENCE STUDY	07 April 2016
DATE OF CLEARANCE CERTIFICATE	12 April 2021

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

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

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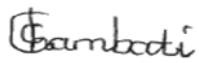
Ethics Statement

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.*



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Cleopatra Nyarai Chambati

12 July 2021

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Abstract

The purpose of this study was to explore how the implementation and outcome of a teacher-to-teacher intervention on school-based vegetable gardens can support resilience in vulnerable communities. The study forms part of the Food Intake and Resilience Support: Gardens as Taught by Educators (FIRST-GATE) research project. The FIRST-GATE project followed on the Supportive Teachers Assets and Resilience (STAR) and Supporting Home Environments in Beating Adversity (SHEBA) projects, where teachers and volunteers had been initiating and participating in school-based projects in support of the psychosocial well-being of vulnerable school-communities.

The current study provided a platform for teachers to share practical guidelines and experiences with peer teachers on how to establish and sustain successful school-based vegetable gardens. Interpretivism served as the philosophical basis of the study and I followed a Participatory Reflection and Action (PRA) methodological approach. I selected a multiple case study research design. The conceptual framework is based on Ozer's model of potential effects of school garden programmes and the asset-based approach. A convenient and purposive sample of 37 teacher-participants (of which some were principals and deputy principals) from the nine schools in the Eastern Cape Province that formed part of the FIRST-GATE project took part in PRA data generation activities. In addition, I utilised observation-as-context-of-interaction, visual strategies (PRA-based posters and photographs), field notes and a reflective journal for data generation and documentation purposes.

Following an inductive thematic analysis, I identified three main themes with related sub-themes. The identified themes relate to the value of being involved in a teacher-to-teacher intervention, unexpected positive outcomes (resilience) of school-based vegetable gardens in school-communities, and challenges experienced during the teacher-to-teacher intervention project. Findings of the research acknowledge that, through engagement, the teachers were able to share knowledge, skills and resources with others, gaining from the experiences of peers who work in similar context. As such, the current study contributes to the discourse on resilience in discussing the outcomes and benefits of the FIRST-GATE teacher-to-teacher intervention on school-based vegetable gardens in support of vulnerable school-communities. The study

further contributes to the field of Educational Psychology by providing an example of an intervention that may be undertaken in collaboration with schools, to support vulnerable school-communities.

Key words

- Asset-based approach
- Food Intake and Resilience Support: Gardens as Taught by Educators (FIRST-GATE) project
- Ozer's model of potential effects of school garden programmes
- Participatory Reflection and Action (PRA)
- Poverty-related challenges
- Resilience
- School-based intervention research
- School-based vegetable gardens
- Teacher-to-teacher intervention
- Vulnerable school-communities

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Declaration – Language Editor

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TO WHOM IT MAY CONCERN

I, the undersigned, hereby declare that the doctoral thesis titled **A Teacher-to-Teacher Intervention on School-Based Vegetable Gardens to Support Resilience** by **Cleopatra Nyarai Chambati** has been edited.

It remains the responsibility of the candidate to effect the recommended changes.

Prof. Tinus Kühn

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List of Abbreviations and Editorial Notes

DBE	Department of Basic Education
FAO	Food and Agriculture Organization
FIRST-GATE	Food Intake and Resilience Support: Gardens as Taught by Educators
HACC	Health and Care Committee
IFSS	Integrated Food Security Strategy
MDGs	Millennium Development Goals
NDP	National Development Plan
NGO	Non-Governmental Organisation
NSNP	National School Nutrition Programme
OVC	Orphans and Vulnerable Children
RDP	Reconstruction and Development Programme
SAC	South African Constitution
SAM	Severe acute malnutrition
SDGs	Sustainable Development Goals
SGB	School Governing Body
SHEBA	Supporting Home Environments in Beating Adversity
STAR	Supportive Teachers Assets and Resilience
UN	United Nations
UNICEF	United Nations Children's Fund
WHO	World Health Organization

Referencing style: American Psychological Association (APA) 6.

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Chapter 1
Background and Overview of the Study

1.1 INTRODUCTION

Hunger is one of the major challenges faced by many people in Africa. To this end, a report by The Food and Agriculture Organization of the United Nations, titled *The State of Food Insecurity in the World* (FAO et al., 2011; Okello, Lamo, Ochawo-Ssemakula, & Onyilo, 2021) almost a decade ago identified Africa as a continent deeply affected by food and economic challenges. The challenge of global environmental and climate changes intensifies the effect of poverty and hunger in vulnerable communities in Africa and across the global context (Leakey, 2018; Okvat & Zautra, 2011). As with many developing nations, some South African communities are faced with additional social challenges, such as the HIV and AIDS pandemic, increasing numbers of orphans and vulnerable children as well as other poverty-related challenges. Two examples of such are a high unemployment rate and the increase in the incidence of teenage pregnancies (Campbell, Gibbs, Maimane, & Nair, 2008; Chambati, 2015; Ferreira & Ebersöhn, 2011; Keatinge et al., 2012; Mkandawire, Cochrane, & Sadaf, 2021). According to the latest *Quarterly Labour Force Survey* report (Statistics South Africa [Stats SA], 2019), 27.6% of the population is currently unemployed, with about 30.4 million people living below the poverty line which is 55.5% of the South African population.

People in vulnerable communities in Africa face the dual challenge of being affected by both hunger and malnutrition or obesity (Faber, Laurie, Maduna, Magudulela, & Muehlhoff, 2014; FAO et al., 2011; Mugambiwa & Tirivangasi, 2017). In addition to these challenges, food price volatility further contributes to consumers being increasingly vulnerable due to poverty (Atake, 2018; FAO et al., 2011). In this regard, Stats SA (2016) indicates that 22.6% of South African households have limited access to food, resulting in a significant number of school-going children going to school either hungry or without having eaten breakfast. According to Graham, Hochfeld, Stuart, and Van Gent (2015), 22.8% of South African children do not have access to adequate food. As generally known, a lack of food may have a negative impact on children's cognitive abilities and school performance.

Community challenges such as these, coupled with the scarcity of resources and health-related service provision in Sub-Saharan Africa, have necessitated reliance on community-based responses for many people from vulnerable contexts. More specifically, teachers, schools and community volunteers have become a pivotal resource on ground level, and are regarded as fundamental in addressing community challenges (Ferreira & Ebersöhn, 2011, 2012; Myende & Hlalele, 2018). South African studies reveal that schools and teachers specifically are viewed as valuable resources that may support coping and promote resilience in contexts of adversity and risk (Ebersöhn, 2014, Ebersöhn & Ferreira, 2011; Malindi, 2018; Theron, 2013).

Resilience as focus of school-based interventions generally has the aim of supporting people to bounce back when facing adversity (Ferreira & Ebersöhn, 2012). In this regard, schools can be viewed as important settings and potential vehicles that may promote the health and well-being of learners and of the broader community (Harrison & Jones, 2012; Malindi, 2018), allowing them to bounce back when facing difficulty in life. In addition, schools can serve as important access points for delivering care and support services to vulnerable community members (Ferreira & Ebersöhn, 2011). To this end, Ebersöhn (2015:123) states that “school-based intervention studies in South Africa often have an emancipatory focus. This emancipatory focus denotes a view of science as a mechanism for democratisation”.

One possible and practical way of addressing poverty-related challenges is through school- or community-based vegetable gardens (Ferreira, 2006; Fisher-Maltese, Fisher, & Ray,2018). Vegetable gardens are not a new phenomenon in the school setting; however, the diverse possible functions and various implications of school-based vegetable gardens require ongoing research in both the fields of community and educational psychology (Laurie, Faber, & Maduna, 2017; Okvat & Zautra, 2011). Existing research reveals that school-based vegetable gardens may serve a number of functions, such as providing a practical and interactive educational learning environment, being a resource centre or providing a therapeutic setting, being a source of nutrition and providing a social environment for teachers, parents and learners to learn in interaction with others. To this end, Faber et al. (2014:1215) state that “Schools can be a useful channel for promoting and instilling healthy eating habits in youth because of the large captive audience, the natural learning environment and the numerous opportunities for peer interaction”.

Existing studies underscore the potential of school-based vegetable gardens in supporting resilience in vulnerable communities (Barthel & Isendahl, 2013; Keatinge et al., 2012; Laurie et al., 2017). From an agricultural perspective, school-based vegetable gardens are, for example, perceived as a possible resilience facet of the ecological system that holds the potential to add new knowledge in the field of traditional agricultural knowledge systems. On a broader level, Okvat and Zautra (2011) regard gardening as a promising method of furthering well-being and resilience on multiple levels, namely for the individual, or in the social and natural environment in a collaborative manner. In this broader focus of ongoing research, my study investigated how teachers may support other teachers and schools to initiate and/or sustain school-based vegetable gardens that can support resilience in contexts of vulnerability.

Recent years have been marked by a shift towards participatory and intervention research in South African community settings that seek to equip participants or communities with skills to work together and bring about positive change. Chambers (2008:298) metaphorically emphasises the need to "hand over the stick" in participatory action research. As such, during intervention studies, researchers need to remain flexible, adaptive and conscious of the fact that participants are the generators of knowledge. The role of the researcher in this setting is merely to create a space that can equip human resources, such as teachers, principals and volunteers in school settings with self-enabling skills (Ferreira & Ebersöhn, 2012; Mey & van Hoven, 2019). The pivotal aim of such research is to promote resilience in adverse settings, taking the school as entry point (Ebersöhn, 2014; Mansfield, Ebersöhn, Beltman, & Loots, 2018; Sharp, Penner, Marais, & Skinner, 2018). In following a Participatory Reflection and Action (PRA) approach in the current study, my methodological choices supported the focus of the study and the possibility of enhancing resilience as a secondary outcome of the study.

1.2 CONTEXTUAL BACKGROUND

This study forms part of the *Food Intake and Resilience Support: Gardens as Taught by Educators* (FIRST-GATE, 2014-) research project[1]. The FIRST-GATE project followed on two other broad projects, namely the *Supportive Teachers Assets and Resilience* (STAR, 2003-) and *Supporting Home Environments in Beating Adversity*

[1] National Research Foundation (NRF) funded project number 93320 (Community engagement project).

(SHEBA, 2011-) projects[2], where teachers and volunteers had been initiating and participating in school-based projects in support of the psychosocial well-being of vulnerable school-communities (Botha, 2010; Chambati, 2015; Dippenaar, 2018; Ebersöhn, 2008; Ferreira, 2006; Loots, 2011; Mbongwe, 2012; Mc Callaghan, 2007; Mnguni, 2006; Odendaal, 2006; Thabe, 2015). The three broader studies have been informed by the asset-based approach and resilience theory, and all followed a PRA approach (Ebersöhn & Ferreira, 2011; Ferreira & Ebersöhn, 2011; Kretzmann & McKnight, 1997.

Over the years, school-based vegetable gardens have been indicated as possible supportive project in the STAR as well as the SHEBA projects, resulting in the subsequent focus on school-based vegetable gardens in the FIRST-GATE project. More specifically, after finding that all schools that have participated since 2003 selected to provide support to their school-communities through school-based vegetable gardens, yet to different levels of success. As such, the FIRST-GATE project focuses on the value of such gardens, and how these can be supported and sustained when teachers and schools support peers in undertaking vegetable garden projects.

In forming part of the FIRST-GATE project my study specifically focused on the implementation and outcome of the FIRST-GATE teacher-to-teacher intervention on school-based vegetable gardens in support of resilience. More specifically, I set out to investigate how school-based vegetable gardens as a potential protective resource can promote resilience in vulnerable communities in South Africa, when teachers support their peers in undertaking such initiatives. As background to this focus, several related studies have identified school-based vegetable gardens as one possible way of overcoming community challenges resourcefully (Dippenaar, 2018; Ebersöhn, 2006; Ferreira, 2006; Ferreira & Ebersöhn, 2012; Loots, 2011).

As part of the FIRST-GATE project and following on the STAR and SHEBA projects, I followed a PRA methodological approach. Teacher-participants thus actively engaged as co-partners in generating knowledge while participating in the study. To this end, for all data generation activities I, as researcher, joined the participants as co-learner

[2] National Research Foundation (NRF) funded project number 74455 (Community engagement project).

and co-partner (Chambati, 2015; Dippenaar, 2018; Ebersöhn, 2008; Ferreira, 2006; Loots, 2011; Mc Callaghan, 2007; Mnguni, 2006; Odendaal, 2006).

1.3 RATIONALE FOR UNDERTAKING THE STUDY

As stated, the rationale for undertaking the study firstly emanated from two broad research projects, namely STAR and SHEBA, which resulted in the current FIRST-GATE project, focusing on the potential value of school-based vegetable gardens in supporting resilience (or not) (Ebersöhn & Ferreira, 2011; Ferreira & Ebersöhn, 2012). As such, the rationale of this study was based on the need for ongoing research that focuses the potential value of school-based vegetable gardens through a teacher-to-teacher intervention. Even though existing research indicates that one fifth of the households in the South African population engage in agriculture and food production, this is not sufficient to provide in current food-related demands, based on high levels of poverty, hunger and associated risks. In this regard, the National Department of Education perceives school-based vegetable gardens as a potential resource that may support South Africa's National School Nutrition Programme (NSNP) (Department of Basic Education [DBE], 2014; Sibanyoni, 2017), which supports the food-related needs of many children on a daily basis. This is discussed in more detail in Chapter 2.

Through research (Ferreira & Ebersöhn, 2011, 2012; Mansfield et al., 2018; Ozer, 2007), teachers have been identified as professionals who hold the potential to promote resilience in schools and communities. Continued emphasis on ongoing research in terms of ways in which school-communities can become self-sufficient and how school-community responses may be developed to address existing poverty-related challenges, highlights the importance of my study. During the preliminary literature review, I specifically identified the need for me as a psychologist to contribute to the generation of knowledge in this field, potentially informing the NSNP and/or policy in future, and supporting food security while promoting resilience in vulnerable communities (Okvat & Zautra, 2011; Sibanyoni, 2017). In this regard, literature (Gray, Hope, & Matthews, 2018; Keatinge et al., 2012; Okvat & Zautra, 2011) underscores the need for psychologists as researchers to form an integral mediatory role when participating in curriculum development or in identifying ideas on school-community responses to challenges, or when furthering research on interventions that may address such poverty-related challenges.

In utilising a PRA approach, participants fulfilled an active role in generating (co-creating) knowledge, thereby co-determining the progress and process of the research (Ebersöhn & Ferreira, 2011; Manis, Ferreira, Sefotho, & Mampane,2021). PRA principles are known to be an embodiment of the Look, Think, Act routine that envisages an inter spiral activity, allowing participants to plan, implement and reflect throughout the research process. This, in turn, can result in finding practical solutions to problems (Stringer, 2014). Therefore, my study has the potential of resulting in practical ideas to address poverty-related challenges such as food shortages, unemployment or related social challenges in the school-communities that participated.

In addition to the quest for ongoing research and the potential practical value of this study, my motivation for undertaking this research emanated from my master's study in Educational Psychology, which I completed within the STAR and SHEBA projects. Building on this research, I was motivated to explore the utilisation of the asset-based approach further in an attempt to add to existing theory on resilience and school-community support in the South African context against the focus area of school-based vegetable gardens.

1.4 PURPOSE AND POSSIBLE CONTRIBUTIONS OF THE STUDY

The purpose of the current study was to explore, describe and explain the experiences of teachers of the FIRST-GATE peer-to-peer intervention that focused on teachers supporting their peers in initiating and sustaining school-based vegetable gardens. As such, the current study (as part of the FIRST-GATE intervention) provided a potential platform for teacher-participants to share practical guidelines and experiences with peers on how to establish and sustain successful gardens. The study may subsequently add to existing knowledge on school-based interventions in "dealing" with poverty-related challenges in South Africa as well as in the fields of resilience and community-based interventions. In this way, teacher-participants could mediate learning in discussion with peers, by sharing their knowledge and experiences with other teachers. Previous post-graduate studies conducted as part of the STAR and SHEBA projects also identified teachers as being well-positioned to understand and address community challenges and to transfer these skills to others to be able to do this (Ebersöhn & Ferreira, 2011; Ferreira & Ebersöhn, 2011).

My study could further serve the purpose of empowering the participating teachers and subsequently their communities through building resilient socio-ecological systems, which may assist in addressing contemporary challenges associated with food supply and poverty. By opening opportunities for possible gardening projects or strengthening existing school-based vegetable gardens, food production on a larger scale was possible, thereby combating climate and environmental challenges faced by the communities in which the participating teachers work.

As PRA requires active participation and action by participants in theoretical and practical knowledge development (Ebersöhn, Eloff, & Ferreira, 2007; Manis et al., 2021), my role as researcher entailed that of supporting the participants in generating knowledge. As stated, for this purpose, the teacher-participants shared their ideas and engaged in co-teaching during a joint process of co-learning. In addition, the research I undertook may have enabled teachers and school-communities to form partnerships, network, adapt to challenges and perhaps transfer newly gained knowledge to other challenging circumstances in the communities, with the potential outcome of positive change.

1.5 RESEARCH QUESTIONS

The current study was guided by the following primary research question: *How can the implementation and outcome of a teacher-to-teacher intervention in school-based vegetable gardens support resilience in vulnerable communities?*

To address the primary research question, the following secondary research questions guided the study:

- How do teachers experience a teacher-to-teacher intervention aiming to support vulnerable school-communities?
- What are the benefits of a teacher-to-teacher intervention in implementing and sustaining school-based vegetable gardens?
- What are potential challenges of a teacher-to-teacher intervention on sustainable school-based vegetable gardens?

1.6 WORKING ASSUMPTIONS

Based on the initial literature review, selected research paradigms as well as the theoretical framework I employed, I conducted this study against the background of the following working assumptions:

- Teachers as human resources are well-positioned within school-communities to effect positive change both in schools and the related communities.
- In following a PRA approach, I regarded teacher-participants as experts and knowledgeable co-researchers able to generate knowledge through active participation and reflection on their lived experiences.
- Through a teacher-to-teacher intervention, enabling and collaborative environments may be established when teacher-participants share their experiences and empower one another to effect and sustain social change, thereby promoting resilience within school-communities.
- Based on participation in the prior related projects (STAR, 2003- and SHEBA, 2011-), participants would possess some knowledge and experience of establishing and maintaining school-based vegetable gardens.
- In addition, teacher-participants that formed part of the STAR and SHEBA projects would be knowledgeable in terms of the asset-based principles of identifying and mobilising assets in their environment.

1.7 CONCEPT CLARIFICATION

In this section, I explain the key concepts that guided my study.

1.7.1 SCHOOL-BASED VEGETABLE GARDEN

A school-based vegetable garden can be described as a garden that grows a diversity of nutritional crops or plants − other than just vegetables − all year round, providing learners with experiences and employment-related skills as they engage in aspects of planning, maintaining and harvesting crops (Swank & Huber, 2013; Malberg Dyg & Wistoft, 2018). Keatinge et al. (2012) allude to the fact that a school-based vegetable garden, in addition to educational and advocacy functions, can serve members of the community where it is situated, as it can provide sociological benefits to societies at large. Some of these potential benefits relate to the possibilities of additional income generation, decreased malnutrition and communal empowerment.

Against the background of these descriptions and situated in the broader FIRST-GATE project, a school-based vegetable garden in this study refers to a vegetable garden located at a primary school in a vulnerable community, at any of the schools that have been participating in the STAR, SHEBA and FIRST-GATE projects. Within the safe space of such a garden, teachers, learners and parents generally collaborate and work together to address challenges and generate solutions to social problems in the school-community. To this end, school-based vegetable gardens are viewed as positive resources that may support vulnerable school-communities in various ways.

1.7.2 RESILIENCE

Resilience relates to the tendency to rebound, bounce back or recover in response to adversity (Malindi, 2018; Mampane, 2014; Theron & Malindi, 2012). Theron (2013) perceives this as adaptive behaviour in the face of adversity. From a resilience perspective, individuals may be vulnerable due to their facing multiple adversities such as poverty, violence, substance abuse and a high unemployment rate (Ebersöhn & Ferreira, 2011; Mansfield et al., 2018).

Ungar (2013) perceives resilience as an interdependent set of processes that are associated with mental health, orthogonal in the presence or absence of a disorder. These processes accordingly imply positive adaptations by individuals, families and communities regardless of the adversities they experience. In light of these conceptualisations, I view resilience as both an ability to and a process of adapting to challenging circumstances for the purpose of my study. I discuss the concept of resilience in more detail in Chapter 2.

1.7.3 VULNERABLE COMMUNITIES

Vulnerable communities can be defined as communities that experience adverse circumstances, such as poverty, socio-economic difficulties and environmental challenges on an ongoing basis (Adger, 2006; Muyambo, Jordaan, & Bahta, 2017; Okvat & Zautra, 2011). A vulnerable community can thus be perceived as a community facing challenges, with the impact of the challenges implying a high risk of the community eventually becoming non-functional (Chan, DuBois, & Tidball, 2015; Ebersöhn & Ferreira, 2011; Muyambo et al., 2017; Okvat & Zautra, 2011). Some of the challenges that are typically experienced by vulnerable communities in South Africa include poverty, risks associated with the HIV and AIDS pandemic, high

numbers of teenage pregnancies, unemployment, substance abuse and continued increased numbers of orphans.

The working definition of vulnerable communities as it applies to the current study is that of any setting where fundamental basic needs such as shelter, food and socially balanced well-being are not met due to limited resources. Such limitations, in turn, can prevent communities from functioning effectively. In the context of this study, these communities are thus characterised by high levels of poverty and unemployment as well as various associated social challenges.

More specifically, the communities that apply in this study are situated in the Eastern Cape province of South Africa and are characterised by high levels of poverty, being marginalised and experiencing a number of environmental challenges. According to Stats SA (2017), the Eastern Cape province is one of the main provinces in South Africa that has a large number of people living under extreme poverty. A strong reliance on social grants as main source of income is evident. The populace is strongly affected by unemployment, drug and alcohol abuse, and gang-related violence. The HIV and AIDS pandemic has led to an increased incidence of loss of human life and loss of income resulting in high numbers of orphans. Furthermore, the Eastern Cape Province is strongly affected by erratic weather conditions leading to droughts, scarcity of fresh water sources and poor soil quality (Adato, Kadiyala, Roopnaraine, Biermayr-Jenzano, & Norman, 2015; Ferreira & Ebersöhn, 2012; Jordaan, Bahta, & Phatudi-Mphahlele, 2019).

1.7.4 TEACHER-TO-TEACHER INTERVENTION

Teachers are defined as essential human resource tools that serve fundamental teaching and non-teaching purposes in and outside a school-community. These individuals are equipped to change and mould learners for the better, and transmit knowledge, skills and values to them (Donald, Lazarus, & Lolwana, 2010). Teachers are viewed as mediators, facilitators, philosophers, assessors, bridgers, change-markers as well as providers of psychosocial support in the education system and community at large (Ebersöhn, Ferreira, & Mnguni, 2008; Landsberg, Krüger, & Nel, 2005; O'Reilly, Svirydzenka, Adams, & Dogra, 2018).

A teacher-to-teacher intervention involves peer-to-peer interaction among teachers that share their knowledge, lived experiences and best practices on a specific

phenomenon or event with one another to learn from and with one another (Buchs, Filippou, Pulfrey, & Volpé, 2017; Campbell & Cornish, 2011). In this study, these lived experiences concern knowledge, views and skills pertaining to starting, growing and sustaining school-based vegetable gardens that can be imparted to peers of neighbouring schools during joint sessions, with the potential of yielding positive effects on the respective vegetable gardens.

1.8 RESEARCH PARADIGM

In this section, I introduce the paradigmatic lenses I selected for this study. I discuss the research paradigm in more detail in Chapter 3. A research paradigm is a philosophical underpinning that informed my way of thinking as a researcher of the phenomenon understudy (Cohen, Manion, and Morrison, 2017). The study employed an interpretivist paradigm (metatheory). Furthermore, an interpretivist research paradigm, is inclusive of several components that include ontology (seeking to answer reality to the research question), epistemology (these are internal factors within the research which enables the researcher to have a worldview), methodology and methods (Alharahsheh & Pius, 2020). The research followed a qualitative approach (methodological approach). As such, I was conscious of some the determining factors such as my background, gender, difference in language and my view of reality. The study aimed to conduct research within school-communities within a South African context in gaining a deeper understanding of the implementation and outcome of a teacher-to-teacher intervention on school-based vegetable gardens. Following an interpretivist paradigmatic lense, I was aware of my own subjective perceptions in discussing findings (auxological assumptions). As part of my ontological assumptions, I thus aimed to reflect and report on the teacher-participants subjective views of realities (see Chapter 4 for detailed direct captions of teacher-participants' views). Finally, with regards to my methodological assumptions, I employed thematic inductive research methods for both data generation, documentation and analysis purposes. This process was prolonged and relied on multiple method that enhanced the credibility of findings. Detailed discussion of the research processed employed will follow in Chapter 3.

1.8.1 METATHEORETICAL PARADIGM: INTERPRETIVISM

Nieuwenhuis (2007) explains that interpretivism is rooted in hermeneutics, which is the study of both theory and practice of interpretations or meaning making. In making

use of the interpretivist paradigm, I attempted to gain insight into the subjective worlds of teachers in terms of their experiences of sharing knowledge and skills on initiating and maintaining school-based vegetable gardens with fellow teachers in other schools (Alharahsheh & Pius, 2020; Cohen, Manion, & Morrison, 2011). In aligning myself with the interpretivist paradigm, I thus investigated the implementation and potential value of a teacher-to-teacher intervention on school-based vegetable gardens (the FIRST-GATE intervention) in the social context of the teacher-participants (Nieuwenhuis, 2007).

In exploring the phenomenon in the actual social environmental setting, this selected meta-theory implied the advantage that the participants could confer meaning to their experiences and actions as part of the study (Alharahsheh & Pius, 2020; De Vos, Schulze, & Patel, 2011; Litchman, 2009; Nieuwenhuis, 2007). Hence I was able to rely on the teacher-participants as co-researchers who could in turn take responsibility to configure and co-construct meaning of their lived experiences as they interacted, thereby co-generating both theoretical and practical knowledge (De Vos et al., 2011; Pham, 2018).

Throughout, I remained conscious of the fact that the interpretivist paradigm implies the potential challenge of subjective experiences influencing interpretations (Nieuwenhuis, 2007). As the aim of my study was to generate thick and rich descriptions of the teacher-participants' lived experiences and to gain an understanding of their meaning making, I thus aimed to interpret their perceptions and guarded against my experiences and potential bias affecting my interpretation of the data. As I focused on the participants' voices, the findings I obtained cannot be generalised to other populations; however, they have the potential to be transferred and utilised as a rich knowledge base in this field of research (Cohen et al., 2017; Merriam 2002).

1.8.2 METHODOLOGICAL APPROACH: PRA

PRA is regarded as a collaborative and solution-focused approach to research, seeking to engage and mobilise participants as active agents in their community as part of a study (Chambers, 2008; Creswell, 2008a; Strydom, 2011). According to Ebersöhn, Eloff, and Ferreira (2007), PRA strongly relies on reflexivity as it constitutes continuous reflection, which is in turn followed by action. In employing a PRA methodological approach, I aimed to conduct a study that could generate action and

change through the gaining of practical knowledge that could in turn be utilised by teacher-participants and serve as a knowledge base for future researchers working in the field (Cohen et al., 2011).

In utilising PRA, the teacher-participants were able to take agency, and create a platform for holistic understanding and effective ways of achieving positive change (Cohen et al., 2017; Strydom, 2011). A potential challenge I faced relates to the possibility of power differences between community researchers (teacher-participants) and the research team. As external researcher, I thus aimed to join the teacher-participants as equal partners or co-researchers (Strydom, 2011). My role was to support the teacher-participants as they engaged in the research process and co-generated knowledge. As a co-researcher, I furthermore constantly engaged in a process of self-reflection to remain aware of my role in the research. In addition, the fact that the teacher-participants had been exposed to this approach in the STAR and SHEBA projects implied that the possibility of power differences having a negative influence could be limited.

For the same reason, I did not experience the challenge of gaining the trust of the teacher-participants to gain access to their perceptions and experiences (Cohen et al., 2011; Ebersöhn et al., 2007). More specifically, sound relationships of trust had been established in the past between them and the research team. The fact that I spent a prolonged time in the field strengthened the relationships, as did the way in which I valued the participants as co-researchers and experts in the study. In so doing, teacher-participants were able take ownership and openly share their experiences with one another and the members of the research team (Cohen et al., 2017; Ebersöhn et al., 2007).

1.9 UNDERLYING THEORETICAL PERSPECTIVES AND CONCEPTUAL FRAMEWORK

In compiling a conceptual framework (captured in Chapter 2, Figure 2.2) for the current study, I incorporated Ozer's model of the potential effects of school garden programmes (Ozer, 2007) with the asset-based approach (Ebersöhn & Eloff, 2006). In this section, I briefly introduce my conceptual framework. A more detailed explanation is included within Chapter 2.

1.9.1 OZER'S MODEL OF POTENTIAL EFFECTS OF SCHOOL GARDENS

Ozer's (2007) model of potential school garden programmes explores the effects of school garden programmes in informing practice and the development of research. The model incorporates aspects of Bronfenbrenner's social ecological-transactional perspective of human development (Bronfenbrenner, 1977; Shelton, 2018), as it views a child as forming part of the immediate context of the micro-system that includes the school, family and community. Ozer's model posits that related contexts will shape one another, and that change in the school micro-system has the potential to set processes of change in both the school and community in motion, and *vice versa* (Ozer, 2007; Shelton, 2018). Change is perceived as having either proximal (short-term) or distal (long-term) effects or benefits. Another underlying principle of Ozer's model of potential effects of school garden programmes is that change in one of the domains of a child's functioning, such as nutrition or bonding to school and peer relationships, may influence other domains of functioning (Ozer, 2007). These two basic premises are imbedded in the social-ecological model of Bronfenbrenner (1977) and informed the conceptual framework of my study.

More specifically, Bronfenbrenner's Ecological Systems theory (Bronfenbrenner, 1977; Ozer, 2007; Shelton, 2018) is viewed as a multidimensional model of human development that consists of interacting layers that may result in change, growth and development (Soyer, 2019; Swart & Pettipher, 2011). Similar to Ozer's model potential effects of school garden programmes, according to Bronfenbrenner's Ecological System, change will intrinsically affect the relationship within systems; thus what occurs in one system will ultimately affect the other systems. In applying this, I perceived my study as taking place within a school-community that forms part of a multi-layered system that is compiled of the microsystem, mesosystem, exosystem and macrosystem. Similarly, I perceived a school-community as part of a system that is affected by phases of change through time (chronosystem), the environment (school-community) or people (such as teachers, learners and parents) within the system (Bronfenbrenner, 1977; Ozer, 2007; Shelton, 2018; Soyer, 2019).

1.9.2 THE ASSET-BASED APPROACH

The asset-based approach as applied in psychology posits a world view and metaphorical notion of the glass being half full; it entails a strength-based approach that capitalises on assets, resources and capacities within a system to provide support

and address challenges within the same setting (Ebersöhn & Eloff, 2006; Ferreira & Ebersöhn, 2012; García & Öztürk, 2017; McKnight & Kretzmann, 1997). Ebersöhn and Eloff (2006) argue that the asset-based approach is an ideal approach to community development as it may empower a community to become self-reliant and ignite a sense of enablement. This furthermore implies that community members of a specific context may become actively involved in addressing the challenges they face (Loots, 2011; Myende, 2017).

In incorporating aspects of the asset-based approach in my conceptual framework, I relied on its three essential phases, namely asset-identification, asset-mobilisation and asset management (Ebersöhn & Eloff, 2006; Myende, 2017). Asset-identification entails the process of identifying pre-existing resources and capacities through asset-mapping within a given community (Chambers, 2008; Loots, 2011), with asset-mobilisation implying the participation of community members as active agents of change to harness identified assets and resources practically. Asset-management constitutes the sustaining of identified and mobilised assets and resources to benefit and provide longevity to community development or positive change (Chambers, 2008; García & Öztürk, 2017; Kretzmann & McKnight, 1997; Myende, 2017).

1.9.3 INTEGRATING OZER'S MODEL WITH THE ASSET-BASED APPROACH

In integrating Ozer's model of the potential effects of school gardens (Ozer, 2007) with the asset-based approach (Ebersöhn & Eloff, 2006; García & Öztürk, 2017; McKnight & Kretzmann, 1997; Myende, 2017; Spencer & Williams, 2017) to compile a conceptual framework, I foreground a school-community as a multi-layered system that forms part of other overarching community spaces. Each sub-system includes potential assets, resources and capacities that can be identified, mobilised and managed to address challenges within vulnerable communities. In this way, I conceptualise a school-community as surrounded by other systems within a larger global system. The school-community as central macrosystem (as per Bronfenbrenner's categories on which Ozer built the model of potential effects of school garden programmes) comprises individuals such as teachers, parents and learners. In addition, multi-layers around a school-community are made up of individuals, organisations and institutions that have the potential to serve as assets, capacities and resources to be utilised by the school-community. Any changes in a school-community (as the macro-system) may, in turn, permeate into the other environmental sub-system spaces.

Following the underlying principles of the asset-based approach, I thus viewed the teacher-participants as active agents of positive change within a multi-layered system that could engage in the process of *asset-identification* (e.g. skills, knowledge and lived experiences) and the identification of resources (such as garden tools, seeds and learners) within the school-community. Accordingly, I assumed that the participants could map assets and resources during *asset-mapping* and mobilise these during *asset-mobilisation* in establishing school-based vegetable gardens, or *asset management* for other potential uses within their school-communities (Chidakwa, 2020; Ebersöhn & Eloff, 2006; McKnight & Kretzmann, 1997; Rippon & South, 2017).

By utilising aspects of Ozer's model of potential effects of school garden programmes, I acknowledge the notion that an intervention in school-based vegetable gardens potentially implies proximal and distal effects with possible benefits within the multi-layered community context (Ozer, 2007; Shelton, 2018; Soyer, 2019). More specifically, I locate a school-based vegetable garden within the microsystem around sub-systems (e.g. school, learners, teachers, parents and community members). The mesosystem is taken as the school-community, home environment and extended community, including neighbouring schools that co-exist. Within the mesosystem, various community services exist, such as local universities and the university where I undertook my study, the DBE, and non-governmental organisations.

The mesosystem gives an indication of the interconnections of the various sub-systems. Within the interconnected sub-systems, I considered the possibility of asset-identification, asset-mapping, asset-mobilisation and asset management to be possible when establishing a school-based vegetable garden. As backdrop, the asset-based approach foregrounds the principles of collaboration and sharing resources, skills and knowledge within environments. Integrating the principles of the asset-based approach and Ozer's model of potential effects of school garden programmes, school-based vegetable gardens may thus have proximal (short-term) or distal (long-term) effects on the multi-layered system involved when undertaking such initiatives.

1.10 OVERVIEW OF RESEARCH PROCESS AND METHODOLOGICAL STRATEGIES

In this section, I briefly discuss the research methodology and strategies I employed to generate, document and analyse data. As an introduction, Figure1.1 provides an

overview of the research process and the choices I made. A more detailed discussion of the selected strategies is included in Chapter 3.

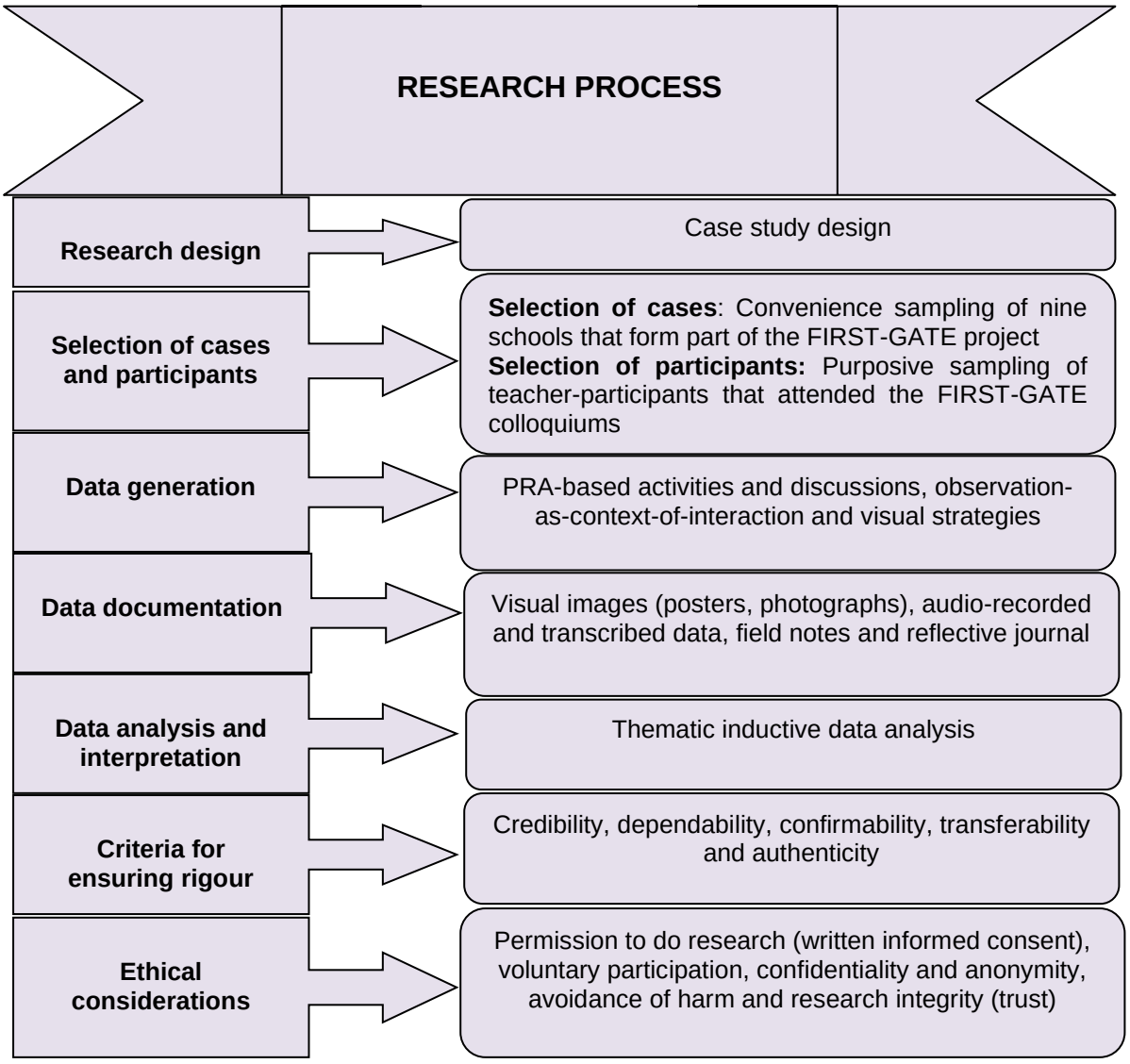

Figure 1.1: Overview of the research process and methodological decisions

1.10.1 RESEARCH DESIGN

As I explored the implementation and effect of the FIRST-GATE teacher-to-teacher intervention in school-based vegetable gardens in support of resilience, I employed a multiple case study design, which is considered as a scientific methodology that can provide an example of a unique real-world life situation (Gustafsson, 2017; Schurink, Fouché, & De Vos 2011; Stake, 2005; Yin, 2014). Creswell (2008a) defines a case study design as a way of obtaining a holistic and in-depth understanding of a specific social reality. In support, Bromley (1990) views case study research as the systematic

enquiry into a phenomenon of interest. In making use of a case study design, my role as researcher was thus to emphasise episodes of nuance, the sequentiality of occurrences in school-communities and coherence between individuals through thick and rich descriptions (Check & Schutt, 2012). I aimed to provide in-depth explorative-descriptive information of teachers' experiences and their knowledge in establishing and sustaining school-based vegetable gardens as a potential way of supporting resilience within vulnerable school-communities. I elaborate on the case study design I utilised in Chapter 3.

In opting for a case study research design, I was able to benefit from multiple data generation and documentation strategies I employed, with the implied possibility of obtaining multiple meanings. By utilising multiple techniques, I could rely on crystallisation of the data and data sources (Nieuwenhuis, 2007). Even though my choice of a case study design implied the unlikeliness of obtaining generalisable findings (Nieuwenhuis, 2007), this was not my aim. I rather focused on obtaining findings that specifically applied to the context of my study, and may be utilised to inform other similar studies, yet without the option of generalisability (Stake, 2005; Tight, 2017). To this end, I ensured a rigorous process of engaging and sifting through the generated and documented data to capture the essence of the teacher-participants' perceptions and experiences. In addition, I conducted member checking with the research participants to ensure that the findings I report represent their voices and perceptions (Stringer, 2014).

1.10.2 SELECTION OF CASES AND RESEARCH PARTICIPANTS

In selecting the cases for the research, I relied on convenience sampling (Cohen et al., 2017; Gay & Airasian, 2003; Maree & Pietersen, 2007) by becoming part of the broader FIRST-GATE project, conducting my study within an existing project. Convenience sampling is regarded as a useful non-probability scientific method where cases or participants are included in a study based on their being easily and conveniently available and accessible (Maree & Pietersen, 2007; Patton, 2002). The advantages of convenience sampling implied that I had easy access to the cases I studied as I joined an ongoing project (Creswell, 2008b). The nine schools that participated were situated in the Eastern Cape province of South Africa. All schools and teacher-participants were familiar with the broader project and the field of interest.

In selecting the 37 teacher-participants, I relied on purposeful sampling. By utilising this method, the teacher-participants were selected on the basis that they understood the problem and field of focus, and were thus able to provide information that could assist me in addressing the research questions (Cohen et al., 2017; Creswell, 2003). I include the selection criteria I utilised in selecting the teacher-participants in Chapter 3.

In combining convenience and purposive sampling, I remained conscious of the potential limitation that the findings of my study would not be generalisable to other contexts. As stated before, the aim of the current study was not to generalise but merely to provide a rich description and gain an understanding of a phenomenon in a specific context that had the potential to be transferred to similar contexts (Maree & Pietersen, 2007).

1.10.3 DATA GENERATION AND DOCUMENTATION

For the purpose of data generation and documentation I utilised multiple techniques, which I briefly introduce in the following sub-sections. I discuss the strategies in more detail in Chapter 3.

1.10.3.1 PRA-based activities and discussions

I utilised PRA-based techniques to explore and describe teachers' experiences of school-based vegetable gardens in supporting resilience in vulnerable school-communities as well as their experiences of the value of participation in the FIRST-GATE project. Data generation was conducted over a period, involving six field visits in two years (4-6 months apart), during which I facilitated several PRA-based discussions.

The initial PRA-session (March 2016) entailed a PRA-mapping activity by teacher-participants where they reflected on their experiences of establishing and sustaining school-based vegetable gardens. As each participating school shared its ideas with other schools as part of a colloquium held at a central venue, the next four sessions of data generation, one of which took the form of another colloquium, focused on the teachers' reflections on the progress of their mapped-out plans, either to start or improve their school-based vegetable gardens, planning the way forward for the next interval period, and discussing the value of peer-to-peer interaction in making and executing their plans. The last field visit involved member checking after my initial

analysis of the data. As PRA-based techniques are known to be concrete, visual and colourful, the selected activities promoted active participation in all occasions (Ebersöhn et al., 2007).

Marshall and Rossman (2011) state that PRA implies the advantages of conducting democratic inquiry, encouraging collaboration and empowering research participants within vulnerable communities. The primary purpose of my research was to create a platform for teachers to share their experiences and knowledge on school-based vegetable gardens with other teachers, with the potential secondary effect of teachers being empowered and taking agency to improve their vegetable gardens as a result. Hence, during the PRA-based workshops, teacher-participants engaged in regular feedback sessions that implied the potential of the various schools and groups of participants learning from one another. To this end, Strydom (2011) believes that PRA research can allow participants (as co-researchers) to find their own effective and practical ways to solve challenges in a positive and dynamic manner within their own communities. The two colloquiums that were conducted specifically allowed for this possibility.

1.10.3.2 Observation-as-context of interaction

Observation is considered an essential way of generating qualitative data (Cohen et al., 2011). I utilised observation not only for observing the data generation sessions I facilitated, but also the progress of the school-based vegetable gardens at the participating schools over a period of two years (March 2016 to April 2018). As such, I was able to conduct observation within the natural settings of the schools with the teacher-participants being present. In this way, I could rely on observation-as-context-of-interaction as conceptualised by Angrosino and Mays de Pérez (2000).

While observing, I probed and asked general questions with the aim of yielding knowledge and shared experiences through the teacher-participants' views of the school-based vegetable gardens and school-communities as context of the research (Creswell, 2014a). Observation-as-context-of interaction thus enabled me to observe teacher-participants' gestures and non-verbal communication during the PRA-based discussions, the progress of the school-based vegetable gardens as well as interactions when compiling PRA-based posters. I documented all my observations by means of field notes and photographs.

1.10.3.3 Audio-visual techniques

Cohen et al. (2011, p. 528) state that visual images are "… constructions of social events and perspectives, of power and power relations and social differences". In addition, visual images are viewed as a way of representing real life experiences that convey messages in the absence of written text (Cohen et al., 2011). Visual images as part of PRA-based research are regarded as a useful way of generating data for educational research (Creswell, 2014b). During the PRA-based workshops, teacher-participants compiled PRA-matrices in the form of posters that provided me with an important data source for analysis. Participants namely developed posters to map their plans for starting or improving their school-based vegetable gardens, evaluate the progress of their plans and formulate future plans to sustain their gardens, and reflect on their experiences of participation in the FIRST-GATE intervention and how they might indirectly support resilience in the communities. In so doing, research participants were actively involved in generating visual data.

In addition, I generated visual data in the form of photographs, capturing shared lived experiences, environmental settings, and social contexts during the various visits. In addition, all PRA-discussions/feedback sessions were audio-recorded. According to Silverman (2014), audio-recordings have the advantage of providing detailed and accessible representations of specific social interactions that may be accessed multiple times following the event. To this end, audio-recordings enabled me to re-visit the data in its original format during later stages, as required. All audio-recorded data was transcribed for data analysis purposes.

1.10.3.4 Field notes and reflective journal

I utilised field notes and a reflective journal to document the generated data. For this purpose, I relied on personal reflections as well as descriptive field notes of all my observations (Yin, 2014). More specifically, I captured my observations and interactions with the teacher-participants during observations in the form of descriptive notes, capturing what occurred, who participated and which actions were taken. In addition, I documented my feelings and reflections on the research process in the form of reflective notes, indicating my experiences and the insights I formulated as the study progressed (Creswell, 2008a; Silverman, 2014).

Field notes and a reflective journal thus provided me with sources for data documentation, enabling me to confirm or reject observations, reflections and thought processes against the background of other data sources, such as transcriptions, PRA-matrices and photographs (Seale, 1999). To compile comprehensive field notes and reflective thoughts, I captured my conversations with teacher-participants in detail, and consistently wrote down my reflections on the research process as soon as possible following such observations or data generation activities.

1.10.4 DATA ANALYSIS AND INTERPRETATION

For data analysis and interpretation, I followed the six steps of thematic inductive analysis proposed by Creswell (2013). These are organising and preparing for data analysis; looking at, reading and re-reading the data; coding; generating descriptions, categories or themes for analysis; providing a qualitative narrative, and interpreting the data. Organising and preparing data for data analysis entails the process of reducing and trimming the dimensionality of the data that has been generated and documented (Delport & Fouché, 2011). During this process I looked at the verbatim transcriptions of the PRA-based workshops, the PRA-matrices, photographs as well as my field notes and reflective journal. I completed a process of sifting through the data and processing and reducing the data to analyse it. The second step of data analysis and interpretation involved looking at the visual data − photographs and posters − and reading and re-reading the written data.

The third step I completed entailed my initial coding (Creswell, 2013). This involved that I qualitatively analysed the transcriptions of the PRA-based workshops, field notes and all visual images, and generated possible meanings or themes. Next, I compared the data sources to confirm my initially generated descriptions, categories and themes for the purpose of crystallisation. This led to the next step of providing a qualitative narrative by combining the analysed data into data sets (Creswell, 2013) with the purpose of producing a research report (this thesis). At this stage, I engaged in data comparison by comparing my results to existing literature and selecting how to present these in my report. The last step of data analysis entailed my interpretation of the data (Creswell, 2013) where I compiled my analysis, comparison and interpretations as a coherent whole. As part of this step I drew conclusions and made relevant recommendations (included in Chapter 6).

1.11 AIMING FOR QUALITY CRITERIA

Stringer (2014) states that it is fundamental to ensure the quality criteria of credibility, dependability, confirmability, transferability and authenticity when conducting qualitative research. In an attempt to ensure credibility, I relied on prolonged engagement with the participants during several PRA-based workshops conducted over a period of two years (Durrheim, 2006). In this process, participants had ample opportunity to express their experiences and knowledge of school-based vegetable gardens and the value of such gardens for resilience in vulnerable school-communities (Stringer, 2014). I triangulated the data sources (PRA-based techniques, field notes, visual images and transcripts) in an attempt to obtain findings that may be sufficiently credible to inform future research (Nieuwenhuis, 2007; Stringer, 2014; Yin, 2014).

In attempting to maintain dependability, I describe the research process, methods and ethical procedures in detail in this thesis (Merriam, 2002). In addition, I followed an evidenced-based approach of documenting my data in a traceable manner through audio-recordings, transcriptions of the PRA-based posters and discussions, photographs and field notes documented in a reflective journal (Seale, 1999).

In ensuring confirmability, I aimed to ensure that the voices of the participants are heard by including quotations and narrations captured during the PRA-based activities when reporting the results in Chapter 4 (Lincoln & Guba, 2005). In support of transferability, I provide thick and rich descriptions of the context and research process with the aim of my study informing other similar studies (Creswell, 2014a). Finally, in terms of authenticity, I strived to maintain soundness of the data through prolonged engagement in the field (Yin, 2016), conducting several data generation sessions over a period of two years. This strategy enabled me to obtain rich data captured through multiple data documentation strategies. In addition, prolonged engagement allowed me to detect possible distortions in the data generated (Yin, 2014). I elaborate on my interpretation of these quality criteria and how I attempted to adhere to them in Chapter 3.

1.12 ETHICAL CONSIDERATIONS

When entering the research field in March 2016, before commencing with data generation, I obtained informed consent from the participants. For this purpose, I provided comprehensive information on the planned research process and the

purpose of my study. I highlighted the nature of the teacher-participants' involvement (Strydom, 2011) and emphasised their right to withdraw from the research at any point if they wished to do so (Patton, 2002).

In respecting confidentiality and anonymity, I aimed to ensure that all related or non-related information I obtained during data generation and documentation was treated in a confidential manner (Patton, 2002). This implies that I include written information in this thesis in an anonymous way (Seale, 1999). However, all the participants opted for their faces to be shown in visual data, implying that anonymity was voided, based on the preference of the participants. Next, I was committed to the principle of guarding against physical or emotional harm to the participants (Babbie & Mouton, 2001). In this regard, Cohen et al. (2011) state that it is important to employ the necessary measures to minimise risks and the vulnerability of participants. Hence, the research participants of this study had the right to withdraw from the study at any point if they wished to do so. In addition, I remained cautious of the participants' reactions and responses throughout and would have referred any distraught participant for professional help if required. No such incidences occurred.

I was furthermore committed not to deceive the participants in any manner (Creswell & Plano Clark, 2011). Participants were thus informed of the research, its nature, purpose and their roles in the research process. In ensuring that no harm was done, participants were not coerced into participating in the study. In addition, mutual trust was maintained between the teacher-participants and the research team (Silverman, 2014). Participants were not exploited in any manner. For the sake of research integrity, I remained aware of and respected potential power relationships between myself and the participants. I elaborate on the way in which I attended to ethical principles in Chapter 3.

1.13 OUTLINE OF CHAPTERS

The study comprises six chapters, as outlined below.

CHAPTER 1: BACKGROUND AND OVERVIEW OF THE STUDY

Chapter 1 provides an introduction, background and overview of the current study. I explain the rationale and state the purpose of my study. I clarify key concepts and introduce the paradigmatic choices I made. I briefly introduce the research

methodology, also referring to quality criteria and ethical principles. Lastly, I provide an outline of the chapters of the thesis.

CHAPTER 2: LITERATURE REVIEW

In Chapter 2, I explore existing literature on school-based vegetable gardens, the challenges and benefits associated with implementing and sustaining a school-based vegetable garden, and how such gardens may be of value to vulnerable communities. In this regard, I explain the concept of vulnerability from a South African perspective as background to my discussion, and explore what resilience in such a context would imply. In the last part of the chapter, I explain the conceptual framework I compiled as guide to undertaking my research.

CHAPTER 3: RESEARCH DESIGN AND METHODOLOGY

In Chapter 3, I discuss in detail the research design and methodological processes of the study. I also explain interpretivism and PRA as selected paradigmatic choices. I describe the data generation and documentation strategies I utilised, and explain how I completed inductive thematic data analysis. I conclude by explaining how I adhered to quality criteria and respected ethical guidelines.

CHAPTER 4: RESULTS OF THE STUDY

In this chapter, I present and discuss the results of the study. To this end, I present the main themes and related sub-themes I identified. I include extracts of evidence from the data sources in enriching my discussions.

CHAPTER 5: FINDINGS OF THE STUDY

In Chapter 5, I relate the themes and sub-themes I identified to the existing literature discussed in Chapter 2. I identify and discuss the correlations and contradictions I identified, indicate silences in the data I obtained, and I foreground the new insight stemming from my findings.

CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS

In Chapter 6 I come to conclusions when addressing the research questions. I foreground possible contributions and identify the potential limitations of the study. Finally, I make recommendations for training, practice and further research.

1.14 CONCLUSION

In this chapter, I introduced my study and provided some background in terms of the broader FIRST-GATE project of which my study forms part. I described the purpose of the research, explained the rationale and clarified key concepts. Next, I formulated research questions and then briefly introduced the epistemological, methodological and conceptual frameworks that guided me. I also provided an overview of the research process and methodology, and briefly referred to quality criteria and ethical guidelines.

In the following chapter, I explore existing literature pertaining to the focus of my study. To this end, I discuss vulnerability in South Africa, specifically in terms of food and poverty-related challenges associated with vulnerability. I then explore the concept of resilience, focusing on resilience in vulnerability contexts. I also explain how challenges in the context of vulnerability in South Africa are currently dealt with through national responses and school/community-based interventions. I conclude the chapter by explaining the conceptual framework and the way in which I integrated Ozer's model on the potential effects of school gardens (Ozer, 2007) and the asset-based approach (Ebersöhn & Eloff, 2006; McKnight & Kretzmann, 1997).

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Chapter 2
Literature Review

2.1 INTRODUCTION

In the previous chapter, I provided some background and an overview of my study. I explained the rationale for undertaking the study and stated the purpose and potential contribution. I formulated research questions and identified the working assumptions I held when conducting the study; I also introduced the selected epistemology, methodological approach and conceptual framework, and provided a brief overview of the research process.

In this chapter, I discuss relevant literature relating to vulnerability in South Africa, as well as food and poverty-related challenges that add to vulnerability in terms of their impact on vulnerable communities in South Africa. In the next part of the chapter I explore resilience, explaining the concept and then discussing resilience as a possible response to vulnerability. I also refer to national responses to vulnerability and include examples of interventions focusing on resilience. In the final part of the chapter, I explain the conceptual framework in terms of the existing theories that guided me in compiling a framework and undertaking the research.

2.2 VULNERABILITY IN SOUTH AFRICA

Vulnerability is a concept that is widely used yet contested by various bodies of knowledge in terms of an exact definition (Gallopín, 2006; Gaynor & Wilson, 2020). In addition to being used in psychology, vulnerability is explored in economics, anthropology, engineering and environmental studies (Adger, 2006; Engle, 2011; Gallopín, 2006; Gaynor & Wilson, 2020) with no consensus in terms of an exact meaning. Hence, all these disciplines play a fundamental role in contributing to the emerging methods and concepts surrounding social-ecological systems and their inherent and dynamic vulnerability (Adger, 2006; Fraser, Aldrich, & Small, 2021).

Various scholars broadly define *vulnerability* as susceptibility to harm (Engle, 2011; Good Governance Learning Network, 2014; Jordaan et al., 2019). More specifically, vulnerability is often viewed as the degree to which an ecological system and its population is exposed to, and unable to cope with risks, challenges, stressors and

climate change (Adger, 2006; Engle, 2011; Fraser et al., 2021; Gaynor & Wilson, 2020; Good Governance Learning Network, 2014; Jordaan et al., 2019). Vulnerability may be regarded as both internal and external, with the external component referring to the risks, shocks and stressors to which an individual or population is subjected, while the internal component provides a means of coping, without causing damage or loss (Drimie et al., 2005; Fraser et al., 2021). In exploring the views of global scholars, it is apparent that vulnerability cannot be regarded as a static state; it entails aspects that render an ecological system or population group as being fluid (Adger, 2006; Drimie et al., 2005; Gallopín, 2006; Jordaan et al., 2019). Vulnerability is thus often viewed as the result of factors such as the socio-cultural, natural, physical, economic and political environment (Gaynor & Wilson, 2020; Good Governance Learning Network, 2014).

In light of the above-mentioned descriptions of vulnerability, the world as a global context is seen as being constantly exposed to situational crises and/or risk-hazards within the socio-ecological system. Examples of such risk-hazards include environmental (floods, hurricanes, droughts and volcanoes), health-related (polio, diabetes, malaria, HIV and AIDS), and political (wars, political instability and genocides) challenges. In support of this view, Drimie et al. (2005) posit that the world is currently experiencing a rise in new conflicts, deterioration of environmental resources and failure of economic growth. These risk-hazards have left some countries and populations dysfunctional and/or unable to adapt positively in challenging situations (Blanc & Reilly, 2017; Engle, 2011).

Africa as a continent is vulnerable to various crises and challenges. According to Mwoma and Pillay (2015), Sub-Saharan Africa is known as the world's poorest region with the largest proportion of orphaned children. This prevailing challenge is a result of, amongst other challenges, the HIV and AIDS pandemic. In addition, most countries in Sub-Saharan Africa face challenges such as hunger, poverty, food insecurity as well as the lack of sufficient environmental and human professional resources (Drimie et al., 2005; Jordaan et al., 2019).

Moving closer, South Africa as a country experiences various aspects of vulnerability (Drimie et al., 2005; Roberts & O'Donoghue, 2013). The HIV and AIDS pandemic has, for example, left many children in the country orphaned and many households vulnerable (Cluver, Orkin, Boyes, & Sherr, 2014; Mwoma & Pillay, 2015; Roberts & O'Donoghue, 2013; Theron & Theron, 2014). A distinct related challenge entails

households with adults that are income earning yet dying, eventually resulting in increased numbers of child- or single-parent headed households. More often than not, these households are poverty-stricken and not able to provide in basic needs such as food, shelter and education (Mwoma & Pillay, 2015). Another challenge related to the HIV and AIDS pandemic is that it burdens the health system, by implication challenging the whole system and requiring of teachers, for example, to fulfil additional and dynamic roles of pastoral care and counselling within the school-community, more so in vulnerable communities (Ferreira & Ebersöhn, 2012).

It is a known fact that South Africa is specifically challenged by urbanisation, socio-economic and political inequalities. Significant differences are evident between the rich and the poor, with 60% of South African children living below the poverty line (Fraser et al., 2021; Hlahla & Hill, 2018; Roberts & O'Donoghue, 2013; Theron & Theron, 2014). In this regard, May (1998, p. 54) states that "South Africa is among the most unequal in the world, and many households still have unsatisfactory access to clean water, energy, health care and education". In this regard, the socio-political demography of some of the predominantly black South African school-communities is still often racially segregated, densely populated and poor despite efforts in support of equal opportunities for all post-apartheid. Poverty and racial segregation may, in turn, negatively impact the development of any child or young person (Hlahla & Hill, 2018; Mampane, 2014).

In addition to South Africa's political history, global environmental changes have negatively impacted the country in recent years. The past five years have, for example, been marked by several natural disasters of floods and droughts, contributing to food shortages and price hikes in commodities, due to limited availability of basic commodities such as water and fresh vegetable produce. As a result, climate change and droughts in South Africa in recent years have challenged the food security of vulnerable communities.

Theron and Theron (2014) argue that vulnerability in South African communities may result from challenges that can affect the psychological well-being of communities. Some of these psycho-social threats that may affect school going children, as identified by Theron and Theron (2014), include chronic parental discord, divorce, violence, substance abuse, disability, ill health and experiences of trauma (Pillay, 2020). These trends once again emphasise the importance for researchers and practitioners in the helping professions continuously to identify solutions that can

decrease or alleviate some of the challenges that may hamper “normal” psychological functioning, and the health and well-being of a population. As summarised by Theron and Theron (2014, p. 297), it is important to focus on solutions where “… ill heath places children at risk of negative developmental outcomes”.

Closely related, an annual report by the United Nations Children’s Fund ([UNICEF], 2012) identifies violence as prominent risk factor in most vulnerable communities in South Africa. Many of these communities are viewed as potentially unsafe dwelling places that may expose mostly women and children to violence and substance abuse, with these groups being perceived as especially vulnerable within communities. As already alluded to, in addition to violence, food-related challenges in South Africa are on the increase and currently affect numerous households (Stats SA, 2016, 2020). Food-related challenges include food shortages, little or a lack of a variety of nutritious food that will constitute a balanced diet, and poor health (obesity or stunting) (FAO et al., 2017). Against the background of these negative trends and challenges often experienced in vulnerable communities in South Africa, the purpose of the current study was to explore and explain the effect and potential value of a teacher-to-teacher intervention on school based-vegetable gardens in addressing such challenges, subsequently supporting the resilience of vulnerable school-communities.

2.2.1 IMPACT OF POVERTY-RELATED CHALLENGES ON VULNERABILITY IN SOUTH AFRICA

Poverty is a phenomenon that continuously challenges communities across the globe, specifically those in developing countries. In this regard, scholars emphasise a strong correlation between poverty and vulnerability (Adger, 2006; Drimie et al., 2005; Hlahla & Hill, 2018). As such, poverty leaves a community vulnerable and at the same time, vulnerability makes a community even more susceptible to poverty-related challenges.

Africa as a continent is made up of formerly colonised and developing countries that are characterised by a range of vulnerable conditions (FAO, International Fund for Agricultural Development, UNICEF, World Food Programme, & World Health Organization [WHO], 2017). More specifically, Africa is challenged by many of its communities being unable to provide in the basic needs associated with human survival, such as food, land and water. Haysom (2018) argues that the increase in poverty seen in Africa and lately in Southern Africa, is the result of a myriad of factors, such as challenges in the agricultural sector (unequal distribution of land and farming resources, skills and knowledge), high unemployment rates and job shedding, failure

of rural development strategies, political turmoil (undemocratic governance) and the effect of colonialism.

According to May (1998), South Africa is marked by a long history of inequality and marginalisation (Ebersöhn, 2017; Fraser et al., 2021). More specifically, South Africa's socio-economic and political conditions of segregating the country have led to resources being distributed by racial segregation in the past. As a result the majority of the black population was marginalised to cluster in township areas that were under-resourced and not conducive to settlement in the period prior to 1994. This history and its effects have unfortunately permeated into the present day as a percentage of the population continue to live in clustered and non-conducive township areas that are typically challenged by high incidences of violence, drug and alcohol abuse, poor roads and housing infrastructure, and overpopulation (May, 1998).

As a result of marginalisation and racial segregation before and during the apartheid era, the majority of elderly black citizens have received little to no education in South Africa. This has led to the country still lacking sufficient skilled and knowledgeable human resources in especially the black population (Fraser et al., 2021; Hlahla & Hill, 2018; Mampane, 2014). This prevailing challenge continues to impact the poverty scale and can partially explain the high unemployment rate in South Africa, despite the younger and upcoming black population being educated and having had opportunities to succeed (Mampane, 2014).

One of the poorest provinces in South Africa is the Eastern Cape. This province features a high percentage of poor-resourced rural farmers (Kepe & Tessaro, 2014). Stats SA (2016) indicates that about 72% of all children in the Eastern Cape attend school with an empty stomach. These statistics, coupled with a high incidence of drought-related challenges within the province, render the province particularly vulnerable (Gumede, 2021; Musemwa, Zhou, Ndhleve, & Aghdasi 2013). As the current study was undertaken in the Eastern Cape with the aim of exploring how a teacher-to-teacher intervention on school-based vegetable gardens may promote resilience in vulnerable school-communities, my study holds the value of assisting vulnerable communities to address some of the poverty-related challenges they may face.

Poverty and poor health are viewed as interconnected and are regarded as primary reasons for children's absenteeism in schools (Ferreira & Ebersöhn, 2012; Gumede,

2021; Theron & Theron, 2014). Furthermore, poverty implies poor nutrition and affects the ability of children to concentrate in class, thereby in turn impacting their academic performance (Devereux et al., 2018; Faber et al., 2014). In addition, poverty generally implies poor infrastructure and resources, more specifically in rural schools in South Africa where buildings and classrooms are often not adequately equipped for good service delivery. Even the water and sanitation services are sub-standard in some communities, with only a few schools being able to provide learners with fresh water and functional toilets (Du Plessis & Mestry, 2019; Ferreira & Ebersöhn, 2012; Mampane, 2014).

In addition to these challenging factors, South African communities have in recent years been challenged by the HIV and AIDS pandemic as well as by tuberculosis as poverty-related epidemics (Ebersöhn, 2017). The HIV and AIDS pandemic has left many children orphaned, adding to their vulnerability (Ferreira, Ebersöhn, & Botha, 2013). Furthermore, young girls in vulnerable communities become involved in promiscuous behaviour in an attempt to escape poverty and the related challenging circumstances.

2.2.2 FOOD-RELATED CHALLENGES INTENSIFYING VULNERABILITY

A total of 815 million people across the globe are undernourished, with visibly concerning parts being located in Sub-Saharan Africa, South-Eastern Asia and Western Asia (FAO et al., 2017). In the southern region specifically, South Africa experiences the challenge of having the second highest population of undernourished people, accounting for 2.5 million of the total population of 56.5 million citizens at that period in time (Stats SA, 2017).

Food-related challenges across the world and also in South Africa are often linked to price volatility (FAO IFAD & UNICEF, 2017; Musemwa et al., 2013), implying that increases in food prices are higher than household income increases, resulting in food shortages within individual households (Musemwa et al., 2013). To this end, regular increases in food prices in South Africa have resulted in many people not being able to provide a healthy balanced diet to their family members. Households often face the challenge of only being able to provide in basic food products or very few food needs merely to survive. This scenario in turn leads to high incidences of malnutrition, undernourishment and other food-related challenges being experienced on a daily basis in this country.

Children are perceived to be at the core of vulnerability due to poverty and food-related challenges. According to May (1998), three in every five children in South Africa live in poor households that cannot afford food with high nutritional value, such as fruit and vegetables, and consume only basic staple food such as tea, bread and maize (Gresse, Nomvete, & Walter, 2017). The consumption of such an unbalanced diet as stated above, can result in undernourishment, malnutrition and stunting (FAO et al., 2017). In this regard, one in every five South African children is stunted[3] and one in every 10 is underweight, with many children lacking the necessary micro-nutrients such as vitamin A and iron (Gresse et al., 2017). Undernourishment and stunting can, in turn, increase the risk of impairments related to cognitive abilities, weakened performance at school and work-related tasks, as well as the incidence of dying from infectious diseases. This implies that food-related challenges will have a ripple effect in terms of the challenges associated with the various spheres of functioning of any child or adult.

Parallel to undernourishment, the health crisis of people being overweight is significant, with an estimated 2.1 billion people being obese or overweight worldwide (Waterlander et al., 2018). According to the *Food Insecurity Experience Scale*, Africa has the highest percentage levels of people being overweight, in both women (25.2%) and men (23.7%). With regard to obesity, 41 million children worldwide suffer from this condition (FAO et al., 2017). In challenging circumstances, households often tend to consume energy-dense, cheap and affordable foods, with diets including little variety of foods or lacking essential micronutrients. Food-related challenges can thus lead to unhealthy and unbalanced eating habits that may promote obesity in children that will probably continue into adulthood (Faber et al., 2014). Obesity as a food-related challenge in relation to the nutrition crisis in the world has in turn resulted in increased diet-related and non-communicable diseases, with diabetes currently listed as the world's greatest societal concern (FAO et al., 2017; Waterlander et al., 2018).

Other associated illnesses that individuals may suffer from due to food-related effects include high blood pressure, heart-related disease, kwashiorkor, severe acute malnutrition and anaemia (FAO et al., 2017). In addition, according to Bamford, Barron, Kauchali, and Dlamini (2018), diarrhoea, pneumonia and severe acute malnutrition (SAM) currently cause almost half of the deaths among children under the

[3] The inability of children to develop physically or grow due to a lack of adequate consumption of healthy or nutritious food within a diet (FAO et al., 2017).

age of five in South Africa. These illnesses are considered to be the result of hunger, undernourishment and malnutrition, which are regarded as preventable and treatable causes (Bamford et al., 2018). As alluded to earlier, in addition to affecting their health, food-related challenges can have negative educational implications for learners (FAO et al., 2017), resulting in poor learning performance (Faber et al., 2014). Learners' physical ability may also be negatively affected.

Another nutritional disease that is currently prevalent amongst especially women is anaemia. According to the FAO et al. (2017), about one third of all women of reproductive age in the world suffer from anaemia in the modern age. This puts many children at risk of being born underweight as a result of iron deficiency of the mother. Anaemia is perceived to be a nutritional disease that can be treated by better food intake as part of a balanced diet. In terms of the current study, the Eastern Cape province is known to be one of the poorest provinces in South Africa that experiences high levels of poverty and food-related challenges (Musemwa et al., 2013). In this regard, according to Kepe and Tessaro (2014), an alarming 80% of all households in the Eastern Cape experience hunger on a regular basis Musemwa et al. (2013), food and poverty-related challenges in the Eastern Cape are often related to poor soil quality, as well as consistent droughts, floods and gradual increase in temperatures in this geographical area, resulting in many self-sustaining households experiencing challenges to grow their own food.

In response, the National School Nutrition Programme (NSNP) was implemented in schools in 1994 (Rendall-Mkosi, Wenhold, & Sibanda, 2013). This programme provides a cooked meal consisting of a protein rich food-component, a starchy food-component, and a fruit or vegetable that is served on a daily basis in the morning to all learners of schools affected by poverty, hunger and malnutrition. In addition to providing a nutritious meal to learners, the NSNP aims to contribute to the nutritional knowledge, attitudes and practices of those involved through nutrition education. Children are encouraged to practise healthy habits, such as washing their hands before eating and recycling food that is left over, with the aim of motivating school communities to incorporate healthy habits in their daily way of living.

Lastly, the programme aims for sustainable food production in schools, by encouraging schools to establish their own vegetable gardens. Food produce from gardens can then supplement the NSNP programme instead of schools having to buy from external sources (Govender, 2016). In each school, a NSNP school committee

consisting of the principal, a teacher (with the portfolio of nutrition coordinator) and members of the school governing body are expected to oversee the meal provision, monitor the financial management of the programme and follow a procurement model for food supply (DBE, 2014; Govender, 2016).

2.3 RESILIENCE IN CONTEXTS OF VULNERABILITY

In spite of the adverse circumstances faced by vulnerable communities in South Africa, researchers are of the notion that individuals or communities are generally capable of bouncing back or adapting to cope with circumstances that have the potential to put them at risk of being vulnerable (Ferreira & Ebersöhn, 2012; Fouché, Fouché, & Theron, 2020; Theron & Theron, 2014). In this section, I explore the concept *resilience,* and then discuss ways in which resilience may be supported in vulnerable communities.

2.3.1 UNDERSTANDING THE CONCEPT *RESILIENCE*

Western perspectives define *resilience* as a process of adaptation when faced or exposed to adversity (Fouché et al., 2020; Masten, 2011; Rutter, 2012; Ungar, 2015). Many African researchers, however, argue that the construct of resilience can be fully understood and defined only when one has knowledge of the context (Mampane, 2014; Theron & Theron, 2014). Hence, South African researchers have coined resilience within indigenous cultures (Ebersöhn, 2014; Mansfield et al., 2018; Theron & Theron, 2014), not only as a theoretical concept but rather as a practical construct that is best understood when researchers partner with communities or individuals (Masten, 2011; van Breda & Theron, 2018). The aim of my study aligns with this view as I set out to explore the value of a teacher-to-teacher intervention in school-based vegetable gardens in support of resilience within school-communities.

Other than being a practical concept, *resilience* can be viewed as a dynamic and complex process that fosters positive adaptation across spatial, cultural and temporal contexts (Fouché et al., 2020; Theron, 2013; Walsh, 2003). In addition, resilience can be viewed as a transactional process that relies on ecosystemic transactions. This implies that individuals within a specific community or context will navigate and negotiate for support from the community, and the community will reciprocate to the needs of individuals (Theron & Theron, 2014). Therefore, even though initial research focused on individual resilience and personal traits, recent studies highlight the

important influence of significant relationships on resilience, such as family, coaches and teachers (Mansfield et al., 2018; Walsh, 2003). Evidently, resilience is considered as both a process and an outcome that is context-bound in nature (Theron & Theron, 2014). It follows that a resilient community can be viewed as a community that draws on lessons from the past, values memories and diversity, and pursues diverse strategies to meet its needs (Good Governance Learning Network, 2014).

African researchers in the field of resilience argue that resilience can be best understood and explained within the socio-ecological environment or context it occurs in (Mampane, 2014; Theron & Theron, 2014). Theron and Malindi (2012) undertook research in this regard, finding that an overlap exists between the Basotho view of youth resilience and international understanding of the concept. These findings emphasise the importance of remaining cautious when adopting non-African conceptualisations of resilience when working in an African context such as South Africa (Theron & Malindi, 2012; van Breda & Theron, 2018).

Mampane (2014) states that many children in South Africa are living in adverse settings and thus depend on their own strengths and power as well as that of the environment to adapt to the challenges they experience. Resilience is thus viewed by various scholars as a collective process (Liebenberg & Theron, 2015; Theron, 2020; Theron & Theron, 2014). This implies that people can adapt as individuals, yet are interdependent on connecting systems such as the family, community as well as culture. In further support, according to Ferreira and Ebersöhn (2012), resilience indicates the extent to which systemic adaptation is possible and sustained as response to mediate risk impact factors.

A resilience framework (Masten & Reed, 2005; Theron, 2020; Theron & Theron, 2014) argued that in spite a vulnerable communities experiencing challenges, potentially have protective resources that can be identified and accessed and utilised to enhance resilience. These resources can take the form of people themselves, the community, their skills and abilities; or they can be in the form of existing assets and resources that form part of the community, such as land, water or fences.

Examples of protective factors that can be found within individuals include self-esteem, inner locus of control, cognitive competency, determination, motivation and social responsiveness (Hewitt, 2005; Hornby, 2010; Musavengane, 2019; Rutter, 2012; Theron & Malindi, 2012; Ungar, 2013). In addition to such internal factors, other

protective factors may be external, such as positive and well-functioning family members, and the support of extended family members, peers, or the school system. Furthermore, such factors can include community members and their unique sets of skills and abilities, schools and institutions, business centres, social responsibility by others, community intervention programmes, cultures within contexts, the government and the economy. One can draw the conclusion that a school-community necessarily implies the presence of supportive factors, whether internal or external, that may promote resilience amongst community dwellers.

2.3.2 RESILIENCE AS RESPONSE TO VULNERABILITY

As explained in the previous section, resilience implies a process of positively adjusting to adversity. As such, resilience can be regarded as intertwined with adversity or vulnerability (Adger, 2006; Ferreira & Ebersöhn, 2012; Fraser et al., 2021; Gallopín, 2006; Snyman, 2012). In this regard, Gallopín (2006) argues that vulnerability cannot necessarily be viewed as a negative property, as it implies potential change that may, in turn, lead to positive and beneficial transformation in spite of the crises or risks that an individual or community may experience (Adger, 2006; Gallopín, 2006; Gaynor & Wilson, 2020).

Against the background of my discussion in the previous section, resilience can thus be regarded as a dynamic process that can be employed within school-communities as ecologies, involving potential sources of health-enhancing or promotive transactions that change agents may employ (Ferreira & Ebersöhn, 2012; Fouché et al., 2020; Theron & Malindi, 2012). Applying this to the current study highlights the possibility of a teacher-to-teacher intervention supporting resilience in vulnerable communities by making use of discussions on and activities in school-based vegetable gardens as a potential factor supporting resilience. For this purpose, I as the researcher collaborated with the research participants, as experts of their environments, in strengthening resilience through focused discussions on finding solutions and succeeding in vegetable garden projects within their vulnerable school-communities (Ferreira & Ebersöhn, 2012).

Promoting resilience through focused interventions within community contexts is perceived as valuable and can enhance the abilities of individuals and communities as bio-ecological systems that can, in turn, adapt or bounce back in the face of adversity. From a global point of view, several efforts have been made by various

countries to deal with the pertinent challenges facing the globe, by promoting resilience-focused interventions (Adger, 2006; Lockie, 2016; van Breda & Theron, 2018). As examples, interventions in climate change adaptation and disaster risk reduction, with links to poverty alleviation and interventions on nutrition support have proven to be successful (Béné, Devereux, & Roelen, 2015). As a result of risk-hazards and disasters, various academic fields are currently drawn to the concept of resilience when planning and undertaking interventions (Aldrich & Meyer, 2015). According to Aldrich and Meyer (2015), organisations may capitalise on collaborative community resilience in undertaking such efforts, which once again highlights the social environment as important protective factor for resilience.

In the field of psychology, resilience has been at the centre of many individual and family interventions that focus on individuals or groups of people dealing with challenges by following a dynamic and multilevel process, learning from others and implementing a relational developmental systems framework (Masten & Reed, 2005; Theron, 2020). According to Ungar (2015), resilience can be predicted by both the capacity of an individual and the capacity of the individual's social and physical ecologies.

2.4 ADDRESSING CHALLENGES IN CONTEXT OF VULNERABILITY IN SOUTH AFRICA

Addressing challenges in any context associated with vulnerability requires a multi-level response, focusing on issues on grassroots level. Akintola (2010) emphasises the need for various professionals, such as teachers, nurses, doctors, psychologists and policy makers to come together when attempting to address challenging issues such as HIV and AIDS, alcohol abuse, poverty as well as food-related challenges within vulnerable communities rather than following a single approach (Feng, Hossain, & Paton, 2017). As such, addressing vulnerability asks for universal partnerships and joint efforts (Schönfeldt, Hall, & Pretorius, 2018).

From a global perspective, undernourishment and food security are perceived as problematic and in need of ongoing research and efforts on international and national level to combat vulnerability (Haysom, 2015). Hence there has been an urgency and various levels of responses to address prevailing challenges proactively (Chiawo & Otiende, 2021; Hendriks, 2015). In this section, I first discuss some national responses to vulnerability in South Africa. Next, I explore school- or community-based

interventions before specifically discussing the option of school- or community-based vegetable gardens as intervention for food-related vulnerability. Finally, I attend to resilience-focused as well as peer-to-peer interventions as efforts of addressing vulnerability in challenging contexts.

2.4.1 NATIONAL RESPONSES TO VULNERABILITY

Food-related challenges, such as malnutrition and obesity, are no longer perceived as the single image of a hungry undernourished child (Schönfeldt et al., 2018). In response, it has become the norm for governments throughout to address such issues of vulnerability. From global governance, organisations such as the United Nations (UN) and the Committee on World Food Security (CFS) have come together in their different forums, being committed to alleviate and address vulnerability issues across the world (Hendriks, 2015). According to Schönfeldt et al. (2018), most governments have committed to a set of Sustainable Development Goals (SDGs) established by the UN that are to be achieved by 2030. Some of these SDGs relate to no poverty, zero hunger, good health and well-being, quality education and reduced inequalities.

The SDGs followed the Millennium Development Goals (MDGs), seeking to resolve unfinished business and to address the poverty-related challenges from a global perspective by translating the goals into national development priorities (Hendriks, 2015). These goals are the result of an anti-poverty global leadership movement with heads of states committing to eradicate poverty by following a holistic and global approach to reach universal transformative goals (Hendriks, 2015). This implies that many countries across the globe, including South Africa, have filtered both former MDGs and the current SDGs into the central pillars of national policies with the aim of eradicating poverty (Schönfeldt et al., 2018).

Based on the global governance such as the SDGs (universal measurements at a global scale), national scales and policy have been informed and refined worldwide (Haysom, 2015). On an international level, organisations such as the UNICEF (United Nations Children's Fund) aim to raise financial resources in attempting to address international challenges across the globe. UNICEF, for example, focuses on primary health care, nutrition, basic education, sanitation and women's development in developing countries (Gresse et al., 2017). Another international organisation is the WHO, an agency of the UN that primarily aims to address vulnerability in respect of health-related challenges that countries encounter.

In South Africa, the government has attempted to address vulnerability through both urban and rural policies. Frameworks that have been developed as part of urban specified policies include the South African Constitution (SAC), the Integrated Food Security Strategy (IFSS) and the National Development Plan (NDP). With the aim of alleviating poverty and food related-challenges, these policies require of national government to honour the right to food and quality education to all learners across the country.

Another example of a South African governmental policy that has informed practice is the NSNP that aims to address food and nutrition-related challenges and at the same time enhance quality education, health and well-being as well as the active involvement of parents, community members and other stakeholders in schools (Gresse et al., 2017). Programmes such as the NSNP view school- or community-based vegetable gardens as a way of addressing the challenges of poverty and hunger as aspects of vulnerability (Haysom, 2015).

Furthermore, the South African government's national budget allows for financial grants in support of the elderly and people that are disabled. Dependency grants and child support grants are provided in support of vulnerable groups in society. These governmental grants represent a supportive effort on national level to address poverty and unemployment, in an attempt to reduce vulnerability amongst the most vulnerable populations of South Africa (Satumba, Bayat, & Mohamed, 2017). Such social grants can, however, create a culture of dependency and entitlement amongst vulnerable citizens (Idahosa & Van Dijk, 2015) even though socio-economic development can be provided in South Africa in this way and vulnerable populations be enabled to afford basic commodities.

In an attempt to respond to vulnerability, the South African government has provided citizens with affordable housing as part of an anti-poverty agenda, through subsidy houses colloquially known as RDP (Reconstruction and Development Programme) houses (Lemanski, 2017). By mitigating the gap between the socio-economic extremes that exist in South Africa, the government's response aims to combat the challenges that are experienced by the vulnerable population of the country. In addition to RDP houses, the government has implemented strategies to ensure access to clean fresh water, public health care and electricity to all citizens (Rodina, 2016), even though this is an ongoing process with the goals not yet reached.

In support of governmental efforts and based on the extent of challenging circumstances experienced in South Africa, many non-governmental and faith-based organisations, such as churches, have taken it as their mission to address some of the challenges that communities experience. For example, in a study by Haysom (2015), conducted in Cape Town, various stakeholders from within and outside the government such as faith-based organisations, universities, Non-Governmental Organisations (NGOs), agricultural organisations and municipalities were found to be advocates for pluralistic governance with the aim of actively implementing food intervention programmes.

According to Carbonnier, Kartas, and Silva (2016), progress towards the global MDGs and SDGs call for an all-inclusive joint hands-on approach on both national and international level. Such a holistic approach in collaboratively supporting communities to address challenging circumstances can include a range of efforts, such as providing vulnerable community members with resources − clothes, blankets and food − and support in mobilising available resources and assets (e.g. manpower, church building facilities, financial help, and existing knowledge and skills). Even though faith-based organisations and NGOs thus support many people experiencing vulnerability, they are not able to reach all communities in need (Hirata, Peach, & Tobing, 2021; Miller, 2015). This highlights the importance of school- or community-based efforts, involving community members on ground level to contribute to positive change.

2.4.2 SCHOOL- OR COMMUNITY-BASED INTERVENTIONS

Within the South African context, responses to crises are often different from those by first world countries, where responses generally follow a top down approach, emanating from the government to the people experiencing vulnerability. In a developing nation such as South Africa characterised by limited resources, people within communities themselves are forced to become fundamental human resources in addressing issues on a grassroot level.

In responding to the vulnerabilities of many communities in South Africa, a number of community-based intervention programmes have been undertaken to equip or empower community members with knowledge and skills to solve their experienced challenges on their own (Ebersöhn & Ferreira, 2011; Theron & Theron, 2014). Many of these are specific in nature and aimed at addressing the needs of a specific

community (Campbell et al., 2008; Ferreira & Ebersöhn, 2012; Theron & Theron, 2014).

As such, the success of school- or community-based interventions is often based on the school or the community itself, and how a school or community implements what is gained from an intervention. Therefore, as new challenges arise within vulnerable communities, a related need may arise to develop or adapt responses or interventions that can address the identified needs (Chambati, 2015). This implies that researchers and school-community members may continually identify additional challenges and needs, with the aim of in turn resolving these (Ferreira & Ebersöhn, 2012; González, Sattler, & Buth, 2019).

Traditionally, teachers function in a relationship with parents and fulfil several roles in addition to being facilitators of learning (Ferreira & Ebersöhn, 2011). Over the years, the role of teachers within school-communities has become fluid and multi-faceted to include those of caregiver, counsellor and being the knowledgeable other. Essentially, teachers' academic and non-academic service provision supports the positive relational spaces of learners as well as other members of school-communities, such as parents and volunteers (Theron & Theron, 2014). According to Ebersöhn and Ferreira (2011), teachers in schools can thus function as resources for buoying resilience in the face of adversity. During a crisis or in vulnerable circumstances teachers may, as a result, need to fulfil an even more significant role in becoming partners to promote the resilience of vulnerable communities.

Two examples of interventions facilitated in South African school-communities are the STAR and SHEBA interventions that have motivated and equipped teachers and volunteers to initiate school-based projects in support of vulnerable learners and their families (Ebersöhn, 2019; Ferreira & Ebersöhn, 2012). Other examples include projects where peers serve as experts in educating and equipping others with knowledge and skills by means of peer education (Seymour et al., 2010). My study focuses on an example of such a teacher-to-teacher intervention on school-based vegetable gardens, and how involvement in such an intervention may benefit or promote resilience in the larger school-community context.

Despite several stakeholders, such as politicians, non-governmental organisations, and community members acknowledging the need for external entities to support vulnerable communities, research indicates that any form of assistance to an individual

or community that does not involve the person or community in decision making or formulating solutions to challenges, may be short-lived (Amod, 2019; Campbell et al., 2008; Chirenje, Giliba, & Musamba, 2013). This means that community-based initiatives that are systems-driven and may lead to self-sustenance in vulnerable communities are important when aiming to address vulnerability in these settings.

For example, in a study by Rausch, Berger-Jenkins, Nieto, McCord, and Meyer (2015), the outcome of an intervention in healthy and active lifestyles, schools and families indicated that when parents, as role models, are involved in school-based interventions they exert a positive effect on their children's eating habits and physical activity levels, due to children modelling the behaviour of their parents. The way in which Rausch et al. (2015) involved the community in the community-based intervention assisted in conveying a unified message on obesity prevention, thereby promoting positive change.

Similarly, a school-based intervention study on partnerships as potential educational pathway to resilience by Mampane and Huddle (2017), indicates that partnerships within a school-community can promote connectedness among stakeholders − learners, teachers and parents − resulting in protective factors and better academic performance by learners. According to Mampane and Huddle (2017), school partnerships and collaboration with stakeholders can be utilised for health purposes, financial sponsorships, teacher development, higher parent involvement, informational resources, service learning and community involvement. In South Africa specifically, the need exists for school-communities to develop self-sustaining interventions that can address food and nutrition-related challenges by, for example, providing learners with food not just for the purpose of alleviating hunger but also for the nutritional value, that implies additional health and well-being benefits.

2.4.3 SCHOOL- OR COMMUNITY-BASED VEGETABLE GARDENS AS INTERVENTION FOR FOOD-RELATED VULNERABILITY

School-based vegetable gardens are not a new phenomenon (Barthel & Isendahl, 2013; Blair, 2009; Ozer, 2007), with research across disciplines, including agriculture and education, highlighting the value of vegetable gardens for schools and communities (Blair, 2009; Burt, Luesse, Rakoff, Ventura, & Burgermaster, 2018; Okvat & Zautra, 2011; Ozer, 2007). As a result, school gardens have been categorised as

"disaster recovery gardens" in the international arena, serving the purpose of providing relief to communities during challenging times, such as droughts.

School-based vegetable gardens are furthermore perceived as enterprises that can be initiated by any individual or group of individuals regardless of the availability of resources such as land, educational status, cash investment capacity or gender (Keatinge et al., 2012; Laurie et al., 2017). School-based vegetable gardens as types of nutrition gardens can address the specific challenge of malnutrition, or serve the broader purpose of, for example, providing learning opportunities or preparing learners to be skilled in future. School-based vegetable gardens constitute a diversity of crops and plants, are usually of a substantive size and generally focus on high levels of production. They may also serve as important educational and advocacy resource for school-communities, thereby implying various sociological benefits (Keatinge et al., 2012; Laurie et al., 2017).

In exploring the fundamentals of school-based vegetable gardens in the United States of America, Ozer (2007) explains how garden-based learning can promote healthy youth development. More specifically, Ozer (2007) views school-based vegetable gardens as outdoor learning laboratories, as well as aesthetic spaces for learners to play while being encouraged to consume fresh and healthy produce. School-based vegetable gardens may also serve as instructional gardens that aim to enhance the learning, social lives and health-related domains of learners (Ozer, 2007; Burt et al., 2018).

In this regard, Barthel and Isendahl (2013) state that school-based gardens can thus be a protective factor for resilience in terms of long-term food security. In addition, school-based vegetable gardens have been found to be effective systemic school level interventions in the United States of America when addressing the vulnerability crisis of obesity amongst youth. In general, school-based vegetable garden interventions can promote healthy eating, academic performance and the psycho-social functioning of learners (Blair, 2009; Burt et al., 2018; Ozer, 2007). Vegetable gardens can also encourage experiential learning and be integrated in school subjects such as Science, Mathematics, Environmental Studies, Nutrition and Health (Ozer, 2007; Malberg Dyg & Wistoft, 2018). Broadly speaking, school-based vegetable gardens can support food security, which entails food availability, access and utilisation (Beavers, Atkinson, & Alaimo, 2020; Connolly-Boutin & Smit, 2016). By addressing food challenges, the healthy development of vulnerable groups in society may be supported.

Overall, school-based vegetable gardens have become famous outdoor learning spaces for environmental and health education (Malberg Dyg & Wistoft, 2018). In studies conducted in Denmark (Malberg Dyg & Wistoft, 2018), school-based vegetable gardens have been associated with promoting the positive well-being of learners that engage in nature-based learning, more specifically in terms of positive emotions, increased self-esteem and more positive behaviour. In research by Malberg Dyg and Wistoft (2018) learners, for example, reported a sense of happiness as a result of working in a natural environment and spending time with their peers.

In support, Scherr et al. (2014) highlight the value of school-based vegetable gardens in guiding learners to make healthy choices and engage in a healthier lifestyle when educated through gardening (Schreinemachers et al., 2020). These benefits can be linked to school-based vegetable gardens being perceived as interactive classrooms that can provide learners with both visual and integrated learning experiences (Brouwer & Neelon, 2013; Malberg Dyg & Wistoft, 2018). Furthermore, Brouwer and Neelon (2013) posit that school-based vegetable gardens can enhance exposure and the consumption of fruit and vegetables by children.

Similarly, research by Duncan et al. (2015) confirms that school-based vegetable gardens hold health benefits for children as they can promote diets rich in fruit and vegetables. The study further indicates that the process of growing and tending to food gardens at school implies benefits for eating behaviour through knowledge and understanding of healthy eating and ways of growing and producing vegetables in future (Duncan et al., 2015). In support, Banning's (2015) research indicates that nutrition and health professionals can promote nutrition and health education through hands-on activities such as school gardens that teach learners about food systems and agriculture. More specifically, through school-based gardens, learners can learn about nutrition and food preparation, while planting, maintaining, harvesting and preparing fruits and vegetables.

2.4.4 RESILIENCE-FOCUSED INTERVENTIONS TO ADDRESS VULNERABILITY

A number of resilience promoting interventions have been undertaken in South Africa in recent years. As already indicated, the STAR and SHEBA interventions serve as examples, employed since 2003, involving 74 teachers and various school-communities in South Africa (Botha, 2010; Chambati, 2015; Dippenaar, 2018; Ebersöhn, 2008; Ferreira, 2006; Ferreira & Ebersöhn, 2011; Loots, 2011; Mbongwe,

2012; Mc Callaghan, 2007; Mnguni, 2006; Odendaal, 2006; Thabe, 2015). These interventions that are based on one another, involved vulnerable school-communities challenged by the effects of HIV and AIDS, poverty and other risk factors (Ferreira & Ebersöhn, 2011). Findings of research on the interventions indicate that teachers and community members can promote resilience by relying on social capital and utilising available resources in their midst, in buoying vulnerability (Ferreira & Ebersöhn, 2011). Teachers and community members could create a resilience web by expanding partnerships in the community, and by initiating projects in schools that can support vulnerable community members, such as school-based vegetable gardens (Ferreira & Ebersöhn, 2012).

In another resilience-focused study undertaken in South Africa, Mampane (2014) explored resilience in middle adolescence in black South African townships. Mampane's (2014) research highlights that, in spite of the adolescent participants living in impoverished contexts and experiencing a number of risk factors, such as abuse, these adolescents were able to thrive and achieve despite their circumstances (Mampane, 2014). Several other studies (Hendriks, 2015; Masipa, 2017; Musemwa et al., 2013) focus on food shortages and implementing interventions to address this in support of health and well-being. Musemwa et al. (2013) emphasise the importance of continued research in this field.

Heath, Donald, Theron, and Lyon (2014) explored therapeutic interventions for supporting Orphans and Vulnerable Children (OVC) in South Africa, taking into consideration the context of the country and vulnerable communities. This study involved community-based support for caregivers by providing therapeutic interventions within the natural setting of vulnerability. This enabled the strengthening of South African children's resilience and facilitated their emotional well-being. The research emphasises the importance of supporting OVCs in familiar contexts with the support of their family and friends. Such interventions can be facilitated by professionals as well as by community volunteers, caregivers and teachers.

According to Ungar, Connelly, Liebenberg, and Theron (2019), resilience can be promoted by tailoring interventions according to the unique risks of populations as universal programmes are not regarded as effective. Ungar et al. (2019) furthermore posit that schools are well-positioned not only to provide educational opportunities but also to serve as a source of support for learners in promoting learner engagement, academic achievement as well as the well-being and resilience of the learners.

2.4.5 PEER-TO-PEER INTERVENTIONS

Medley, Kennedy, O'Reilly, and Sweat (2009) assert that peer-to-peer interventions are based on the belief that participants of the same background may have a strong influence on one another. In this context, a strong level of trust and comfort amongst peers is assumed that may support the imparting of knowledge and skills in an audience where it may be easier to do than in the case of external role players or experts outside the context involved. Peer-to-peer interventions can be either formal or informal and are usually aimed at a target group to impart knowledge, increase awareness or encourage behaviour change by relying on the social influences of peers on one another (Fazel & Betancourt, 2018; Medley et al., 2009). The current study relied on teacher-to-teacher interactions to share knowledge and skills regarding school-based vegetable gardens (Fazel & Betancourt, 2018; Medley et al., 2009).

Peer-to-peer interventions are viewed as effective when working with groups of people that share the same traits (Seymour et al., 2010). As intervention, peer-to-peer education with groups of people is frequently utilised when peers can serve as experts in equipping others with knowledge and skills (Fazel & Betancourt, 2018; Medley et al., 2009). Participants in peer-to-peer interventions typically share commonalities or demographic characteristics (Medley et al., 2009). Similarly, in the current study, teacher-participants shared the characteristic of being teachers in vulnerable school-communities, and being involved in school-based support initiatives.

According to UNICEF (1999), a peer-to-peer intervention can benefit from behavioural and constructivist learning theories such as Social Learning Theory (Seymour et al., 2010; UNICEF, 1999), which asserts that experiential learning and learning through modelling is significant for behaviour. In applying behaviourists' theories, peer interventions can stimulate collective action that may in turn lead to positive change in programmes and policies. The current study relied on the horizontal process proposed for peer-to-peer interventions as participants perceived one another as equal partners in a learning and practical process when discussing their experiences and applying these in practice (UNICEF, 1999). This implies the notion of equal power sharing, thereby allowing teachers as peers to learn reciprocally from one another within the current study.

Frantz (2015) notes that peer-to-peer interventions are commonly utilised in South Africa to address challenging issues, such as obesity, non-communicable diseases,

physical inactivity as well as poverty-related illnesses such as HIV and AIDS. According to Frantz (2015), peer intervention programmes are often peer-led by those with the relevant know-how of the prevailing circumstances and with whom their fellow peers can identify as part of the intervention. Frantz (2015) furthermore argues that peer-to-peer interventions are suitable when undertaking interventions in schools for health education and health promotion. Even though this has been indicated as acceptable mode of intervention, the need for ongoing research exists to explore the value of peer-to-peer interventions (Curley, 2020).

It is therefore evident that peer-to-peer interventions can serve a fundamental purpose within vulnerable communities. Other than advocating for positive behaviour change, such interventions may promote collaboration amongst peers as well as experts that may in turn facilitate increased awareness in a specific area (Fazel & Betancourt, 2018; Frantz, 2015; Seymour et al., 2010). In addition, peer-to-peer interventions are regarded as valuable as they can reach more people that may gain knowledge and skills when compared to one expert imparting knowledge to a specific group of people. In this regard, Frantz (2015) specifically emphasises the importance of stakeholders, such as universities and researchers clearly understanding that they are in an equal partnership with participants during a peer-to-peer intervention, and that their key role is merely to provide an authentic learning environment for the process, thereby allowing participants to steer the intervention process.

2.5 CONCEPTUAL FRAMEWORK OF THE STUDY

In compiling a conceptual framework for my study, I integrated concepts from Ozer's model of potential effects of school garden programmes (Ozer, 2007) and the asset-based approach (Chidakwa, 2020; Ebersöhn & Eloff, 2006; García & Öztürk, 2017; McKnight & Kretzmann, 1997; Rippon & South, 2017). In this section, I first discuss the selected model and theory, and then explain how I merged the two in compiling a conceptual framework.

2.5.1 OZER'S MODEL OF POTENTIAL EFFECTS OF SCHOOL GARDEN PROGRAMMES

In an attempt to understand how school garden programmes may inform the practice of school-based vegetable gardens and their potential effects, Ozer (2007) developed a model on the potential effect of school gardens. Ozer (2007) incorporates hands-on (experiential learning) and problem-based learning approaches, focusing on how

school-based vegetable garden projects can be developed to address the challenges of a school. The aim of Ozer's (2007) model of potential effects of school gardens is thus to enhance interaction between members (e.g. teachers, parents, learners, community members, School Governing Body [SGB], etc.) of a school-community to form networks, build a sense of connectedness and fully utilise the skills of the community (Ozer, 2007). According to Ozer (2007), school garden programmes differ from context to context, but all provide experiential education activities in a growing environment for both adults and learners spending time in this environment (Ozer, 2007).

Ozer's (2007) model of the potential effects on school garden programmes puts a transactional emphasis on the ecological principle of interdependence based on two main premises. Firstly, in following a socio-ecological perspective, the model suggests that changes made in one context, such as the school, will set in motion several other processes of change in other systems, such as the family, learners, parents, teachers, and community environments. Secondly, the model highlights that change in one domain of a learner's functioning (e.g. nutrition, attachment to school, peer relationships) will also affect the other domains of functioning (Ozer, 2007).

Ozer (2007) relied on a social ecological-transactional perspective of human development (O'Toole, Hayes, & Mhathúna, 2014; Rosa & Tudge, 2013) in developing the model. Ozer's (2007) model of potential effects of school garden programmes aligns with Bronfenbrenner's bio-ecological theory (Bronfenbrenner, 1977; O'Toole et al., 2014; Shelton, 2018; Soyer, 2019) in perceiving the child (learner) as centrally located within multi-layered and interactive sub-systems, encompassing microsystems, a mesosystem, exosystem and chronosystem. The immediate contexts, such as the school, family and community are known as microsystems, and these contexts reciprocally interact with one another and the child while shaping the child's development over time (Ozer, 2007). The model of potential effects of school garden programmes thus views a school garden as existing within an immediate context and one of the microsystems.

Furthermore, Ozer's (2007) model of potential effects of school garden programmes acknowledges that microsystems are interlinked by the mesosystem that is made up of linkages, relationships and processes taking place between microsystems. As previously discussed and fundamental to Ozer's (2007) model of potential effects of school garden programmes, microsystems entail immediate contexts, such as the

school, community, family and individual (learner) in interaction with one another. Interactions between the systems imply the identification of either barriers or protective mechanisms that may boost or modify the system and individuals central to the specific microsystem (Bronfenbrenner, 1977; Shelton, 2018; Soyer, 2019).

Similarly to the mesosystem, the exosystem represents a layer of the bio-ecological model that is made up of linkages and relationships as well as processes that do not directly influence a central individual, even though the learner may be influenced by exosystem settings, linkages and relationships (Rosa & Tudge, 2013; Shelton, 2018). Examples of exosystem settings include neighbours, extended family members, the Department of Education and local health care and business centres within the local community (Swart & Pettipher, 2011). Ozer's model of potential effects of school garden programmes (2007) posits that such partnerships are fundamental in establishing school gardens as school sites are viewed to co-exist in partnership with other sub-systems that schools may collaborate with when wanting to establish school-based gardens.

The outermost layer of the bio-ecological model is the macrosystem (Swart & Pettipher, 2011). According to Bronfenbrenner (1977), this provides an overarching pattern of the microsystem, mesosystem and exosystem and embodies the culture or subculture of the particular society with examples of belief systems, bodies of knowledge and community values such as *ubuntu* (Swart & Pettipher, 2011).

In addition to these systems, which align with the theory of Bronfenbrenner (1977), Ozer's (2007) model of potential effects of school garden programmes perceive time as critical. The chronosystem represents the developmental time-frames that cross interactions between systems, in turn influencing an individual's development. Bronfenbrenner (1977) states that the chronosystem encompasses change or consistency over time. Learners can be viewed as active participants in their own development, with their perceptions of their contexts being fundamental in understanding how they relate to their environment and interconnect with other contexts and components (Ozer, 2007; Soyer, 2019; Swart & Pettipher, 2011).

In aligning itself with a social ecological model, Ozer's model of potential effects of school garden programme (2007) emphasises the short-term (proximal) and long-term (distal) effects of each component of a school garden. This implies that any school-based vegetable garden will essentially have short-term and long-term effects that are

realised by the various contexts that it exists in within the school environment as well as the larger context. These effects are conceptualised on the level of the individual learner, the family and the school microsystems, and the interconnectedness between these microsystems (mesosystems) (Ozer, 2007). Figure 2.1 provides a visual presentation of Ozer's (2007) model of potential effects of school-based vegetable garden programmes.

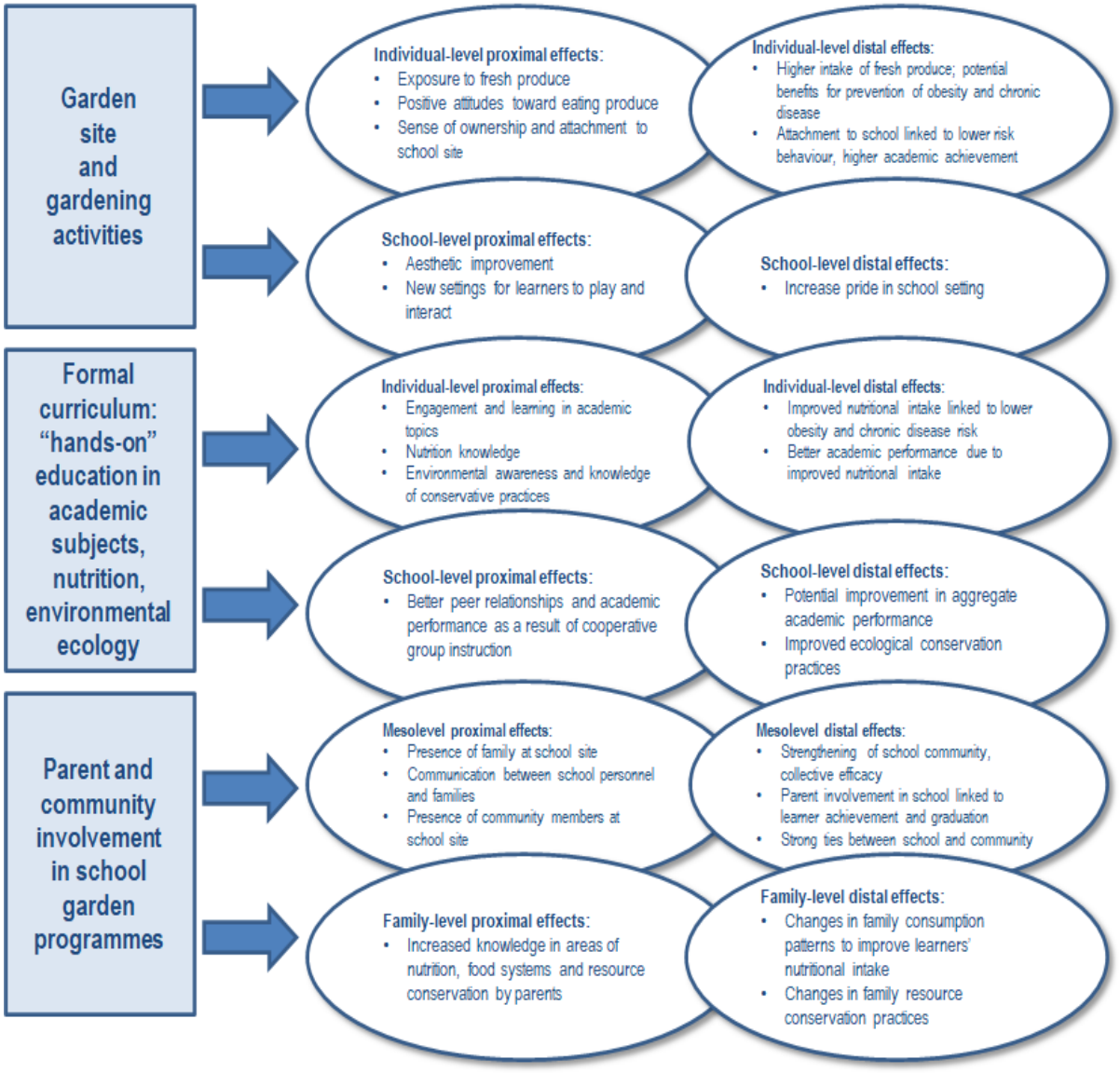

Figure 2.1: Ozer's model of potential effects of school garden programmes (Ozer, 2007)

As captured in Figure 2.1, Ozer's model of potential effects of school garden programmes envisages three fundamental components that will have both proximal and distal effects (Ozer, 2007). Firstly, a gardening site and gardening activities within a school environment imply the proximal effects of learners being exposed to fresh

produce, developing a positive attitude towards eating fresh produce and fostering a sense of ownership of and attachment to the school site. For learners, a gardening site and gardening activities may have the distal effects of increased intake of fresh produce, potential prevention of obesity and chronic disease, and stronger attachment to the school that can be linked to decreased risk behaviour (Ozer, 2007).

Similarly, Ozer's model of potential effects of school garden programmes (2007) identifies proximal and distal effects at school level, indicating that a school garden and gardening activities typically imply an aesthetic effect for the school and can provide a new setting for children to play and interact. In terms of a potential distal effect, a garden site and gardening activities may result in increased feelings of pride of the school setting. With regard to the formal curriculum, when following a hands-on approach in teaching, a school garden can allow learners to better engage, learn and enhance nutrition knowledge, environmental awareness and conservation practices. At a school level, possible proximal effects include stronger peer relationship and better academic performance through cooperative group instruction. In addition to these proximal effects on individual and school level, possible distal effects include improved nutritional intake by learners, linked to lower levels of obesity and chronic disease risk, as well as better academic performance. At a school-level, a formal curriculum that incorporates a school garden can similarly result in improved academic performance as a distal effect.

In terms of parent and community involvement in a school garden programme, Ozer (2007) asserts that proximal and distal effects can occur on both a meso- and family level. On a mesolevel a school-based garden implies the possibility of a presence of learners' families and community members at the school site (proximal effect), as well as communication between school personnel and families. In addition, a school garden can strengthen the school-community, promote collective efficacy and social networks, result in better parent involvement that can in turn have an effect on learner achievement, and strengthen ties between the school and the community (distal effects). On a family level, a school gardening programme implies the potential proximal effect of parents gaining knowledge in areas of nutrition, food systems and resource conservations. Distal effects on a family-level include possible changes in food consumption patterns by families that can improve learners' nutritional intake and facilitate change in resource conservation practices by families.

2.5.2 ASSET-BASED APPROACH

The asset-based approach conceptualises circumstances from a positive framework, viewing the glass as half full rather than half empty. This view implies that adverse circumstances in vulnerable communities are acknowledged; yet the focus is shifted towards positive attributes, resources or supportive factors (McKnight & Kretzmann, 1997). Furthermore, the asset-based approach is a strength-based approach that is based on the principle that any individual or community possesses assets, resources and capacities that can be utilised to overcome challenges (Chidakwa, 2020; Ebersöhn & Eloff, 2003; Ferreira & Ebersöhn, 2012; McKnight & Kretzmann, 1997; Myende, 2017). The asset-based approach implies a transdisciplinary approach: when addressing challenges, it is flexible in nature and can be applied to various contexts. I relied on the asset-based approach for my study based on my belief that all communities have resources and the capacity of self-enablement if available assets and resources are mobilised (Ebersöhn & Eloff, 2003; Spencer & Williams, 2017). I thus relied on teacher-participants as individuals whom I viewed as knowledgeable and having the ability to utilise available assets and resources within the community to address prevailing challenges.

Kretzmann and McKnight (1997) view the asset-based approach as a suitable framework for community development and initially conceptualised it as an asset-based community development process. Building on this, Ebersöhn and Eloff (2006) argue that the asset-based approach is an “internally focused” approach to community development. This view informed my approach of exploring how school-based vegetable gardens can promote resilience within school-communities when teachers participate in a teacher-to-teacher intervention.

My study was informed by the three phases of the asset-based approach, being asset identification, asset mobilisation and management of mobilised assets to ensure sustainability (Chidakwa, 2020; Ebersöhn & Eloff, 2006). *Asset-identification* entails a process of identifying available resources and capacities through an activity known as asset-mapping. In my study, the teacher-participants identified resources that they could utilise in support of school-based vegetable garden projects (Chambers, 2008; Rippon & South, 2017). Next, asset-mobilisation was undertaken by the teacher-participants as experts of their own communities, their resources and the challenges they faced. This constituted that the teacher-participants developed strategies and possible solutions to problems by accessing and utilising the identified assets and

resources (Ferreira & Ebersöhn, 2012). Ebersöhn and Eloff (2006) explain that asset-mobilisation in community development entails the process of participants formulating practical action plans, and implementing these plans by utilising assets and resources, while forming partnerships with various stakeholders and organisations.

The third and final phase of the asset-based approach involves asset-management (Ebersöhn & Eloff, 2006; Kretzmann & McKnight, 1997), implying the management and utilisation of assets and resources to ensure sustainability of positive change in communities. During asset management, it is the responsibility of individuals and the specific community to take ownership in ensuring that resources are well managed, action plans are implemented and adapted when needed, and that enablement and self-sustenance is promoted (Ebersöhn & Eloff, 2006; Ferreira, 2006; Garoutte, 2018; Loots, 2011).

2.5.3 INTEGRATING OZER'S MODEL OF POTENTIAL EFFECTS OF SCHOOL GARDEN PROGRAMMES WITH THE ASSET-BASED APPROACH

In undertaking this study, I remained cognisant of the fact that any theory I relied on for my conceptual framework had to include community-based components that may lead to self-sustenance and enablement. In my attempt to gain insight into how resilience may be promoted in vulnerable communities I adopted a conceptual lens based on Ozer's (2007) model on the potential effects of school garden programmes as well as the asset-based approach (Chidakwa, 2020; Ebersöhn & Eloff, 2006; Spencer & Williams, 2017). Ozer's model of potential effects of school garden programmes (2007) aligns with the socio-ecological theory (Bronfenbrenner, 1977; O'Toole et al., 2014; Shelton, 2018; Soyer, 2019) thereby emphasising that individuals exist within a multifaceted environment with systems influencing one another over time. As such, I considered the teacher-participants as pivotal agents of change in their school-communities as immediate contexts where learners and school-based vegetable gardens exist (Ozer, 2007). I furthermore regarded learners as central individuals that could experience positive change as a result of school-based vegetable garden initiatives, in exploring how the communities' resilience could be promoted.

Throughout, I took into consideration that South Africa implies a unique context of diversity that continuously faces challenges related to hunger and poverty in the majority of the communities, which requires community-based interventions to

address prevailing challenges. Against this background, in compiling my conceptual framework, I conceptualised school-communities as multi-layered systems, surrounded by assets, resources and capacities that teacher-participants could identify, mobilise and manage to address the challenging issues that rendered their communities vulnerable (Ferreira & Ebersöhn, 2012).

In support of the asset-based approach and the various phases when implementing the approach, Ozer's (2007) model of potential effects of school garden programmes emphasises the multi-layered view on systems, implying that assets and resources can be utilised across systems in support of positive change in the various systems. I furthermore believed that school-based vegetable gardens may have both proximal and distal effects in the various sub-systems that exist and that these effects may shape and affect learners in the various contexts they function in over time. In Figure 2.2, I provide my conceptual framework, illustrating the manner in which I integrated Ozer's (2007) model of potential effects of school garden programmes with the asset-based approach (Chambers, 2008; Chidakwa, 2020, Ebersöhn & Eloff, 2006; García & Öztürk, 2017; Kretzmann & McKnight, 1997; Rippon & South, 2017).

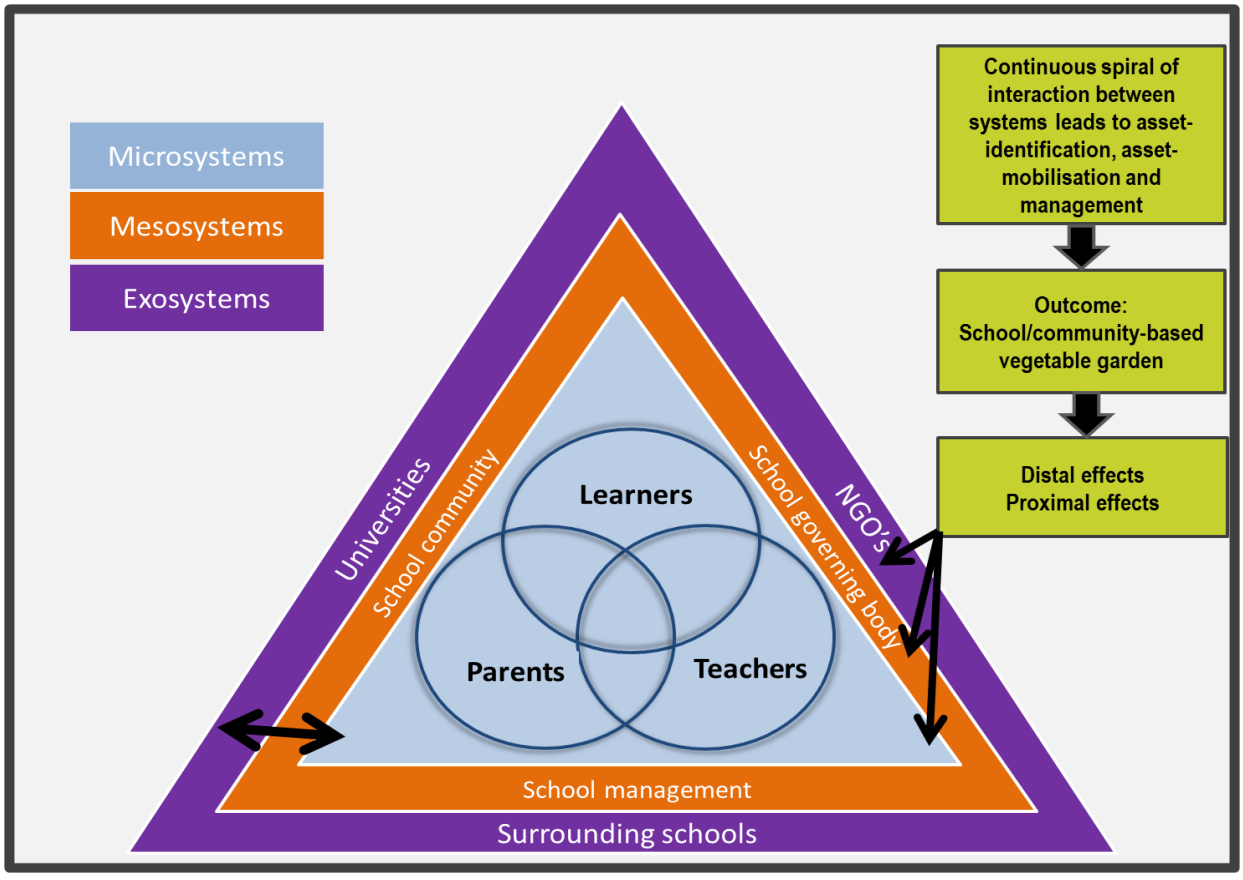

Figure 2.2: Conceptual framework

2.6 CONCLUSION

In this chapter, I discussed vulnerability in South Africa with specific reference to poverty and food-related challenges often faced by communities in this country. I also explored interventions that may promote resilience, including school-based vegetable garden initiatives in support of resilience. In my discussions, I unpacked the concept of resilience within the diverse context of South Africa. In concluding the chapter, I explained my conceptual framework and the underlying theories that I integrated for this purpose, namely Ozer's (2007) model of potential effects of school garden programmes and the asset-based approach (Chidakwa, 2020, Ebersöhn & Eloff, 2006; Kretzmann & McKnight, 1997; Spencer & Williams, 2017).

In Chapter 3, I discuss the research paradigms that governed my study in terms of the metatheoretical paradigm and methodological approach I relied on. Next, I describe the research design and explain the selection of cases and participants. Following the brief introduction in Chapter 1, I then elaborate on the data generation, documentation and analysis strategies, the quality criteria of the study and the ethical considerations I adhered to in undertaking the study.

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Chapter 3
Research Design and Methodology

3.1 INTRODUCTION

In the previous chapter, I explored existing literature related to the focus of my study. To this end, I discussed existing literature on vulnerability in South Africa as well as the impact of poverty- and food-related challenges in the country. I then explained resilience and its components in a comprehensive manner. Finally, I presented the conceptual framework that guided this study.

In Chapter 3, I explain the paradigmatic perspectives I employed. I then discuss the criteria I utilised in selecting the cases and participants, as well as the generation, documentation and analysis processes I relied on. I conclude by describing ethical considerations and how I aimed to ensure rigour.

3.2 PARADIGMATIC PERSPECTIVES

I selected interpretivism as meta-theory and followed a PRA approach as a methodological paradigm. In the following sub-sections, I discuss how these paradigmatic perspectives informed my study.

3.2.1 META-THEORY: INTERPRETIVISM

The philosophical base in undertaking the current study was interpretivism. Cohen et al. (2011) state that the interpretivist paradigm seeks to understand the world through the interpretation of subjective human experiences. To this end, I aimed to gain an understanding of how a teacher-to-teacher intervention on school-based vegetable gardens may support the success of such gardens, and by implication the resilience of vulnerable school-communities in selected schools in the Eastern Cape province.

Interpretivism implies a normative outlook of multifaceted images or realities (Cohen et al., 2017; Nieuwenhuis, 2007; van Wyk, 2015). In undertaking the current study, I aimed to generate data that would capture the multiple realities of the participants. To accomplish this goal of generating data that reflected multiple realities, I used various research strategies. I captured the data in the form of visual data (PRA-based posters and photographs), and verbatim transcriptions of PRA-discussions (consult Section

3.3.3.1 of this chapter). It was evident that the participants could account the multiple realities and explain how a teacher-to-teacher intervention on school-based vegetable gardens may promote (or not) the resilience of vulnerable communities. I remained conscious of the fact that time and place might have an impact on the research findings. As such, the lived experiences of the teacher-participants had the potential to differ due to time differences in and the nature of the various school-communities, despite all of these being located in the same province of South Africa. I thus kept a reflective journal (consult Section 3.3.3.3 and Appendix G) in which I documented detailed written accounts of the time, research contexts, participants' experiences and responses.

An interpretivist lens adopts an ontology that the world can be explored systematically and interactively, in discussion with people (participants) that hold experience of a phenomenon. Furthermore, I maintained the notion that the teacher-participants had continuously been generating knowledge and social realities through their lived-experiences (van Wyk, 2015) of sustaining vegetable gardens in their school-communities. To harness knowledge generation that manifested in lived-experiences, I regarded the teacher-participants from a PRA perspective as significant others and co-researchers that were central to the study. As indicated in Section 3.3.3.1, teacher-participants actively participated during PRA-based activities, and in discussions as co-authors documented their experiences, knowledge and skills of school-based vegetable gardens (Cohen et al., 2011; van Wyk, 2015).

In addition to viewing the teacher-participants (of which some were principals and deputy principals) as central individuals in the research with contributions being at the core of the data generation process, I envisaged that to gain insight into school-based vegetable gardens in support of resilience in vulnerable communities. This implied that I would have to observe and interpret the participants' behaviour and knowledge sharing in terms of their meaning-making within their natural settings (Cohen et al., 2011, 2017). This I did by relying on observation-as-context-of-interaction, which I discuss in more detail in Section 3.3.3.2. Nieuwenhuis (2007) postulates that a social phenomenon can be best understood within the appropriate social environment. As a result, I spent a lengthy period engaging in participatory fieldwork activities with the research participants in their respective school-communities in the Eastern Cape province. I provide evidence of this in the research schedule included in Appendix B. My prolonged engagement in the field allowed me to capture the teacher-participants'

perspectives and meaning-making of their lived-experiences. Furthermore, as an interpretivist researcher, I spent sufficient time on processing the data to capture and to be able to report on the participants' views, knowledge and experiences (De Vos et al., 2011; van Wyk, 2015). Evidence of this is provided through a thorough, in-depth analysis conducted for the study, the results of which I present in Chapter 4.

An advantage of adopting an interpretivist lens when undertaking a study is that it can enable a researcher to use collaborative and cooperative Afrocentric research methods, in consideration of the indigenous communities that a study may involve (van Wyk, 2015). This was accomplished in my study through the use of PRA-based activities and discussions (consult Section 3.3.3.1) which allowed me to observe and document real-life settings and contexts. These were recorded in my reflective journal and field notes (consult Appendix G) and verbatim transcriptions of all discussions that took place (Appendix C).

I relied on cohesiveness implied by the interpretivist meta-theory in conjunction with the qualitative participatory methods I employed (Silverman, 2000). In affirming this, Cohen et al. (2011) state that the interpretivist research paradigm favours qualitative methods based on the premise that reality is socially constructed within natural settings. This advantage of the interpretivist meta-theory was beneficial to me in conducting the current study as it allowed me to analyse individual aspects of the teacher-participants' experiences within their context through the use of multiple data generation and documentation strategies (discussed in detail in Section 3.3.3). Together with the rest of the research team I joined the teacher-participants during the data generation phase in exploring social constructs of perspectives in the form of their knowledge and experiences of how school-based vegetable gardens can promote resilience in school-communities in the Eastern Cape in South Africa.

One of the advantages of the interpretivist paradigm is that the researcher is well-positioned to collaborate with participants in an interactive manner when utilising this lens, which provides an opportunity to investigate a phenomenon by probing participants' perceptions, views and experiences (Weber, 2004). This was further accomplished through my choice of PRA as methodological paradigm (refer to Section 3.2.2). I thus actively and interpretively participated as a primary research instrument during data generation and documentation activities. As outlined in Chapter 4, I furthermore relied on interpretive analysis of the data by categorising the thematic

evidence captured in the verbatim transcriptions of the research participants' lived experiences that they shared during the research process (Cohen et al., 2011).

In utilising an interpretivist lens, I remained conscious of the potential limitation associated with interpretivist studies, of such studies potentially being subjective and limiting in terms of generalisable findings (Nieuwenhuis, 2007). To this end, I relied on the meta-theory's advantage of thick and rich descriptions to provide trustworthy findings (refer to Chapter 4). Furthermore, to minimise subjectivity, I consciously reflected on my personal thoughts and actions throughout the research process, and discussed these with my supervisors regularly. I documented my personal views in my reflective journal (consult Appendix G).

Another potential pitfall related to interpretivist research that I remained conscious of concerns the possibility of approaching a study with preconceived ideas and being biased when interpreting research findings (Cohen et al., 2011). Hence, I employed strategies that aimed to maintain rigour by regularly reflecting on any such potential biases. For this purpose, I made use of a research journal (refer to Appendix G) in which I outlined my preconceived ideas and subjective thoughts before and during the research. In doing so, I was able to remain mindful and acknowledged my preconceived thoughts and possible bias. As a result, I could focus on ensuring that the voice of the teacher-participants could be heard in this study.

3.2.2 METHODOLOGICAL PARADIGM: PARTICIPATORY REFLECTION AND ACTION (PRA)

I followed a PRA methodological approach (Cohen et al., 2011; Schwandt & Gates, 2018). PRA can be defined as a collectively productive, transformative and emancipatory approach to generating knowledge that may lead to empowerment and self-sustenance of participants and potentially the related communities (De Vos et al., 2011). In generating qualitative data, I could thus rely on PRA for uncovering dynamic knowledge that could benefit the participating school-communities to curb the challenges they faced, by empowering and emancipating the participants and the related communities (Marshall & Rossman, 2011; van der Westhuizen, 2019).

I further anticipated that the participating school-communities could establish and implement school-based vegetable gardens as an intervention tool as part of the PRA study they participated in to bring about positive change, development and improvement to their lives collectively (Cohen et al., 2011; Cohen et al., 2017). As PRA

is premised on the notion that research is conducted with people, the members of the research team collaboratively engaged with the teacher-participants through the use of PRA discussions and activities. Teacher-participants were regarded as active agents and co-researchers throughout the data generation process. This implies that power was equally shared amongst the participants and members of the research team (Cohen et al., 2011, 2017; Stringer, 2014), requiring of us to engage with the teacher-participants in a democratic manner and as co-experts in the study.

I conducted the study in the relevant school-community contexts and generated data during two research colloquiums and several follow-up school visits (please consult Appendix B for the research schedule), utilising several qualitative data generation strategies (refer to Section 3.3.3). As the research schedule indicates, I started by establishing rapport with the teacher-participants and explained the nature of the research study and how it would fit into the broader FIRST-GATE project. During the initial PRA discussion process conducted at the FIRST-GATE colloquium in March 2016, I informed the teacher-participants of the research process and gained voluntary consent from them before commencing with the study (van Wyk, 2015). All of these research activities are recorded in the research schedule and reflective journal (Appendices B and G).

In embedding the study in the PRA paradigm, I facilitated repeated discussions on the participants' efforts to establish and develop school-based vegetable gardens, thereby including various cycles of planning, action, reflection and review. In Section 3.3.3, I discuss the PRA discussions and activities that I conducted in detail; with Appendices C and F providing evidence of this process. Engagement in a PRA-based study implied that the teacher-participants could simultaneously learn from their peers as they actively participated in the study while establishing and maintaining their school-based vegetable gardens. As a result, the teacher-participants were able to gain practical knowledge and skills in maintaining vegetable gardens while simultaneously contributing fresh produce to the school-communities. As PRA is known to promote reflection and assessment as part of the evaluation of progress (McMillan & Schumacher, 2010), teacher-participants were able to evaluate and review their plans of initiating and maintaining school-based vegetable gardens regularly in a safe and supportive environment. This was accomplished during PRA discussions and activities with the teacher-participants (consult Appendices C and F for PRA discussions and posters).

An advantage of regular reflections and the generation of qualitative data in this reflexive way is the possibility of remaining flexible throughout the research process (Creswell, 2014a; Silverman, 2014). Throughout the research process, I regularly documented my thoughts, assumptions and decisions in my reflective journal (consult Appendix G). The selected methodological approach thus allowed for the research plan and process to be flexible and emerge as the study progressed, taking shape on its own rather than being rigid and embedded in specific theoretical knowledge (McMillan & Schumacher, 2010). Evidence of this flexible methodological process can be seen in the unscripted nature that the PRA data generation process followed, allowing me to yield rich findings and results as discussed in Chapters 4 and 5. For this purpose, active engagement with teacher-participants as experts, co-researchers and co-constructors of knowledge based on their lived experiences on how school-based vegetable gardens can support resilience in vulnerable communities took precedence in guiding the FIRST-GATE researchers. In Appendix C, I provide samples of the verbatim transcriptions of the data generation sessions with teacher-participants, illustrating the nature of engagement with teacher-participants as co-researchers.

I further relied on the advantage of PRA implying the ability to empower teacher-participants to engage actively, thereby committing to continuous self-growth through engagement in the study (McMillan & Schumacher, 2010). This process of self-growth in teacher-participants is evidenced in the cycles of PRA-based posters on establishing and maintaining school-based vegetable gardens (refer to Appendix E). I anticipated that teacher-participants would remain committed to sharing practical knowledge on school-based vegetable gardens with their peers in the context of this study (consult Appendices C and G for evidence captured in the analysed verbatim transcriptions of the PRA discussions and my reflective journal) (Denzin & Lincoln, 2011).

A possible challenge often associated with PRA research is that it may be time-consuming. In this regard, Denzin and Lincoln (2011) state that when utilising PRA, it is essential that the researcher does not consume unnecessary time during fieldwork. In conducting fieldwork and during the facilitation of the PRA-based workshops, I aimed to utilise time optimally, engaging with the teacher-participants and obtaining sufficient data without wasting unnecessary time. As such, I worked according to the research schedule, which included timelines and goals for each data generation

session (refer to Appendix B). The PRA-based discussions were thus conducted within specific estimated time frames, especially during the two FIRST-GATE colloquiums. These time frames are captured and discussed in detail in Section 3.3.3.1. I aimed to manage my time during fieldwork productively by engaging with the teacher-participants meaningfully. I accomplished this by being guided by each session's aims, as identified in the PRA-posters and detailed in the research schedule (Appendix B). I was further guided by data saturation before concluding the data generation sessions. When participants began repeating themes, experiences, knowledge and skills, it was an indicator to me that data on the theme was saturated. Evidence of this can be found in the verbatim transcriptions of the PRA-based discussions (Appendix C).

Other challenges that may be experienced when following a PRA approach include that contextual sensitivity may not always be portrayed and that a researcher's own bias and background differences may influence the process (Silverman, 2014). As a researcher, I was conscious of the fact that the generation of data in a natural setting could expose me to some sensitive aspects being shared by the teachers that may not be related to my study. Throughout the research process, I thus continually reflected on my role and experiences as a researcher and remained guided by the research questions (refer to Appendix G, p. 219). I ensured that I respected and established a trusting relationship with the teacher-participants as co-researchers and equal partners. To avoid the possibility of subjectivity and differences in backgrounds affecting the findings I obtained, I relied on regular reflections, debriefing sessions with other members of the research team as well as my supervisors, and member checking with the participants following initial data analysis (refer to Appendices D and G for my reflective journal and member checking transcriptions).

Another potential challenge that I remained aware of in following a PRA approach relates to the findings of the research not being generalisable to the broader population. Being conscious of this potential challenge, I grounded my study in the strength of the PRA data I obtained. I accomplished this by allowing for the possibility of text and words formulating thick and rich descriptions that may add to rigour, transferability and the possibility of the findings informing similar future research within the field. Throughout, I focused on the voices of the teacher-participants being heard through verbatim transcriptions of audio recordings and being scientifically validated through the use of multiple methods of data generation and documentation (consult Appendices C to F evidencing all documented data sources) (Creswell, 2014b;

Nieuwenhuis, 2007; Silverman, 2014). I also strongly relied on the benefit of PRA research related to catering to indigenous communities describing and reflecting on their experiences (Yin, 2016). I as a result specifically selected nine participating schools that formed part of the FIRST-GATE project within peri-urban communities located in the Eastern Cape province in the Nelson Mandela Metropole.

3.3 RESEARCH METHODOLOGY

In this section, I describe the research design I utilised, as well as how I selected the cases and participants. I then explain the data generation, documentation and analysis techniques I relied on. In Figure 3.1, I provide an outline of the methodological phases that transpired in the study.

Figure 3.1: Overview of the research methodology process

3.3.1 RESEARCH DESIGN: MULTIPLE CASE STUDY DESIGN

The case in the current study is an exploration of the value of a teacher-to-teacher intervention on school-based vegetable gardens in support of resilience in nine participating primary schools in the Eastern Cape in South Africa**.** Case study research implies an in-depth analysis of a case or programme or multiple examples thereof, or

of an event, activity process, or one or more individual (Creswell, 2014a). As such, case study research entails systematic and empirical inquiries that are holistic in nature and investigate a contemporary phenomenon in its real-life context (Hamilton & Corbett-Whittier, 2013; Nieuwenhuis, 2007, 2016). According to Yin (2014), case study research involves descriptive and exploratory analysis of a person, group, event, policy, project or institution. In conducting the study, I accordingly aimed to explore a bounded system and unearth answers about and solutions to the presenting case (Creswell, 2008a). In Section 3.3.3, I discuss the multiple data generation and documentation measures that I employed.

The multiple case study research design enabled me to gather the views and perceptions of teacher-participants using PRA discussions and activities. Data generation sources for the nine participating primary school sites included audio-visual techniques, observation-as-context-of-interaction that was documented as part of my field notes and a reflective journal (refer to Appendices C to G for samples of the data sources generated in the study) (Yin, 2014). In utilising these multiple data sources, I was able to explore how a teacher-to-teacher intervention affected resilience through the establishment and maintenance of a school-based vegetable garden.

By utilising a case study design, I conducted research within the natural settings of the participants − their schools − without any aim of manipulating the behaviour or contributions of the participants. I accomplished this by conducting PRA data generation discussions and activities within their indigenous spaces (refer to Section 3.3.3.1 for more detail). I furthermore engaged in cyclical sessions of observing and monitoring the school-based vegetable gardens as documented in my research schedule (included in Appendix B), thereby aiming to capture the experiences of the teacher-participants and create a platform for their voices to be heard (Yin, 2009). Therefore, I intended to gain insight into contextual conditions by exploring school-based vegetable gardens and how they can address issues of vulnerability within the Eastern Cape province in resource-constrained communities. It follows that the value of school-based vegetable gardens in vulnerable contexts formed the case or phenomenon that I explored. This bounded system − school-based vegetable gardens − was explored against the context of school-communities (Stake, 1995; Schwandt & Gates, 2018).

In line with a case study design, I immersed myself in the research to familiarise myself with the contexts of the nine schools while exploring the teacher-participants' lived

experiences in the context of the case as a whole. I accomplished this by conducting several visits and thoroughly engaging with the teacher-participants at the nine participating schools as indicated in the research schedule (Appendix B). I thus joined the teacher-participants as active co-researcher in their school-community contexts to generate data jointly. I extensively discuss this view, that aligns with an interpretivist paradigm, in Section 3.2.1 (Schurink et al., 2011). Throughout, I remained conscious of the fact that boundaries may not be clear between the phenomenon and the context; as reflected in my reflective journal (refer to Appendix G) (Baxter & Jack, 2008).

According to Baxter and Jack (2008), it is important to specify, for example, the time frame, social group, organisation and geographic location of a research site when conducting case study research. My discussion in Section 3.3.3.1 and the research schedule (Appendix B) specify this information. As such, I specifically explored the views of 37 teacher-participants from nine peri-urban primary school settings on how school-based vegetable gardens can potentially promote resilience. Data generation, as well as monitoring and evaluation visits were undertaken within a time frame of three years in quarterly cycles, 4-5 months apart (consult Appendix B for the research schedule), to meet multiple case study design specifications (Cohen et al., 2011; Chambers, 2015).

I specifically selected a multiple case study design involving nine participating primary schools from one province that have been involved in a specific intervention (FIRST-GATE). Refer to Section 3.3.2 for more detail on the criteria of inclusion for selecting the participating schools. A multiple case study design aligned with the selected interpretivist paradigm as it allowed me to investigate similar multiple-bounded cases enhancing precision, rigour and credibility of the study (Merriam & Tisdell, 2016). In the nine participating schools, I thus compared and merged all the data generated and documented through PRA discussions and activities (refer to Appendix C, E and F). To complement these data sources, I took field notes and kept a reflective journal (Appendix G).

Some challenges often associated with multiple case study research relate to a study being expensive and time-consuming (Baxter & Jack, 2008). This means that I worked within specifically planned time frames, yet remained mindful of the time required to conduct research. I was aware of the fact that sound research requires time (Schurink et al., 2011). In terms of the costs involved in data generation, as my study forms part

of the FIRST-GATE project, I had funding available to conduct the field visits and generate data until saturation occurred.

3.3.2 SELECTION OF THE RESEARCH SITE AND PARTICIPANTS

I discuss the basis for my choice of selection procedures in the following sections.

3.3.2.1 Convenience sampling of the site

For this study, I relied on convenience sampling (Cohen et al., 2011) for the selection of nine schools that formed part of my study. The schools had formed part of the STAR, SHEBA and FIRST-GATE projects over the years, and were involved in two colloquiums where I conducted part of my data generation. Convenience sampling is a form of non-probability sampling that is random in nature and involves a process where participants are selected due to their availability and willingness to participate in a study (Creswell, 2014a). A significant strength of convenience sampling is that I could thus rely on established relationships with schools that were available as data sources (Cohen et al., 2011).

In addition to easy access, convenient sampling had the advantage of no costs involved in recruiting participants to take part in my research and allowed me to generate data in collaboration with a relatively large pool of participants within a relatively short period of time (Maree & Pietersen, 2007). For this study, I formed part of the FIRST-GATE research team that gave me access to the teacher-participants (of which some were principals and deputy principals) within the nine participating schools that formed part of the FIRST-GATE research.

As previously indicated, the nine participating primary schools that formed part of the FIRST-GATE project were all based in the Nelson Mandela Metropole. From the selected case of participating schools, I selected 37 teacher-participants (n = 32 females and 5 males) as they formed part of the school-based vegetable garden projects within their designated schools. In undertaking the study and utilising convenience sampling, the teacher-participants thus implied an over-representation of female participants and under-representation of male teacher-participants; with the study thereby obtaining views of the specific teacher-participants and not of a representation of the whole population. The teacher-participants in the study were predominantly African and isiXhosa speaking. As they were fluent in speaking both

isiXhosa and English, English was used as a medium of communicating, generating and documenting data for the current study.

In relying on convenience sampling, I as a result remained cautious of the fact that this way of sampling does not allow for the representation of the whole population. This implies that the findings of the current study cannot simply be generalised to broader contexts. The exploratory nature of my study may however yield in-depth and rich descriptions that can inform similar studies (Maree & Pietersen, 2007).

3.3.2.2 Contextualising the case

As previously mentioned, I conveniently selected nine participating primary schools in the Eastern Cape province of South Africa. The province boasts seven million of the 57.7 million of the South African population (Stats SA, 2017). All nine schools are situated in urban areas in the Nelson Mandela Metropole. The participating schools were conveniently selected based on their previous involvement in the STAR and SHEBA research projects and their current engagement with the FIRST-GATE research. Figure 3.2 shows a map of the Nelson Mandela Metropole.

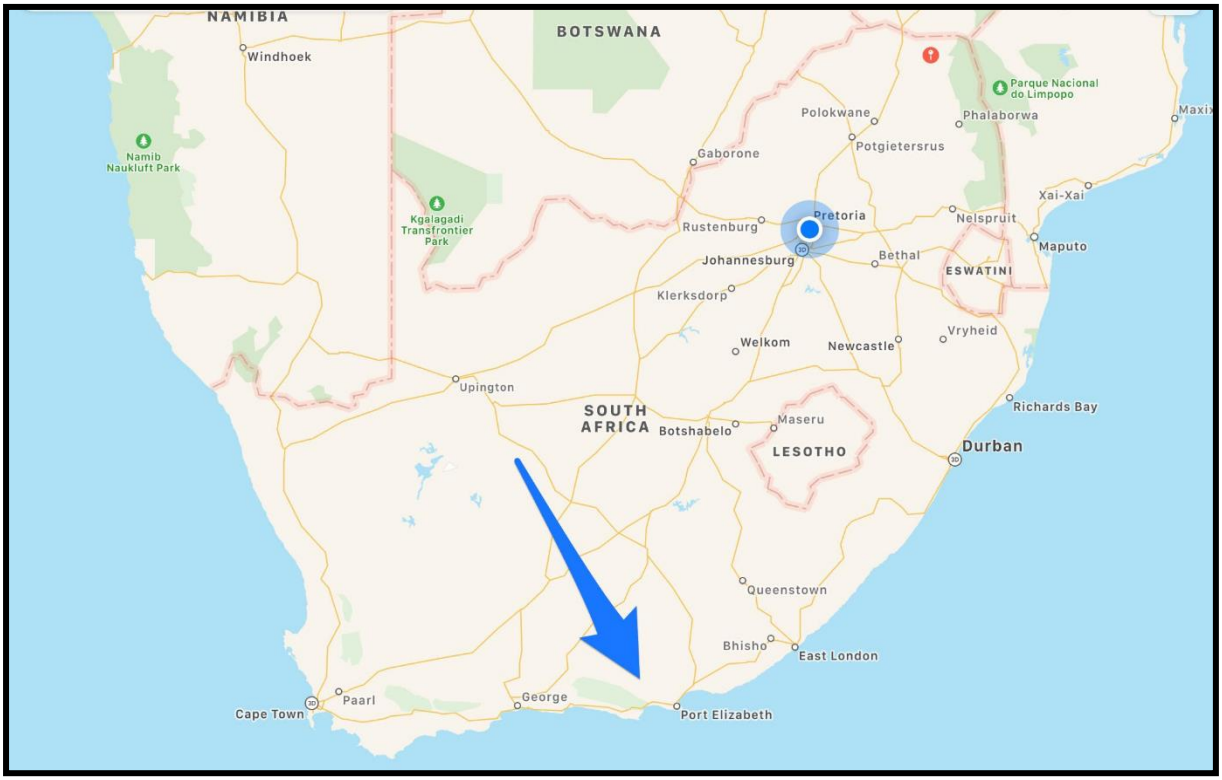


Figure 3.2: A map of the Eastern Cape province

The Nelson Mandela Bay Metropolitan Municipality has a total of 1.26 million inhabitants, which is 18% of the total Eastern Cape population. Figure 3.3 depicts the Nelson Mandela Metropole which included a municipality ranked as the most populous metropolitan in 2016. The metropole consists of 61% African, 17% white, 20% coloured and 2% Asian inhabitants. The three predominant languages are isiXhosa, English and Afrikaans. The Nelson Mandela Metropole is mainly an urban area of 1,959 km^2. The municipality comprises 353,000 households that constituted 3.6 persons per household in 2016. HIV and AIDS are reported to have a substantial impact on the municipality. The municipality has shown an increase in unemployment over recent years (Eastern Cape Socio Economic Consultative Council, 2017).

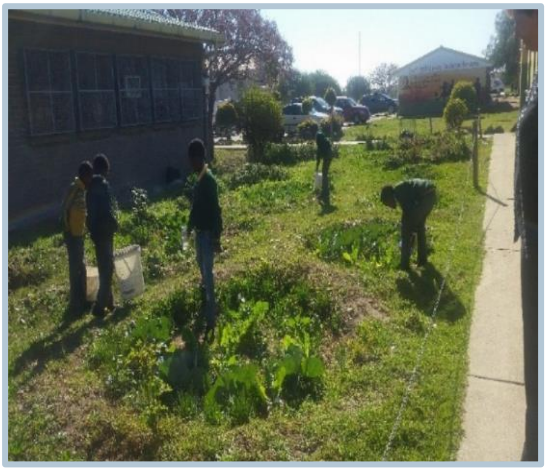
Figure 3.3: Map of the Nelson Mandela Metropole

The nine participating primary schools I purposively selected for my research are all situated within an urban setting of the Nelson Mandela Metropole. All nine participating schools are located in underprivileged areas (Ronaasen, Steenkamp, Williams, Finnemore, & Feeley, 2021). The communities are of a low socio-economic class that is characterised by high incidences of unemployment, and typical challenges of HIV and the AIDS pandemic. As such, the contextual populace constitutes several orphans and some child-headed families. Food-related challenges, as a result of environmental-related challenges such as drought and limited freshwater sources,

continue to be an issue of concern. Accordingly, the participating schools generally lacked sufficient educational resources at the time of this study; with most learners, as well as some families and community members being perceived as underprivileged and challenged in affording the basic nutritional needs required for basic cognitive functions in learning, social play, survival and well-being. All nine participating schools are classified as Quintile 3 schools – being non-school fee-paying schools that receive a higher supplementary government funding amount in comparison to fee-paying schools (van Dyk & White, 2019). All nine participating schools are subsidiaries of the NSNP programme.

Photographs 3.1 to 3.9 provide images of the research sites where I conducted my study. As stated, these communities were regarded as vulnerable and formed part of the STAR, SHEBA and FIRST-GATE research projects at the time of this study.

Photograph 3.1:
School A: school setting (11/08/2016)



Photograph 3.2:
School B: school setting and vegetable garden (15/08/2020)

Photograph 3.3:
School C and the surrounding school-community (11/04/2017)

Photograph 3.4:
School D and the surrounding community (13/04/2017)

Photograph 3.5:
School E vegetable garden and the surrounding school-community (20/09/2017)

Photograph 3.6:
School F vegetable garden and the surrounding school-community (13/08/2018)

Photograph 3.7:
School G vegetable garden and the surrounding school-community

Photograph 3.8:
School H vegetable garden and the surrounding context

Photograph 3.9:
School I vegetable garden and the surrounding context (12/08/2016)

3.3.2.3 Purposive selection of participants

I purposively selected 37 teacher-participants (of which some where principals and deputy principals) that could inform my exploration of the implementation and outcome of the FIRST-GATE teacher-to-teacher intervention on school-based vegetable gardens to form part of the study. The participants were delegates at the two colloquiums during which I facilitated some of the data generation sessions. The various participants from the nine schools are captured in Table 3.1.

Table 3.1: Overview of the participants in the study

CASE	MALES	FEMALES	TOTAL
School A	-	4	4
School B	1	4	5
School C	1	3	4
School D	-	4	4
School E	2	3	5
School F	-	5	5
School G	-	3	3
School H	1	3	4
School I	-	3	3

In selecting the participants, I was guided by the following criteria:

- Participants had to possess some knowledge and experience based on their participation in previous research projects of establishing school-based vegetable gardens in their respective school-communities.
- Participants had to be involved in the participating schools.
- Participants had to have formed part of the STAR, SHEBA and/or FIRST-GATE projects.
- Participants had to participate in the study freely and willingly after providing informed consent.

- Participants had to be able to converse in English as the language of communication of the study.

As stated, I relied on purposive sampling for this part of my research. Purposive sampling is defined as a non-random sampling method in which individuals are intentionally selected to be able to gain a comprehensive understanding of a particular phenomenon (Creswell, 2014a, 2016). This implies that research participants are knowledgeable about the specific subject under study (Patton, 2002). In relying on purposive sampling, I was of the notion that the selected teacher-participants would possess knowledge and experience of school-based vegetable gardens and how these may promote resilience within vulnerable communities.

One of the advantages of purposive sampling is that sampling criteria can be successfully applied when employing a case study research design to yield information-rich cases of a particular phenomenon (Patton, 2002). In line with this advantage, the participants that I purposively selected were able to express and articulate their opinions, experiences and reflections on the topic (Creswell & Plano Clark, 2011). As such, purposive sampling allowed me to choose participants that could benefit the study and assist me to achieve the research purpose.

Purposive sampling, which is also known as *judgemental* or *subjective* sampling however implies the potential challenge of data being subjective in nature (Cohen et al., 2011, 2017). In this regard, I purposefully selected participants based on the specific nature of the research study, as they were also conveniently available and accessible. I requested the participants to be as open and honest as possible, and continuously reflected on the process and the data generated in an attempt to limit the potential effect of subjectivity.

3.3.3 DATA GENERATION AND DOCUMENTATION

I used multiple data generation and documentation techniques, namely PRA-based techniques, observation-as-context-of-interaction, audio and visual techniques, field notes and a reflective journal. My aim for utilising multiple data generation and documentation techniques was to obtain and present rich findings, by relying on techniques that could metaphorically transport the “voices” of the participants when presenting my results and findings (Yin, 2014).

3.3.3.1 PRA-based activities and discussions

In aligning with PRA as selected methodological paradigm, the FIRST-GATE researchers and participants collaboratively worked together to understand a phenomenon with the primary focus on social change and empowerment (Chambers, 2008; Cohen et al., 2011). PRA implies context-specific research that consists of an iterative cycle of research, action and reflection that seeks to empower participants to have a greater awareness of the presenting situation and independently feel equipped to make a positive change (De Vos et al., 2011). As such, the current study did not conform to the traditional perception of the researcher as an expert; this study valued teacher-participants as equal co-researchers knowledgeable of their school communities and with the capacity to share their skills and experiences through data generated (consult Appendices C and D for the various data sources).

PRA entails a systematic approach to research that emphasises active participation and follow-up action based on practical knowledge that is generated and shared (Gillis & Jackson, 2002). It utilises visual and concrete data generation techniques such as posters, photographs, diagrams and mind maps as part of the research process (Chambers, 2008; Ferreira & Ebersöhn, 2012). PRA is principally known for its cyclical nature, entailing a spiral process of identifying a specific problem, formulating a plan, taking action, observing, reflecting and continuing with research.

In essence, the PRA approach I followed allowed the teacher-participants to become active change agents in collectively collaborating and making contributions within their environmental settings (Cohen et al., 2011). Throughout, I acknowledged the value of the teacher-participants as co-researchers that are capable of generating practical knowledge and addressing challenges within their own school-communities. This, in turn, strengthened the possibility of their becoming emancipated and empowered individuals within their school-communities (Ebersöhn, Eloff & Ferreira, 2007). In following a PRA approach, I thus aimed for the teacher-participants to become aware of their capacities, by providing a platform for critical understanding and reflections of their experiences in their school-communities, and how they could collaborate to address some aspects of the vulnerability their school-communities encountered (Gillis & Jackson, 2002).

I facilitated a total of 11 semi-structured 90-minute PRA-based discussion sessions. Two sessions formed part of the FIRST-GATE colloquiums (one session at each), the

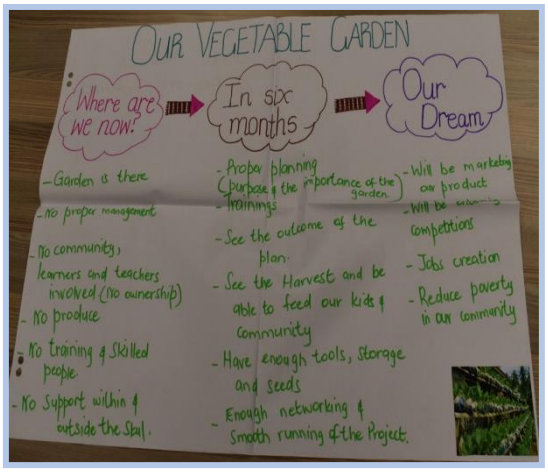
3rd field visit was specifically to observe the progress of each school-based vegetable gardens and nine sessions were conducted during three scheduled school visits (2nd, 5th and 6th field visits), with three sessions per visit. Of these, the last three sessions conducted in April 2018 (6th field visit) were specifically undertaken to conduct member checking. I provide an overview of the sessions that I facilitated in Table 3.2.

Table 3.2: Overview of PRA-based data generation sessions

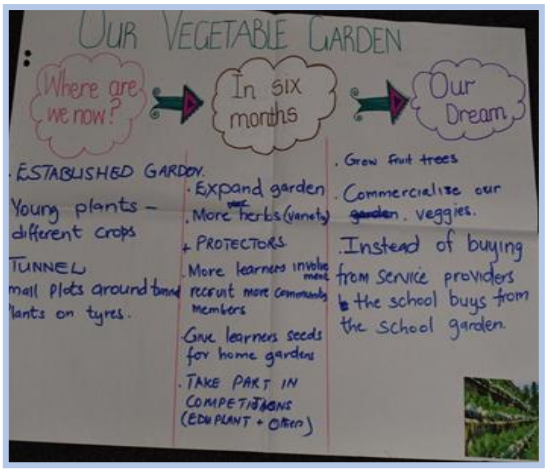
FIELD VISIT	PURPOSE OF VISIT AND RESEARCH ACTIVITIES	PARTICIPANTS
1st field visit 17-23 March 2016 Colloquium	Establishing rapport with the participants Data generation: PRA discussions and activities	Teacher-participants (of which some were principals and deputy principals) Schools A-I
	Data Documentation: Informed Consent, PRA posters, audio-recordings of PRA-discussions and visual data	
2nd field visit 4-11 August 2016 Site visits to schools A-I	To understand the context and be able to support and monitor the progress of the school-based vegetable gardens Data generation: PRA discussions with the nine participating schools, clustered into three groups	Teacher-participants (of which some were principals and deputy principals) Group 1 (Schools A, D and F) Group 2 (Schools B, G and I) Group 3 (Schools C, E and H)
	Data generation: PRA posters, audio recordings of the PRA discussions, visual data, field notes and reflective journal	
3rd field visit 10-18 April 2017 Site visits to school A-I	Data generation: site visits of schools A-I to support and monitor the progress of the school-based vegetable gardens	Teacher-participants (of which some were principals and deputy principals) Schools A-I
	Data documentation: visual data, field notes and reflective journal	
4th field visit 27-28 May 2017 Colloquium	PRA discussions to review and strategically plan how to maintain school-based vegetable gardens Data generation: PRA discussions with teacher-participants grouped according to their schools	Teacher-participants (of which some were principals and deputy principals) Schools A-I
	Data documentation: audio recordings of PRA discussions, field notes, reflective journal and visual data	
5th field visit 19-21 September 2017 Site visits to schools A-I	Exploring the value of school based-vegetable gardens and the participants' experiences of the FIRST-GATE teacher-to-teacher intervention Data generation: PRA discussions and activities with the nine participating groups, clustered into three groups	Teacher-participants Principals Vice-principals Group 1 Group 2 Group 3
	Data documentation: PRA posters, audio recordings of the PRA discussions, visual data, field notes and reflective journal	
6th field visit 16-17 April 2018 Site visits to schools A-I	Member checking to confirm initial data analysis and identified themes	Teacher-participants Principals Vice-principals Group 1 Group 2 Group 3
	Data generation and documentation: an audio recording of the member checking sessions, mind maps, field notes and reflective journal	

During all PRA-based workshops, teacher-participants were grouped according to their schools, due to the nature of the discussions. During the PRA discussions, specific visual prompts were posed to them, while capturing their ideas on posters. After completing small group discussions, the various groups presented their ideas to the larger group, receiving further input if relevant. This process was followed for all PRA sessions.

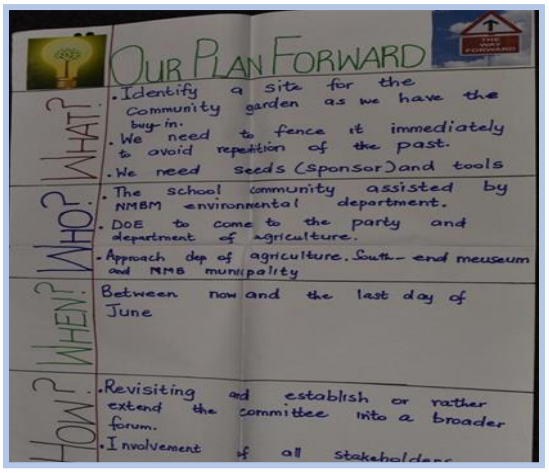
During the first colloquium, conducted on 23 March 2016, the PRA-based discussion focused on the identification of short- and medium-term goals for the school-based vegetable gardens by the various school teams. As indicated, participants worked in small groups according to their schools as these small groups of participants were presumably regarded as groups of people sharing similar experiences (refer to the research schedule included in Appendix B). Following presentations by the participants on their school-based vegetable gardens in the specific groups, all schools were requested to formulate periodic goals for their gardens in their respective school-communities. Participants were also requested to indicate a time frame to achieve their goals and identify people that would be responsible for taking actions. Participants furthermore indicated the resources they required to reach their goals. Photographs 3.10 to 3.12 indicate the initial planning by some of the schools during the PRA-based discussion in March 2016.



Photograph 3.10:
School C's initial planning for their school-based vegetable garden (23/03/2016)



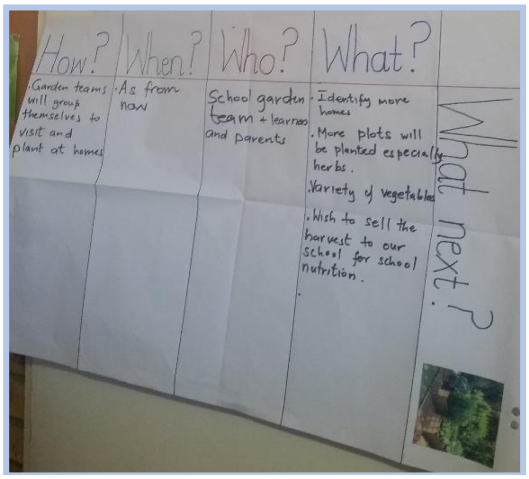
Photograph 3.11:
School E's action plans (23/03/16)



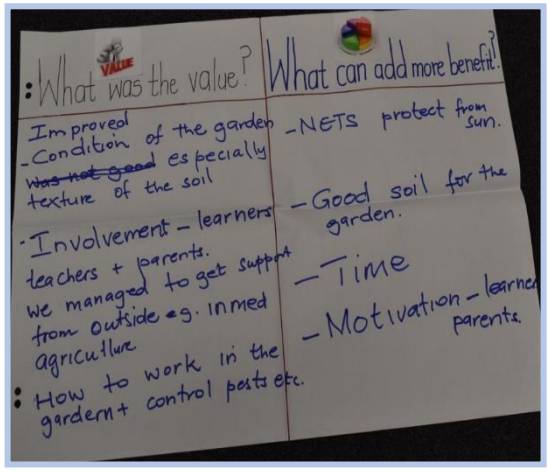
Photograph 3.12:
School C's action plans (23/03/16)

Following the initial colloquium, the second (August 2016) and later also the fifth (September 2017) field visits entailed three PRA-sessions each, as the schools were clustered in groups of three per cluster, resulting in the facilitation of three PRA-based workshop discussions per field visit. During these PRA-sessions, participants reflected on their progress in terms of the initial action plans, more specifically on their progress in putting their formulated plans into action, as well as on the strengths and challenges they had experienced in this regard. Next, the participants discussed the way forward regarding their school-based vegetable gardens, identifying adapted or new goals and action plans for the following phase of implementation. The participants once again had to indicate a time frame for the way forward, identify how their goals could be reached, which resources would be required and who would be responsible for the implementation of the proposed action plans. As with all other PRA-based sessions, the participants worked in small groups per school and then reported to the larger group. Photographs 3.13 to 3.16 provide evidence of the visual data generated during the second and fifth field visits.

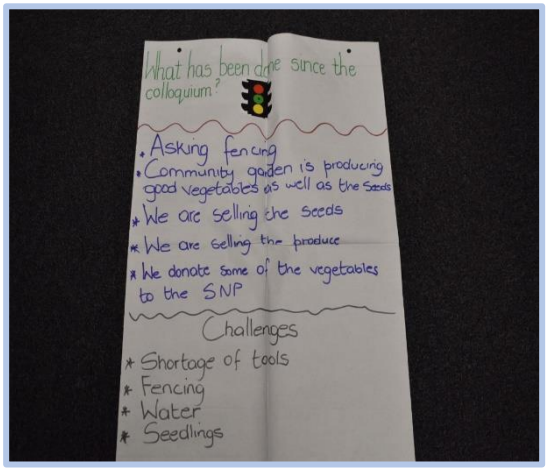
Photograph 3.13:
PRA-based activity and discussion on goals for the vegetable garden project (17/08/16)



Photograph 3.14:
PRA-based activity and discussion on action plans for the vegetable garden project (17/08/16)



Photograph 3.15:
PRA-based activity and discussion on participants' experiences of the FIRST-GATE project (21/09/17)



Photograph 3.16:
PRA-based activity and discussion focusing on monitoring and evaluation (21/09/17)

The third field visit (April 2017) involved observation visits to the nine schools and visual capturing of the school-based vegetable gardens. Follow-up PRA-based workshops were conducted at the May 2017-colloquium that followed. The final field visit was conducted in September 2018 after I had completed my initial data analysis and identified preliminary themes. During this series of three PRA-based discussions, I conducted member checking, inviting the participants to confirm and/or elaborate or correct the way in which I had interpreted the data.

Utilising PRA for data generation purposes enabled me to fulfil the dual roles of being a co-researcher and observer within the study. I was namely able to engage in PRA-based discussions and at the same time observe the teacher-participants and probe

them to obtain a better understanding of their gestures, non-verbal expressions and body language during the PRA-based sessions and site visits (Silverman, 2014).

In making use of PRA, I remained aware that the approach has the potential for power imbalances (Cohen et al., 2011, 2017), emphasising the importance of the teacher-participants being regarded as equal to the research team in being co-researchers within the study. Being aware of the fact that PRA may be time-consuming, I remained committed, pre-planned all PRA-based sessions and developed the PRA-posters used by the participants well in advance. To this end I followed a structured research schedule (refer to Appendix B) that guided both my planning and use of time in conducting the study (Chambers, 2008).

3.3.3.2 Observation-as-context-of-interaction

Observation-as-context-of-interaction formed part of the data generation process. The aim of employing this data generation technique was to gain a detailed insider perspective as the phenomenon naturally occurs within context (Angrosino & Mays de Pérez, 2000). This study aimed at exploring the FIRST-GATE teacher-to-teacher intervention on school-based vegetable gardens within the context that these gardens had been established in. As a researcher, I observed and interacted with participants during the PRA discussions. In addition to observing the school-based vegetable gardens, I relied on observation-as-context-of-interaction during all PRA-based workshops in observing the activities, the participants and interactions that occurred (Yin, 2016).

Observation is regarded as an essential systematic and scientific data generation method when conducting participatory research. This method allows the researcher to capture and explore non-verbal data such as behavioural patterns of the participants, objects and occurrences. In this manner, I was able to spend time in the natural setting of the teacher-participants and observe the phenomenon I focused on. I specifically observed the vegetable gardens, the environmental contexts in which the study occurred, the various school-communities and the non-verbal and verbal reactions of the participants. My role as a key observer and researcher was one of an engaged advocate and interpreter that sought clarification and elaboration where needed (Patton, 2002).

I specifically relied on observation-as-context-of-interaction, which according to Angrosino and Mays de Pérez (2000) can be described as a process of fully immersing the self in the context of research. As such, observation-as-context-of-interaction enabled me to observe and monitor the progress of the school-based vegetable gardens at the schools that were involved over a period of three years. My observations were documented as field notes (consult Appendix G) and captured by means of photographs taken of the vegetable gardens. During the field visits, I facilitated sessions at two colloquiums and participated in four additional scheduled visits to the various schools to observe the school-based vegetable gardens and monitor and evaluate the progress of implementation of the participants' action plans.

Yin (2016) states that the direct observation of natural settings can support a researcher to elaborate theoretically in terms of possible generalisations that are deduced when a researcher engages in conversation with the research participants. Hence, during the scheduled school visits, I employed observation-as-context-of-interaction (Angrosino & Mays de Pérez, 2000), by engaging with the teacher-participants in conversations about their progress and seeking clarification as required. I captured my observations by using field notes (consult Appendix G) and photographs (Appendix F). Photographs 3.17 to 3.20 provide some examples of my utilisation of this data generation techniques.

Photograph 3.17:
School F: Observations of a school-based vegetable garden, guided by a teacher-participant (16/08/17)

Photograph 3.18:
School H: Observation during a PRA discussion (17/08/17)

Photograph 3.19:
School G: Observations during a PRA based discussion (19/09/2017)

Photograph 3.20:
School A: Observations of a school-based vegetable garden (20/09/2017)

I fully immersed myself in the repeated observations of the school-based vegetable gardens in an attempt to gain an emic (insider) perspective of the phenomenon I set out to explore (Nieuwenhuis, 2007). In utilising observation-as-context-of-interaction, I could rely on the advantage of having a first-hand experience where I was able to attend to participants' views, interactions and non-verbal gestures to gain a deep understanding of the implementation of their action plans and the outcome in terms of their school-based vegetable gardens (Angrosino, 2005; Patton, 2002; Silverman, 2000). I could thus gain insight into multiple realities in the time and place that the study occurred (Cohen et al., 2011) (consult Appendix E: Visual data).

One of the potential challenges associated with observation-as-context-of-interaction that I remained cautious of is the possibility of meaning being subjective and challenging to interpret due to the existence of multiple views and meaning-making possibilities (Angrosino, 2005). In an attempt to share my meaning-making of the photographs, I include a brief explanation of each photograph used in this thesis. I more specifically include my analysis of the photographs in Appendix E. In addition to providing contextual information, I utilised different data generation and documentation techniques to confirm my analysis of the photographs, such as verbatim transcriptions of the PRA-based discussions that occurred (consult Appendix F).

3.3.3.3 Field notes and reflective journal

The compilation of field notes (included in Appendix G) is regarded as an essential data documentation technique in qualitative studies (Creswell, 2013). In my field notes, I captured my observations that emanated from the school visits (Yin, 2016). In addition, I documented the observed interactions between the participants during all data generation sessions.

Field notes document observations as raw data. These notes are typically captured by a researcher as a result of observation of the research context and through the engagement with research participants (Punch, 2005). In compiling field notes, I aimed to document as many as possible of my observations and interactions that occurred between participants and also between them and the research team (Cohen et al., 2011, 2017). I remained conscious of the importance to compile field notes while at the research site to capture information as accurately as possible.

When compiling field notes, I captured my observations of the school-based vegetable gardens during each site visit. I documented the contextual information that I observed in the environment and also the spontaneous conversations that were elicited during observation of the vegetable gardens with teacher-participants (Cohen et al., 2011, 2017). Furthermore, I captured field notes during the PRA-based workshops. While remaining an active participant, I unobtrusively captured comprehensive notes on non-verbal behaviours of the participants that I immediately followed up with probing questions to seek further clarification of their non-verbal gestures (Creswell, 2013). I also made a note of ideas and emerging thoughts on the research that came to mind during the research process. After each fieldwork session and site visit, I took time to reflect upon these personal thoughts. I attempted to capture the participants' verbatim contributions during the PRA-based discussions.

Field notes can thus be taken as a way of documenting rich contextual information during research field visits (Creswell, 2013). They are captured continuously as *personal jottings* of the researcher and consist of both descriptive and reflective detail of the phenomenon under study (Patton, 2002). Field notes typically include the date, time and place of the observation and contain specific facts in terms of the number of the participants and individual accounts of the sites, in addition to notes in what transpire.

In documenting field notes, I had to remain conscious of my subjective thoughts (McMillan & Schumacher, 2010), to prevent these from permeating through the study (Punch, 2005). In addition, I experienced the challenge of having to multi-task and make field notes during other data generation activities such as PRA-based discussions and observations. In an attempt to counter this challenge, I captured my significant observations while in the field and then reflected on the session immediately after meeting with the participants. In this way, I could elaborate on my field notes following the sessions I completed.

I also remained mindful of the fact that field notes may be messy and are often best understood by the researcher (Creswell, 2014a; Patton, 2002). To this end, I did not only depend on field notes for data documentation but also on other sources of data that could corroborate the information I captured in my field notes.

3.3.3.4 Audio-visual techniques

Audio-visual techniques form an integral part of PRA research (Creswell, 2008a; Ebersöhn et al., 2007). In my study, I included audio-recordings and PRA-matrices (photographs of the PRA-posters are included in Appendix E) compiled by the participants (Creswell, 2014b). These posters provided me with a data source on the action plans compiled by the participants and the subsequent reflections on and experiences of their progress. In addition, the photographs taken during the PRA-based sessions and the PRA-matrices (posters) created during data generation sessions provided raw data that could be analysed. Photograph 3.21 provides an example of the photographs I analysed.

Photograph 3.21:
Teacher-participants actively engaging in a PRA-discussion (17/08/17, School D)

Photographs can be viewed as an authentic and unobtrusive strategy for generating first-hand data within a qualitative study (Creswell, 2014b). During the school visits, I took photographs of the respective school-based vegetable gardens, thereby capturing my observations. As such photographs enabled me to document my observations of the various stages and progress of the respective school-based vegetable gardens. In addition, photographs of the PRA-based sessions allowed me to capture my first-hand experiences of the data generation sessions. In this manner, photographs served the additional purpose of providing a synthesis of the cases involved (Leedy & Ormrod, 2010). Using photographs throughout this study, thus allowed me to obtain a record of documented non-verbal behaviour and communication that transpired during the current study (McMillan & Schumacher, 2010).

In making use of audio-visual techniques, I could rely on the benefit of this strategy to provide tangible evidence that could be revisited at later stages, e.g. when analysing data (McMillan & Schumacher, 2010). As such, audio-visual data could corroborate the results I obtained from the PRA-based discussions, observation and field notes. In utilising this method, I could also benefit from being part of a research team by having access to my co-researchers' visual data and the photographs taken by them.

In addition to visual data, I relied on audio-recordings of all the PRA-based discussions, which were transcribed verbatim for data analysis purposes (refer to Appendix C). As audio-recordings provide researchers with a way to capture the words of participants (Yin, 2016) I could capture the exact words, ideas and opinions shared by the participants (McMillan & Schumacher, 2010). Audio-recordings also enabled me to fulfil multiple roles by, for example, documenting my observations as field notes (Appendix G) and capturing visual images (Appendix F) while still actively participating in the PRA-based sessions, and then re-visiting what was said and recorded at a later stage. In relying on audio-recordings and visual techniques, I could benefit from the advantage of being able to listen to recordings several times or looking at the visual data repeatedly, to gain a clear understanding of the perceptions, shared knowledge and experiences of the participants.

Before making any audio-recordings, I sought the permission of the participants, and their informed consent to record their voices for research purposes. In addition to seeking consent from the participants, I tested the audio-recorder to ensure that the dictaphone was in proper working order and able to record the full sessions. All audio-

recordings were utilised for research purposes only and are stored in a secure place at the University of Pretoria. As I transcribed all audio-recordings verbatim, I fulfilled the role of both data generator and transcriber (refer to Appendix C for analysed samples of the transcripts of the PRA-based discussions). This process of transcription was cumbersome and time-consuming, yet allowed me to familiarise myself thoroughly with the data, as the first step of data analysis (Creswell, 2013).

3.3.4 DATA ANALYSIS AND INTERPRETATION

In analysing the data for the current study, I completed inductive thematic analysis (Creswell, 2013). Please refer to Appendices C to G for samples of my data analysis of the PRA discussion transcripts, field notes, PRA posters, visual data and transcribed member checking discussions. The analysed verbatim PRA transcripts (Appendix C) capture the PRA-based sessions conducted throughout the research process, while the analysed field notes (Appendix G) include the data generated through observations and during PRA sessions. The PRA posters (Appendix E) and visual data (Appendix F) captured the data generated through PRA-based activities, discussions and observations. In the examples of the analysed data I include as appendices, I provide the coding process and themes and categories I identified.

Schurink et al. (2011) point out that thematic inductive data analysis entails an art or scientific process of inductive reasoning, thinking and theorising to make inferences from empirical data related to social phenomena. Cohen et al. (2011) similarly state that thematic data analysis involves a process of organising, accounting for and explaining the data of a study by making sense of participants' views or definitions of phenomena. McMillan and Schumacher (2010) support this view by describing thematic data analysis as an inductive process of organising data into categories and then identifying patterns and relationships among these categories.

I commenced with the first step of thematic data analysis during the fieldwork by transcribing the data and familiarising myself with the various data sources (McMillan & Schumacher, 2010). During this phase of my study, I experienced the importance of me as researcher applying intellectual rigour and being tolerant in interpreting the participants' views and perceptions. I followed Creswell's (2013) six steps of thematic inductive data analysis that are captured in Figure 3.4.

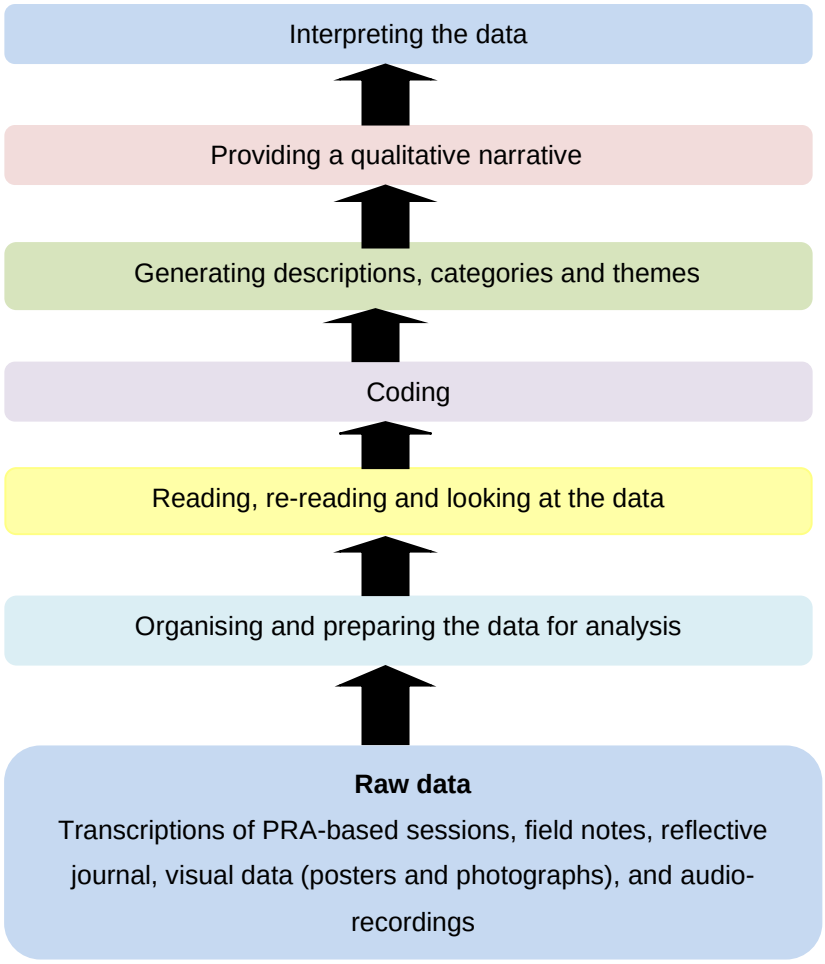


Figure 3.4: Outline of the data analysis process (Creswell, 2013)

During the first step of analysing the data, I organised all the data generated as a result of the PRA-based activities and discussions, my field notes, my reflective journal and the audio-visual techniques I relied on (transcripts, PRA-posters and photographs) (Creswell, 2013). As indicated earlier, for the process of organising and preparing the data, I converted all audio-recordings into verbatim transcriptions that could be analysed (consult Appendix C). I also spent ample time familiarising myself with the generated and documented data. This entailed that I catalogued, arranged and sorted the posters, photographs, field notes and my reflective journal (Creswell, 2014a). According to Delport and Fouché (2011), such a stage of preparing and organising data entails a systematic process that the researcher should be actively involved in. The process started during the fieldwork already, when the participants shared their experiences and ideas with their peers and the research team.

According to Creswell (2013), the second step of data analysis entails reading, re-reading and looking at the data. For this step, I continued to familiarise myself with the

data by repeatedly listening to the audio-recordings (consult Appendix B for my research schedule, indicating the stipulated time frame) and reading through the field notes and reflections in my journal a few times. Schurink et al. (2011) perceive this stage as one where the researcher is fully immersed in the details of the data before breaking it into parts. Hence this phase required me to reflect on the overall meaning of the data (Creswell, 2013). During this step, I started compiling analytic memoranda in the form of notes in the margins of the transcriptions, field notes and my reflective journal, as well as below the photographs (consult Appendices C to G).

Next, I completed the step of coding all the data (Creswell, 2013). After making notes in the margins of the transcriptions, field notes, my reflective journal and below the photographs, I progressed to identify and formulate draft categories (consult Appendices C to G). Through these categories I was able to identify sub-themes, which I in turn grouped to form primary themes (refer to Appendices C, D and G). During this process of grouping elements into primary themes and sub-themes, I formulated inclusion and exclusion criteria for analysing the data in the manner I did. I include more detail about these in Chapter 4.

After identifying the themes and sub-themes of the analysed data – for the fifth step of the analysis − I compiled a narrative on the themes and sub-themes. In discussion to follow, I present the themes and sub-themes I identified in Chapter 4. I validate these by including examples of the data in the form of photographs, field notes, my reflective journal and verbatim transcriptions in my discussions. In including quotations taken from the data (refer to the next chapter), I aimed to ensure that the voices of the participants would be heard.

Following the discussion of the themes and sub-themes and corroborating these in terms of the results of the study, I completed the final step of interpreting the results (Creswell, 2013). For this step of the data analysis process, I discuss the research findings in Chapter 5 and interpret these in terms of the related literature discussed in Chapter 2. Throughout my discussion of the results and findings of the study (refer to Chapters 4 and 5), I refer to silences and also highlight new insights stemming from the findings of my study. In addition to existing studies in the field, I interpret the results against the background of the conceptual framework that informed the study.

3.4 ETHICAL CONSIDERATIONS

In this section, I discuss the ethical guidelines that I followed throughout the research process.

3.4.1 PERMISSION TO DO RESEARCH, WRITTEN INFORMED CONSENT AND VOLUNTARY PARTICIPATION

Permission to do research in the participating schools was obtained from the Department of Basic Education as part of the broader research project before entering the research field (refer to Appendix A) as my study had its unique focus within a project. I, did, however, obtain informed consent (Appendix A) from the participants before data generation commenced. For this purpose, I provided the participants with comprehensive information about my research, as well as the purpose and processes involved. I highlighted the duration and nature of participant involvement (Strydom, 2011), and emphasised the fact that any participant could withdraw at any stage without being penalised in any way (Patton, 2002). After explaining in detail what the research entailed (Creswell, 2003), I obtained written informed consent from all the participants.

3.4.2 CONFIDENTIALITY AND ANONYMITY

As part of the process of obtaining informed consent, I explained the participants' right to privacy as well as the principles of confidentiality and anonymity (Stringer, 2014). The research participants and I thus engaged in discussions of how confidentiality and anonymity would be maintained in my study. In line with the previous broader STAR and SHEBA projects, participants of the current study (the FIRST-GATE project) indicated that they were proud of their contributions and permitted for their faces to be exposed when publishing visual images (Stringer, 2014). As such, the photographs I include in this thesis include the participants' faces, based on their preference, thereby not breaching anonymity or privacy.

To maintain confidentiality, the names of the schools and participants are, however, not included in the transcriptions or this thesis. However, the study could not guarantee confidentiality from the participants' side concerning the group discussions that took place (Patton, 2002).

3.4.3 PROTECTION FROM HARM

Strydom (2011) emphasises the importance of a researcher ensuring that no harm is brought to any participant during a research process. In undertaking my study, I did not foresee any physical or emotional harm to occur (Babbie & Mouton, 2001; Cohen at al., 2017). However, if participants were to become emotionally distressed, they would be taken to a private room to debrief and support them, after which I would have referred them for counselling. The participants also had the option to opt-out if they felt that the research was putting them in emotional distress or was negatively affecting them (Cohen et al., 2011). No such incidences occurred.

Furthermore, in my attempt to avoid any form of harm, I did not deceive the participants in any manner (Creswell, 2014a). Fundamentally, the participants were well informed about my study, its nature, its purpose and their expected roles in the research process. In an attempt to ensure that no harm was done, participants were not coerced in any manner into participating or during the research process.

3.4.4 RESEARCH INTEGRITY (TRUST)

Yin (2014) foregrounds trust as integral to any research study for findings to be taken as representing truthful positions and the statements of the participants. As such, after an initial analysis of the data generated, I conducted member checking (Hamilton & Corbett-Whittier, 2013). This means that I provided the opportunity for the participants to confirm or disconfirm the accuracy of the findings based on their views as participants of the research. Hamilton and Corbett-Whittier (2013) emphasise that member checking is an essential qualitative tool that enhances trust in a study.

Trust is also reflected in protecting participants from physical, social, economic, legal and dignitary harm. Participants in my study were thus not exploited in any manner. Throughout the research, I engaged with the participants in a respectful manner. I aimed to maintain mutual trust between myself and the teacher participants (Silverman, 2014).

I furthermore aimed to capture the participants' views as accurately as possible, bearing in mind that they may share personal information. As such, personal information shared by the participants during the research process was not divulged but kept confidential (Cohen et al., 2011; Yin, 2014). I furthermore aimed for research integrity by respecting the power relationship between myself and the teacher-

participants. In addition, by crystallising multiple theories and methods, I was able to produce comprehensive findings of how school-based vegetable gardens may support resilience in vulnerable communities (Silverman, 2014).

3.5 RIGOUR OF THE STUDY

Stringer (2014) states that in participatory qualitative research, it is fundamental to ensure that the criteria of credibility, dependability, confirmability, transferability and authenticity are met. I discuss these in the following sub-sections.

3.5.1 CREDIBILITY

Credibility is defined as the degree to which the conclusions or findings of study research are sound (Durrheim, 2006). In this regard, Stringer (2014, p. 92) states that credibility implies "the plausibility and the integrity of the study". This, therefore, implies that results should hold a truthful and trusted value (Patton, 2000).

In this study, I ensured credibility in the data generation and documentation processes that I adhered to. This is evidenced by my discussion of the results of the study throughout Chapter 4 and in Appendices C to G (in terms of the varied use of data generation and documentation methods). In this regard, I aimed for the findings to capture the voices of the teacher-participants. In support of this, I corroborated the findings I put forward with more than one caption of quotations taken from the various PRA-based discussion sessions, my observations, field notes, reflective journal and audio-visual data sources (Seale, 1999).

According to Patton (2002), credibility can be strengthened when the recorder spends sufficient time at the research site during data generation. I relied on such prolonged engagement with the teacher-participants over a period of two years (March 2016 to August 2018), as captured in my research schedule in Appendix B. In this process, I aimed to ensure that all participants had the opportunity to express their perceptions and share their experiences on how school-based vegetable gardens may support resilience in vulnerable school-communities (Stringer, 2014). In addition to the time spent on data generation and documentation, I devoted a significant amount of time analysing the data and ensuring that I attend to all the steps implied by thematic inductive analysis (Creswell, 2014b). The process of data analysis was both iterative and reflexive in an attempt to reduce any bias and increase the credibility of my study.

In addition, I relied on crystallisation by utilising multiple data generation and documentation strategies (captured in Appendices C to G). As the data sources complemented one another, the research findings may be sufficiently credible to inform future studies (Nieuwenhuis, 2007; Stringer, 2014; Yin, 2016). In further support of credibility, I conducted a diverse case analysis. This implies that I ensured that all the teacher-participants from the nine participating schools had an equal opportunity for their perspectives to be incorporated into the research findings (Stringer, 2014).

Yin (2016) states that a qualitative researcher should always be reflective when conducting research. Accordingly, I continually reflected on the various research actions and assumptions, as well as on my thoughts and potential bias to minimise permeation of subjective thoughts into the research process, and my interpretation of the data that had been generated. A reflective journal (refer to Appendix G) enabled me to continually note my emerging thoughts, reflections, decisions, personal ideas, reactions and insights that I gained. As such, I regularly reflected on my execution of the research plan, as well as my experiences and assumptions on entering the field (McMillan & Schumacher, 2010). Throughout, I critically reflected on my way of thinking to avoid subjective thoughts from influencing the findings of this study (Cohen et al., 2011). Furthermore, I reflected on the teacher-participants' views during the research process as I perceived these (Cohen et al., 2011,2017).

I included member checking (consult Appendix D) to ensure that the findings of the study were credible and confirmed by the research participants (Candela, 2019; Seale, 1999). As such, I engaged in the process of collating and summarising the results I obtained, and then presenting this summary to the participants for them to confirm or elaborate where needed.

3.5.2 TRANSFERABILITY

Transferability refers to the degree to which the results of a study are evidence-based and applicable to similar contexts (Seale, 1999). This implies that the results of a study can authentically inform research in similar settings. The transferability of this study was enhanced through the use of multiple data generation and documentation methods, my reflective journal, field notes and member checking (refer to Appendices C to G). Furthermore, I ensured that my study was founded in existing literature (consult Chapter 2) (Brear, 2019; Cohen et al., 2011), which I used to confirm and

disconfirm the findings I obtained (refer to Chapter 5) to increase the plausibility of my findings in informing other studies.

To this end, I include detailed and thick descriptions of the research contexts and process in this thesis for the reader to be able to determine the possibility of transferring the findings to similar contexts. Even though my findings cannot be generalised to other contexts, other researchers may be informed and potentially transfer the findings of my study when researching similar contexts (Merriam, 2002). Also, to ensure that the data was scientific and could form part of an existing knowledge base, I relied on crystallisation and obtaining a nuanced view of the phenomenon I set out to explore (Creswell, 2014b). As such, I included multiple techniques and sources and also guarded against any form of bias (Patton, 2002). I furthermore conducted member checking (refer to Appendix D) to ensure that the results I present captured the views of the research participants, thereby strengthening the plausibility of the results and the possibility of the findings being applicable to other contexts.

3.5.3 DEPENDABILITY

According to Punch (2005) as well as Seale (1999), dependability relates to the trustworthiness of the findings and whether or not a study can be repeated, obtaining the same results. This means that I ensured that my results were accurately reported, consistent with the generated and documented data. I provide a trail of evidence of the data I analysed, as well as a detailed account of the research process, for other researchers to conduct a similar study if they wished to do so (Cohen et al., 2017; Patton, 2002). In short, dependability can thus be defined as the degree to which findings are repeatable (Durrheim, 2006).

During the research process, I continually reflected on and documented my thoughts and experiences. The purpose of my reflective journal was, amongst other things, to minimise any subjective thoughts from affecting the research process and to provide an accurate account of the research I completed (Creswell, 2008a). As already stated, my journal contained a detailed account of the steps and procedures I followed during the research process (Stringer, 2014).

3.5.4 CONFIRMABILITY

Confirmability relates to the degree to which the results of a study are plausible and a true reflection of the participants' views (Cohen et al., 2011; Fusch, Fusch, & Ness, 2018; Patton, 2002; Seale, 1999). The current study aimed to ensure confirmability through the crystallisation of multiple data sources, namely PRA-based activities and discussions (captured as verbatim PRA transcripts), observation-as-context of interaction (captured as field notes) and visual data (refer to Appendices C, E and F). I confirmed my findings through the use of member checking (refer to Appendix D) and a reflective journal (Appendix G). In further support of confirmability, I aimed for the voices of the participants to be heard by including quotations and narrations captured in the raw data when reporting the results in Chapter 4 (Lincoln & Guba, 2005; Cohen et al., 2017). Furthermore, member checking gave the participants the opportunity to confirm my data analysis and interpretation or to correct me where I did not represent their voices or capture the meanings they intended to convey, before finalising my results and research report.

In terms of the multiples sources that I relied on, and included references to the various sources when reporting the results of the study in Chapter 4 (Seale, 1999). In addition, I continuously engaged in a reflexive process and regular debriefing sessions with research team members in support of confirmable findings. I kept a reflective journal in which I documented my research reflections and thoughts, and later on matched these against the findings of the research. In doing this, I aimed to confirm the findings of the current study by testing my thoughts and observations against the findings I obtained (Seale, 1999).

3.5.5 AUTHENTICITY

Authenticity in qualitative research refers to the degree to which the views of the research participants are treated with fairness, and participants are given an independent voice (Patton, 2000). Authenticity thus calls for an accurate description of the research process (Fusch et al., 2018; Seale, 1999). In ensuring that the research participants were treated fairly and with autonomy at all times, I saw to it that all participants independently consented to participate in the study and were aware of the possibility to opt-out if they wished to do so (Creswell, 2014a). In addition, I aimed to ensure consistency of my views and analysis through the crystallisation of multiple

data sources (refer to Appendices E to G) and utilisation of member checking (refer to Appendix D).

I furthermore attempted to ensure authenticity by means of sound data sources and prolonged engagement in the field (Yin, 2016). I generated data in quarterly phases, which enabled me to obtain rich qualitative data that was captured through multiple data generation and documentation strategies (Yin, 2016). In reporting the results, I provided thick and rich descriptions (Consult Chapter 4) as a way of authenticating the data sources and findings (Yin, 2016). Through member checking (Brear, 2019; Seale, 1999) I also allowed the participants an opportunity to confirm the results of the research and highlight any aspect they potentially wanted to elaborate on or add.

3.6 CONCLUSION

In this chapter, I discussed the empirical study I conducted. I explained my paradigmatic choices, described the research design and discussed the selection of the nine cases and 37 participants. I also described the data generation and documentation strategies I utilised before explaining how I analysed and interpreted the data. Lastly, I outlined the ethical considerations and quality criteria applying to this study.

In the following chapter, I present the results I obtained in terms of the participants' views and experiences on establishing and maintaining school-based vegetable gardens *via* a peer-to-peer intervention within vulnerable communities. I present the results according to the themes and sub-themes I identified during inductive thematic data analysis.

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Chapter 4
Results of the Study

4.1 INTRODUCTION

In the previous chapter, I discussed the selected paradigms, research process and data generation, documentation and analysis strategies employed in my study. I also explained in detail the ethical guidelines that I followed when conducting the research. Before concluding, I described the quality criteria that I adhere to.

In this chapter I focus on the results of the study as captured and identified by the teacher-participants in terms of their views shared during the PRA-based activities and discussions. I report on the three main themes and sub-themes that surfaced in the thematic analysis, providing excerpts from the generated data to enrich the discussion.

4.2 OVERVIEW OF THE RESULTS

Before discussing the results of this study, I provide an overview of the three main themes and related sub-themes in Figure 4.1.

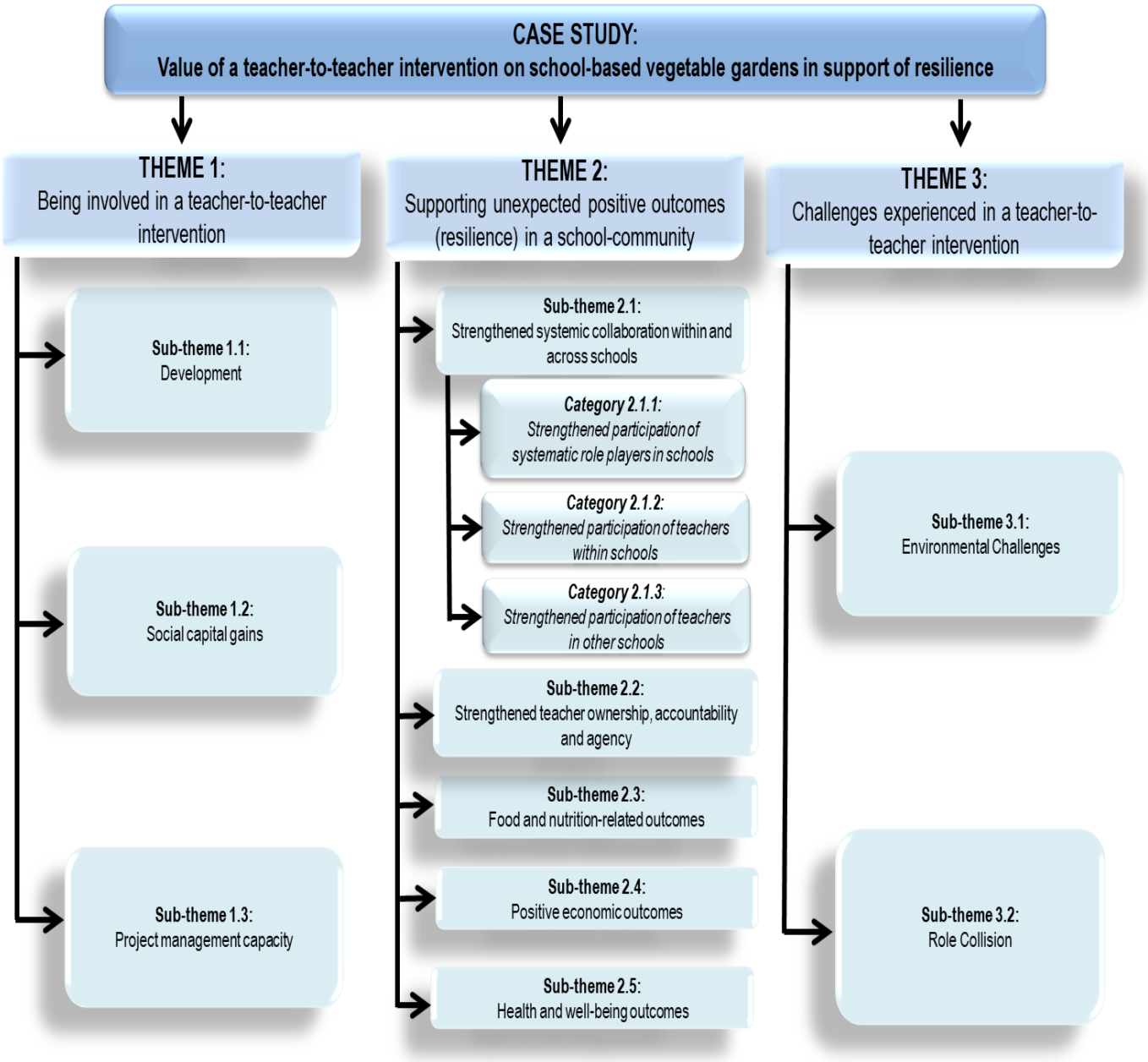


Figure 4.1: Overview of themes and sub-themes

4.3 THEME 1: BEING INVOLVED IN A TEACHER-TO-TEACHER INTERVENTION

This theme reports on the teacher-participants' experiences of participating in a teacher-to-teacher intervention. The three sub-themes that apply are development, social capital gains, and strengthening project management capacity. In Table 4.2 I summarise the inclusion criteria that guided me for Theme 1.

Table 4.1: Inclusion criteria for Theme 1

Theme 1 Being involved in a teacher-to-teacher intervention	
Sub-theme	**Inclusion criteria**
Sub-theme 1.1: Development	All data related to peer capacity development obtained through participation in the school-based vegetable garden project.
Sub-theme 1.2: Social capital gains	All data related to the social capital attributes obtained in engaging in the school-based vegetable garden project.
Sub-theme 1.3: Project management capacity	All data related to project management capacity of a school-based intervention by teachers.

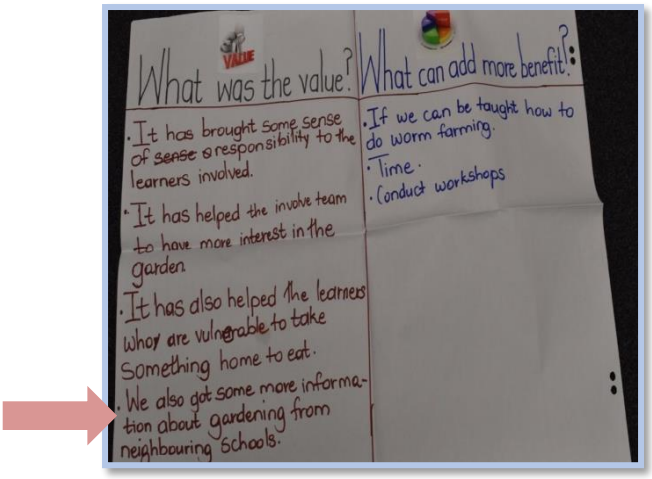
4.3.1 SUB-THEME 1.1: DEVELOPMENT

This sub-theme summarises the development attained by the teacher-participants as a result of being participants in a teacher-to-teacher intervention as they reciprocally shared and gained knowledge, skills and resources. The sub-theme comprises teacher professional development in teachers' capacity to acquire teacher-related knowledge (skills, resources or competence).

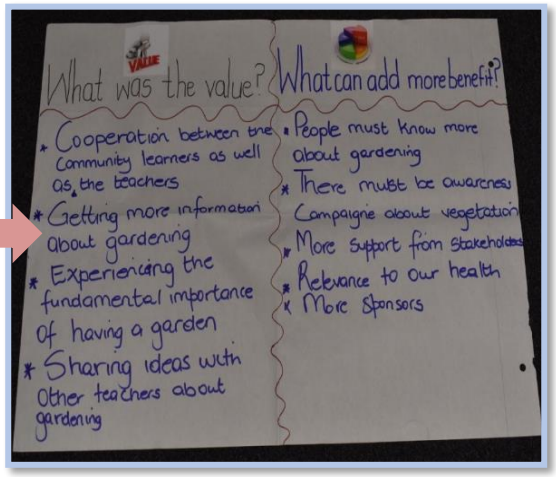
During the PRA-based discussions, the teacher-participants were able to share ideas and knowledge on school-based vegetable gardens and varying school related projects. The teacher-participants seemed to acknowledge that by engaging in the FIRST-GATE intervention and its phases they were enabled to learn from one another. I captured this observation as follows in my field notes: [4]*Teacher-participants mentioned that they gained so many ideas from their colleagues on how to manage gardens and overcome some of the challenges experienced due to drought, pets, water challenges and looking after the garden during the holidays* (Field notes, 28/05/17). I also reflected on this during the first colloquium, stating that *I realised that teacher-participants had rich knowledge* (Reflective journal, 23/03/16). In support, during member checking one of the participants validated this idea by saying *…there was value in the shared knowledge and experiences of school-based vegetable gardens and this value was that there was an increased involvement of various*

[4] The following colour codes apply: Theme1: Red, Theme 2: Orange, Theme 3: Blue

stakeholders (MC[5]3, TP1, 17/04/18). Confirmation is captured in Photographs 4.1 and 4.2, pointing out that teacher-participants seemingly gained capacity from one another in the form of knowledge and skills.



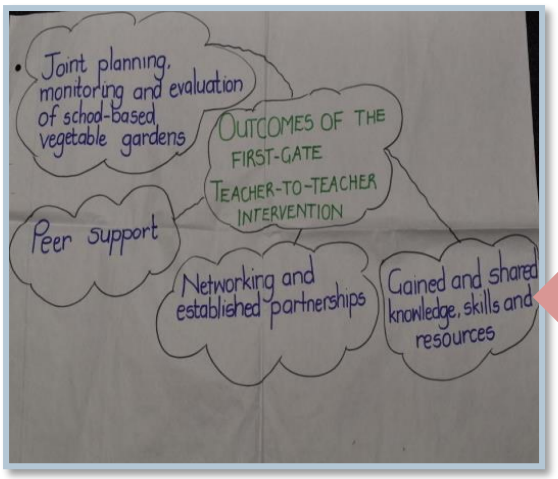
Photograph 4.1:
PRA-based poster acknowledging gained knowledge and skills (School H, 19/09/17)



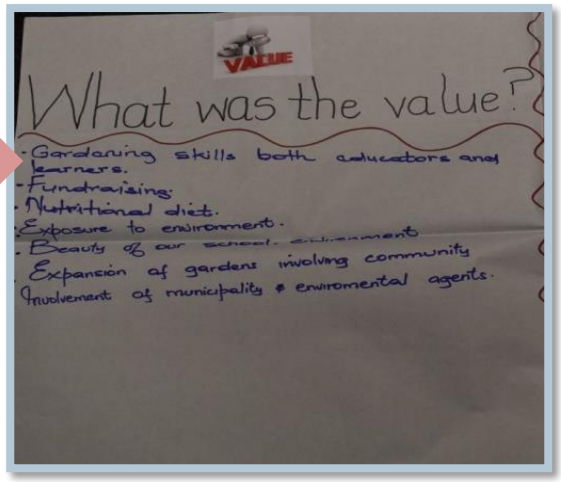
Photograph 4.2:
Participants highlighting knowledge gained from participation in the teacher-to-teacher intervention (School D, 19/09/18)

In addition to the knowledge they reportedly gained, the teacher-participants indicated that they were able to obtain resources in the form of seeds and tools from their peers due to their involvement in the study. One school representative pointed out: *We were given seeds by Sis Nomonde and this really helped us to expand our garden* (PRA-BD1, TP1, 10/08/2016). Another participant reiterated, *we also connected with Nomonde and then she gave us some other plants and seeds* (PRA-BD3, TP3, 10/08/2016). In support, the PRA posters acknowledged the sharing of skills and resources amongst peer teachers. Photographs 4.3 and 4.4 similarly highlight the gaining and sharing of knowledge, skills and resources that were voiced by the teachers as a result of their participation in the intervention.

[5] Henceforth the following abbreviations apply: MC = member checking; schools were grouped into three-member checking sessions as such verbatim transcript were numbered (1–3) accordingly; PRA-BD = PRA-based discussion; TP = Teacher-participant; PM = Panel member; F = Facilitator. A total of nine PRA-based discussions were conducted as part of the data generation process. The analysed verbatim transcripts are numbered 1–9 accordingly.



Photograph 4.3:
Member checking poster stating gained and shared knowledge and resources (MC, 16/04/2018)



Photograph 4.4:
Teacher-participants highlighting gained and shared knowledge, skills and resources (School D, 19/09/2017)

As such, teacher-participants seemingly related the value of participating in the study to their gaining and sharing knowledge, skills and resources to the extent that they positioned themselves in their schools as being equipped to impart the acquired knowledge, skills and resources to other teachers within their schools, the learners as well as to parents. Some of the teachers spoke of having gained skills that propagated a passion for gardening as part of life and their (and others') general well-being.

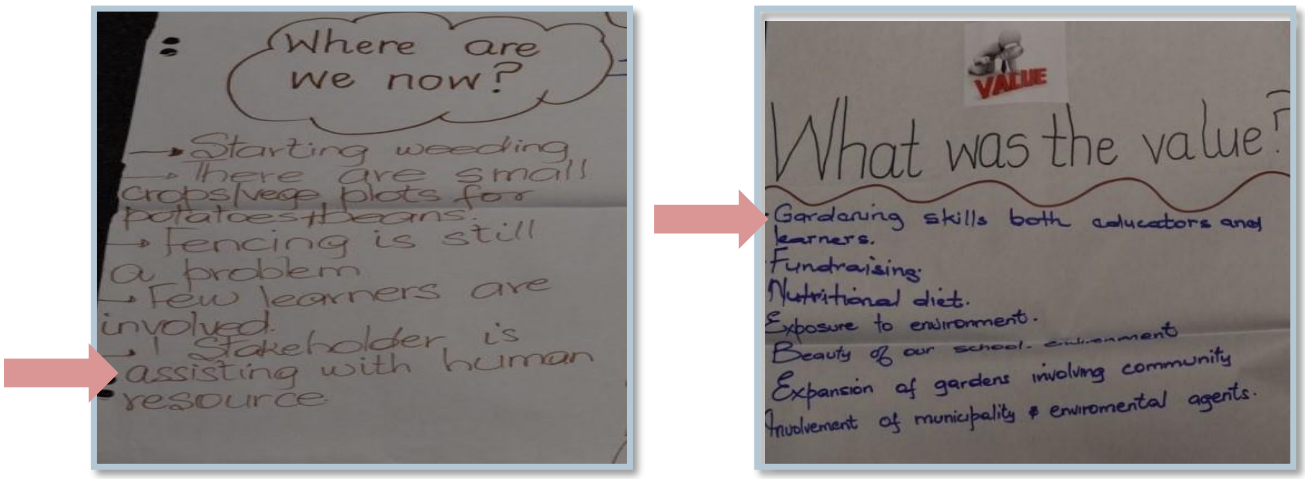
4.3.2 SUB-THEME 1.2: SOCIAL CAPITAL GAINS

Sub-theme 1.2 relates to the data generated on teacher-participants' perceived ability to influence and establish partnerships, or access networks with various role players with the aim of establishing school-based gardens and related projects. As such, sharing the social capital gains with various role players implied benefits that could be accessed through participation in the teacher-to-teacher intervention. More specifically, the focus falls on the beneficial value of networking of the teacher-participants with the various role players that linked up in establishing the gardening projects.

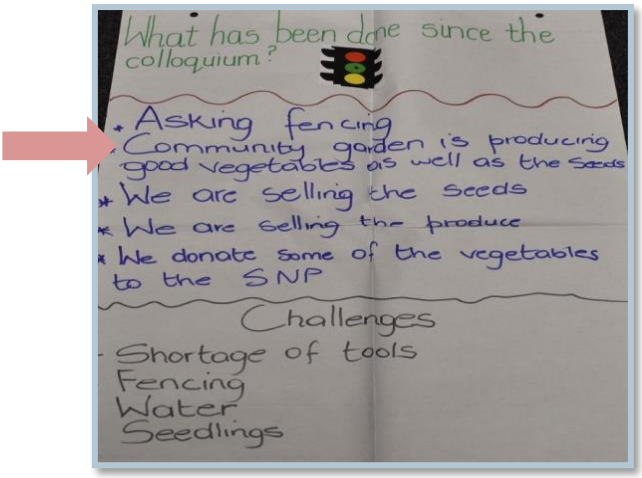
A key partnership that was enhanced by establishing school-based vegetable gardens relates to social capital gain and teacher development. This was accomplished through teacher-participants partnering with the community. In confirmation of this benefit, one participant pointed out that *we were working together with the community.*

We were doing that with 40% community and then 60% the school. We were able to sell vegetable produce that amounted to R1,300 and then we gave the community the 40%, then the school was left with R800 (PRA-BD5, TP1, 10/08/2016)[6]. As such, in partnering with the community to establish the school-based vegetable gardens it was mutually and financially beneficial for both the communities and schools.

Another teacher-participant mentioned that community partnerships provided a bridge for the community to equip learners with gardening skills. The participant said the following: *Grade 5 and 6 learners went to Sardinia Bay where Mr Grant Breydon was teaching them on the proper way of planting* (PRA-BD2, TP6, 10/08/2016). In one school, as a result of partnering with various stakeholders, a community member started volunteering to support and work in the school garden as part of his voluntary services to the school. Throughout, the participants foregrounded their partnerships and networking with the communities, as captured in Photographs 4.5 to 4.7.



[6] Responses are provided verbatim and have not been edited.



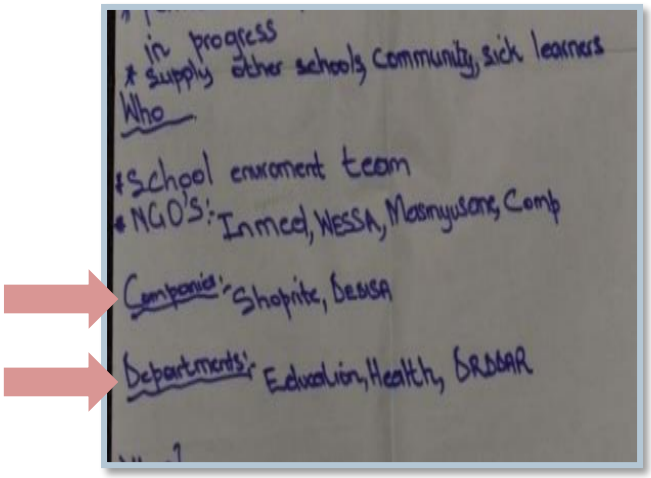
Photographs 4.5, 4.6 and 4.7:
Posters indicating participating schools partnering with the school-communities and accessing networks of support (School B, 20/09/17 and School D, 22/09/17)

In addition to networking with the community, the schools that formed part of the FIRST-GATE intervention continually acknowledged partnering and the sharing of resources amongst themselves. For example, they said, *we even go to Nomonde for the seeds and then we tried to plant those seeds* (PRA-BD3, TP1, 10/08/2016), and *… so we plan to continue working with Nomonde* (PRA-BD3, TP1, 10/08/2016). Another school said that *… having a garden which is already fenced and there are also a few tools which we got from Nomonde at Centenary and then we will also have a HEC* [Higher Education Council] *Committee* (PRA-BD1, TP3 23/03/2016). In summary, a participant captured this trend as follows: *We will team up with schools already in the project like say is far away but if you want something you will go there to ask for help and also there's School H nearby …* (PRA-BD1, TP5, 23/03/2016).

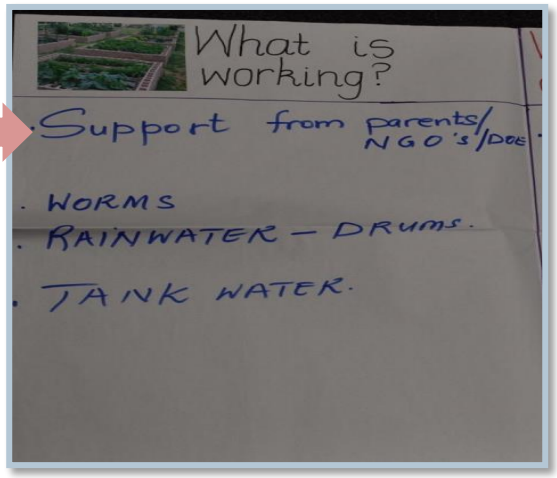
In addition to networking with communities and neighbouring schools, the teacher-participants confirmed that they were able to forge partnerships with government departments, universities and NGOs. The participating schools reportedly partnered with government departments such as the Department of Basic Education (DBE), the Department of Correctional Services, the Department of Agriculture and the Department of Rural Development. This facilitated initiatives such as the fencing of gardens, acquiring gardening tools and attaining seedlings, as captured in the following contribution: *… the Rural Development is supportive to us and saying we are the first programme and group of people that are working with them that are into entrepreneurship as some projects are just growing vegetables and not selling* (PRA-BD5, TP1, 10/08/2016). Another teacher-participant added *the officer of rural*

development and it is his area this one, so he is working with us, assisting us, because we don't know the techniques of how to grow the seeds because we want to do a market day (PRA-BD5, TP1, 10/08/2016). A participant from another school shared a similar view, stating, *as we have said we liaising with the DBE with and then the Department of Agriculture, the NMU* [Nelson Mandela University], *WESSA* [The Wildlife and Environment Society of South Africa] *and other NGO's* (PRA-BD1, TP5, 23/03/2016).

During the March 2016 and May 2017 FIRST-GATE colloquiums, representatives from the DBE attended and strengthened partnerships with the participating schools. These events created opportunities for the participating schools and external partners to follow up and resolve some of the needs of the schools, as captured in the following contribution: *Please follow up of the tools that we gave you last year because under challenges you said there is no support from inside nor outside and we are perhaps the outside, so we did offer you garden tools and also seeds, everything last year, make a follow up about it* (PRA-BD1, PM1, 23/03/2016). The following contribution captures a similar experience: *Then we had an NGO EMED, and then we spoke to them about this plan I have here in that. And then there was available to support …* (PRA-BD5, TP1, 10/08/2016). In support, Photographs 4.8 and 4.9 indicate the various partnerships that were established by the participating schools.



Photograph 4.8:
Poster capturing various partnerships established by participating schools (School B, 21/09/2017)



Photograph 4.9:
Poster confirming partnership with NGOs (School B, 20/09/2017)

In addition to NGOs, Photographs 4.8 and 4.9 highlight partnerships with local companies such as Shoprite and Checkers. These established partnerships benefitted the schools in developing their school-based vegetable gardens and introducing other related projects with the school, as captured in the following field notes: *… teacher-participants indicated that partnering with local companies was of benefit as the acquired sponsor for their 'Market Days' and sponsor provided them with essential tools such a JoJo tanks and gardening tools* (Field notes, 19/09/2017). In support of my observation, a teacher-participant mentioned that *… it was Shoprite bringing good news that they want to assist me in the project* (PRA-BD6, TP3, 19/09/2017).

In terms of partnerships with the NMU, the teacher-participants referred to a reciprocal relationship with university students that rendered their services and worked in school gardens yet in turn gained important agricultural skills required for university students' experiential learning and development. One participant explained this as follows: *As we have said we liaising with the DBE with and then the Department of Agriculture, the NMU, WESA and other NGOs* (PRA-BD1, TP1, 23/03/2016), with another teacher-participant highlighting participation by *the University of Western Kentucky, and then in June the professors and doctors from Kentucky, Dr* [Doctor] *Sandra they bought paint and painted the hall …* (PRA-BD5, TP1, 10/08/2016). In my field notes I captured the value of these partnerships: *Teacher-participants indicated that partnering with local companies was of benefit as the acquired sponsor for their 'Market Days' provided them with essential tools such a water tanks and gardening tools* (Field notes, 10/08/2016). In addition, some local companies reportedly donated to the schools' nutrition programme, as captured in the following words: *Fortunately for us, GM, General Motors came on board by donating loads of seedlings to our school* (PRA-BD5, TP5, 10/08/2016).

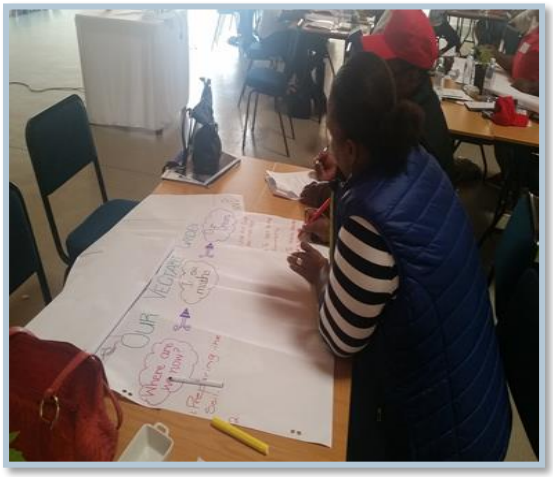
In summary, the teacher-participants seemingly perceived one of the values of their forming part of the peer-to-peer intervention to be that of gaining capacity to establish partnerships with various stakeholders and in turn accessing networks of support. Collaboration with the various stakeholders reportedly enhanced their gardening skills and provided financial funding and other forms of sponsorships to initiate and strengthen related projects within the school. Some of the networks also provided volunteers and human resources in support of the school-based vegetable gardens.

4.3.3 SUB-THEME 1.3: PROJECT MANAGEMENT CAPACITY

Through engagement and participation in the school-based intervention, the teacher-participants were seemingly able to develop their capacity on a collective and individual level to manage projects, with the key elements being the planning, monitoring and evaluation of establishing school-based vegetable gardens.

During a PRA-based workshop, teachers as participants identified the need to plan as they embarked on establishing school-based vegetable gardens, saying *we think we need proper planning* (PRA-BD1, TP1, 23/03/2016). The teacher-participants identified the following goal and plan: *In 6 months' time we are planning for a market day* (PRA-BD1, TP1, 23/03/2016). In another PRA discussion, the teacher-participants indicated their planned targets as follows: *Our first target was the improvement of getting water …* (PRA-BD6, TP1, 19/09/2017), once again highlighting the importance to plan ahead of time and have specific goals in place.

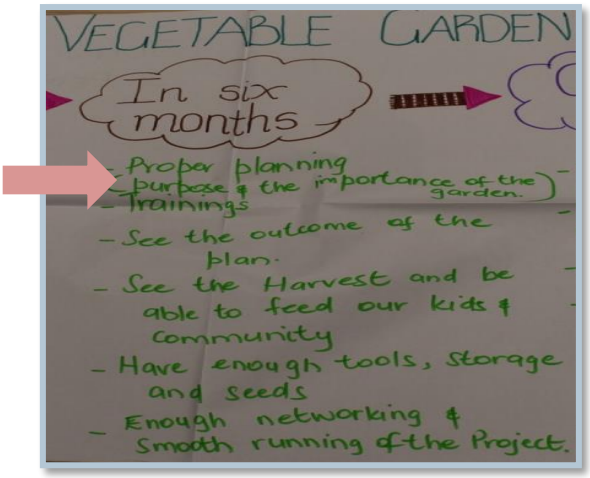
The participants actively participated in the process of planning, monitoring and evaluation of their school-based vegetable gardens. They highlighted that the FIRST-GATE project enabled them to engage in a process of joint planning, monitoring and continuous reflection on their progress and the needs of their school-based vegetable gardens. In this regard, I noted the following: *Teacher-participants found the process of engaging in the visual PRA-based posters and mapping their way forward (plan), identifying assets and setting garden goals helpful* (Field notes, 09/10/2016). In further support, I captured the following contribution by one the teacher-participants: *Engaging in this planning process of planning always keeps us alert and reminds us of vegetable gardens. Sometimes as teachers we don't due to work commitments* (Field notes, 20/09/2017). Photographs 4.10 and 4.11 depict teacher-participants engaging in the process of planning and later reviewing their initial plans and developing revised action plans, thereby monitoring their progress and the prevailing needs of their school-based vegetable gardens.



Photograph 4.10:
Participants at the colloquium mapping-out initial plans for their school-based vegetable gardens (23/03/2016)

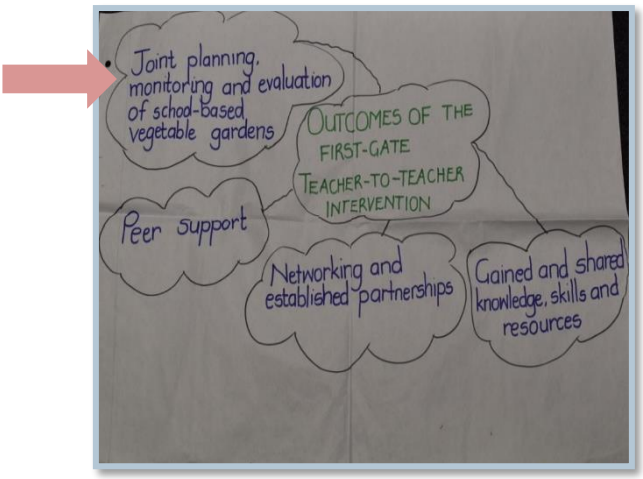
Photograph 4.11:
Participants engaging in the process of revising their plans as part of monitoring and evaluation (School H, 10/08/2016)

The teacher-participants seemingly valued the process of joint planning and associated networking that followed in identifying and addressing the needs of their school-based vegetable gardens. One teacher-participant captured this experience as follows: *And we will make arrangements to get the necessary tools … things and we will do the networking. We will make sure that in 6 months' time that we know everybody that is here will work with us* (PRA-BD1, TP1, 23/03/2016). Another teacher-participant underscored the value of proper planning and implementation, saying *in 6 months' time, we think that we will have to do the proper planning and we will introduce the garden as we were taught here, we will make everybody know the purpose of having the garden and the importance.* Participants apparently realised the need to review the outcomes of such a plan, as captured in the following contribution: *We will try and make sure that there is training, and after some time we will see if our planning does have the outcome* (PRA-BD1, TP2 23/03/2016). In support of these contributions, Photograph 4.12 underscores the value of proper planning indicated by the teacher-participants.



Photograph 4.12:
PRA-based poster acknowledging the value of planning (School E, 28/05/17)

During member checking, participating schools once again confirmed the value of joint planning, monitoring and evaluation. A teacher-participant for example pointed out that *… the team that was working in the garden there was monitoring, there was evaluation. I'm saying that because they would come here during weekends to check on the garden, so to see if there's anything that needs to be done* (MC2, TP2, 16/04/2018). In addition, other teacher-participants clarified the value of joint planning in the following manner: *When we spoke about joint planning, joint planning is … (unclear) and brings value to any group to any situation, it brings value because it gives everyone an idea of what is expected, when it is expected* (MC2, TP1, 16/04/2018). To this end, I noted the following in my field notes: *The PRA-based poster activities of planning and reviewing school-based vegetable gardens seem to unite teacher-participants toward a common goal of working together and pursuing set goals* (Field notes, 20/09/2017). This idea is captured in Photograph 4.13, indicating the joint planning, monitoring and evaluation of school-based vegetable gardens as a valuable outcome of the teacher-to-teacher intervention as experienced by the participants.



Photograph 4.13:
PRA-based poster indicating the value of joint planning, monitoring and evaluation (MC1, 16/04/18)

In retrospect, the process of joint planning, monitoring and evaluation formed the basis of my study as teacher-participants were consistently required to engage actively in this process during each phase of the study. It seemed to hold them personally accountable to ensure that they achieved their set goals and attempted to find ways of resolving the challenges that they experienced in managing their school-based vegetable gardens. As an outcome, teacher-participants thus developed the capacity to establish and plan future intervention projects within their schools and school-communities.

4.4 THEME 2: SUPPORTING UNEXPECTED OUTCOMES (RESILIENCE) IN A SCHOOL-COMMUNITY

The second theme that I identified relates to the perceived benefits of the teachers' participation in the FIRST-GATE intervention for the establishment and maintenance of school-based vegetable gardens. The following five sub-themes apply: strengthened collaboration within and across schools; strengthened teacher ownership, accountability and agency**;** food and nutrition-related outcomes; positive economic outcomes, and health and well-being outcomes. The sub-themes and categories are captured in Table 4.2, indicating the inclusion and exclusion criteria relied on in identifying these.

Table 4.2: Inclusion and exclusion criteria for Theme 2

Theme 2 **Supporting unexpected positive outcomes (resilience) in a school-community**		
Sub-theme and category	**Inclusion criteria**	**Exclusion criteria**
Sub-theme 2.1: Strengthened systemic collaboration within and across schools	All data related to the collaborative engagement of teachers within and across schools through their participation in the vegetable garden project.	
Category 2.1.1: Strengthened participation of systemic role players in schools	All data related to the value of various role players being involved in establishing and maintaining school-based vegetable gardens.	All data indicating the value of role players taking accountability for the progress and process of school-based vegetable gardens and ensuring increased food production as outcome of vegetable gardens.
Category 2.1.2: Strengthened participation of teachers within schools	All data related to teachers' enhanced participation and engagement with other teachers within their school as a result of their participation in the school-based intervention.	All data related to teachers' collaborative engagement and participation with teachers in other schools.
Category 2.1.3: Strengthened participation of teachers in other schools	All data related to teacher-participants supporting and engaging with other schools as a result of the school-based garden project.	All data highlighting teachers as peers participating and engaging within their localised schools.
Sub-theme 2.2: Strengthening teacher ownership, accountability and agency	All data referring to the value of teacher-participants as role players being accountable for the progress and processes of their school-based vegetable garden projects.	
Sub-theme 2.3: Food and nutrition-related outcomes	All data related to the value of school-based vegetable gardens for increasing food production and enhancing the food nutrition of the school-community.	
Sub-theme 2.4: Positive economic outcomes	All data related to vegetable gardens aiding positive economic outcomes benefiting the school-community.	
Sub-theme 2.5: Health and well-being outcomes	All data related to health and well-being outcomes aligned with the establishment of a school-based vegetable garden.	

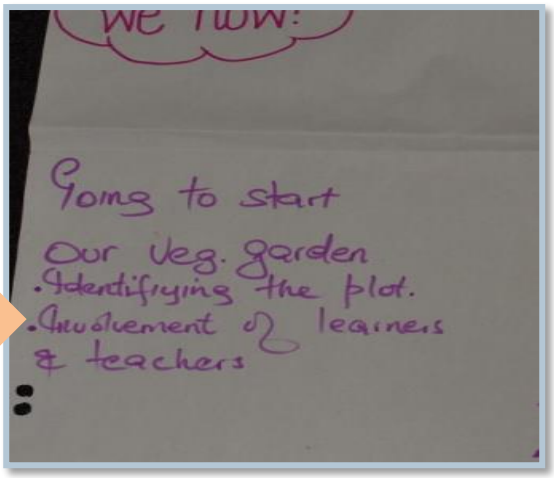
4.4.1 SUB-THEME 2.1: STRENGTHENED SYSTEMIC COLLABORATION WITHIN AND ACROSS SCHOOLS

This sub-theme reports on data pertaining to enhanced collaboration and the engagement of teachers and various role players within and across schools in promoting the teacher-to-teacher intervention. It comprises three categories namely strengthened participation of systemic role players in and across schools (Category 2.1.1); strengthened participation of teachers within schools (Category 2.1.2), and strengthened participation of teachers in other schools (Category 2.1.3).

4.4.1.1 Category 2.1.1: Strengthened participation of systemic role players in schools

The involvement of various role players was underscored by the teacher-participants as one of the perceived benefits of engaging in the FIRST-GATE intervention. During the PRA-based discussions, teacher-participants firstly indicated learners as a significant group of role players in establishing and managing school-based vegetable gardens. One participant, for example, said that *we involve learners, not our own learners only but from other classes as well. If there's a free period they go there. More learners are involved in one way or the other* (PRA-BD5, TP2, 10/08/2016). In elaborating on this idea, the teacher-participants indicated that learners could benefit from spending time in the garden as *… some of the learners enjoyed being in the garden, being involved in planting vegetables as a source of food in the garden* (MC2, TP3, 16/04/2018). In confirmation of this view, the participants stated *we do not require manpower, because we've got hands and learners* (PRA-BD7, TP2, 20/09/2017). In further support, Photograph 4.14 provides an example of learner involvement in one of the vegetable gardens and Photograph 4.15 captures the value of involving learners as role players in establishing and maintaining school-based vegetable gardens, according to the teacher-participants.

Photograph 4.14:
Learners participating in school-based vegetable garden activities (School C, 22/09/2017)

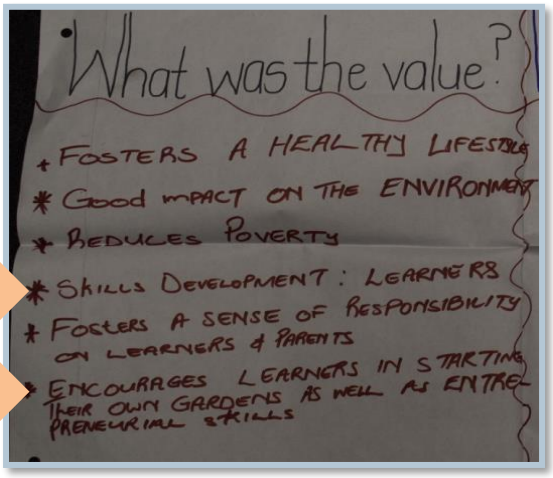


Photograph 4.15:
Learners indicated as role players in school-based vegetable gardens (School C, 23/03/2016)

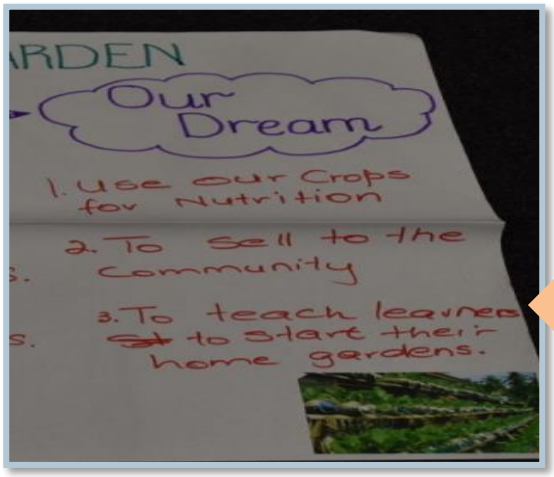
In addition to participating actively in a school-based initiative, the teacher-participants regarded learner involvement as beneficial, due to vegetable gardens providing interactive learning hubs where learners could acquire various skills. In this regard, I noted the following: *Teacher-participants view learners participating in gardening as essential in learning fundamental skills in an integrated and experiential way that an indoor classroom cannot provide* (Field notes, 12/04/2017). In addition, a participant indicated that by involving learners as role players, they could engage in practical gardening activities that can in turn have a positive effect on academic learning. One participant explained this view as follows: *Involving learners has impacted in their teaching and learning, they are now better learners than they were before they were involved in the garden* (MC2, TP1, 16/04/2018). Another teacher-participant added the following: *It is like a laboratory for them, eco-class, entrepreneur class, then it improves the skills of the learners, though some of the learners are not going to class but when they go to the garden they are fully engaged* (PRA-BD8, TP1, 21/09/2017). In support another participant referred to *gardening school for the learners they will learn the skills and have a love for the plants and live a healthy lifestyle* (PRA-BD7, TP7, 20/09/2017).

The teacher-participants furthermore identified the possibility of learner involvement in school gardens resulting in positive change in healthy eating habits, especially when involving young learners. One of the teacher-participants, for example, said, *it would help the Grade Rs' to eat the veggies because there were problems with the little ones when it comes to the veggies because they don't really want to eat the vegetables*

(PRA-BD6, TP3, 19/09/2017). In confirming this view, another participant mentioned the following during a member checking session: *Some produce was given to the learners who were involved in the garden, and yes it did improve their lifestyle, because in the process they are learning how to eat healthy,* (MC2, TP4, 16/04/2018). Closely related, some of the participants captured the possibility of learners not only gaining essential skills but also acquiring a sense of responsibility in looking after school-based vegetable gardens and transferring these abilities to the home setting by establishing their own home gardens. In this regard, the teacher-participants stated, *don't forget, the children had done their own vegetable garden* (PRA-BD2, TP3, 10/08/2016). Photographs 4.16 and 4.17 confirm this view.

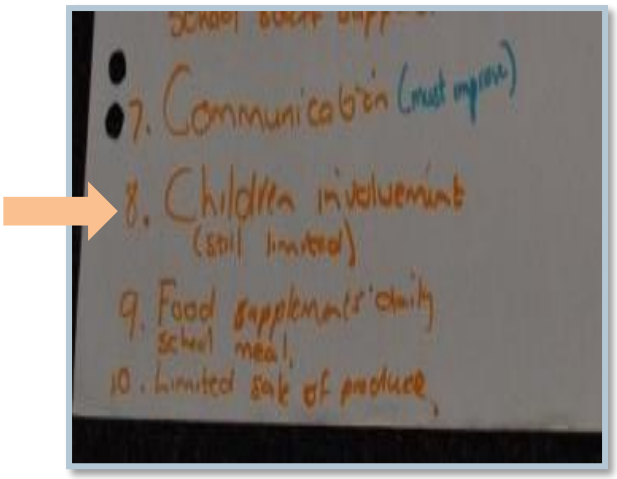


Photograph 4.16:
Poster indicating that learners as role players will yield positive outcomes (School I, 21/09/2017)

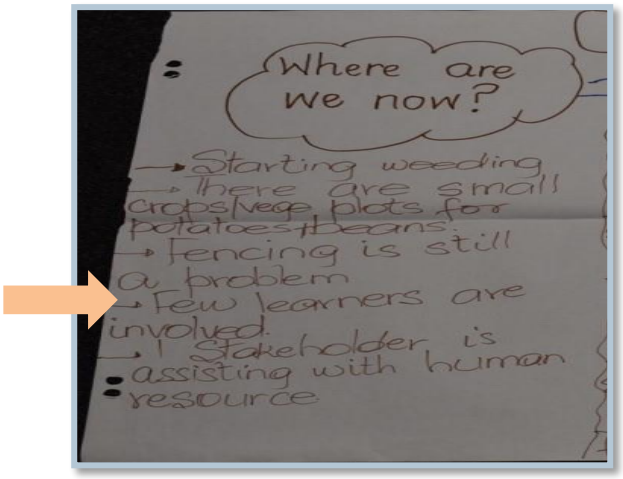


Photograph 4.17:
Poster indicating the possibility of learners initiating home gardens due to their involvement at school level (School F, 23/03/2016)

In spite of the significance of learners being valued by the participants in establishing and maintaining school-based vegetable gardens, the participants also indicated the need to continually strengthen the involvement of learners in such initiatives. In this regard, I noted the following: *Participating schools indicated that it was challenging to involve more learners as a result of challenges as classroom learning took precedence over gardening activities* (Field notes, 20/09/2017). The teacher-participants seemingly viewed learner participation as not yet sufficient; and at the time of the data generation they stated *a few learners are involved. Only the Grade 4s, his classes are there* (PRA-BD1, TP5, 23/03/2016). Photographs 4.18 and 4.19 confirm this view.

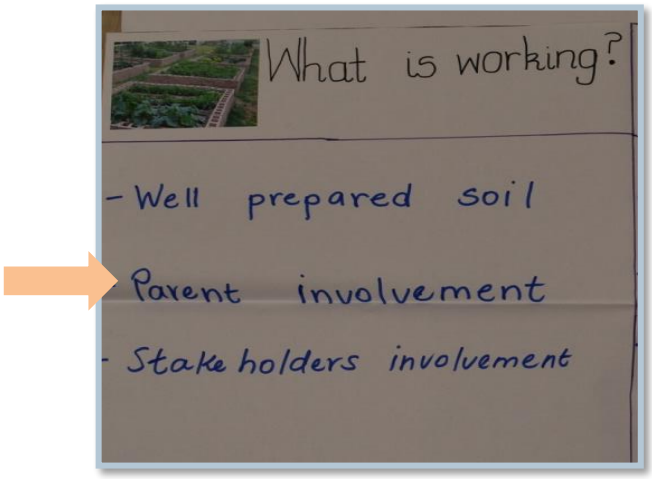


Photograph 4.18:
Poster indicating the need to increase learner involvement (School C, 23/03/2016)

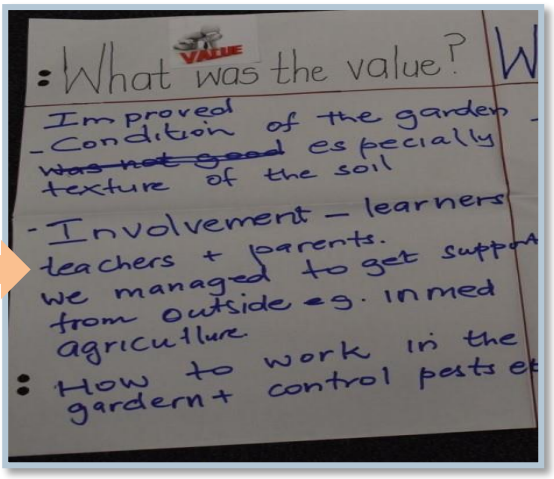


Photograph 4.19:
Poster indicating that only a few learners are involved in school-based vegetable gardens (School D, 23/03/2016)

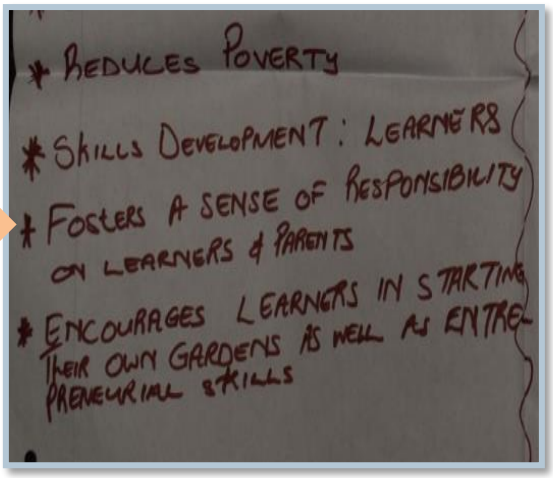
Next, parents were identified by the teacher-participants as important role players in school-based vegetable gardens. As depicted in Photographs 4.20 to 4.22, the teacher-participants were seemingly of the view that the teacher-to-teacher intervention supported parent involvement.



Photograph 4.20:
Poster indicating that the teacher-to-teacher intervention promoted parent involvement (School F, 23/03/2106)



Photograph 4.21:
Value of parental involvement (School A, 20/09/2017)

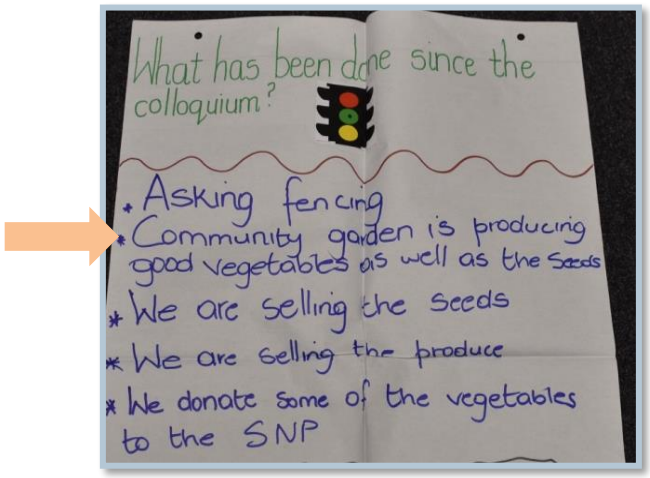


Photograph 4.22:
Poster indicating parental involvement yielding a sense of responsibility (School I, 21/09/2017)

Participating teachers, however, seemingly experienced some challenges in getting parents involved in school-based vegetable garden projects. They mentioned that *… it is not easy to get parents for manpower* (PRA-BD4, TP1, 10/08/2016). In elaborating on this report, some of the participants identified strategies they had employed in support of high levels of parent involvement. They mentioned the following: *There are also other parents who are assisting, so they were able to help, a group of parents* (PRA-BD3, TP4, 10/08/ 2016); and *we tried to encourage the parents, to sensitise them about gardening. They were a few that bought the concept of the gardening*; *we reached out to parents, we invited them. GM, General Motors came on board by donating loads of seedlings to our school, which was a blessing for us. Then it was very easy for the parents to come on board* (PRA-BD7, TP1, 20/09/2017).

An added value of parental involvement relates to the parents in turn acquiring knowledge and skills in establishing and maintaining vegetable gardens. According to the participants, *there are many parents who are not working and also that can also help them a small garden in their homes* (PRA-BD6, TP1, 19/09/2017). In this regard, I noted: *Parents being involved in the school garden project seemed to yield a positive relationship as parents were gaining gardening skills and in turn become involved in the school-community and other activities that are related to the fundamental learning of their children* (Field notes, 19/09/2017).To this end, another teacher-participant indicated *we will invite Grade 6 and their parents and Grade 7s, so that the parents can be aware that next year …* (PRA-BD8, TP2, 21/09/2017).

In addition to parents, the teacher-participants shared their view that it is valuable to involve the broader community in school-based vegetable-gardens. According to the participants, as captured by me, *in working with community, community members would actively engage with the school and feel a sense of ownership of the school and the school garden* (Field notes, 11/04/2017). I captured a related contribution to the effect that *… community members in their participation in the school garden ensured that the garden was watered during school holidays; they made sure no goat would break fence and eat the plants and also made sure that the school was safe from burglary* (Field notes, 10/08/2017). As a result of working together when establishing and maintaining school-based vegetable gardens community members may financially benefit, as indicated by a participant in the following manner: *We are sharing profits as such, 40% community and then 60% the school. We were making I think it was R1,300 and then we gave the community the 40% … the members of the community that they can have money not just food from the garden* (PRA-BD5, TP1, 10/08/2016). Contributions such as these point to the value for community members to become involved in school-based vegetable gardens with the benefit for the school of having access to vegetables that are taken care of, as depicted in Photograph 4.23.

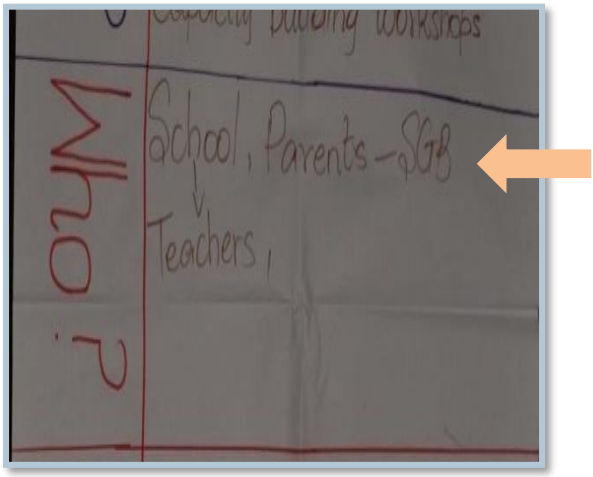


Photograph 4.23:
Poster indicating the value of the community as role player in school-based vegetable gardens (School C, 28/05/2017)

Participating schools reportedly valued the involvement of volunteers from the community that offered their services to school-based vegetable garden projects. Such support provided by volunteers took on various forms, for example financial support, the sharing of expertise, or assistance in the garden. The teacher-participants, for example, referred to the following volunteers making contributions: *There's a doctor in*

Pretoria so she visited us, gave them R1,000 (PRA-BD5, TP1, 10/08/2016); *Ms Earth, Andreas is participating, she is one of the finalists in this, so she's coming to the school, talking about environmental awareness* (PRA-BD5, TP1, 10/08/2016); and *… there's only one man that is working on it. We do have enough plants, it's kind of smooth running* (PRA-BD1, TP1, 23/03/2016).

Finally, the teacher-participants referred to the significance of SGBs and school principals in maintaining school-based vegetable gardens. The participants namely noted that *The SGB will play its own part, the teachers, and the principal as well* (PRA-BD1, TP2, 23/03/2016). In support, Photographs 4.24 and 4.25 depict the importance of SGBs and school principals as decision makers within the school that should form part of school-based vegetable garden projects.



Photograph 4.24:
Poster indicating the SGB as a role player
(School D, 20/09/2017)

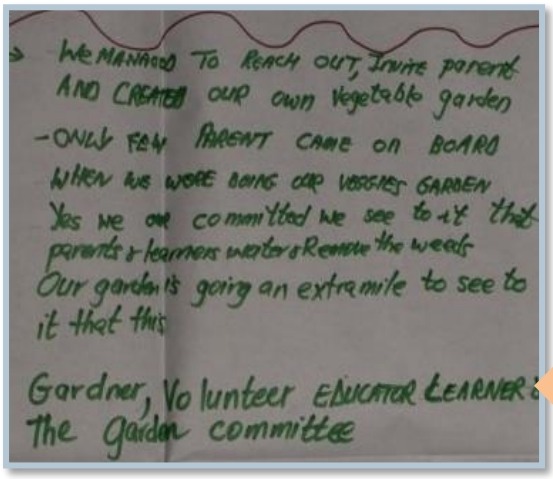
Photograph 4.25:
Poster indicating SGB involvement
(School C, 21/09/2017)

4.4.1.2 Category 2.1.2: Strengthened participation of teachers within schools

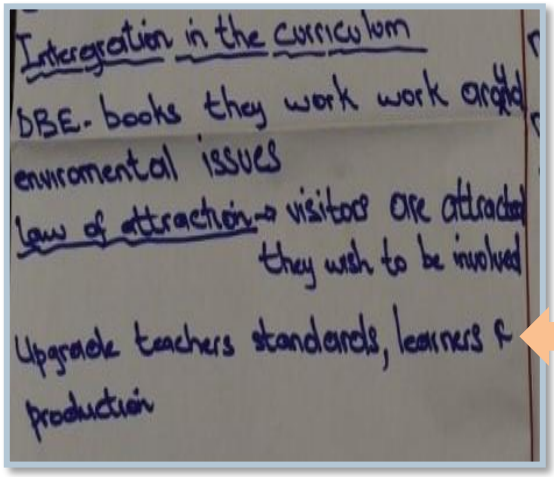
Teacher-participants seemingly experienced the involvement of other teachers that did not form part of the gardening project as valuable. By establishing a relationship with fellow teachers within the school, the teachers who participated in the FIRST-GATE project reportedly believed that a sense of ownership of school-based vegetable garden initiatives would follow. In this regard, teacher-participants mentioned that *many people were involved, at least more teachers were hands-on in the garden, because we did not have an interest in the garden but as soon as we started with taking part with the intervention, they too were keen to be actively involved* (PRA-BD9,

TP1, 21/09/2017). Contributions such as these confirm the possibility of involving various teachers in the school in such a project that could in turn contribute to the success of the project.

When reflecting on the value of their involvement, the participating teachers referred to the knowledge and skills that they had gained through their involvement in the teacher-to-teacher intervention. I captured these experiences in the following way: *Most participating schools motivated all teachers to participate so that they could actively participate in gardening activities* (Field notes, 28/05/2017). I reflected as follows in this regard: *In schools that all teachers were actively involved in the school-based vegetable garden yielded positive results of the garden flourishing and with the whole school having a sense of ownership to the garden* (Reflective journal, 19/09/2017). Photograph 4.26 affirms the general value of involving teachers as role players in school-based vegetable gardens, whereas Photograph 4.27 indicates the value of teacher involvement for environmental standards and food production.



Photograph 4.26:
Poster indicating involvement of teachers as role players



Photograph 4.27:
Poster indicating involvement of teachers as role players

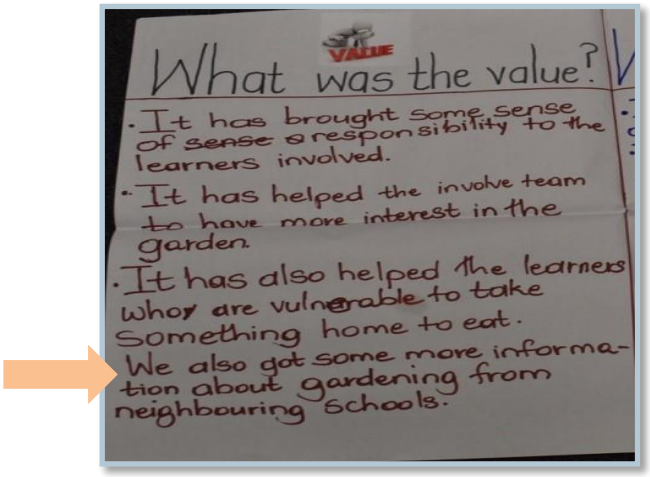
I summarised the reported value of involving teachers in schools in the following manner: *Teacher-participants mentioned that the establishment of school-based vegetable gardens within the schools strengthened participation and interactions of teachers within the whole school. Other teachers within the school became involved in the school-based vegetable garden and as this promoted positive work relationships, a sense of collective ownership of the school. It also enabled other teachers to become involved in other projects* (Reflective journal, 11/08/2016).

Examples of this involvement are indicated in the following excerpt taken from the raw data: *During holidays we were here, the Principal and the teachers then they were doing quotations ... looking to fix our gutters and now today was the last day to install a new tank, gutters* (PRA-BD5, TP1, 10/08/2016).

Finally, in involving teachers as role players they could benefit from the vegetable produce of the school garden. In addition, teachers could assist in selling some of the produce to raise funds for the school. In this regard, the teacher-participants reported: *The crops that we were selling spinach, carrots and onions. We were selling inside the school so the children were moving around the school and selling the carrots to the teachers. All the teachers bought and ate the carrots that we harvested* (PRA-BD7, TP3, 20/09/2017). As such, the teacher-participants alluded to teacher and learner involvement in school-based vegetable gardens as yielding *unity between the learners and the teachers* (PRA-BD8, TP, 21/09/2017).

4.4.1.3 Category 2.1.3: Strengthened participation of teachers in other schools

In addition to the involvement of teachers of the school where a vegetable garden is based, the data analysis indicated the potential value of involving teachers in other schools. More specifically, teachers that formed part of the FIRST-GATE project referred to peer teachers or teachers in neighbouring schools that were interested in forming part of their gardening projects. Teacher-participants specifically mentioned assistance by other teachers in terms of valuable advice, as captured in the following contribution*: Yes, peer support is always there because even now we have other teachers, I think there are two ladies … that said to us immediately … your fence still needs to be fixed and you have started with a garden, call us, invite us to come over and assist you* (MC2, TP2, 17/04/2017). In addition, the teacher-participants valued the peer-to-peer engagement and support network of teachers forming part of the FIRST-GATE project, making statements such as the following: *We even go to Nomonde for the seeds and then we tried to plant those seeds* (PRA-BD2, TP1, 10/08/2016); and *We are also networking with other schools … that is Philip Nikiwe, that is where we are getting the seedlings from, the herbs and …* (PRA-BD2, TP5, 11/08/2016). As such, the teachers seemingly relied on one another and on peer education, thereby gaining knowledge from the teachers in their neighbouring schools. Photograph 4.28 concisely captures this experience.



Photograph 4.28:
Poster indicating other schools as role players (School D, 20/09/2017)

4.4.2 SUB-THEME 2.2: STRENGTHENING TEACHER OWNERSHIP, ACCOUNTABILITY AND AGENCY

Taking ownership of the progress and processes involved in the school-based vegetable gardens could be linked to the success of the projects that was observed as part of the current study. As the study progressed, the teacher-participants seemingly took ownership and when the vegetable gardens were perceived as sources of support, ideas for other possible projects materialised, involving various role players and stakeholders. One school pointed out that, as part of other projects they initiated and the relationships formed through the school-based vegetable garden project, they received support from other involved role players to maintain and develop their school facilities. They reported that they were subsequently able to *fix our gutters and now today was the last day, we installed a new tank and gutters* (PRA-BD3, TP1, 09/08/2016). Closely related, a teacher-participant from another school mentioned that *the water is expensive so those JoJo tanks are helping us in our school* (PRA-BD9, TP3, 21/09/2017). Photographs 4.29 and 4.30 provide examples of projects that were introduced as a result of the establishment of the school-based vegetable gardens, thereby indicating secondary benefits of the FIRST-GATE project and the teachers taking ownership for finding solutions to the challenges they faced.

Photograph 4.29:
JoJo tank donated by stakeholders (School B, 20/09/2017)

Photograph 4.30:
JoJo tank and security bars installed as a result of the success of the school-based vegetable garden project (School E, 20/09/2017)

As such, the FIRST-GATE school-based vegetable garden project provided a basis to teachers to think beyond a vegetable garden and obtain some produce, to planning more broadly and attending to challenges faced by the school-community. In their planning, the teacher-participants provided indications of their intentions with the produce of the vegetable gardens, setting goals such as the following: *We hope to make a profit so that we can develop our school, maybe we will be able, out of the funds that we get, to fence the school* (PRA-BD1, TP6, 23/03/2016). This points to the possibility of the participants planning and establishing their school-based vegetable gardens with the intention of securing a food source, yet also to create an avenue that could generate financial income for the schools.

In taking ownership, the teacher-participants displayed increased levels of long-term planning. One of the schools, for example, indicated the need to expand its garden size, stipulating the following plan: *In 6 months', time from now, we are going to wish to expand our garden to plant more herbs and we are going to involve more learners and community members to help us in the garden* (PRA-BD1, TP6, 23/03/2016). Another school indicated that they *were going to identify more homes, we are going to make more plots* (PRA-BD2, TP1, 10/08/2016). Closely aligned, another participating school indicated that they *were going to sell some of the food we harvest to the school …* (PRA-BD 2, TP5, 10/06/2016). I summarised this future vision as follows: *In the second phase of planning the way of monitoring and evaluation, teacher-participants' plans were extended to other projects and expanding gardening. Participating schools were setting a bigger margin for the financial profit margins than*

they initially made in the previous phase (Field notes, 19/09/2017). In support of my observation, the teacher-participants noted: *Yes, we want also this year we are targeting for R5,000, so we want the next year to be targeting R10,000 because it won't be done like from now* (PRA-BD5, TP1, 10/08/2016); and at another school, *next is ongoing entrepreneur, then what we will be doing will be just adding more things … like if this year we sold … then next year we will be selling 12 different types of vegetables, we will be adding more* (PRA-BD1, TP1, 23/03/2016).

As the study progressed, the teacher-participants seemed to become increasingly self-confident and motivated. This idea is summarised in the following contribution: *We will be improving from our success because it will be a success* (PRA-BD1, TP1, 23/03/2016). As such, the participating schools seemed to perceive their school-based vegetable gardens as successful entities that would continue to be successful in supporting their schools and show an upward trajectory. An example of the produce of a vegetable garden at one of the schools is captured in Photograph 4.31.

Photograph 4.31:
Teacher-participant preparing vegetable produce for sale (School H, 19/09/2019)

In taking ownership of the progress of the school-based vegetable gardens, teacher-participants furthermore expanded on the variety of vegetables planted in their gardens. They explained this as follows: *So, we will identify more homes … more plots to plant on, especially herbs will be planted, a variety of vegetables will be planted, half to be sold to the school for school nutrition …* (PRA-BD5, TP1, 10/08/2016). In addition to expanding the variety of crops, the schools reportedly extended into the community. Some participants took the initiative to identify and target homes to support and establish vegetable gardens. The teacher-participants themselves,

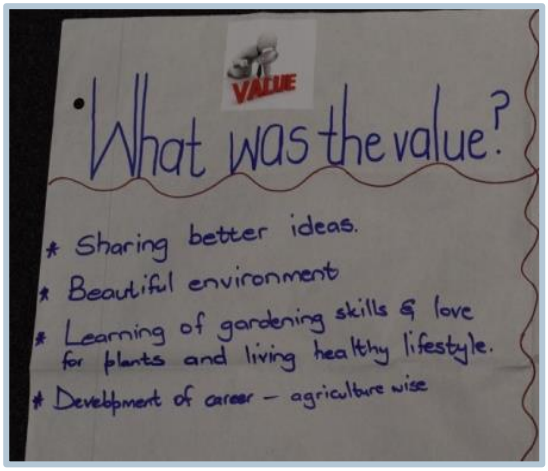
through the knowledge and skills obtained by participating in the project, felt sufficiently empowered to establish gardens at their own homes. A teacher-participant summarised this experience by saying, *I knew nothing about the garden, but since we started this project at least I have some idea, I even have a small garden at my place. So, it has also helped me personally in terms of the garden* (PRA-BD8, TP2, 21/09/2017). In terms of the broader community some participating schools collaborated with the community and provided community members with the necessary space to establish a community garden within the school. Photograph 4.32 provides an example of such an initiative.

Photograph 4.32:
Community garden as part of the school-based vegetable garden project (School D, 20/09/2017)

The participating schools seemingly established a sense of pride due to their taking agency and experiencing success. Teacher-participants mentioned that they wanted this to move beyond the experiences of the teachers and include, for example, learners that could gain a broader knowledge of vegetation by becoming involved. In this regard, the teacher-participants suggested the following: *There must be an awareness campaign about vegetation you see, because people are lacking information about vegetation* (PRA-BD7, TP1 20/09/2017), pointing to their wish to carry their newly gained knowledge and experience forward. A teacher mentioned how the incorporation of the school-based vegetable garden into learning strengthened creativity and nutritional knowledge, saying that *I try to motivate our children so that during eating time we don't have veggies lying around behind the … (unclear) they will be throwing out veggies like carrots … So, I've been doing vegetable Art with the Grade R learners they are responding very well.* (PRA-BD6, TP3, 19/09/2017). Based

on the teacher-participants' experiences of planting trees, flowers and vegetables, they reportedly expanded on their teaching. A teacher explained this as follows: *I was telling her it's a school garden, is not our garden, we are teaching the children about all types of plants, trees and herbs* (PRA-BD1, TP2, 23/03/2016). In support, Photographs 4.33 and 4.34 capture this trend.

Photograph 4.33:
An extension of a school garden (School D, 20/09/2019)



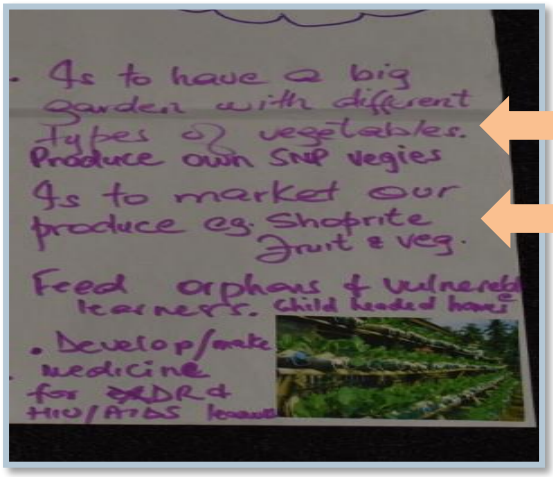
Photograph 4.34:
PRA-based poster on the benefits of the project (School C, 19/09/2019)

In summary, this sub-theme indicates how teacher-participants took ownership of the progress and processes involved in their school-based vegetable garden projects. They seemed to expand the projects in accordance with the needs of their schools and what they perceived as the fundamental needs of their specific schools. I captured my observation of this trend in the following way: *Participating schools are becoming innovative, each uniquely expanding the projects in accordance to their needs and goals. One school extended the project to worm farming* (Field notes, 21/09/2017).

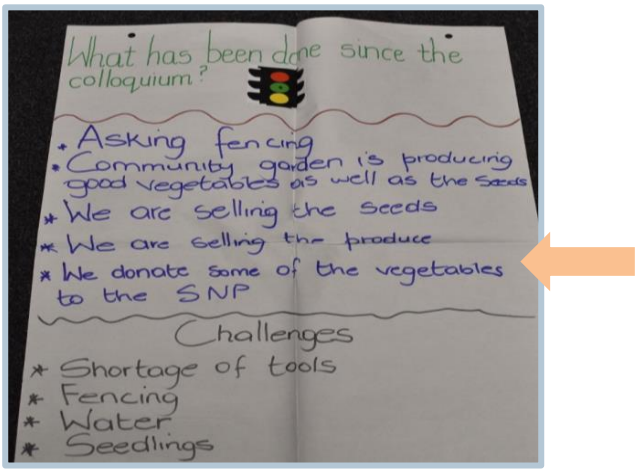
4.4.3 SUB-THEME 2.3: FOOD AND NUTRITION-RELATED OUTCOMES

This sub-theme indicates the benefits of increased food production and experience of success in the establishment and maintenance of school-based vegetable gardens, as perceived by the participants. As a broad overview, I noted the following in this regard: *Seasonally, participating schools were able to establish school-based vegetable gardens and harvest produce from them successfully* (Field notes, 28/05/2017).

My observation is supported by contributions by the teacher-participants who, for example, reported that *there was an increased food production and promotion of a healthy lifestyle, and there was more food, more vegetables being produced in the gardens and there was a promotion of a healthy lifestyle* (MC2, F1, 16/04/2018). More specifically, most schools emphasised that they were able to harvest surplus vegetable produce and that this resulted in their providing vegetable garden produce as supplement to the NSNP government programme as school feeding scheme. In this regard, the teacher-participants stated *the food from the gardens will be used for nutrition for the school* (PRA-BD2, TP4, 10/08/2016); that, *a variety of vegetables will be planted, half to be sold to the school for school nutrition* (PRA-BD5, TP1, 10/08/2016); and that *every Wednesday the parents who are cooking for us, we give them something to add onto their meals* (PRA-BD8, TP2, 21/09/2017). Most schools therefore reported increased food production and the subsequent possibility of income generation as a result of the success of the school-based vegetable gardens. Photographs 4.35 and 4.36 capture this trend.



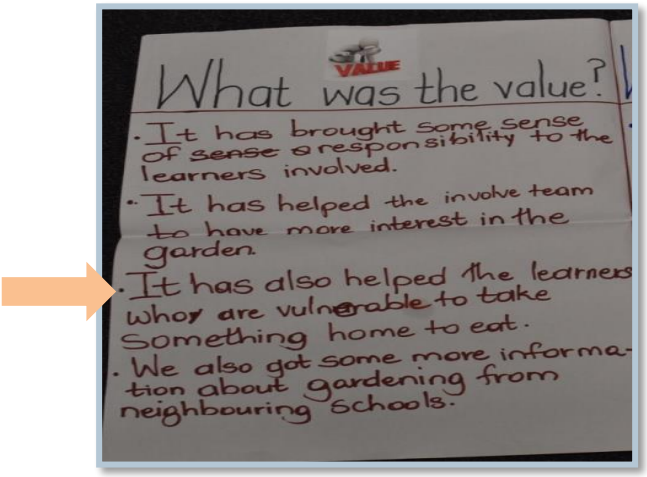
Photograph 4.35:
Poster on food production to supplement the NSNP and sell some of the produce (School A, 23/03/2016)



Photograph 4.36:
Poster indicating surplus food from the school-based vegetable garden to be donated to the NSNP and some produce being sold (School D, 19/09/2017)

In terms of selling surplus food from the vegetable gardens, surplus items were for example sold to teachers, the school-community and local shops, thereby generating income for the schools. Teacher-participants, for example, mentioned that *we were selling inside the school so the children were moving around the school and selling the carrots to the teachers … the carrots that we harvested* (PRA-BD 8, TP4, 28/05/2017).

In addition to this, the teacher-participants reportedly provided vegetable produce to vulnerable learners. One of the participants explained that *we are going to give some of those vegetables to our vulnerable kids* (PRA-BD1, TP3, 23/03/2016). In support, I noted that *Participating schools mentioned that school-based vegetable gardens served as a food source for supporting vulnerable learners and their families* (Reflective journal, 13/04/2017); and at another school that *Participating schools mentioned the need to also feed learners and the community through the school-based vegetable garden* (Field notes, 20/09/2017). In summary, the participating schools seemingly benefitted on various levels, such as *selling, feeding the communities, they are teaching* (PRA-BD2, TP1, 10/08/2016). It follows that increased food production in the school-based vegetable gardens allowed the schools to support learners, families and community members in need. Photograph 4.37 confirms this trend.



Photograph 4.37:
Poster on supporting vulnerable learners with food produce (School H, 19/09/2017)

The participating schools apparently attained varying levels of success. Whereas some of the schools focused on support to vulnerable learners and communities, other schools were able to commercialise their food produce as a result of increased production. One of the teacher-participants explained this by saying *… gardening is to commercialise our veggies. Instead of buying from service providers for our nutrition, we want to buy from the school garden* (PRA-BD3, TP1, 10/08/2016). This participant later elaborated by saying *we are targeting for R5,000, so we want the next year to be targeting R10,000 because it won't be done like from now … maybe in October/November … and the Grade 6 will take over for next year. So, we are selling*

non-stop (PRA-BD5, TP1, 10/08/2016). Closely related, the teacher-participants referred to the added benefit of skills development, saying *… through the commercialisation the Grade 7s, have learnt entrepreneurship skills. So now we want them to do that every year* (PRA-BD5, TP1, 10/08/2016).

4.4.4 SUB-THEME 2.4: POSITIVE ECONOMIC OUTCOMES

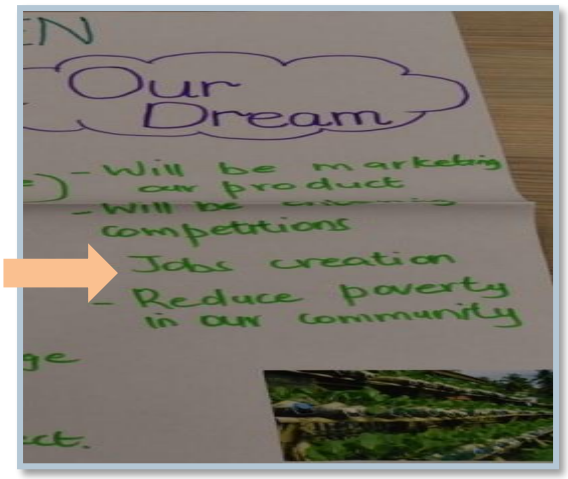
As already indicated, the success of the vegetable gardens at some of the participating schools allowed them to sell produce and generate funds, thereby experiencing a positive economic outcome. In this this regard, I noted: *Teacher-participants were successfully producing a seed bank and producing seedlings to sale to the community and neighbouring schools* (Field notes, 12/04/2017). In confirmation, a teacher-participant mentioned *… we plant the seed from the trees, so that we sell them* (PRA-BD5, TP1, 10/08/2016). In this manner, learners were equipped with the skill of self-reliance through engagement. Another teacher-participant made the following comment about this: *I think the value for the kids it will encourage them to have their own gardens at home, that is exactly what is important for them kids* (PRA-BD9, TP3, 21/09/2017).

School-based vegetable gardens were perceived as a potential source of income not only for the school, but also for learners, parents and other community members. The teacher-participants mentioned that both the school and community members were able to generate income and share this, giving the following example: *We were making I think it was R1,300 and then we gave the community the 40%, then the school was left with R800* (PRA-BD3, TP1, 10/10/2016). Similarly, learners that established their own gardens were reportedly able to generate personal income by selling their products at one of the schools. In this regard, I noted that the participating schools thus taught learners how to generate income through the marketing and selling of their vegetables.

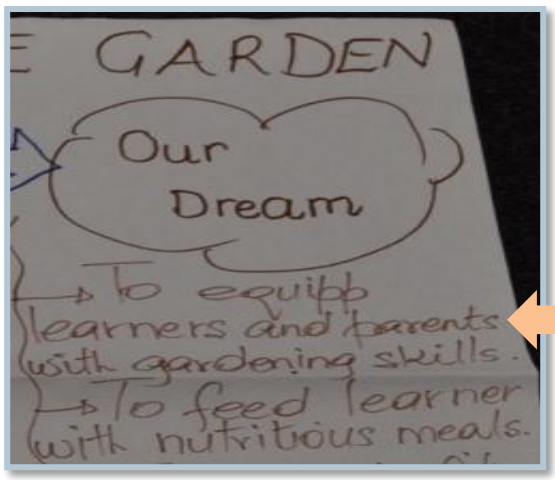
In addition to selling products, as part of their successful school-based vegetable garden and related projects, one of the schools entered into competitions to exhibit their success levels. The teacher-participants pointed out that *… we are taking part in the environmental competition now in August* (PRA-BD3, TP6, 09/08/2016); and that they *were also finalists at the Nestle Garden Competition* (PRA-BD5, TP1, 10/08/2016). At another participating school, the teacher-participants and learners involved in the school-based vegetable garden showcased their school and the

gardening project on national television. The teacher-participants reported as follows: *June 15th to the 17th with two learners, we were invited by ENCA* TV [eNews Channel Africa] *for hourly rewards to talk about our school, what is different at their primary school and the other schools. So, they were there to tell them that they are the junior primary school … we spoke of the project like planting, we are selling, we are feeding the communities and also the are teaching and learning in the garden* (PRA-BD5, TP1, 10/08/2016). These examples illustrate how the participating schools' vegetable gardens allowed the schools, teachers and learners to gain experience and acknowledgement for their projects, sometimes through financial reward and at other times by being able to showcase their efforts.

Teacher-participants furthermore identified and underscored the potential value of school-based vegetable gardens in addressing poverty. They emphasised the possibility of school-based vegetable gardens to equip learners, teachers, parents and community members with essential knowledge and skills in establishing and maintaining vegetable gardens. These skills could reportedly be extended to the home and community environment to provide a source of food and even potential income to people that may not have an income or experience vulnerability. In this regard I noted the following: *The school vegetable-garden seemed to be a basis for acquiring knowledge and skills that a learner, parent, teacher or a community member could utilise in establishing a garden and ultimately provide self-sustainable, cheap and consistent sources of food* (Reflective journal, 13/04/2018). In support of this perceived economic outcome, Photographs 4.38 and 4.39 capture the value of school-based vegetable gardens in potentially reducing poverty.



Photograph 4.38:
Poster on perceived value for reducing poverty and creating jobs (School H, 19/09/2017)

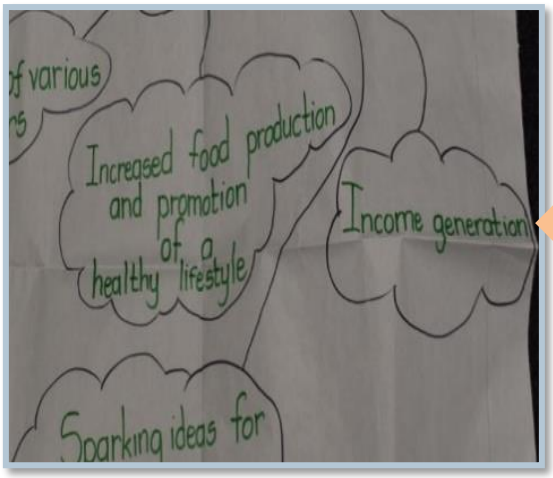


Photograph 4.39:
Poster on perceived value of skills acquisition (School H, 19/09/2017)

In addition to reducing poverty, vegetable gardens seemingly provided a platform to learners to develop entrepreneurial skills, acquiring the skills of marketing and selling vegetable produce. A teacher-participant reported *… then we are also showing them the learners how to market products. The market also can be recommended to our learners* (PRA-BD2, TP1, 10/08/2016). In support, another teacher-participant pointed out *... we are going to sell fresh produce, herbs and seedlings, so* we *… and we want this thing to continue to be sustainable, so that we want the Grade 7s to know that if they are not working, you can live on onion seedling or spring onion as a bunch or on herbs, you can make a living* (PRA-BD5, TP1, 10/10/2016). Closely related, another participant suggested the alternative of learners being encouraged to *buy from the school and sell at an extra price in the township. So even if there's fund raising at school, we want money, a child can buy something here at school and then sell it an extra price* (PRA-BD5, TP1, 10/10/2016).

As such the possibility of equipping learners with entrepreneurship skills once again came to the fore, where teachers indicated *… we are teaching them to be rich not like beg so to break that poverty cycle now. We don't want to depend on social grants, we want them to be entrepreneur and learn more things and then from next year and then we are targeting and we are looking for more and more customers* (PRA-BD5, TP1, 10/10/2016). In addition to school-based vegetable gardens being a potential source of income, the teacher-participants believed that the intervention could foster the idea in learners that they could consider careers that are related to the environment and agriculture.

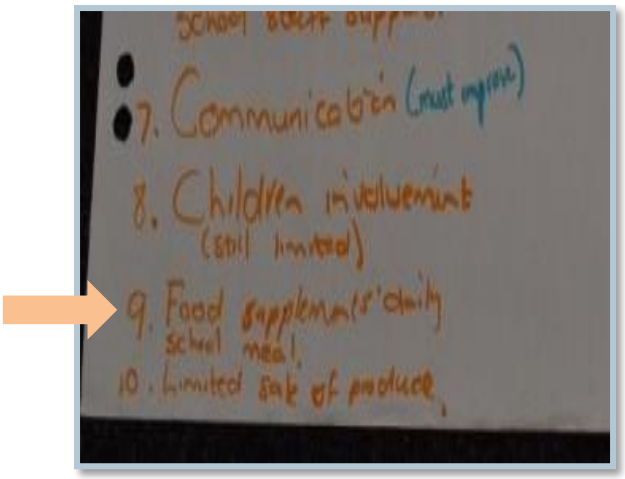
In summary, school-based vegetable gardens apparently seemed to imply economic benefits in the form of income generation through the selling of surplus food produce, alleviation of hunger and poverty through increased food production, and the acquisition of skills that could be beneficial in future when pursuing a career. This was confirmed during member checking, when school-based vegetable gardens were typified as a hub for income generating projects for the school-community that may provide income to low-resourced schools in vulnerable communities. Photograph 4.40 captures this idea.



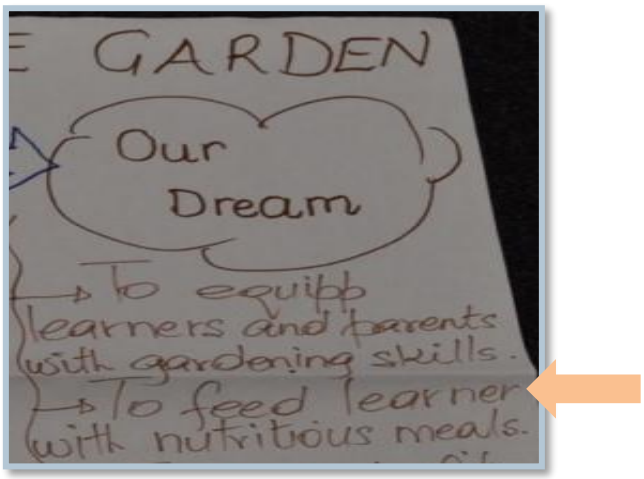
Photograph 4.40:
Poster on perceived value of income generation (MC, 14/04/2018)

4.4.5 SUB-THEME 2.5: HEALTH AND WELL-BEING OUTCOMES

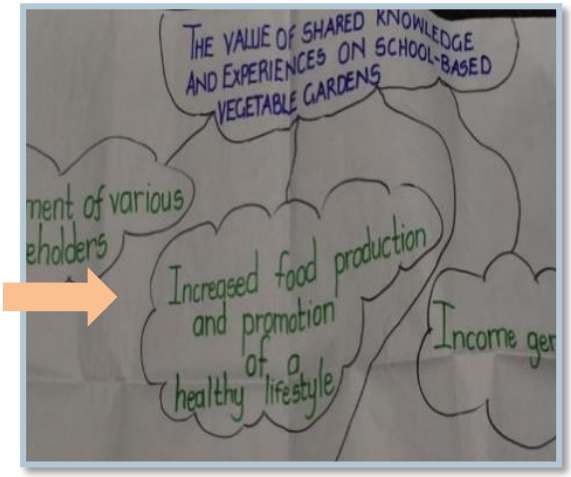
This sub-theme alludes to the value of school-based vegetable gardens for fulfilling basic needs and promoting health and well-being. All participating schools agreed that their vegetable gardens formed part of food hubs at the schools that benefitted all within their entire school-communities. One of the teacher-participants explained *… we've been feeding learners with nutritious meals from our garden as we have been ... we had a garden manned by the Co-Op so we've been feeding the kids from our garden* (PRA-BD1, TP3, 23/03/2016). In addition to the NSNP programme, schools were reportedly able to supplement the basic meals of learners and add vegetables to provide them with healthy meals on a daily basis. In this regard, I noted: *Teacher-participants mentioned that the school meal may the only nutritious meal that our learners get on a daily basis and this has increased the number of learners coming to school and reduced absenteeism* (Field notes, 21/09/2017). In confirmation, my observation is captured in Photographs 4.41, 4.42 and 4.43.



Photograph 4.41:
Poster on food produce providing food supplements (School C, 23/03/2016)



Photograph 4.42:
Poster on the provision of nutritious meals to learners (School H, 19/09/2017)



Photograph 4.43:
Poster indicating the value of a school-based vegetable garden (MC, 16/04/2018)

In addition to providing nutrition for vulnerable learners, the teacher-participants mentioned *… the left overs (vegetables) we took them to the kitchen for the nutrition programme* (PRA-BD8, TP4, 21/09/2017). The teachers underscored the importance of a mind shift towards the promotion of a healthy and nutritious life style, stating that *we must eat healthy, organic food without adding any artificial stuff like chemicals* (PRA-BD9, TP3, 21/09/2017). Another teacher-participant alluded to this and pointed out that *… we are going organic we don't go for artificial food products, you take your* (PRA-BD1, TP1, 23/03/2016). In this regard I noted the following: *One teacher mentioned that at time the government's nutrition programme is unable to provide vegetables as part of the basic nutritious meal for learners; as such the school-based*

vegetable garden serves as a food hub in adding to the vegetable as part of a balanced diet (Field notes 21/09/2017).

As part of the FIRST-GATE school-based vegetable garden project, some schools later included the planting of fruit trees, reporting *what's more, we are starting also to plant fruit trees now* (PRA-BD9, TP1, 21/09/2017). As such, learners were exposed to eating fruit in addition to the vegetables in the vegetable gardens. In addition to promoting a nutritional meal at school and the consumption of fruit, the school-based FIRST-GATE project thus exposed various role players such as parents, teachers, learners and community members to healthy eating. By engaging in gardening activities, learners could gain a better understanding of basic healthy eating habits. A teacher-participant summarised this potential benefit as follows: *You know we are having a garden in school … and teaching those kids … because we understand that most kids don't like vegetables … it's quite interesting for them to start growing it themselves* (Reflective journal, 19/09/2017).

Ultimately, learners were able to establish home gardens, which could in turn promote healthy lifestyles and the application of knowledge and skills gained through participation in school-based vegetable gardens. A teacher summarised this as follows: *I think the value for the kids it will encourage them to have their own gardens at home, that is exactly what is important for them kids, not just at school but ultimately to have their own gardens at home* (PRA-BD6, TP1, 19/09/2017).

In elaborating on the promotion of a healthy lifestyle the teacher-participants furthermore emphasised the importance of learners being taught to value the environment and take responsibility. One of the participants explained this by saying *this will give them a sense of responsibility to know that I am responsible for this, I have to water the spinach, the spinach needs fertilizer, that needs for me to remove the weeds around* (PRA-BD6, TP1, 19/09/2017).

In addition to the value for learners, the teacher-participants experienced the school-based vegetable gardens as equally valuable to them and the broader school-community. They summarised this view in the following way: *Garden as a resource fulfill basic needs, we know that food is a basic need for everybody, health is also a basic need so we need to be healthy for us to be prosperous, we need to be healthy for us to do our jobs to the best of our ability. So, it really does fulfill those two basic needs* (MC2, TP1, 16/04/2018).

In addition, school-based vegetable gardens were perceived to promote a heathy lifestyle in terms of hygiene and recycling practice within the school-community. The following example attests to this: *In our school it did spark ideas of waste management, because now we have Mrs Faleni that is buy now collecting all the papers for recycling, so it really did spark ideas for other groups* (MC2, TP3, 16/04/2018). In another participating school, a teacher noted, *with the little ones and also do some recycling and do pencil holders … like the Pilchard tins that they are using in the kitchen for nutrition, then they clean and they make beautiful pencil holders* (PRA-BD3, TP1, 10/10/2016). The same participant later added the following: *to keep our school yard neat, and encouraging learners to pick up papers where ever they go, they must pick up all the papers so that we make sure that the school yard is clean. So, it really did fulfill those basic needs* (MC3, TP1, 17/04/2018). As such, the FIRST-GATE school-based vegetable garden project seemingly sparked ideas to initiate related projects that would enhance the general health and well-being of the various school-communities that participated.

4.5 THEME 3: CHALLENGES EXPERIENCED IN A TEACHER-TO-TEACHER INTERVENTION

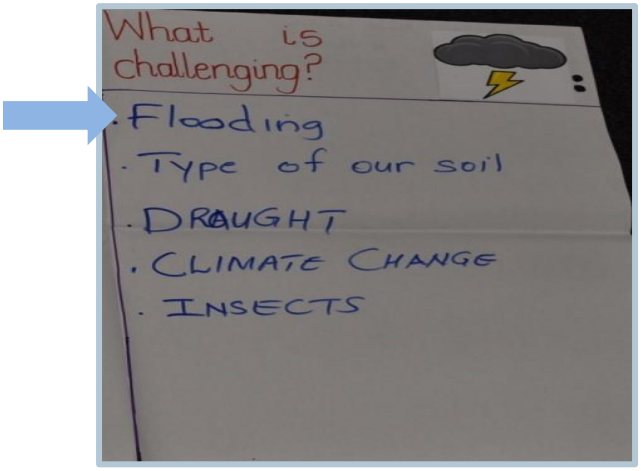
The theme of challenges experienced during the FIRST-GATE intervention comprises two sub-themes, namely environmental challenges and role collision. In Table 4.3 I provide the inclusion criteria for this theme.

Table 4.3: Inclusion criteria for Theme 3

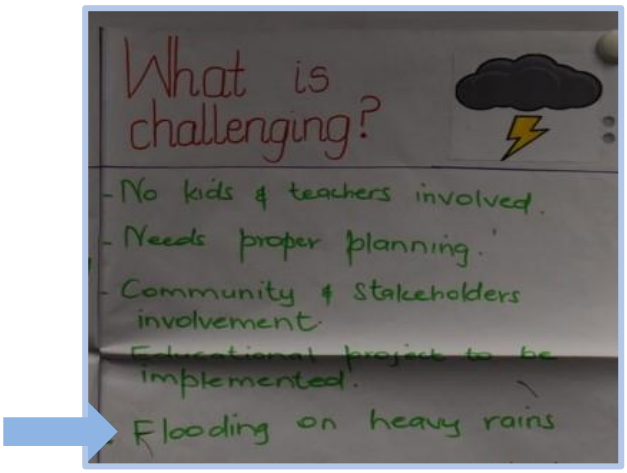
Theme 3 **Challenges experienced in a teacher-to-teacher intervention**	
Sub-theme	**Inclusion criteria**
Sub-theme 3.1: Environmental challenges	All data related to environmental challenges experienced during the establishment and maintenance of school-based vegetable gardens.
Sub-theme 3.2: Role collision	Data related to teachers experiencing role collision due to teacher work commitments in relation to participating in the intervention projects.

4.5.1 SUB-THEME 3.1: ENVIRONMENTAL CHALLENGES

When reflecting on the challenges of implementing their school-based vegetable garden projects, the teacher-participants underscored environmental challenges within the context as factors that affected them. Many of these environmental challenges were climate related, such as the challenge of flooding. In this regard, the teacher-participants explained that *when there are heavy rains in our area, we find that there's flooding that is taking place in our yard* (PRA-BD1, TP1, 23/03/2016). In this manner, unpredictable weather conditions were identified as challenging when wanting to establish and maintain a school-based vegetable garden, as confirmed in Photographs 4.44 and 4.45.



Photograph 4.44:
Poster indicating the challenge of flooding (School D, 28/05/2017)



Photograph 4.45:
Poster indicating flooding as concern (School B, 28/05/2017)

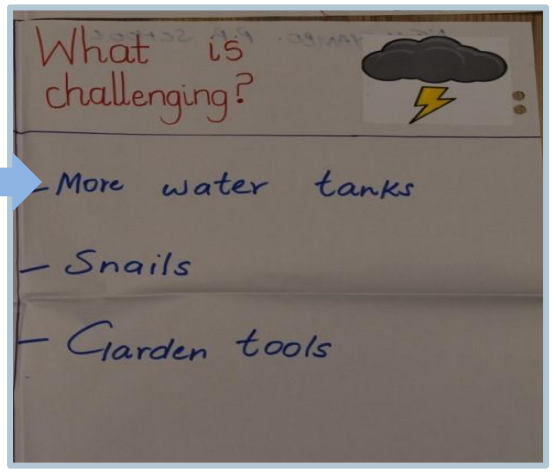
In confirmation of the teacher-participants' experience of the environmental challenge related to rain and flooding, I noted the following: *As part of the global warming challenges, flooding tends to affect the gardening process in spite of resilient teacher-participants being able to resolving this challenge. I noted teacher-participants mentioned that engaging in the peer-based intervention enabled them to find solutions to how to do water control* (Field notes, 17/04/2018).

In addition to flooding, teacher-participants mentioned drought as another climate related environmental challenge they experienced in undertaking their vegetable garden projects. The drought challenge in turn reportedly affected their access to water and thus their ability to maintain their school-based vegetable gardens at all

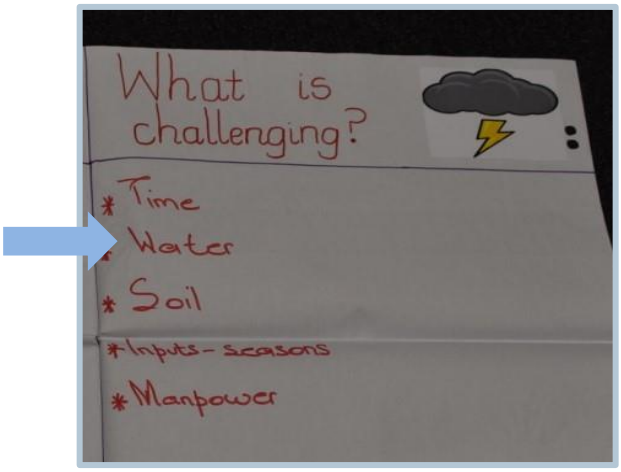
times. A teacher-participant explained: *due to the weather it was not so easy to work there because some days it's so cold and there's also rain and … the weather was a problem for us* (PRA-BD3, TP1, 11/08/2016). Other teacher-participants referred to the drought challenge in the following way:

- *Drought is also another challenge which we have* (PRA-BD1, T6, 23/03/2016).
- *But now this year there is the disappointment of the rain …* (MC3, TP4, 17/04/2018)
- *There's a shortage of water. Even if it has rained, and we are having one water can* (PRA-BD4, TP3, 10/08/2016).

These excerpts indicate that drought negatively affected the progress of the school-based vegetable gardens at the schools that participated in the project. However, through participation and networking, the teacher-participants resolved this challenge by acquiring water tanks to retain water during the time that it rained. I captured this solution orientation as follows: *Participating schools were able to obtain water tanks to collect water as an essential resource to address their challenges* (Field notes, 17/04/2018). In confirmation of my observation, a teacher said: *Our target was the improvement of getting water*. In Photographs 4.46 and 4.47 the need for water as an essential resource for the maintenance of school-based vegetable gardens is emphasised.



Photograph 4.46:
Poster indicating the need for water tanks (School D, 28/05/2017)

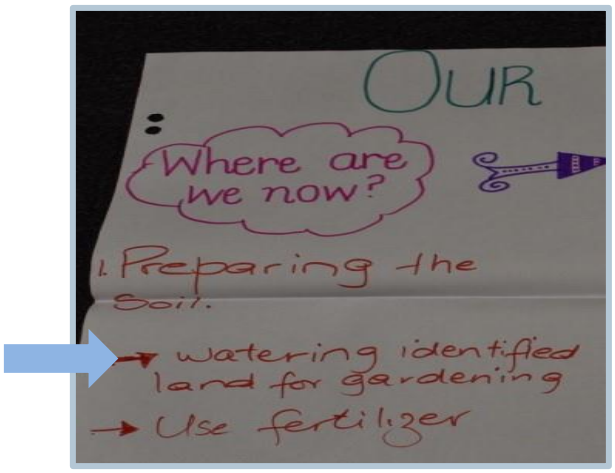


Photograph 4.47:
Poster emphasising the water challenge (School E, 28/05/2017)

The final environmental challenge that the participants referred to was soil. The teacher-participants' experiences are captured in the following contributions:

- *The type of soil is not good, because our soil is very hard when it's sunny it becomes very dry* (PRA-BD1, T6, 23/03/2016).
- *… the type of soil that we have in the garden is very rocky, we are looking at ways on how to improve the soil* (PRA-BD2, TP6, 10/08/2016).
- *… our soil is not so good* (PRA-BD3, TP6, 10/08/2016).
- *The texture of the soil we have tried because our soil has lots of stones* (PRA-BD8, TP1, 21/09/2017).

Again, the teacher-participants indicated which plans they had put in place to find solutions to this challenge. They indicated that in an attempt to address some of the soil challenges they were relying on the support of university students. In addition, they allegedly obtained manure and fertilizer from various role players that supported the school-based intervention. Photograph 4.48 captures this idea.



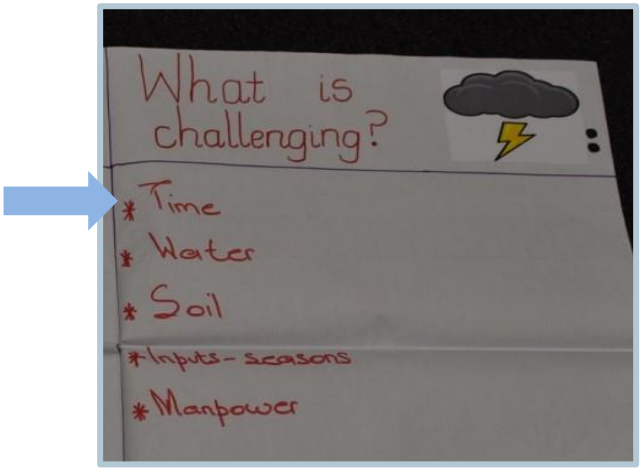
Photograph 4.48:
Poster indicating the use of fertilizer as a solution (School E, 28/05/2017)

4.5.2 SUB-THEME 3.2: ROLE COLLISION

This sub-theme reports on role collision as a perceived challenge by the teachers that participated in the FIRST-GATE intervention. One of the schools found it challenging to involve teachers in the garden projects due to their experience that it was difficult to manage the project while simultaneously fulfilling their work obligations as teachers. Several teacher-participants mentioned that their work limited their attempts to engage

learners in the vegetable garden projects. One teacher provided some explanation: *But we had some challenges because we cannot get the little ones in the afternoon because there are so many things which are done in our school* (PRA-BD2, TP1, 10/08/2016).

Teacher-participants pointed out that as a result of their work role being overloaded, it was difficult to promote the involvement of parents. They said, *parents' involvement is really a challenge and I know that the last thing we expect … teachers are so overworked* (PRA-BD9, F1, 21/09/2017). Another teacher alluded to role collision, specifically in terms of the time constraints, by saying that *because we barely have time to engage with them, and even when we do engage with them, there's always negative people* (PRA-BD9, TP2, 21/09/2017). Photograph 4.49 confirms this perception.



Photograph 4.49:
Poster indicating time constraints as a challenge (School E, 28/05/2017)

4.6 CONCLUSION

In this chapter I discussed the results of my study in terms of the three main themes I identified. I outlined each theme in terms of the related sub-themes and categories that emerged during thematic data analysis. In discussing the themes and sub-themes, I validated the results with verbatim excerpts and examples taken from the generated data.

In the following chapter, I discuss the findings of my study. For this purpose, I situate the results I obtained against the background of existing literature, as discussed in Chapter 2. I attend to correlations, contradictions, silences and new insight.

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Chapter 5
Findings of the Study

5.1 INTRODUCTION

In the previous chapter, I discussed the results of the study. I outlined the three main themes I identified and explained the related sub-themes, providing evidence from the generated data throughout the discussion.

In the current chapter, I discuss the findings against the literature I presented and explored in Chapter 2. I more specifically indicate the correlations, contradictions, new insight and silences I identified when interpreting the data.

5.2 FINDINGS OF THE STUDY

In this section, I discuss the findings of the current study.

5.2.1 VALUE FOR TEACHERS OF BEING INVOLVED IN A TEACHER-TO-TEACHER INTERVENTION

As an introduction to the discussion on the value experienced by the teacher-participants of being involved in a teacher-to-teacher intervention, I summarise the findings for Theme 1 in Table 5.1. I then focus my discussion on the sub-themes of development, social capital gains and project management. An analysis of these sub-themes is integrated in the following two sub-sections: strengthened capacity development by teachers learning from and with peers, and stronger networks, collaboration and access to resources.

Table 5.1: Summary of findings for Theme 1

Results	Findings	Existing literature	Relationship with the literature
Sub-theme 1.1: Development	A teacher-to-teacher intervention can provide teachers with the opportunity to share knowledge, skills and ideas about resources for school-based vegetable gardens with other teachers, in a reciprocal way.	Mampane (2014) Ebersöhn and Ferreira (2011) Amod (2019) Theron and Theron (2014) Ferreira, Ebersöhn, and Odendaal (2010) González et al. (2019) Seymour et al. (2010) van der Westhuizen (2019) Medley et al. (2009) Frantz (2015)	Correlation Correlation Correlation Correlation Correlation Correlation Correlation Silence Silence
Sub-theme 1.2: Social capital gains	A peer-to-peer intervention in school-based vegetable gardens can provide a platform to establish linkages of partnerships networking within the school-community and in larger environmental settings.	Mampane (2014) Schreinemachers et al. (2020) Theron (2013) Ozer (2007) Laurie et al. (2017) Ebersöhn and Ferreira (2011) Burt et al. (2018) Theron and Theron (2014) Akintola (2010) Gresse et al. (2017) Gresse et al. (2017) Schönfeldt et al. (2018) Haysom (2015)	Correlation Correlation Correlation Correlation Correlation Correlation Correlation Correlation Silence Silence Contradiction Contradiction Contradiction
Sub-theme 1.3: Project management	When participating in a teacher-to-teacher intervention, teachers will engage in a cyclical process of reviewing, making action plans and implementing these to initiate and maintain school-based vegetable gardens.	Mampane (2014) Theron and Malindi (2012) Ungar (2013) FAO (2011)	Correlation Correlation Correlation Silence

5.2.1.1 Strengthened capacity development by teachers learning from and with peers

I found that the teachers that participated in this study greatly valued the teacher-to-teacher intervention they partook in due to the capacity development they experienced as a result of their participation. More specifically, the teacher-participants valued the opportunity to share knowledge, skills and resources with their peers, and being able to learn from one another's experiences. In this regard, the teacher-participants were able to develop due to their learning from their peers.

Central to the reported value of capacity development, is the pivotal role that the teachers fulfilled within the intervention. Ferreira and Ebersöhn (2011) found that teachers fulfil multifaceted roles within school-communities (Amod, 2019; González et al., 2019). Closely related, the value of learning from and with peer teachers during an intervention aligns with the work of Medley et al. (2009) who argue that the strength of teacher-to-teacher interventions is based on the notion of participants coming from a similar background that may have a strong influence on one another. As such, participants that share commonalities or demographic characteristics (consult the work of e.g. Medley et al., 2009; Seymour et al., 2010; van der Westhuizen, 2019) can easily identify with one another and are generally open to the ideas shared in the group. In the current study, due to their prior participation in the STAR and SHEBA projects, the teacher-participants were likely to have had a strong level of trust and experienced comfort in the presence of one another. As a result, they could support one another and share knowledge and skills on school-based vegetable gardens. In this manner, the teacher-participants strengthened their capacity by equipping one another with knowledge and skills.

In confirmation of these findings, Frantz (2015) found that teachers can be regarded as suitable participants when undertaking interventions in schools for health promotion and education. To this end, the teacher-participants in the current study indicated that they were able to share knowledge and skills as well as resources with their peers, in support of the progress and success of their school-based vegetable gardens as already indicated. Teacher-participants were furthermore able to provide references and ideas to access external resources to their peers. In support of these findings, Frantz (2015) as well as Seymour et al. (2010) found that teacher-participants' collaboration and involvement in their studies implied that teachers took responsibility in leading and guiding intervention projects.

The findings of the current study indicate that the knowledge, skills and resources shared by the participants with their peers were not limited to school-based vegetable gardens only but rather encompassed knowledge, skills and resources that can promote resilience in general within vulnerable school-communities. This finding is confirmed by the work of Theron and Theron (2014) who have done research in the field of resilience and how it can be strengthened within groups by group members. Examples of the knowledge, skills and resources that may strengthen resilience and were shared among the teacher-participants include agriculture-related knowledge and skills, avenues to network and ways to initiate other related projects.

The FAO (2011) indicates that continuous planning, monitoring and evaluation are essential processes of gardening programmes and support project management by teacher-participants. In the current study, the teachers engaged in a cyclical process of reviewing, making action plans and implementing these to initiate and maintain school-based vegetable gardens, and then revising their progress. To this end, the findings of the current study indicate that the teachers experienced the process and their participation in the teacher-to-teacher intervention as valuable, being key role-players in the essential components of such projects, as proposed by the FAO (2011).

In the current study, the teacher-to-teacher intervention enabled the teachers to take ownership and become agents of change in their school-communities. Through capacity and professional development of the teachers, they learnt how to take responsibility and manage projects at school. Related studies confirm this finding on project management; for example, Ferreira and Ebersöhn (2011) and Burt et al, (2018) identify teachers as positive agents of change that may fulfil fluid and multi-faceted roles in school-community contexts. As such, teachers can be regarded as well-placed to organise and manage school-based vegetable gardens and other related projects.

The findings of the current study furthermore indicate that the teacher-participants were able to manage their progress through the planning, monitoring and evaluation activities they actively engaged in during the PRA-guided discussions. Teachers were keen for their gardens to expand and address some of their schools' needs. Some examples of this vision can be seen in food surplus products being used to supplement the NSNP food programme in expansion of the scale of the school-based vegetable gardens, as well as teachers' arrangements for improving their garden projects by, for example, arranging fencing for their schools.

In support of the findings I obtained, Mampane and Huddle (2017) indicate that school-based partnerships can lead to teacher development and self-sustenance. In terms of the current study, the findings demonstrate that efforts by the participating teachers resulted in the participating schools becoming more self-equipped and able to sustain projects and, for example, supplement the schools' nutrition programmes in support of the learners of the school. In addition, most of the participating schools wanted to expand their vegetable gardens to become sources of financial income by selling produce and then supporting other related projects within the school environment. The results of the current study validate the findings put forward by Ferreira and Ebersöhn (2012), indicating the value of teacher-participants fulfilling the role of co-researchers and co-experts when exploring a phenomenon.

Furthermore, the value of capacity development of an intervention is context specific to the value of the specific needs of a given community. Literature broadly identifies development in the form of knowledge, ideas and skills acquired by participants yet this is not limited to the formal or informal structure of development (consult works by Amod, 2019; Campbell et al., 2008; Ferreira & Ebersöhn, 2012; Medley et al., 2009; Ozer, 2007; Theron, 2013; van der Westhuizen, 2019). As such, the value of a school-based vegetable garden continues to require further investigation as each school-community seemingly determines the extent of its value based on its unique needs.

In summary, the findings of the current study confirm that teachers' participation in a teacher-to-teacher intervention can strengthen capacity development through the sharing of knowledge, skills, resources and experiences. Furthermore, the FIRST-GATE teacher-to-teacher intervention, in a peer-driven manner, supported capacity development through health education in support of health promotion. In addition to confirming existing literature some insight was gained as teachers were not only equipped with knowledge, skills and resources for project management through PRA-based research and implementation of the asset-based approach but engaged in the planning, monitoring and evaluation of the cyclical phases of their school-based vegetable projects. Participation in all these areas subsequently culminated in the strengthened capacity of the participants.

5.2.1.2 Stronger networks, collaboration and access to resources

In my analysis of the sub-themes related to capacity development, social capital gains, and project management, the findings of the current study indicate that teachers that

participate in a teacher-to-teacher intervention in school-based support projects (such as school-based vegetable gardens) are able to establish collaborative relationships with other teachers, form partnerships with others that may assist, and facilitate networking opportunities within the school-community.

Existing literature on studies conducted in the South African context similarly indicates that successful interventions are often embedded within school-communities, where teachers and/or community members acquire and share unique sets of skills and abilities that can address adversity in seeking solutions to the challenges faced by the community (consult e.g. the research of Mampane, 2014; Schreinemachers et al., 2020; Theron & Malindi, 2012; Ungar, 2013). In this regard, Theron and Theron (2014) further assert that the success of interventions is based on the role players working together as resources in a specific context in promoting the resilience of vulnerable communities. In linking Theron and Theron's (2014) view with the current study, the teacher-participants indicated that they were able to establish partnerships with community members, parents, learners, other teachers within their schools as well as teachers from other schools as a result of their participation in the FIRST-GATE teacher-to-teacher intervention, thereby forming strong networks and ensuring collaboration on a broader level.

As such, the current study illustrates that a teacher-to-teacher intervention on school-based vegetable gardens can provide a basis for teachers to form partnerships and links within the larger environmental setting, which may in turn grant them access to resources and support networks. Literature in this field confirms this potential value of teacher-to-teacher interventions, pointing to the possibility of partnerships with external stakeholders such as politicians, non-governmental organisations and other community members. This finding highlights the value of following a systems-driven approach, with participating schools remaining in control of the intervention and any partnerships formed, and external partnerships serving a pluralistic governance role with the equal purpose of sustaining school-based projects, such as vegetable gardens.

Authors whose work confirms this finding include Campbell et al. (2008), Chirenje et al. (2013), Haysom (2015) as well as Laurie et al. (2017). Various stakeholders reportedly became involved in the current study, including the Department of Basic Education, the Department of Correctional Services, the Department of Agriculture and the Department of Rural Development (all being governmental departments). In

addition, universities (Nelson Mandela University and the University of Western Kentucky) as well as local companies such as Shoprite and General Motors, partnered with some of the schools in support of the school-based vegetable-gardens. Even though neither existing literature nor the teacher-to-teacher intervention explored as part of the current study indicates the exact ways in which teachers can obtain knowledge and skills on establishing partnerships with role players or stakeholders, this process seems to flow naturally from participation in interventions where experiences are shared with peers.

Contrary to the expositions above, findings by Gresse et al. (2017) and Schönfeldt et al. (2018) indicate that the support provided by government, organisations and NGOs may be overwhelmed by the need to support a wider population. The initiatives of school-communities, teachers and/or community members in engaging in projects such as school-based vegetable gardens can however go a long way to supplement government efforts at grass-roots level in addressing the poverty- or food-related challenges that are experienced by communities. The findings of the current research specifically indicate how challenges can be addressed on ground level by involving community members as experts of their own environment and needs.

In this regard, findings by Hendriks (2015) and Schönfeldt et al. (2018) indicate that the focus by government is often on developing policy that aligns with the SDGs established by the United Nations and on providing support on a national level. Even though existing evidence on initiatives by government and faith-based organisations is overwhelming such initiatives are still not able to reach all school-communities in need. As such the need exists to equip teachers with knowledge and skills to become an extension of government-based interventions in addressing poverty- and food-related challenges on a broader level. It is thus essential for teachers in collaboration with other role players to address the needs of their communities.

Despite the value of networking and collaboration with other role players being highlighted in the current study, a silence I identified relates to the extent of involvement of the various role players and whether or not these partnerships will consistently be maintained over time, as done in the work of Chirenje et al. (2013); Mampane and Huddle (2017); as well as Theron and Theron (2014), was not indicated. As such, in each of the nine participating schools social capital gains were realised differently and were not consistent, with no indication of the reasons for these differences or how these relationships were planned to be maintained. For example,

some schools reported more parent involvement than others and in some schools, community members were more often involved than in other schools where community members did not form part of the role players involved in the FIRST-GATE project. The importance of consistent planning, monitoring and evaluation when implementing school-based intervention projects can thus be highlighted as new knowledge that stems from the current study. Based on a cycle of repeated planning, monitoring and evaluation, participants were able to build capacity and felt enabled to identify and mobilise existing and potential role players as assets and resources for successful participation in the intervention project.

In summary, the findings of the current study confirm the capacity of teachers to establish collaborative partnerships with various role players through participation in a teacher-to-teacher intervention. This capacity results from the acquisition and sharing of knowledge, skills and resources that can then be utilised to address challenges that are experienced by a school-community. My findings specifically emphasise that participation in the FIRST-GATE teacher-to-teacher intervention enabled teachers to form linkages and strong networks, and start collaborating on a broader level in their professional capacity. Contrary to existing literature, the specific value of the FIRST-GATE intervention ties in teachers feeling equipped to address issues on ground level rather than on de-escalating national response from the top, being influenced by government, organisations and NGOs.

5.2.2 VALUE OF A TEACHER-TO-TEACHER INTERVENTION FOR THE BROADER SCHOOL-COMMUNITY

In this section, I focus on the findings of Theme 2, related to the value of the FIRST-GATE intervention for the school-community in terms of the positive outcomes identified. Table 5.2 provides a summary of the findings. Following this overview, I discuss the findings in terms of the following sub-themes: the value of involving various role players in school-based vegetable garden projects; teachers feeling empowered to take ownership of positive change; nutritional support as a result of a teacher-to-teacher intervention in school-based vegetable gardens; addressing poverty and economic challenges through school-based vegetable garden projects, and improved health and well-being as a result of the FIRST-GATE teacher-to-teacher intervention.

Table 5.2: Summary of findings for Theme 2

Results	Findings	Existing literature	Relationship with the literature
Sub-theme 2.1: Strengthened systemic collaboration within and across schools	When participating in a peer-to-peer intervention on school-based vegetable gardens, teachers of schools and neighbouring schools will form bonds with others and work together towards a common goal.	Mampane (2014) Mampane and Huddle (2017) Ozer (2007) van der Westhuizen (2019) Chambati (2015) Curley (2020) Chirenje et al. (2013) Seymour et al. (2010) UNICEF (1999)	Correlation Correlation Correlation Correlation Correlation Correlation Correlation New knowledge New knowledge
Sub-theme 2.2: Strengthening teacher ownership, accountability and agency	Through participation in the FIRST-GATE intervention, teachers' sense of project ownership, accountability and agency was strengthened.	Mampane (2014) Ferreira and Ebersöhn (2011) Burt et al. (2018) Theron and Malindi (2012) Govender (2016) NSNP (2014/2015) Keatinge et al. (2012) Devereux et al. (2018) Roberts and O'Donoghue (2013) Seymour et al. (2010) Amod (2019)	Correlation Correlation Correlation Correlation New knowledge New knowledge Correlation Correlation New knowledge Correlation Correlation
Sub-theme 2.3: Food and nutrition-related outcomes	Participation in a teacher-to-teacher intervention can result in increased food production and nutritional support for vulnerable learners and communities.	Govender (2016) DBE (2014) Ferreira and Ebersöhn (2011) Dippenaar (2018) Duncan et al. (2015) Connolly-Boutin and Smit (2016). Devereux et al. (2018) Malberg Dyg and Wistoft, (2018) Burt et al. (2018)	Correlation Correlation Correlation Correlation Correlation Correlation Correlation Correlation Correlation
Sub-theme 2.4: Positive economic outcomes	Participation in a teacher-to-teacher intervention by teachers can support the financial position of	Govender (2016) Gresse et al. (2017) Mampane and Huddle (2017) Keatinge et al. (2012)	Correlation Correlation Correlation Correlation

Results	Findings	Existing literature	Relationship with the literature
	vulnerable school-communities.	van der Westhuizen (2019)	Correlation
		Roberts and O'Donoghue (2013)	Correlation
		Drimie et al. (2005)	New knowledge
		Beavers et al. (2020)	Correlation
		Rausch et al. (2015)	Correlation
Sub-theme 2.5: Health and well-being outcomes	Teacher-to-teacher interventions can result in positive change in support of the health and well-being of vulnerable school-communities.	Mampane (2014)	Correlation
		Ozer (2007)	Correlation
		Blair (2009)	Correlation
		González et al. (2019)	Correlation
		Malberg Dyg and Wistoft (2018)	Correlation
		Scherr et al. (2014)	Correlation
		Duncan et al. (2015)	Correlation
		Brouwer and Neelon (2013)	Correlation
		Keatinge et al. (2012)	Correlation
		Schreinemachers et al. (2020)	Correlation
		Rausch et al. (2015)	Correlation
		Brouwer and Neelon (2013)	New knowledge
		Scherr et al. (2014)	New knowledge
		Schönfeldt et al. (2018)	Correlation
		Beavers et al. (2020)	Correlation
		van der Westhuizen (2019)	Correlation
		Mansfield et al. (2018)	Correlation
		Rippon and South (2017)	Correlation

5.2.2.1 Value of involving various role players in school-based vegetable garden projects

When participating in a teacher-to-teacher intervention in school-based vegetable gardens, teachers can be motivated to involve various role players from within the school, in the community and even on a broader level. The teacher-participants in the current study indicated that different role players had the value of their sharing different skills, ideas and resources in support of the school-based vegetable gardens they were involved in. This finding is supported by a study by Mampane and Huddle (2017) who found that partnerships within a school-community will promote connectedness

amongst the role players of the school-community, such as the learners, teachers and parents; with such connectedness then serving as a protective factor that can support the academic performance of learners.

In further confirmation, Ozer's (2007) model on school-based vegetable gardens indicates that such gardens can enhance interaction between the different role players − teachers, parents, learners, community members and government departments − within a school-community; and can result in the formation of networks, a sense of connectedness and the utilisation of existing assets and resources within communities (van der Westhuizen, 2019). Teachers in the current study reported that their participation in the project enabled them to reach out to learners, community members, parents and fellow teachers, and to facilitate the active engagement of the various role players in support of their school-based vegetable gardens and other related projects.

As such, by involving various role players, the teacher-participants were able to address some of the needs and challenges faced by the school-communities by establishing and sustaining school-based vegetable gardens. This finding confirms the idea that teachers that involve various role players in school-based initiatives can work together towards the common goal of addressing current needs and ultimately achieving self-sustenance (consult, for example, the studies by Chambati, 2015; Chirenje et al., 2013; Curley, 2020; van der Westhuizen, 2019). More specifically, in the current study, the teacher-participants together with the role players they involved, were able to access resources such as gardening tools, human resources that could assist in the gardens, watering tanks for gardens, fencing and other related resources that would promote the success of the projects. In addition, the teacher-participants relied on peer support, community support and the support of other role players with knowledge and skills in undertaking these projects. This finding furthermore aligns with the goal of undertaking support projects to address vulnerability in communities by involving various role players, as explained by Chirenje et al. (2013).

In conclusion, teacher-to-teacher interventions are known to be potential stimulants of collective agendas that can lead to positive change (Amod, 2019; Mansfield et al., 2018; Seymour et al., 2010; UNICEF, 1999). In line with the existing literature, the various role players involved in the school-based vegetable gardens in the current study were keen to render support and assist the participating schools. Findings of the current study highlight the involvement of broader community members as role players, thereby fostering a shared sense of ownership that implied mutual benefits

for the various parties that participated in the school-based vegetable gardens. For example, role players assisted in protecting vegetable gardens from theft where community members managed the gardens. Furthermore, community members assisted by looking after the vegetable gardens and schools during holidays in return for surplus vegetables and financial gain.

5.2.2.2 Teachers feeling empowered to take ownership of positive change

The findings of the current study indicate that the participating teachers became motivated and started taking ownership of the gardening projects they initiated and subsequently expanded. The teacher-participants thus felt empowered to take the lead as a result of their involvement in the PRA-based research process where they were able to experience success in terms of starting and sustaining school-based vegetable gardens that eventually supplemented the NSNP programme within the respective schools. By accomplishing this, the teacher-participants were able to contribute to positive change in their school-communities. In support of this finding, existing literature underscores the value of vegetable gardens as part of the NSNP programme, more specifically by supplementing the basic meals provided by the national government (DBE, 2014; Dippenaar, 2018; Govender, 2016).

The findings of the current study also indicate a positive shift in teacher-to-teacher interactions and the sharing of knowledge among teachers in the separate schools, as well as among teachers of neighbouring schools (Curley; 2020; Medley et al., 2009). In this way the FIRST-GATE intervention provides an example of how a teacher-to-teacher intervention can create opportunities for peer teachers reciprocally to learn from one another and implement newly gained knowledge in support of their school-communities. In this regard, the teacher-participants mentioned that they were able to share information and interact more openly as a result of their involvement in the project and regular contact sessions with their peers (Devereux et al., 2018; Malberg Dyg & Wistoft, 2018; Seymour et al., 2010). Participating teachers were thus willing and able to share and impart their knowledge and skills to both teachers from their own schools and those of neighbouring schools, even teachers that did not form part of the study. The participants gradually perceived themselves as being well-informed and capable of supporting their peers and others in the community.

The teachers were empowered to take ownership of the planning and evaluation process of the school-based vegetable garden projects, due to the nature of the study

and the selected methodology. They did this jointly with their peers, resulting in new knowledge that then led to the success and the start of additional projects. The resilience and success of the participating schools made other neighbouring schools partner, learn and establish school-based vegetable gardens. Furthermore, as a positive attribute of the FIRST-GATE teacher-to-teacher intervention, some of the participating schools extended the project to the homes of community members. In this way, schools volunteered their services to establish and sustain identified home-based vegetable gardens.

5.2.2.3 Nutritional support as a result of the FIRST-GATE teacher-to teacher intervention on school-based vegetable gardens

I found that the teachers' participation in the FIRST-GATE intervention and their active involvement in the school-based vegetable garden projects supported success and increased food production by the gardens. This finding confirms the work of Govender (2016) who explains that school-based vegetable gardens can supplement the basic meal ingredients provided by the South African government for the NSNP programme, thereby supporting a more balanced diet for learners that benefit from these meals provided at school. In this way, the findings of the current study indicate that increased food production in the vegetable gardens supported the participating schools to become self-sustaining hubs for food supplements to learners and other community members. Some participating schools were even successful in producing enough vegetables from the school-based vegetable garden projects to replace purchases from external sources for their school feeding projects with produce from their gardens. These findings confirm the work of Keatinge et al. (2012) and Malberg Dyg and Wistoft, (2018) who state that school-based vegetable gardens can be regarded as nutrition gardens that may address malnutrition and hunger by supplementing the food-related needs of vulnerable communities.

In further support of this view, research by Connolly-Boutin and Smit (2016) and Devereux et al. (2018) indicate that school-based vegetable gardens can support the food security of vulnerable groups in society. Closely aligned, the findings of the current study indicate that school-based vegetable gardens enabled the participating schools to provide food to the respective (vulnerable) school-communities. Teachers and community members benefited from the increased variety and quantity of substantial vegetable produce that became available as a result of these projects. This finding further supports the work of both Duncan et al. (2015), Burt et al (2018) and

Govender (2016) that indicates that school-based vegetable gardens can promote food production and support learners and the broader community. In this regard I found that some of the participating schools provided such support by commercialising their products or supplying vegetable produce to needy learners, parents and community members, free of charge.

5.2.2.4 Addressing poverty and economic challenges through school-based vegetable garden projects

This study found that school-based vegetable gardens provide a potential avenue of addressing poverty-related challenges in vulnerable communities. According to Drimie et al. (2005) as well as Roberts and O'Donoghue (2013), South Africa as a country is faced with various forms of vulnerability, many of which are related to poverty and food insecurity. As a possible way of addressing these, school-based vegetable gardens were identified as a source of healthy food products that could be harnessed within the school-communities that formed part of the current study. In this manner, learners could be provided with a consistent source of food within the school setting, thereby addressing hunger, and potentially malnutrition. Taking into account that many South African children live below the poverty line, school-based vegetable gardens can thus be utilised to address hunger, malnutrition and even obesity (as a result of poverty-related challenges) by providing supplementary food to the NSNP programme within vulnerable school-community contexts (Beavers et al., 2020; Rausch et al., 2015; Roberts & O'Donoghue, 2013; Theron & Theron, 2014).

The findings of the current study furthermore indicate that school-based vegetable gardens address poverty by enabling schools to become self-sustaining sub-systems that are able to utilise school-based vegetable gardens as a source of income within the school-community. School-based vegetable gardens can serve as a source of income for the school, or for individuals that take the lead and contribute to the school-based vegetable garden projects. This finding confirms a study by Mampane and Huddle (2017) who foreground the value of school-based vegetable gardens for poverty alleviation in vulnerable contexts.

In the current study, teacher-participants more specifically indicated that they could establish a cyclical self-sustenance system where they could not only produce vegetable products for learners and others in the community but that a system could be put in place where schools purchased products from the vegetable gardens rather

than from external producers. Teachers in addition emphasised the possibility of relying on the profit made when embarking on additional projects at school. In this regard some of the participating schools sold their produce to teachers and community members to raise funds that could address the needs of the learners.

I further found that the partnerships involved in the school-based vegetable gardens and the involvement of community members and parents at school implied mutual benefits for the various parties. Community members and parents were, for example, able to share agricultural knowledge and skills with one another, work together towards a common goal and eventually share in some of the income generated through the selling of vegetable produce. Through such capacity building, participants gained the potential to apply the skills they gained in other contexts, generate income and alleviate poverty. Connectedness could be promoted through school-community involvement, potentially serving as a positive resilience pathway (Consult the work of González et al., 2019; Mampane & Huddle, 2017; Rausch et al., 2015). Overall, Mampane and Huddle (2017) view strong partnerships and collaboration as a basis for participants to obtain informational resources and initiate self-sustaining interventions in vulnerable school-community contexts.

In terms of the potential value of vegetable gardens for addressing poverty-related challenges, the teacher-participants in the current study referred to the value of strengthened entrepreneurship often associated with such projects. The teacher-participants were namely of the opinion that vegetable gardens can serve as educational hubs for the development of entrepreneurial skills for all involved in vegetable garden projects, which may in turn be utilised to address poverty-related challenges within the community. On a practical level, learners can, for example, take ownership of and responsibility for the vegetable gardens, harvest vegetable produce, package and then sell produce with the money stemming from the project being kept for personal use or forming part of other school projects as part of fundraising initiatives. Some learners were provided with seedlings with the anticipation that they would initiate vegetable gardens at home by employing the skills they had gained from the school-based vegetable garden projects they participated in.

Through participation in the FIRST-GATE intervention project, the participating schools were thus able to position themselves as self-sustaining organisations that could produce, purchase and sell their vegetable produce. As such, the participating schools were able to generate and maintain financial income for the school.

Furthermore, schools were able to support the economic needs of the community by expanding on established and additional projects in support of financial gain.

5.2.2.5 Improved health and well-being as a result of the FIRST-GATE teacher-to-teacher intervention

Based on this study, I found that sustainable school-based vegetable gardens can address some of the primary needs of vulnerable learners and community members, thereby promoting healthy lifestyles in vulnerable school-community contexts. The current study more specifically indicates food provision and support for nutritional needs, as well as the possibility to raise an income, as benefits of an intervention that ultimately supports the health and well-being of school-communities. Existing research (Blair, 2009; Keatinge et al., 2012; Ozer, 2007; Schreinemachers et al., 2020) similarly indicates that schools and communities can benefit from school-based vegetable gardens when these supplement the NSNP programme and meals provided at school to learners. As such, existing literature relates school-based vegetable gardens to nutritious gardens that focus on healthy eating habits within vulnerable school-communities (Keatinge et al., 2012; Rausch et al., 2015; Schreinemachers et al., 2020).

However, I found that the school-based vegetable gardens at the participating schools did not only serve as nutritional sources of food but also promoted healthy eating habits amongst learners. According to the findings of the current study, learners as well as community members that participated in the FIRST-GATE project on school-based vegetable gardens shared in the value of having access to different kinds of fruit and vegetables. In congruence with this finding, existing research indicates that school-based vegetable garden projects can promote healthy eating and a healthy lifestyle based on access to healthy nutritious food products (Beavers et al., 2020; Brouwer & Neelon, 2013; Scherr et al., 2014; Schreinemachers et al., 2020).

In further confirmation, Duncan et al. (2015) indicate that school-based vegetable gardens can provide a platform for knowledge sharing and the development of an understanding of healthy eating behaviours. I similarly found that the school-based vegetable gardens explored as part of the current study served as educational hubs for learners, parents and community members, where all role players could learn and work together while gaining knowledge on healthy eating patterns. As a result, both parents and learners became willing to initiate their own vegetable gardens at home

and/or at school, with the potential of making a positive contribution to the health and well-being of themselves as well as of their families.

In addition to regarding school-based vegetable gardens as fundamental learning hubs that can instil healthy eating habits, Brouwer and Neelon (2013) view vegetable gardens as interactive classroom environments that can provide experiential learning opportunities to learners. This implies a visual, practical and integrated learning approach where learners learn based on what they experience. In support of this view, the findings of the current study indicate that learners were able to actively acquire practical skills related to the vegetable gardens, such as planting, harvesting, watering, conserving the environment through recycling and waste management, and undertaking activities associated with entrepreneurship. These include fundamental skills that may also be applied to other subject areas such as Mathematics, Science and Geography. Teacher-participants indicated that through participation, learners also learnt to take responsibility and maintain a sense of ownership by looking after the vegetable gardens.

As the teacher-participants regarded school-based vegetable gardens as suitable for experiential learning activities, topics in Biology and Agriculture as well as knowledge on healthy eating habits could thus be taught in a creative way. Research in this field indicates the need for learners to foster positive and healthy eating habits to prevent and address food-related challenges such as malnutrition and obesity (Beavers et al., 2018; Rippon & South, 2017; Schönfeldt et al., 2018). Closely aligned to this view, Scherr et al. (2014) relate the value of school-based vegetable gardens to the possibility of such gardens supporting learners to make healthy choices in their eating habits of fruit and vegetables. The findings of the current study confirm this idea as learners subsequently started consuming healthier food products as a result of the FIRST-GATE intervention.

In addition to promoting healthy eating habits and/or behaviour, the school-based vegetable gardens promoted a healthy lifestyle among the participants by encouraging them to conserve and beautify the school environment in the form of additional projects focusing on e.g. the planting of trees around the school. In this manner, the school-based vegetable gardens promoted healthy school environments. Other examples of the participants' attempts to promote the school-community include projects on school hygiene and waste products being recycled, which the participants initiated as the study progressed.

5.2.3 CHALLENGES EXPERIENCED DURING A TEACHER-TO-TEACHER INTERVENTION

In this section, I discuss the findings related to the challenges that the teacher-participants experienced in their planning and implementation of school-based vegetable gardens. Table 5.3 provides a summary of the findings, as these relate to the existing literature.

Table 5.3: Summary of findings for Theme 3

Results	Findings	Existing literature	The relationship with the literature
Sub-theme 3.1: Environmental challenges	Environmental challenges can negatively affect the implementation of a teacher-to-teacher intervention.	Okvat and Zautra (2011) Chiawo and Otiende (2021) Ozer (2007) Musemwa et al. (2013) Mugambiwa and Tirivangasi (2017) Drimie et al. (2005) Béné et al. (2015) Mwoma and Pillay (2015) Aldrich and Meyer (2015) Muyambo et al. (2017) Okello et al. (2021)	Contradiction Correlation Correlation Contradiction Contradiction Correlation Correlation Contradiction Correlation Correlation Correlation
Sub-theme 3.2: Role collision	Teachers participating in the FIRST-GATE intervention fulfilled multifaceted roles within their school-communities and at times experienced difficulties to fully engage in all the roles.	Ferreira and Ebersöhn (2011) Mansfield et al. (2018) Du Plessis and Mestry (2019) Ferreira and Ebersöhn (2012) Theron and Theron (2014) Sibanyoni (2017) Mampane and Huddle (2017)	Correlation and Silence Correlation Correlation Silence Silence Correlation Correlation

5.2.3.1 Dealing with environmental challenges when involved in a teacher-to-teacher intervention in school-based vegetable gardens

The findings of the current study point to the potential negative effect of environmental challenges on the progress and sustainability of school-based vegetable garden

projects. Even though the teacher-participants in this study found ways to work around these challenges they identified flooding, climate change, water and type of soil as negatively affecting the progress they made. Findings by Béné et al. (2015) and Chiawo and Otiende (2021) affirm that climate change, adaptation and disaster risk are linked to poverty-related challenges. The finding furthermore aligns with the work of Baker and Capel (2011) as well as Mugambiwa and Tirivangasi (2017) identifying terrain, soil and water as some of the factors affecting the establishment and sustenance of a food production intervention.

Similarly, as confirmed by the teacher-participants of the current study, findings by Musemwa et al. (2013) as well as Muyambo et al. (2017) indicate that food-related challenges experienced in the Eastern Cape where the current study was undertaken are often the result of droughts, floods, poor quality soil and gradual increase in temperature. During my review of existing literature, I however also found contradictory studies, where the influence of environmental challenges on vegetable garden projects is not highlighted (Keatinge et al., 2012; Okvat & Zautra, 2011) during the implementation phase. Furthermore, the teacher-participants in the current study did not identify an increase in temperature as a challenge that they experienced for their school-based vegetable garden projects, whereas a study by Okvat and Zautra (2011) on school-based and community vegetable gardens speaks of “disaster recovery” gardens when discussing climate change.

Closely related, findings by Drimie et al. (2005) and Okello et al. (2021) indicate that environmental challenges can be considered as hazards that significantly impact some populations, rendering them dysfunctional and unable to adapt during challenging situations. Despite examples such as these, the findings of the current study indicate an awareness of the environmental challenges by the participants, yet with a focus on overcoming these to ensure success. This contradiction when compared to the existing literature can possibly be ascribed to the methodology I employed. Taken into account resilience and the asset-based approach as guiding theories, the implementation of PRA-based techniques and Ozer’s gardening model, the teacher-participants were probably able to identify the presenting environmental challenges in advance and then found ways of ensuring success despite the challenges they faced.

In summary, the current study confirms that positive experiences around the implementation and maintenance of school-based vegetable gardens cannot necessarily be taken as contrary to existing literature that indicates how environmental

challenges can be addressed through school-based vegetable gardens. More specifically, the current study demonstrates that environment challenges can remain ongoing if participants implement an approach of working around and finding alternative solutions for environmental challenges in support of the sustainability of school-based vegetable gardens.

5.2.3.2 Managing different roles during the FIRST-GATE intervention

In my review of the existing literature, I found the role and capacity of teachers within school communities to be foregrounded as significant and multifaceted (consult the work of, for example, Du Plessis & Mestry, 2019; Ferreira & Ebersöhn, 2011; Mansfield et al., 2018; Theron & Theron, 2014). Teachers are typically placed as central to partnerships that will develop within the school setting (Mampane & Huddle, 2017; Sibanyoni, 2017). However, the findings of the current study point to teacher-participants being challenged by the multiple roles they had to fulfil and the heavy workload they experienced. This affected their time and capacity to focus on their equally demanding primary responsibilities as teachers as well as the way in which they could engage in intervention projects. In cases such as these, the teacher-participants once again searched for solutions as support and the involvement of others in the school-community context.

Even though existing literature does not indicate the extent of teachers' time capacity of being able to take up new intervention project responsibilities in addition to the primary role as teachers and the other multifaceted roles they hold (for example those of caregiver, counsellor, being the knowledgeable other within the school-community) the findings of the current study add some insight. In spite of the role collision experienced during the FIRST-GATE intervention, the teacher-participants were willing to engage with learners and find unique solutions to be able to manage their time and multiple roles within the school environment, and maintain their school-based vegetable gardens.

5.3 CONCLUSION

In this chapter, I discussed the findings of the study against the background of the existing literature I explored in Chapter 2. I referred to correlations, contradictions, new knowledge I obtained and silences I identified in the data.

In the following and final chapter of this thesis, I draw conclusions by addressing the research questions formulated in Chapter 1. I discuss the possible contributions of the study and explain the challenges I experienced in conducting the research. Finally, I formulate recommendations for training, practice and future research.

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Chapter 6
Conclusions and Recommendations

6.1 INTRODUCTION

In the previous chapter, I discussed the findings of the current study by relating the results to the existing literature on the topic. I highlighted correlations, contradictions and new insights based on the study I completed. I also identified silences within the data of the study.

In this chapter I provide an overview of the previous chapters. I then draw conclusions when revisiting and addressing the research questions I formulated in Chapter 1. I reflect on the study's potential contribution and discuss the challenges I experienced. Finally, I make recommendations for training, practice and future research.

6.2 OVERVIEW OF THE CHAPTERS

In **Chapter 1** I introduced the study and provided an overview and some background information. To this end, I explained the rationale, stated the purpose and referred to possible contributions of the study. I formulated a primary and related secondary research questions that subsequently guided me in undertaking the study, stated my working assumptions and then introduced Interpretivism as selected meta-theoretical paradigm and PRA as methodological approach. I briefly outlined the conceptual framework of the study and provided an overview of the research process and methodological strategies I employed to generate, document and analyse data. Finally, I referred to the quality criteria and ethical considerations I aimed to adhere to.

Chapter 2 entails a discussion of the existing literature. I started the discussion by exploring the concept *vulnerability* within the South African context. For this purpose, I contemplated the impact of poverty- and food-related challenges on the communities of South Africa. Next, I explained how challenges may be addressed within contexts of vulnerability, more specifically within the South African context. I also foregrounded school-/community-based vegetable gardens as possible intervention avenue to address food-related vulnerability. Lastly, I explained the conceptual framework of the study in detail.

Following the brief introduction in Chapter 1, I discussed the research design and methodology of the study in detail in **Chapter** 3. I explained how I utilised PRA as methodological approach in exploring how the FIRST-GATE teacher-to-teacher intervention on school-based vegetable gardens can promote resilience in vulnerable communities. To this end, I described the research design, explained how I selected the cases and participants, and discussed the methodological strategies I employed for data generation, documentation and analysis. Before concluding the chapter, I unpacked the ethical guidelines I followed and indicated how I aimed to ensure rigour. Throughout, I reflected on the strengths and limitations of the methodological choices I made, clarifying how I attempted to address any such potential limitations.

In **Chapter 4** I presented the results of the study in terms of the three main themes I identified during thematic inductive analysis. The themes namely relate to the value of being involved in a teacher-to-teacher intervention, the way in which such an intervention can result in unexpected positive outcomes (resilience) in a school-community, and the challenges experienced by the participants during the teacher-to-teacher intervention. I discussed each theme in terms of its related sub-themes and categories, and relied on the voices of the teacher-participants in strengthening my discussions in the form of verbatim transcripts, photographs, field notes and my reflective journal.

In **Chapter 5** I interpreted the results presented in Chapter 4 against the background of existing literature. I highlighted the correlations, contradictions, silences and new insight I identified when comparing the results of the current study to the existing literature discussed in Chapter 2.

6.3 ANSWERING THE RESEARCH QUESTIONS

In this section, I address the research questions that I formulated in Chapter 1 and draw conclusions, based on the findings of the study. I first discuss the secondary research questions, and then address the primary research question in the last part of this section.

6.3.1 SECONDARY RESEARCH QUESTION 1: HOW DO TEACHERS EXPERIENCE A TEACHER-TO-TEACHER INTERVENTION AIMING TO SUPPORT VULNERABLE SCHOOL COMMUNITIES?

The teachers' experiences of participating in the FIRST-GATE teacher-to-teacher intervention are captured in Theme 1 (consult Section 4.3), with sub-themes on development, social capital gain and enhanced project management skills. The results of the study indicate a strong correlation with the existing literature on the experiences of the participants in related studies of this nature.

In general, the teacher-participants that fulfilled the role of co-researchers in this study experienced their participation in the teacher-to-teacher intervention as valuable on various levels. Aligned to the sub-theme on development, they valued opportunities for capacity building and professional development, due to their experience of the intervention allowing them to share knowledge, skills and resources with others, and gaining from the experiences of peers who work in similar contexts. The teacher-participants echoed perspectives in existing literature that teachers in South Africa are well-positioned to fulfil the multi-faceted roles of being teachers, caregivers, health facilitators and nutritionists in support of vulnerable learners and school-communities (Ferreira & Ebersöhn, 2011; Seymour et al., 2010; Theron & Theron, 2014). By being able to share their experiences with others, the teacher-participants were thus able to affirm their valuable role and competence to spearhead the establishment and maintenance of school-based vegetable gardens as well as other related projects in support of vulnerable school-communities.

Participation in the teacher-to-teacher FIRST-GATE intervention implied that the teacher-participants shared a common interest in establishing sustainable school-based vegetable garden projects. The teacher-participants were able to support one another in addressing specific challenges in the different schools, yet within a similar educational context with which they could all identify. In this regard, I argue that when participants in an intervention share a similar background and demographics, such as being primary school teachers in vulnerable communities, they will openly share their ideas with one another and collectively engage in efforts to address the challenges they or their peers may face. This implies the possibility of teacher-participants learning from peers when jointly involved as co-researchers in a research project. In the case of the current study, this in turn had a positive outcome in terms of school-

based vegetable garden initiatives and subsequently the way in which schools could address issues of vulnerability in their communities in support of resilience.

As a result of their participation, the teachers perceived themselves as essential human resources that hold the ability to establish partnerships and access networks of support that are solution-focused and may address the challenges faced by vulnerable communities. Based on the findings of the current study, I can conclude that the teacher-participants started viewing themselves as well positioned to establish stronger partnerships amongst themselves as teachers within a school, with learners, with other teachers in other schools, with parents and community members, and with external agencies that could support their initiatives. Based on the fact that teachers are generally valued by society, I argue that teachers are indeed positioned to establish linkages with the various sub-systems − home, school and community − to facilitate change by supporting vulnerable communities to address the challenges they face.

Based on their participation in the FIRST-GATE teacher-to-teacher intervention and teachers' sharing of knowledge and resources, as identified in the sub-theme on social capital gains, the teacher-participants started partnering and networking with various external stakeholders, such as government departments, politicians, non-governmental organisations and local institutions. The intervention therefore enabled them to strengthen their relationship with, for example, the Department of Education as well as other government departments and participating schools. As such, I can confirm the idea of teachers being well-located within school-communities, with schools being central hubs of potential support that can be easily accessed by role players that may provide support, yet also by those in need of support.

The findings of the current study furthermore indicate that teacher-participants valued their engagement in the process of planning, monitoring and evaluation of school-based vegetable gardens where they could take the lead in managing their own progress and success. Even though limited literature is available on the consistent process of planning, monitoring and evaluation as part of the cyclical phases of teacher-to-teacher interventions (FAO, 2011), I posit that PRA research can strengthen the active engagement of participants in planning, reviewing their progress and revising action plans when needed, and evaluating the phases of any projects driven by them. I can conclude that such a process of participation and engagement will enable participants to have a clear purpose, acquire critical skills related to the

implementation of a project by mapping out plans, mobilise the required resources and implement specific actions throughout the phases of an intervention they participate in. Participants may thus benefit from their engagement in such a reflection process, during which successes of resolving needs and challenges can be celebrated. As a result, I posit that the creation of opportunities for teachers and community members to engage and participate in research-based participatory intervention projects can result in participants taking ownership and facilitating positive change in vulnerable school-communities.

6.3.2 SECONDARY RESEARCH QUESTION 2: WHAT ARE THE BENEFITS OF A TEACHER-TO-TEACHER INTERVENTION IN IMPLEMENTING AND SUSTAINING SCHOOL-BASED VEGETABLE GARDENS?

This secondary research question is primarily answered by the findings of Theme 2, indicating that positive and unexpected outcomes (resilience) were yielded in school-communities as a result of the FIRST-GATE teacher-to-teacher intervention. The sub-themes that capture the value of the intervention relate to strengthened systemic collaboration within and across schools; strengthened teacher ownership; accountability and agency; food and nutrition-related benefits; positive economic outcomes; and improved health and well-being.

Overall, the findings of the current study indicate that the FIRST-GATE teacher-to-teacher intervention implied benefits not only for the teacher-participants, but also for the learners, respective schools and school-communities. As already indicated, the teachers' participation in the teacher-to-teacher intervention resulted in their professional development as they gained knowledge, skills and resources that they could in turn impart to other role players in support of the school-based vegetable garden projects they steered. As a result, both the teachers that participated and the people they shared their knowledge with were equipped to establish and maintain their own vegetable gardens within their own environmental settings. Closely related, some of the learners who became involved were motivated to explore career options associated with the vegetable garden project. Both teachers and learners were found to have experienced school-based vegetable gardens as active learning hubs where learners could be equipped with knowledge and essential lifelong skills in a relaxed environment. By acquiring agricultural knowledge and skills as well as the ability to identify and mobilise resources within the community, the various role players could

work together in addressing poverty-related challenges within vulnerable communities.

In terms of the various role players that became involved in the vegetable garden initiatives, the teacher-participants involved learners, other teachers from their schools, parents and community members, SGB members and external role players, such as national government departments. Based on the finding of a variety of role players being involved, I argue that teachers hold the necessary standing in vulnerable communities to be able to manage school-based projects such as vegetable gardens and mobilise suitable role players that can serve as resources in addressing challenges through school-based support projects.

The findings of the current study indicate that the teacher-participants firstly involved learners in the vegetable garden activities. As a result learners were provided with the opportunity to learn and acquire skills in a safe space where they could relate to their teachers in a non-academic manner. In this way, learners were able to gain knowledge on and skills of planting vegetables, looking after plants, acquiring healthy eating habits, income generating opportunities, etc. in school-based vegetable gardens, which served as active learning environmental classrooms.

In addition to the involvement of learners, the participants in the current study involved other teachers at their schools that had not been involved in school-based vegetable gardens prior to the FIRST-GATE project. As a result teachers were working alongside their peers to reach a common goal and interactively engage with one another more regularly within the school setting. The teacher-participants furthermore indicated that these connections with peers went beyond those of their own schools and included collaboration with other teachers from neighbouring schools that were willing to provide support to the school-based vegetable garden projects.

Next, I found that the participating schools involved parents and other community members in their vegetable garden projects. This enhanced the general involvement of parents in school-related matters and at the same time addressed some of the unemployment challenges experienced by parents, where parents had access to food and the acquisition of skills for establishing and maintaining vegetable gardens. Parents furthermore had the opportunity to act as role models to their children within an educational setting by being actively involved in the gardening projects. Such benefits were similarly experienced by SGB and other community members that

became involved. In return for skills acquisition and access to nutritious food, parents and other community members assisted schools by, for example, keeping the schools and vegetable gardens safe from burglary, and looking after the vegetable gardens during school holidays when teachers and learners found it difficult to take care of this task.

By involving various role players, the teacher-participants facilitated a process whereby stakeholders in vulnerable communities could take hands and work towards a common goal to address challenges within the school-community. This process promoted interconnectedness of the various sub-systems within the larger ecological system. In addition, it seemingly sparked ideas of resolving other related challenges within the participating schools' settings, resulting in the role players attending to issues such as fencing, securing school buildings, building and furnishing school libraries.

On a basic level, a prominent benefit relates to the way in which the FIRST-GATE teacher-to-teacher intervention addressed the need for food and nutrition. More specifically, as result of the intervention, the NSNP programme provided by the government to all learners in at-risk schools could be supplemented with produce from the school-based vegetable gardens. All participating primary schools were beneficiaries of the NSNP programme at the time of the research, requiring of these schools to establish school-based vegetable gardens and add to the nutritional value of the meals served at school. In this way, supplements could be obtained from the school-based vegetable gardens instead of buying products from other sources.

Closely related, as a result of learners obtaining better nourished meals, their ability to learn in school and through the vegetable garden itself could be improved. In addition to the school-based vegetable gardens addressing hunger and poverty-related challenges in this manner, the development of school-based vegetable gardens promoted a healthy lifestyle within the school-communities among all role players. According to the teacher-participants, a positive sense of appreciation for vegetables was fostered, with teachers, learners, parents and community members increasingly buying or receiving vegetable produce to consume in their households. In this regard, I posit that healthy choices were facilitated through participation in the FIRST-GATE intervention, which could in turn reduce food-related health challenges such as obesity and other food-related deficiencies. Based on these findings, I can conclude that the teachers participating in the FIRST-GATE intervention took

ownership to facilitate positive change in their vulnerable school-community settings by facilitating the involvement of various role players in support of the health and well-being of the various communities. I argue that school-based vegetable garden projects may ultimately promote food production, strengthen the involvement of a variety of role players in schools, and eventually propagate the health and well-being of vulnerable school-communities, thereby promoting resilience.

Another finding that supported resilience in terms of positive outcomes relates to the school-based vegetable gardens providing an income generating platform for the various role players involved. More specifically, the participating schools were able to generate income for the schools as well as for the community. In this regard, I posit that the participating schools acquired the ability to become self-sustained organisations that can engage in a cyclical process of selling and purchasing some of their own vegetable produce, and then channel the generated income to essential projects within the schools. I further argue that through their participation in the FIRST-GATE intervention, the teachers and by implication the parents and broader community, were thus enabled to address challenges associated with unemployment and poverty.

Finally, the participating schools benefited from the FIRST-GATE intervention by establishing and strengthening partnerships outside their sub-systems with stakeholders such as universities, politicians, local businesses, government departments and individuals in the community. These partnerships implied the increased involvement of various departments, universities, businesses and individuals in schools that collaborated with and could support teachers in resolving prevailing challenges within their school-communities.

6.3.3 SECONDARY RESEARCH QUESTION 3: WHAT ARE POTENTIAL CHALLENGES OF A TEACHER-TO-TEACHER INTERVENTION ON SUSTAINABLE SCHOOL-BASED VEGETABLE GARDENS?

The findings of Theme 3 indicate the challenges experienced by the teacher-participants during the FIRST-GATE intervention. Two challenges were identified, relating to the environment and role collision. More specifically, the teacher-participants found it difficult to balance their roles of teaching and support with that of managing the vegetable garden initiatives in terms of time management as well as maintaining a balance between the various roles.

In terms of the challenges they experienced that relate to the environment, the participants referred to poor quality soil, floods, drought and climate change having a negative effect on the vegetable-garden projects. Teacher-participants were, however, in all cases able to find ways of addressing the challenges they experienced. As a result, I argue that in spite of realistic challenges experienced by the teacher-participants, they were capable of finding solutions through collaboration and as a result of their participation in the FIRST-GATE intervention. More specifically, the participating teachers were focused on solutions and demonstrated some resilience by addressing the challenges they faced through collaboration and as a result of taking ownership of their school-based vegetable gardens.

6.3.4 PRIMARY RESEARCH QUESTION: HOW CAN THE IMPLEMENTATION AND OUTCOME OF A TEACHER-TO-TEACHER INTERVENTION IN SCHOOL-BASED VEGETABLE GARDENS SUPPORT RESILIENCE IN VULNERABLE COMMUNITIES?

The findings of Themes 1 and 2 (consult Sections 4.4 and 4.5) strongly correlate with insights in existing literature on how school-based vegetable gardens can support resilience in vulnerable school-communities. As indicated in Chapter 2, both a Western and Afrocentric perspective on resilience imply the ability to adapt when exposed to adversity (Masten, 2011; Rutter, 2012; Ungar, 2015).

In support of this view, the teacher-participants in the current study, based on their participation in the FIRST-GATE teacher-to-teacher intervention, developed capacity by gaining new and additional knowledge, experiences, resources and skills that in turn, enabled them to address challenges and facilitate positive change. In this manner, the teacher-to-teacher intervention enabled schools to adapt and benefit by gaining new knowledge, experiences, skills and resources, as well as positive economic, health and well-being-related outcomes as a result of their school-based vegetable garden initiatives. Positive outcomes and resilience were further supported by related projects that schools subsequently established.

Resilience as a construct implies a dynamic process that will foster adaptation across spatial, social and cultural contexts (Theron, 2013; Walsh, 2003). In support of this view, the teacher-participants in the current study facilitated a process whereby community members adapted and collaborated to establish and maintain the school-based vegetable garden. Through the coerciveness of community members working together, they were thus able to promote food production as a result of the FIRST-

GATE school-based vegetable garden project, thereby addressing vulnerability. As such the teacher-to-teacher intervention enabled the participants to enhance resilience within their school-communities through fulfilment of people's basic needs. From a resilience-enabling perspective, the participating schools were able to supplement the food of the NSNP nutrition programme and provide nutrition to children and families within the respective school-communities.

The FIRST-GATE teacher-to-teacher intervention thus created opportunities for people on ground level to enhance health and well-being in their communities. More specifically, the school-based vegetable gardens served as food hubs that provided nutritional meals through vegetable produce. Some of the reciprocal effects of promoting resilience through enhanced health and well-being relate to better learner attendance at school, thereby reducing absenteeism with the implied possibility of better learner performance. Furthermore, from a resilience perspective, the teacher-to-teacher intervention encouraged community members to take ownership of looking after their school environments and embarking on other health promotion projects, such as recycling as part of a waste management project. In terms of resilience theory, the way in which the participants, learners and other community members took responsibility and ownership of the maintenance of their school environments and the school-based vegetable gardens served as protective factor to the broader community.

Resilience theory and the integrated conceptual framework based on Ozer's model of potential effects of a school garden programmes (Ozer, 2007) and the asset-based approach (Ebersöhn & Eloff, 2006; McKnight & Kretzmann, 1997) position school-communities as multi-layered systems that possess capacities, resources and assets that may be mobilised to address challenges. As already indicated, the findings of the current study demonstrate how school-based vegetable garden projects can benefit schools and the role players involved on various levels. In terms of the teacher-participants themselves, they gained capacity in the form of personal development, capital gains, as well as strengthened systemic collaboration within and across systems.

As a result, I argue that a teacher-to-teacher intervention on the implementation and maintenance of school-based vegetable gardens can enhance cohesion between the various role players within a school-community (teachers, parents, learners, organisations, government departments, universities, NGOs and neighbouring

schools) with teachers and schools being well-positioned to spearhead projects that may promote resilience in vulnerable communities. More specifically, the findings of the current study indicate that income generation, positive economic outcomes, and food and nutrition-related as well as health and well-being outcomes can be achieved through interventions focusing on school-based vegetable gardens.

The FIRST-GATE teacher-to-teacher intervention that formed the focus of this study provides an example of a school-based intervention that equipped teachers to fulfil the role of positive change agents within their school-communities. From a resilience promoting perspective, the FIRST-GATE teacher-to-teacher intervention yielded positive economic outcomes, as the vegetable gardens served as essential sources of cyclical income generating projects within the school-communities. Participating schools were thus able to generate income and become self-sustaining organisational entities that could contextualise the production, consumption and even the marketing of vegetable produce for themselves, the schools and communities. In this manner, participation in the teacher-to-teacher intervention promoted resilience through the enhancement and establishment of income generating projects. Income generation in turn enabled the schools to become more self-sustaining (a concept of resilience) and also embark on other projects such as school fencing, the purchasing of school equipment, and the establishment of, for example, a school library.

As a reciprocal resilience factor, through the FIRST-GATE teacher-to-teacher intervention, the teacher-participants were able to support learners, parents and community members to learn and develop income generating skills that they could implement in support of their own financial position. Participating schools collaborated with community members in a mutually beneficial way of supporting community members to establish their own vegetable gardens while benefiting from the support provided by community members to the schools.

Another aspect of resilience as captured in existing literature and confirmed by the findings of the current study relates to the ability of teachers to take ownership of and be accountable for school-based vegetable gardens. Through participation in the teacher-to-teacher intervention, the participants were motivated to self-sustain the school-based vegetable garden initiatives within their school-communities. Finally, participating schools felt enabled to support community members and other neighbouring schools to establish school-based vegetable gardens as resilience-

promoting projects. Teachers and schools as a result perceived themselves to be in a position to transfer experience, knowledge, skills and resources to others.

6.4 CONTRIBUTIONS OF THE STUDY

In this section I discuss the theoretical, practical and training-related contributions of this study.

6.4.1 THEORETICAL CONTRIBUTION

This study provides evidence-based information on how teachers can initiate and sustain school-based vegetable garden projects that may address some of the challenges experienced by vulnerable communities in South Africa. More specifically, the findings of the study foreground teachers as a valuable human resource and as being well-positioned to identify prevailing challenges within their school-communities and steer vegetable garden projects that may provide solutions to such challenges. As the current study entailed an intervention where teachers relied on existing resources, their own knowledge and ideas, and more specifically the expertise of peers, the study contributes to the existing theory on the application of the asset-based approach, the value of school-based vegetable gardens in South Africa, the potential effect of teacher-to-teacher interventions and peer support in vulnerable school-communities, and ultimately the role of teachers and schools in enhancing the resilience of their school-communities. In this regard, I posit that teachers are embodiments of knowledge that can share and motivate one another to support positive social change.

To this end, teachers can be viewed as valuable human resources in their school-communities, who are likely to depend on their peers as well as other role players in sharing knowledge, skills, resources and ideas, in empowering one another and enhancing capacity development. The findings of the study elaborate on existing theory on the value of teacher-to-teacher interventions and more specifically how such interventions can be relied on to address challenges in vulnerable communities. The findings furthermore build on existing theory on the value of PRA methodology when conducting an intervention study where the aim is for teachers or other participants to take the lead in forming networks and collaborations that may assist them in managing the challenges that they or their school-communities may face.

Within the context of the broader FIRST-GATE project, the current study adds to existing literature on resilience and teacher-driven self-sustaining initiatives when implementing the asset-based approach and Ozer's model of potential effects of school garden programmes, in support of the health and well-being of vulnerable communities. The findings namely foreground how schools can support vulnerable communities within the South African context by driving communal processes of resilience building and the empowerment of communities to take agency and address the challenges they face by following a collaborative approach where various role players, such as teachers, learners, parents and community members are involved. The findings of the study furthermore add to the existing knowledge base on school-based vegetable gardens and how these may support the health and well-being in vulnerable communities, not only in terms of nutritional support but also with regard to the potential of creating income generation opportunities.

6.4.2 CONTRIBUTIONS FOR PRACTICE AND TRAINING

As the teacher-participants in the current study engaged in a continuous process of sharing knowledge, ideas and experiences, they were able to inform practice as part of their involvement in the broader FIRST-GATE project. The ideas and skills they gained could in turn be applied in the various school-communities, thereby informing general practice in support of vulnerable learners and the school-communities the teachers work in.

In this manner, a teacher-to-teacher intervention implies value for the professional development of the participants, their peers and even the broader school-community. In addition, enablement of teachers *via* a teacher-to-teacher intervention within the bio-psychosocial model (embedded in Ozer's model of potential effects of school garden programmes) can contribute to community upliftment in the broader sense of the word. More specifically, by supporting teachers to take ownership and empower themselves with knowledge shared by other teachers, a community at large may benefit.

The study I undertook furthermore has practical value as it demonstrates how a repertoire of skills and ideas for school-based vegetable gardens may be built on and applied not only by the teachers who participate but also by other teachers who may in future participate in a similar intervention. In addition, peers in the vicinity of a school

where such an initiative is undertaken as well as members of the community may indirectly benefit from this.

Next, the current study contributes to a deeper understanding of the potential role of an educational psychologist when wanting to facilitate positive change in vulnerable school-communities. It positions psychologists as outside supporters and teachers/community members as potential co-facilitators, co-researchers and enablers in addressing basic human needs by mobilising people on ground level to take ownership of their own well-being. The knowledge generated by this study may thus inform the training and practice of student educational psychologists and people in related professions that may act as catalysts or facilitators of positive change in vulnerable communities. For training, students may benefit from understanding their role as potential future facilitators of change and what this role may entail.

Central to school-community practice, the current study promoted self-sustained health and the well-being of the school-communities that have been involved, with the learners being central. The school-based vegetable gardens provided a healthy supplement of the NSNP within the educational setting of the participating schools. In addition, they promoted a sense of appreciation for fruit and vegetables by actively involving learners in the vegetable gardens. In addition, the broader school-communities (teachers, learners, parents and community members) benefited from the produce, thereby being enabled to ensure healthier and nutritious meals.

Closely related, the production of vegetables supported efforts in the community to address poverty- and food-related challenges within the vulnerable communities with both social and capital gains. As a result, the school-communities could build on existing knowledge and create employment opportunities and financial income for individuals within the community. In addition to the schools that participated, other schools in South Africa may also apply this model and potentially benefit on the various said levels. Furthermore, this study only applied to school-communities and not broader vulnerable communities per se. Hence the findings of the study apply to this context only due to the focus, nature and extent of the FIRST-GATE project, of which my study forms part.

Finally, within the educational field of practice, the current study provides an example of how triadic teacher-learner-parent relationships can result in positive change and support health and well-being when role players collaborate and actively work together

in establishing school-based vegetable gardens that may ultimately benefit the school and broader community. As such, the findings of this study may positively influence the working relationships between teachers, learners, parents and others, informing other teachers in practice as well as future teachers (as part of their training programmes) how to foster teacher-learner-parent relationships with the intentional benefit of promoting well-being within vulnerable school-communities.

6.5 LIMITATIONS AND CHALLENGES EXPERIENCED DURING THE STUDY

The findings of the current study are not generalisable to the broader population. In following a PRA approach, utilising interpretivism and undertaking case study research, I aimed to obtain an in-depth understanding of the experiences of the selected teacher-participants, representing their voices based on their shared perceptions and ideas. As such, I did not aim to obtain generalisable findings but to yield rich descriptions that may inform other studies and allow for transferability to other contexts. Even though the findings of the current study are not generalisable across all contexts, I do not regard this as a limitation, seen against the background and purpose of my study.

The current study relied on a relatively small sample that was context-specific. As such the findings of the study are context bound and based on the convenience and purposive sampling of the site and participants. I conveniently selected nine participating primary schools in the Eastern Cape province of South Africa based on their involvement in the STAR, SHEBA and FIRST-GATE projects. Thirty-seven Afrocentric teacher-participants purposively formed part of the project within their designated schools. In order to mitigate the identified limitation, I conducted a rigorous process of sampling, data generation and documentation and I applied an in-depth process of inductive data analysis. As such, I took measures in support of the findings being transferable, dependable and trustworthy. I am of the view that the findings of the current study can thus inform other researchers who intend to conduct similar studies in related contexts.

Next, the possible influence of subjectivity and bias posed a potential limitation in terms of my observations and interpretation of the data. In an attempt to avoid this, I relied on various data generation and documentation techniques as well as reflexivity. I remained cautious of, acknowledged and clearly indicated my assumptions as I embarked on this research journey, and kept a reflective journal to document and

monitor my personal views as a way of guarding against any potential biased views that could impact the study. I also engaged in regular debriefing sessions with members of the research team and my supervisors, and employed member checking after the initial round of data analysis to ensure that I present the views of the participants, rather than interpretations influenced by my own ideas or bias.

In conducting the study, I remained conscious of the fact that the findings are entirely based on the perceptions of the teacher-participants on how school-based vegetable gardens may promote resilience in vulnerable communities despite the fact that various other role players participated in the vegetable garden projects and may have added additional views. I thus acknowledge that different views may have been obtained from the learners, parents and community members or even other stakeholders that were involved; however, the current study's primary purpose was to understand the teachers' experiences of a teacher-to-teacher intervention and how this assisted them in addressing issues of vulnerability. As a result, the perceptions of additional role players fell outside my scope of focus.

Finally, in terms of a technological challenge I faced, due to my mobile phone being stolen shortly after the third field visit, I lost data in the form of field notes and photographs that were captured during this specific field visit. However, as I conducted research alongside other members of the research team, I was able to obtain their photographs and field notes. Following this incident, all electronically generated data was saved immediately and backed up to reduce the potential of data being lost again.

6.6 RECOMMENDATIONS

Based on the findings and outcomes of this study, I make recommendations for training, practice and future research in this section.

6.6.1 RECOMMENDATIONS FOR TRAINING

Based on the findings I obtained, I recommend that all teacher training programmes include a module where the multi-faceted roles of teachers are dealt with, and what this may imply in terms of school-community interventions. It is important that teacher training programmes include information on teachers being more than just classroom practitioners, and on what the teacher's role as caregiver, change agent, problem solver and health facilitator implies. Based on the understanding that teachers are well-positioned and respected to provide support and steer support initiatives in

vulnerable school-communities, training in facilitation skills may prepare future teachers for this role in their careers. In addition to the skills of managing and facilitating supportive initiatives, teachers may benefit from being informed about the vulnerability and adversities often faced by communities in South Africa. If teachers are trained to address the challenges related to vulnerability in South African school-communities, they may be able to facilitate positive change in society.

In addition, training in terms of the value of teacher-to-teacher interventions can encourage teachers to initiate such efforts and gain from the repertoire of knowledge and skills available in the teacher community. Training that includes the FIRST-GATE intervention as example may provide teachers with a practical exemplar of such an intervention that had been taken in the South African context.

6.6.2 RECOMMENDATIONS FOR PRACTICE

Based on the findings that I obtained, I recommend that teachers more often become involved as co-researchers and collaborate with university researchers to generate knowledge and find solutions to problems in school-community contexts. It is important that teachers are acknowledged and recognised for their capacity to facilitate change and learn from and alongside their peers. Building on the FIRST-GATE project, the need seems to exist for developing similar interventions, forums and platforms where teachers can engage with peers and share knowledge, skills and ideas for resources that may support others in addressing the challenges they face. To this end, practising teachers should be encouraged to initiate contact with neighbouring schools and discuss solutions to problems jointly experienced by schools in similar contexts.

Furthermore, teachers as co-researchers in partnership with researchers at universities may form part of a team that generates knowledge, and find solutions to the social challenges faced by vulnerable school-communities. Both teachers and post-graduate students and university researchers can gain experience in the process, and then apply this in practice. As such, partnerships may enable university students to gain knowledge and skills when exploring phenomena in a social context. Information that is shared can be documented and then disseminated with the potential of informing future training and practice of the various professionals that may become involved.

Based on the positive outcomes related to the teacher-participants collaboratively engaging, generating and sharing knowledge, experience, skills and resources, I recommend that the participating schools maintain contact and engage in follow-up meetings on a regular basis. The aim of the meetings would be to share and continue learning from one another. Participating schools can also consider the involvement of other schools in the region in support of further capacity development and social change.

Finally, I recommend that government departments such as Education, Agriculture and Health engage with schools to support school-based interventions that may in turn promote resilience and address the challenges faced by vulnerable communities. By engaging with teachers on ground level, these stakeholders may better understand the capacity of teachers and as a result provide clarity in terms of the roles that the external stakeholders may fulfil.

6.6.3 RECOMMENDATIONS FOR FUTURE RESEARCH

I recommend the following focus areas for further studies that may build on existing knowledge and the findings of the current study:

- Explanatory studies on the experiences of parents and learners following their involvement in a school-based intervention on school-based vegetable gardens.
- Longitudinal studies to explore how school-based vegetable gardens can be sustained in support of vulnerable communities.
- Exploratory studies on the experiences of various role players and stakeholders involved in school-based interventions.
- Follow-up case study research on how the establishment of school-based vegetable gardens as well as other related projects can promote the well-being of vulnerable communities in terms of the various aspects involved in such projects.
- Explanatory studies on the possibility and effect of parents participating in school-based vegetable gardens against the background of vulnerability.

6.7 CONCLUDING REMARKS

Interventions such as those focusing on the value of school-based vegetable gardens in vulnerable school-communities count among ongoing initiatives that aim to mobilise schools as central supportive sub-systems within the larger community system, steered by teachers as active and positive change agents. In the current study, I

explored an example of a teacher-to-teacher (FIRST-GATE) intervention promoting resilience in vulnerable school communities. The intervention under exploration specifically focused on school-based vegetable projects and the value of such initiatives for resilience in contexts of vulnerability.

The findings of the current study confirm that teachers are well-positioned to identify challenges within their school-communities and then plan ways of addressing these by involving learners, parents and community members. As co-researchers of the current study, teacher-participants became aware of their knowledge, skills and available resources, which in turn assisted them to mobilise the relevant resources in support of their communities and address prevailing challenges. PRA research allowed the teachers to learn from and with their peers, having a strong influence on one another in terms of capacity building yet also in taking ownership of projects in their respective school-communities. This in turn supported an educational setting that did not only promote an environment conducive to learning but also assisted in addressing the general needs, health and well-being of the learners, their families and even the broader community.

In conclusion, the current study demonstrates that teachers are critical agencies of change in vulnerable school-communities and are pivotally positioned to support one another as peers in addressing problems and finding solutions in addition to supporting others in their school-communities. Furthermore, in being guided by PRA principles, focus was placed on collaboration, engagement and the sharing of expertise, knowledge and skills in a safe environment and within a circle of peers. As a result, teacher-participants were able to plan, monitor and evaluate support initiatives while receiving feedback and guidance from people in similar situations in support of their fulfilment of the various roles often ascribed to teachers − more specifically in vulnerable school-community contexts.

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References

Adato, M., Kadiyala, S., Roopnaraine, T., Biermayr-Jenzano, P., & Norman, A. (2015). *Children in the shadow of AIDS: Studies of vulnerable children and orphans in three provinces in South Africa*. Washington, DC: International Food Policy Research Institute (IFPRI). Retrieved from https://www.issuelab.org/resources/19651/19651.pdf

Adger, W. N. (2006). Vulnerability. *Global Environmental Change*, *16,* 268–281. doi:10.1016/j.gloenvcha.2006.02.006

Akintola, O. (2010). Perceptions of rewards among volunteer caregivers of people living with AIDS working in faith-based organizations in South Africa: A qualitative study. *Journal of the International AIDS Society*, *13*(1), 1–10. doi:10.1186/1758-2652-13-22

Aldrich, D. P., & Meyer, M. A. (2015). Social capital and community resilience. *American Behavioral Scientist, 59,* 254–269. doi:10.1177/0002764214550299

Alharahsheh, H. H., & Pius, A. (2020). A review of key paradigms: Positivism VS interpretivism. *Global Academic Journal of Humanities and Social Sciences, 2*(3), 39–43. doi:10.36348/gajhss.2020.v02i03.001

Amod, Z. (2019). A collaborative problem-solving psychoeducational approach implemented in underresourced South African schools. *Journal of Educational and Psychological Consultation, 29,* 423–443. doi:10.1080/10474412.2018.1531764

Angrosino, M. V. (2005). *Recontextualizing observation: Ethnography, pedagogy, and the prospects for a progressive political agenda.* In N. K. Denzin & Y. S. Lincoln (Eds.), *The Sage handbook of qualitative research* (3rd ed., pp. 729–745). Thousand Oaks, CA: Sage.

Angrosino, M. V., & Mays de Pérez, K. A. (2000). Rethinking observation from method to context. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (2nd ed., pp. 673–702). Thousand Oaks, CA: Sage.

Atake, E. H. (2018). Health shocks in Sub-Saharan Africa: Are the poor and uninsured households more vulnerable? *Health Economics Review, 8*(1), 1–13. doi:10.1186/s13561-018-0210-x

Babbie, E., & Mouton, J. (2001). *The practice of social research.* Cape Town, South Africa: Oxford University Press Southern Africa.

Baker, N. T., & Capel, P. D. (2011). *Environmental factors that influence the location of crop agriculture in the conterminous United States* (Scientific Investigations Report 2011–5108). Washington, DC: US Department of the Interior. Retrieved from https://pubs.usgs.gov/sir/2011/5108/pdf/SIR2011_5108.pdf

Bamford, L., Barron, P., Kauchali, S., & Dlamini, N. (2018). Inpatient case fatality rates improvements in children under 5: Diarrhoeal disease, pneumonia and severe acute malnutrition. *South African Medical Journal, 108*(3 Suppl. 1), S33–S37. doi:10.7196/SAMJ.2018.v108i3.12772

Banning, J. (2015). *Measuring the impacts of a school garden-based nutrition intervention* (Master's thesis, The University of Vermont). Retrieved from https://scholarworks.uvm.edu/cgi/viewcontent.cgi?article=1424&context=graddis

Barthel, S., & Isendahl, C. (2013). Urban gardens, agriculture, and water management: Sources of resilience for long-term food security in cities. *Ecological Economics*, *86,* 224–234. doi:10.1016/j.ecolecon.2012.06.018

Baxter, P., & Jack, S. (2008). Qualitative case study methodology: Study design and impementation for novice researchers. *The Qualitative Report, 13,* 544–559. Retrieved from http://nsuworks.nova.edu/tqr/vol13/iss4/2/?utm_source=nsuworks.nova.edu%2Ftqr%2Fvol13%2Fiss4%2F2&utm_medium=PDF&utm_campaign=PDFCoverPages

Beavers, A. W., Atkinson, A., & Alaimo, K. (2020). How gardening and a gardener support program in Detroit influence participants' diet, food security, and food values. *Journal of Hunger & Environmental Nutrition, 15,* 149–169. doi:10.1080/19320248.2019.1587332

Béné, C., Devereux, S., & Roelen, K. (2015). *Social protection and sustainable natural resource management: Initial findings and good practices from small-scale fisheries* (FAO Fisheries and Aquaculture Circular No. 1106). Rome, Italy: Food and Agriculture Organization of the United Nations. Retrieved from https://www.fao.org/3/i4620e/i4620e.pdf

Blair, D. (2009). The child in the garden: An evaluative review of the benefits of school gardening. *The Journal of Environmental Education, 40,* 15–38. doi:10.3200/JOEE.40.2.15-38

Blanc, E., & Reilly, J. (2017). Approaches to assessing climate change impacts on agriculture: An overview of the debate. *Review of Environmental Economics and Policy, 11,* 247–257. doi:10.1093/reep/rex011

Botha, M. (2010). A project-based learning approach as a method of teaching entrepreneurship to a large group of undergraduate students in South Africa. *Education as Change, 14,* 213–232. doi:10.1080/16823206.2010.522059

Brear, M. (2019). Process and outcomes of a recursive, dialogic member checking approach: A project ethnography. *Qualitative Health Research, 29,* 944–957. doi:10.1177/1049732318812448

Bromley, D. B. (1990). Academic contributions to psychological counselling. 1. A philosophy of science for the study of individual cases. *Counselling Psychology Quarterly, 3,* 299–307. doi:10.1080/09515079008254261

Bronfenbrenner, U. (1977). Toward an experimental ecology of human development. *American Psychologist, 32,* 513–531.

Brouwer, R. J. N., & Neelon, S. E. B. (2013). Watch me grow: A garden-based pilot intervention to increase vegetable and fruit intake in preschoolers. *BMC Public Health, 13,* 1–6. doi:10.1186/1471-2458-13-363

Buchs, C., Filippou, D., Pulfrey, C., & Volpé, Y. (2017). Challenges for cooperative learning implementation: Reports from elementary school teachers. *Journal of Education for Teaching, 43,* 296–306. doi:10.1080/02607476.2017.1321673

Burt, K. G., Luesse, H. B., Rakoff, J., Ventura, A., & Burgermaster, M. (2018). School gardens in the United States: Current barriers to integration and sustainability. *American Journal of Public Health, 108,* 1543–1549. doi:10.2105/AJPH.2018.304674

Campbell, C., & Cornish, F. (2011). How can community health programmes build enabling environments for transformative communication? Experiences from India and South Africa. *AIDS and Behaviour, 16,* 847–857. doi:10.1007/s10461-011-9966-2

Campbell, C., Gibbs, A., Maimane, S., & Nair, Y. (2008). Hearing community voices: Grassroots perceptions of an intervention to support health volunteers in South Africa. *Journal of Social Aspects of HIV/AIDS, 5,* 162–177. Retrieved from https://www.ajol.info/index.php/saharaj/article/view/30146

Candela, A. G. (2019). Exploring the function of member checking. *The Qualitative Report, 24,* 619–628. Retrieved from https://www.proquest.com/docview/2213787326/fulltextPDF/7A5EA510CFCF4E6FPQ/1?accountid=14717

Carbonnier, G., Kartas, M., & Silva, K. T. (Eds.). (2016). *International development policy: Religion and development*. New York, NY: Palgrave Macmillan.

Chambati, C. N. (2015). *Adapting a teacher intervention programme for use with community volunteers* (Master's dissertation, University of Pretoria, Pretoria, South Africa). Retrieved from https://repository.up.ac.za/bitstream/handle/2263/52964/Chambati_Adapting_2015.pdf?sequence=1&isAllowed=y

Chambers, R. (2008). *Revolutions in development inquiry.* London, England: Earthscan.

Chan, J., DuBois, B., & Tidball, K. G. (2015). Refuges of local resilience: Community gardens in post-Sandy New York City. *Urban Forestry & Urban Greening, 14,* 625–635. doi:10.1016/j.ufug.2015.06.005

Check, J., & Schutt, R. K. (2012). *Research methods in education*. Thousand Oaks, CA: Sage.

Chiawo, D. O., & Otiende, V. A. (2021). Climate-induced food crisis in Africa: Integrating policy and adaptation. In W. Leal Filho, N. Oguge, D. Ayal, L. Adeleke, & I. Da Silva (Eds.), *African handbook of climate change adaptation* (pp. 1–21). Cham, Switzerland: Springer.

Chidakwa, N. (2020). *An asset-based approach to mitigating learner multiple vulnerabilities in Zimbabwean rural learning ecologies* (Doctoral thesis, University of KwaZulu-Natal, Durban, South Africa). Retrieved from https://ukzn-dspace.ukzn.ac.za/bitstream/handle/10413/19225/Chidakwa_Nowell_2020.pdf?sequence=1&isAllowed=y

Chirenje, L. I., Giliba, R. A., & Musamba, E. B. (2013). Local communities' participation in decision-making processes through planning and budgeting in African countries. *Chinese Journal of Population Resources and Environment*, *11*(1), 10–16. doi:10.1080/10042857.2013.777198

Cluver, L. D., Orkin, F. M., Boyes, M. E., & Sherr, L. (2014). Cash plus care: Social protection cumulatively mitigates HIV-risk behaviour among adolescents in South Africa. *Aids*, *28*, S389–S397. doi:10.1097/QAD.0000000000000340

Cohen, L., Manion, L., & Morrison, K. (2011). *Research methods in education* (7th ed.). London, England: Routledge.

Cohen, L., Manion, L., & Morrison, K. (2017). *Research methods in education* (8th ed.). London, England: Routledge.

Connolly-Boutin, L., & Smit, B. (2016). Climate change, food security, and livelihoods in sub-Saharan Africa. *Regional Environmental Change, 16,* 385–399. doi:10.1007/s10113-015-0761-x

Creswell, J. W. (2003). *Research design: Qualitative, quantitative, and mixed methods approaches* (2nd ed.). Thousand Oaks, CA: Sage.

Creswell, J. W. (2008a). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (3rd ed.). Harlow, England: Prentice Hall.

Creswell, J. W. (2008b). *Research design: Qualitative, quantitative, and mixed methods approaches* (3rd ed.). Thousand Oaks, CA: Sage.

Creswell, J. W. (2013). *Qualitative inquiry and research design: Choosing among five approaches* (3rd ed.). Thousand Oaks, CA: Sage.

Creswell, J. W. (2014a). *A concise introduction to mixed methods research*. Thousand Oaks, CA: Sage.

Creswell, J. W. (2014b). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). Thousand Oaks, CA: Sage.

Creswell, J. W., & Plano Clark, V. L. (2011). *Designing and conducting mixed methods research* (2nd ed.). Los Angeles, CA: Sage.

Curley, R. J. (2020). *The feasibility of a peer-based intervention to increase physical activity and healthy eating in African American college students at Morgan State University* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 27744965)

De Vos, A. S., Schulze, S., & Patel, L. (2011). The sciences and the professions. In A. S. De Vos, H. Strydom, C. B. Fouché, & C. S. L. Delport (Eds.), *Research at*

grass roots: For the social sciences and human service professions (4th ed., pp. 3–27). Pretoria, South Africa: Van Schaik.

Delport, C. S. L., & Fouché. C. B. (2011). The qualitative research report. In A. S. De Vos, H. Strydom, C. B. Fouché, & C. S. L. Delport (Eds.), *Research at grass roots: For the social sciences and human service professions* (4th ed., pp. 425–430). Pretoria, South Africa: Van Schaik.

Denzin, N. K., & Lincoln, Y. S. (Eds.). (2011). *The Sage handbook of qualitative research* (4th ed.). Thousand Oaks, CA: Sage.

Department of Basic Education. (2014). *National school nutrition programme grants framework 2014/2015*. Pretoria, South Africa: Author.

Devereux, S., Hochfeld, T., Karriem, A., Mensah, C., Morahanye, M., Msimango, T., … Sanousi, M. (2018). *School feeding in South Africa: What we know, what we don't know* (Food Security SA Working Paper Series No. 004). Bellville, South Africa: DST-NRF Centre of Excellence in Food Security. Retrieved from https://www.researchgate.net/profile/Abdulrazak-Karriem/publication/325828674_June_2018_School_Feeding_in_South_Africa_What_we_know_what_we_don't_know_what_we_need_to_know_what_we_need_to_do_Food_Security_SA_Working_Paper_Series_No_004_DST-NRF_Centre_of_Excellence_in_Food_Secur/links/5b282a8aa6fdcca0f09c42cf/June-2018-School-Feeding-in-South-Africa-What-we-know-what-we-dont-know-what-we-need-to-know-what-we-need-to-do-Food-Security-SA-Working-Paper-Series-No-004-DST-NRF-Centre-of-Excellence-in-Food-Se.pdf

Dippenaar, S. (2018). *Potential value of school-based vegetable gardens in promoting the resilience of primary school learners* (Master's dissertation, University of Pretoria, Pretoria, South Africa). Retrieved from https://repository.up.ac.za/bitstream/handle/2263/70080/Dippenaar_Potential_2018.pdf?sequence=1&isAllowed=y

Donald, D. R., Lazarus, S., & Lolwana, P. (2010). *Educational psychology in social context: Ecosystemic applications in southern Africa* (4th ed.). Cape Town, South Africa: Oxford University Press Southern Africa.

Drimie, S., Van Zyl, J., Vogel, C., Mathee, A., Kilian, D., Henderson, C., & Gibson, D. (2005). *Human vulnerability to environmental change*. Retrieved from https://www.researchgate.net/profile/Scott-Drimie/publication/242183320_HUMAN_VULNERABILITY_TO_ENVIRONMEN

TAL_CHANGE/links/0c96053ad0cced3b39000000/HUMAN-VULNERABILITY-TO-ENVIRONMENTAL-CHANGE.pdf

Du Plessis, P., & Mestry, R. (2019). Teachers for rural schools – a challenge for South Africa [Special issue]. *South African Journal of Education, 39*(Suppl. 1), S1–S9. doi:10.15700/saje.v39ns1a1774

Duncan, M. J., Eyre, E., Bryant, E., Clarke, N., Birch, S., Staples, V., & Sheffield, D. (2015). The impact of a school-based gardening intervention on intentions and behaviour related to fruit and vegetable consumption in children [Special issue]. *Journal of Health Psychology, 20,* 765–773. doi:10.1177/1359105315573445

Durrheim, K. (2006). Research design. In M. Terre Blance, K. Durrheim, & D. Painter (Eds.), *Research in practice: Applied methods for the social sciences* (2nd ed., pp. 33–59). Cape Town, South Africa: University of Cape Town Press (Pty) Ltd.

Eastern Cape Socio Economic Consultative Council. (2017). *Nelson Mandela Bay Metro Municipality socio economic review and outlook, 2017*. Vincent, South Africa: Author. Retrieved from https://www.ecsecc.org/documentrepository/informationcentre/nelson-mandela-bay-metro-municipality_31887.pdf

Ebersöhn, L. (2006). *A school-based project supporting communities to cope with HIV&AIDS.* Pretoria, South Africa: ABSA Foundation Research Report.

Ebersöhn, L. (2008). *STAR teachers supporting vulnerable children in the context of HIV&AIDS* (Research Report for Foschini Group).

Ebersöhn, L. (2014). Teacher resilience: Theorizing resilience and poverty. *Teachers and Teaching, 20,* 568–594. doi:10.1080/13540602.2014.937960

Ebersöhn, L. (2015). Making sense of place in school-based intervention research. *Contemporary Educational Psychology*, *40*, 121–130. doi:10.1016/j.cedpsych.2014.10.004

Ebersöhn, L. (2017). A resilience, health and well-being lens for education and poverty. *South African Journal of Education, 37*(1), 1–9. doi:10.15700/saje.v37n1a1392

Ebersöhn, L. (2019). Training educational psychology professionals for work engagement in a context of inequality and trauma in South Africa. *South African Journal of Education, 39*(Suppl. 2), S1–S25. doi:10.15700/saje.v39ns2a1716

Ebersöhn, L., & Eloff, I. (2003). *Life skills and assets*. Pretoria, South Africa: Van Schaik.

Ebersöhn, L., & Eloff, I. (2006). *Life skills and assets* (2nd ed.). Pretoria, South Africa: Van Schaik.

Ebersöhn, L., Eloff, I., & Ferreira, R. (2007). First steps in action research. In K. Maree (Ed.), *First steps in research* (pp. 124–142). Pretoria, South Africa: Van Schaik.

Ebersöhn, L., & Ferreira, R. (2011). Coping in an HIV/AIDS-dominated context: Teachers promoting resilience in schools. *Health Education Research*, *26,* 596–613. doi.10.1093/her/cyr016

Ebersöhn, L., Ferreira, R., & Mnguni, M. (2008). Teachers' use of memory-box-making to provide psychosocial support in their pastoral role. *Journal of Psychology in Africa, 18,* 465–475. doi:10.1080/14330237.2008.10820223

Engle, N. L. (2011). Adaptive capacity and its assessment. *Global Environmental Change, 21,* 647–656. doi:10.1016/j.gloenvcha.2011.01.019

Faber, M., Laurie, S., Maduna, M., Magudulela, T., & Muehlhoff, E. (2014). Is the school food environment conducive to healthy eating in poorly resourced South African schools? *Public Health Nutrition, 17,* 1214–1223. doi:10.1017/S1368980013002279

Fazel, M., & Betancourt, T. S. (2018). Preventive mental health interventions for refugee children and adolescents in high-income settings. *The Lancet Child & Adolescent Health, 2*(2), 121–132. doi:10.1016/S2352-4642(17)30147-5

Feng, S., Hossain, L., & Paton, D. (2017). Harnessing informal education for community resilience. *Disaster Prevention and Management, 27*(1), 43–59. doi:10.1108/DPM-07-2017-0157

Ferreira, R. (2006). *Contemplating the relationship between coping with HIV/AIDS and the asset-based approach* (Doctoral thesis, University of Pretoria, Pretoria, South Africa).

Ferreira, R., & Ebersöhn, L. (2011). Formative evaluation of the STAR intervention: Improving teachers' ability to provide psychosocial support for vulnerable individuals in the school community. *African Journal of AIDS Research*, *10*(1), 63–72. doi:10.2989/16085906.2011.575549

Ferreira, R., & Ebersöhn, L. (2012). *Partnering for resilience*. Pretoria, South Africa: Van Schaik.

Ferreira, R., Ebersöhn, L., & Botha, K. (2013). Using participatory action research to develop an HIV and Aids school plan. *South African Journal of Education, 33*(4), 1–17. doi:10.15700/201412171331

Ferreira, R., Ebersöhn, L., & Odendaal, V. (2010). Community-based educational psychology intervention to enhance teachers' support competencies in the HIV&AIDS realm. *Education as Change, 14*(2), 103–113.

Fisher-Maltese, C., Fisher, D. R., & Ray, R. (2018). Can learning in informal settings mitigate disadvantage and promote urban sustainability? School gardens in Washington, DC. *International Review of Education, 64,* 295–312. doi:10.1007/s11159-017-9663-0

Food and Agriculture Organization of the United Nations. (2011). *The state of food insecurity in the world: How does international price volatility affect domestic economies and food security?* Rome, Italy: Author. Retrieved from https://reliefweb.int/sites/reliefweb.int/files/resources/Full%20Report_266.pdf

Food and Agriculture Organization of the United Nations, International Fund for Agricultural Development, International Monetary Fund, Organisation for Economic Co-operation and Development, United Nations Conference on Trade and Development, World Food Programme, … High Level Task Force on Global Food and Nutrition Security. (2011). *Price volatility in food and agricultural markets: Policy responses.* Rome, Italy: FAO. Retrieved from http://www.fao.org/fileadmin/templates/est/Volatility/Interagency_Report_to_the_G20_on_Food_Price_Volatility.pdf

Food and Agriculture Organization of the United Nations, International Fund for Agricultural Development, United Nations Children's Fund, World Food Programme, & World Health Organization. (2017). *The state of food security and nutrition in the world 2017: Building resilience for peace and food security*. Rome, Italy: FAO. Retrieved from http://www.fao.org/3/I7695e/I7695e.pdf

Fouché, A., Fouché, D. F., & Theron, L. C. (2020). Child protection and resilience in the face of COVID-19 in South Africa: A rapid review of C-19 legislation. *Child Abuse & Neglect, 110*(Part 2), 1–17. doi:10.1016/j.chiabu.2020.104710

Frantz, W. T. (2015). U.S. Patent No. 9,071,330. Washington, DC: U.S. Patent and Trademark Office.

Fraser, T., Aldrich, D. P., & Small, A. (2021). Connecting social capital and vulnerability: Citation network analysis of disaster studies. *Natural Hazards Review, 22*(3), 04021016-1–04021016-10.

Fusch, P., Fusch, G. E., & Ness, L. R. (2018). Denzin's paradigm shift: Revisiting triangulation in qualitative research. *Journal of Social Change, 10*(1), 19–32. doi:10.5590/JOSC.2018.10.1.02

Gallopín, G. C. (2006). Linkages between vulnerability, resilience, and adaptive capacity. *Global Environmental Change, 16,* 293–303. doi:10.1016/j.gloenvcha.2006.02.004

García, E. E., & Öztürk, M. D. (2017). *An asset-based approach to Latino education in the United States: Understanding gaps and advances*. New York, NY: Routledge. doi:10.4324/9781315544465

Garoutte, L. (2018). The sociological imagination and community-based learning: Using an asset-based approach. *Teaching Sociology, 46,* 148–159. doi:10.1177/0092055X17750453

Gay, L. R. & Airasian, P. W. (2003). *Educational research: Competencies for analysis and applications* (7th ed.). Upper Saddle River, NJ: Pearson Education.

Gaynor, T. S., & Wilson, M. E. (2020). Social vulnerability and equity: The disproportionate impact of COVID-19. *Public Administration Review, 80,* 832–838. doi:10.1111/puar.13264

Gillis, A., & Jackson, W. (2002). *Research for nurses: Methods and interpretation*. Philadelphia, PA: F.A. Davis.

González, T., Sattler, H., & Buth, A. J. (2019). New directions in whole-school restorative justice implementation [Special issue]. *Conflict Resolution Quarterly, 36,* 207–220. doi:10.1002/crq.21236

Good Governance Learning Network. (2014). *Community resilience and vulnerability in South Africa: Perspectives from civil society on local governance in South Africa*. Kenilworth, South Africa: Isandla Institute. Retrieved from https://www.ggln.org.za/images/solg_reports/SoLG_2014.pdf

Govender, P. (2016). *The implementation of the National School Nutrition Programme in addressing child poverty in selected schools within the Ethekwini*

region (Master's dissertation, University of KwaZulu-Natal, Durban, South Africa). Retrieved from https://ukzn-dspace.ukzn.ac.za/bitstream/handle/10413/14971/Govender_Predeshni_2016.pdf?sequence=1&isAllowed=y

Graham, L., Hochfeld, T., Stuart, L., & Van Gent, M. (2015*). Evaluation study of the National School Nutrition Programme and the Tiger Brands Foundation in-school breakfast feeding programme in the Lady Frere and Qumbu districts of the Eastern Cape*. Johannesburg, South Africa: Centre for Social Development in Africa, University of Johannesburg. Retrieved from https://www.uj.ac.za/faculties/humanities/csda/Documents/TBF%20Nutrition%20Report%202015%20FINAL%20WEB%20VERSION.PDF

Gray, D. L., Hope, E. C., & Matthews, J. S. (2018). Black and belonging at school: A case for interpersonal, instructional, and institutional opportunity structures. *Educational Psychologist, 53,* 97–113. doi:10.1080/00461520.2017.1421466

Gresse, A., Nomvete, A., & Walter, C. (2017). Situational analysis: Implementation of the National School Nutrition Programme in low socio-economic primary schools in Nelson Mandela Bay. *Journal of Consumer Sciences, 45*(2), 59–68. Retrieved from https://www.ajol.info/index.php/jfecs/article/view/160609

Gumede, V. (2021). Revisiting poverty, human development and inequality in democratic South Africa. *Indian Journal of Human Development, 15,* 183–199. doi:10.1177/09737030211032961

Gustafsson, J. (2017). *Single case studies vs. multiple case studies: A comparative study*. Halmstad, Sweden: Academy of Business, Engineering and Science, Halmstad University. Retrieved from https://www.diva-portal.org/smash/get/diva2:1064378/FULLTEXT01.pdf

Hamilton, L., & Corbett-Whittier, C. (2013). *Using case study in education research*. London, England: Sage.

Harrison, F., & Jones, A. P. (2012). A framework for understanding school based physical environmental influences on childhood obesity. *Health & Place*, *18*(3), 639–648. doi:10.1016/j.healthplace.2011.12.009

Haysom, G. (2015). Food and the city: Urban scale food system governance. *Urban Forum, 26,* 263–281. doi:10.1007/s12132-015-9255-7

Haysom, G. (2018). Alternative food networks in the global South. In B. Frayne, J. Crush, & C. McCordic (Eds.), *Food and nutrition security in Southern African cities* (pp. 9–23). London, England: Routledge.

Heath, M. A., Donald, D. R., Theron, L. C., & Lyon, R. C. (2014). AIDS in South Africa: Therapeutic interventions to strengthen resilience among orphans and vulnerable children [Special issue]. *School Psychology International, 35,* 309–337. doi:10.1177/0143034314529912

Hendriks, S. L. (2015). The food security continuum: A novel tool for understanding food insecurity as a range of experiences. *Food Security, 7,* 609–619. doi:10.1007/s12571-015-0457-6

Hewitt, R. (2005). *White backlash and the politics of multiculturalism*. New York, NY: Cambridge University Press.

Hirata, E., Peach, M., & Tobing, S. (2021). The faith-based advantage: A case study on the adventist development & relief agency's response to humanitarian impacts of COVID-19 as a faith-based organization. *Christian Journal for Global Health, 8*(1), 24–33. doi:10.15566/cjgh.v8i1.541

Hlahla, S., & Hill, T. R. (2018). Responses to climate variability in urban poor communities in Pietermaritzburg, KwaZulu-Natal, South Africa. *Sage Open, 8*(3), 1–16. doi:10.1177/2158244018800914

Hornby, G. (2010). Preparing teachers to work with parents and families of learners with SEN in inclusive schools. In C. Forlin (Ed.), *Teacher education for inclusion*: *Changing paradigms and innovative approaches* (pp. 93–101). London, England: Routledge.

Idahosa, L., & Van Dijk, J. (2015). South Africa: Freedom for whom? Inequality, unemployment and the elderly. *Development, 58*(1), 96–102. doi:10.1057/dev.2015.18

Jordaan, A., Bahta, Y. T., & Phatudi-Mphahlele, B. (2019). Ecological vulnerability indicators to drought: Case of communal farmers in Eastern Cape, South Africa. *Jàmbá: Journal of Disaster Risk Studies, 11*(1), 1–11. doi:10.4102/jamba.v11i1.591

Keatinge, J. D. H., Chadha, M. L., Hughes, J. A., Easdown, W. J., Holmer, R. J., Tenkouano, A., … Lin, L. J. (2012). Vegetable gardens and their impact on the

attainment of the Millennium Development Goals. *Biological Agriculture & Horticulture, 28,* 71–85. doi:10.1080/01448765.2012.681344

Kepe, T., & Tessaro, D. (2014). Trading-off: Rural food security and land rights in South Africa. *Land Use Policy, 36,* 267–274. doi:10.1016/j.landusepol.2013.08.013

Kretzmann, J. P., & McKnight, J. L. (1997). *A guide to capacity inventories: Mobilizing the community skills of local residents.* Chicago, IL: ACTA Publications. Retrieved from https://ccednet-rcdec.ca/sites/ccednet-rcdec.ca/files/capacityinventories1.pdf

Landsberg, E., Krüger, D., & Nel, N. (Eds.). (2005). *Addressing barriers to learning: A South African perspective*. Pretoria, South Africa: Van Schaik.

Laurie, S. M., Faber, M., & Maduna, M. M. (2017). Assessment of food gardens as nutrition tool in primary schools in South Africa. *South African Journal of Clinical Nutrition, 30,* 80–86. doi:10.1080/16070658.2017.1271609

Leakey, R. R. B. (2017). Socially modified organisms in multifunctional agriculture - addressing the needs of smallholder farmers in Africa. *The Scientific Pages of Crop Science, 1*(1), 20–29.

Leedy, P. D., & Ormrod, J. E. (2010). *Practical research: Planning and design* (9th ed.). Upper Saddle, NJ: Merrill Prentice Hall.

Lemanski, C. (2017). Unequal citizenship in unequal cities: Participatory urban governance in contemporary South Africa. *International Development Planning Review, 39*(1), 15–36. doi:10.3828/idpr.2017.2

Liebenberg, L., & Theron, L. C. (2015). Innovative qualitative explorations of culture and resilience. In L. C. Theron, L. Liebenberg, & M. Ungar (Eds.), *Youth resilience and culture: Commonalities and complexities* (pp. 203–216). Dordrecht, The Netherlands: Springer. doi:10.1007/978-94-017-9415-2

Lincoln, Y., & Guba, E. (2005). Paradigmatic controversies, contradictions, and emerging confluences. In N. K. Denzin & Y. S. Lincoln (Eds.), *The Sage handbook of qualitative research* (3rd ed., pp. 191–214). Thousand Oaks, CA: Sage.

Lockie, S. (2016). Sustainability and the future of environmental sociology. *Environmental Sociology, 2*(1), 1–4. doi:10.1080/23251042.2016.1142692

Loots, M. C. (2011). *Teachers' implementation of an asset-based intervention for school-based psychological support* (Doctoral thesis, University of Pretoria, Pretoria, South Africa). Retrieved from https://repository.up.ac.za/handle/2263/25196

Malberg Dyg, P., & Wistoft, K. (2018). Wellbeing in school gardens – the case of the Gardens for Bellies food and environmental education programme. *Environmental Education Research, 2,* 1177–1191. doi:10.1080/13504622.2018.1434869

Malindi, M. J. (2018). Personal and socio-ecological resilience resources among school-going teenage mothers: An exploratory study. *Journal of Psychology in Africa, 28,* 340–343. doi:10.1080/14330237.2018.1501883

Mampane, M. R. (2014). Factors contributing to the resilience of middle-adolescents in a South African township: Insights from a resilience questionnaire [Special issue]. *South African Journal of Education*, *34*(4), 1–11. doi:10.15700/201412052114

Mampane, R., & Huddle, C. (2017). Assessing the outcomes of school-based partnership resilience intervention. *South African Journal of Education, 37*(1), 1–13. doi:10.15700/saje.v37n1a1412

Manis, M., Ferreira, R., Sefotho, M. M., & Mampane, R. M. (2021). Utilising PRA to develop a postgraduate qualification in visual impairment studies. *South African Journal of Higher Education, 35*(2), 93–122. doi:10.20853/35-2-3979

Mansfield, C. F., Ebersöhn, L., Beltman, S., & Loots, T. (2018). Great Southern lands: Making space for teacher resilience in South Africa and Australia. In M. Wosnitza, F. Peixoto, S. Beltman, & C. F. Mansfield (Eds.), *Resilience in education: Concepts, contexts and connections* (pp. 53–71). Cham, Switzerland: Springer. doi:10.1007/978-3-319-76690-4_4

Maree, K., & Pietersen, J. (2007). Sampling. In K. Maree (Ed.), *First steps in research* (pp. 172–180). Pretoria, South Africa: Van Schaik.

Marshall, C., & Rossman, G. B. (2011). *Designing qualitative research* (5th ed.). London, England: Sage.

Masipa, T. S. (2017). The impact of climate change on food security in South Africa: Current realities and challenges ahead. *Jàmbá: Journal of Disaster Risk Studies, 9*(1), 1–7. doi:10.4102/jamba.v9i1.411

Masten, A. S. (2011). Resilience in children threatened by extreme adversity: Frameworks for research, practice, and translational synergy [Special section]. *Development and Psychopathology, 23,* 493–506. doi:10.1017/S0954579411000198

Masten, A., & Reed, M. (2005). Resilience in development. In C. R. Snyder & S. J. Lopez (Eds.). *Handbook of positive psychology* (pp. 74–88). Oxford, England: Oxford University Press.

May, J. (1998). Poverty and inequality in South Africa. *Indicator South Africa, 15*(2), 53–58.

Mbongwe, B. B. (2012). *Power-sharing partnerships: Teachers' experiences of participatory methodology* (PhD thesis, University of Pretoria, Pretoria, South Africa). Retrieved from https://repository.up.ac.za/handle/2263/24127

Mc Callaghan, M. (2007). *Die gebruik van liggaamsportrette deur opvoeders in die vervulling van hulle pastorale rol* (Meestersgraad verhandeling, Universiteit van Pretoria, Pretoria, Suid-Afrika). Geraadpleeg te https://repository.up.ac.za/handle/2263/29563

McKnight, J. L., & Kretzmann, J. P. (1997). Mapping community capacity. In M. Minkler (Ed.), *Community organizing and community building for health* (pp. 157–174). New Brunswick, NJ: Rutgers University Press.

McMillan, J. H., & Schumacher, S. (2010). *Research in education: Evidence-based inquiry* (7th ed.). Boston, MA: Pearson.

Medley, A., Kennedy, C., O'Reilly, K., & Sweat, M. (2009). Effectiveness of peer education interventions for HIV prevention in developing countries: A systematic review and meta-analysis. *AIDS Education and Prevention, 21,* 181–206. doi:10.1521/aeap.2009.21.3.181

Merriam, S. B. (Ed.). (2002). *Qualitative research in practice: Examples for discussion and analysis*. San Francisco, CA: Jossey-Bass.

Merriam, S. B., & Tisdell, E. J. (2016). *Qualitative research: A guide to design and implementation* (4th ed.). San Francisco, CA: John Wiley & Sons.

Mey, E., & van Hoven, B. (2019). Managing expectations in participatory research involving older people: what's in it for whom?. International Journal of Social Research Methodology, 22(3), 323-334.

Miller, S. A. D. (2015). Faith based organizations and international responses to forced migration. In S. D. Brunn (Eds.), *The changing world religion map: Sacred places, identities, practices and politics* (pp. 3115–3133). Dordrecht, The Netherlands: Springer. doi:10.1007/978-94-017-9376-6

Mkandawire, P., Cochrane, L., & Sadaf, S. (2021). Covid-19 pandemic: Lessons from the HIV/AIDS epidemic in Southern Africa. *African Geographical Review*. Advance online publication. doi:10.1080/19376812.2020.1858122

Mnguni, M. A. (2006). *Exploring the relationship between counselling skills and memory work with primary school children* (Master's dissertation, University of Pretoria, Pretoria, South Africa). Retrieved from https://repository.up.ac.za/bitstream/handle/2263/29060/dissertation.pdf?sequence=1&isAllowed=y

Mugambiwa, S. S., & Tirivangasi, H. M. (2017). Climate change: A threat towards achieving 'Sustainable Development Goal number two' (end hunger, achieve food security and improved nutrition and promote sustainable agriculture) in South Africa. *Jàmbá: Journal of Disaster Risk Studies, 9*(1), 1–6. doi:10.4102/jamba.v9i1.350

Musavengane, R. (2019). Using the systemic-resilience thinking approach to enhance participatory collaborative management of natural resources in tribal communities: Toward inclusive land reform-led outdoor tourism. *Journal of Outdoor Recreation and Tourism, 25,* 45–56. doi:10.1016/j.jort.2018.12.002

Musemwa, L., Zhou, L., Ndhleve, S., & Aghdasi, F. (2013). Factors affecting household access to enough food in the Eastern Cape Province of South Africa. *Journal of Development and Agricultural Economics, 5*(3), 84–91. doi:10.5897/JDAE12.039

Muyambo, F., Jordaan, A. J., & Bahta, Y. T. (2017). Assessing social vulnerability to drought in South Africa: Policy implication for drought risk reduction. *Jàmbá: Journal of Disaster Risk Studies, 9*(1), 1–7. https://doi.org/10.4102/jamba.v9i1.326

Mwoma, T., & Pillay, J. (2015). Psychosocial support for orphans and vulnerable children in public primary schools: Challenges and intervention strategies. *South African Journal of Education, 35*(3), 1–9. doi:10.15700/saje.v35n3a1092

Myende, P. (2017). Improvement from within: The asset-based approach and rural school improvement. *Journal of Educational Studies, 16*(2), 33–50.

Myende, P. E., & Hlalele, D. (2018). Framing sustainable rural learning ecologies: A case for strength-based approaches. *Africa Education Review, 15*(3), 21–37. doi:10.1080/18146627.2016.1224598

Nieuwenhuis, J. (2007). Introducing qualitative research. In K. Maree (Ed.), *First steps in research* (pp. 47–68). Pretoria, South Africa: Van Schaik.

O'Reilly, M., Svirydzenka, N., Adams, S., & Dogra, N. (2018). Review of mental health promotion interventions in schools. *Social Psychiatry and Psychiatric Epidemiology, 53,* 647–662. doi:10.1007/s00127-018-1530-1

O'Toole, L., Hayes, N., & Mhathúna, M. M. (2014). A bio-ecological perspective on educational transition. *Procedia - Social and Behavioral Sciences, 140,* 121–127. doi:10.1016/j.sbspro.2014.04.396

Odendaal, V. (2006). *Describing an asset-based intervention to equip educators with HIV&AIDS coping and support competencies* (Master's dissertation, University of Pretoria, Pretoria, South Africa). Retrieved from https://repository.up.ac.za/handle/2263/28352

Okello, M., Lamo, J., Ochwo-Ssemakula, M., & Onyilo, F. (2021). Challenges and innovations in achieving zero hunger and environmental sustainability through the lens of sub-Saharan Africa. *Outlook on Agriculture, 50,* 141–147. doi:10.1177/0030727020975778

Okvat, H. A., & Zautra, A. J. (2011). Community gardening: A parsimonious path to individual, community, and environmental resilience. *American Journal of Community Psychology, 47,* 374–387. doi:10.1007/s10464-010-9404-z

Ozer, E. J. (2007). The effects of school gardens on students and schools: Conceptualization and considerations for maximizing healthy development. *Health Education & Behavior, 34,* 846–863. doi:10.1177%2F1090198106289002

Patton, M. Q. (2002). *Qualitative research and evaluation methods* (3rd ed.). Thousand Oaks, CA: Sage.

Pham, L. T. M. (2018). *Qualitative approach to research. A review of advantages and disadvantages of three paradigms: Positivism, interpretivism and critical inquiry*. Adelaide, Australia: The University of Adelaide. Retrieved from https://www.researchgate.net/profile/Lan-Pham-3/publication/324486854_A_Review_of_key_paradigms_positivism_interpretivi

sm_and_critical_inquiry/links/5acffa880f7e9b18965cd52f/A-Review-of-key-paradigms-positivism-interpretivism-and-critical-inquiry.pdf

Pillay, J. (2020). Social justice implications for educational psychologists working with orphans and vulnerable children in South Africa. *School Psychology International, 41*(1), 37–52. doi:10.1177/0143034319893005

Punch, K. F. (2005). *Introduction to social research: Quantitative and qualitative approaches* (2nd ed.). London, England: Sage.

Rausch, J. C., Berger-Jenkins, E., Nieto, A. R., McCord, M., & Meyer, D. (2015). Effect of a school-based intervention on parents' nutrition and exercise knowledge, attitudes, and behaviors. *American Journal of Health Education, 46*(1), 33–39. doi:10.1080/19325037.2014.977411

Rendall-Mkosi, K., Wenhold, F., & Sibanda, N. B. (2013). *Case study of the national school nutrition programme in South Africa.* Pretoria, South Africa: University of Pretoria.

Rippon, S., & South, J. (2017). *Promoting asset-based approaches for health and wellbeing: Exploring a theory of change and challenges in evaluation* (Project Report). Leeds, England: Leeds Beckett University. Retrieved from https://eprints.leedsbeckett.ac.uk/id/eprint/4497/7/Promoting%20asset%20based%20approaches%20Nov%202017.pdf

Roberts, D., & O'Donoghue, S. (2013). Urban environmental challenges and climate change action in Durban, South Africa. *Environment and Urbanization, 25,* 299–319. doi:10.1177/0956247813500904

Rodina, L. (2016). Human right to water in Khayelitsha, South Africa – Lessons from a 'lived experiences' perspective. *Geoforum, 72,* 58–66. doi:10.1016/j.geoforum.2016.04.003

Ronaasen, J., Steenkamp, L., Williams, M., Finnemore, J., & Feeley, A. (2021). SAKHA ESETHU: Nurturing value-centered group work for a community-based parent support Programme in the Eastern Cape, South Africa. *Social Work with Groups, 44,* 364–380. doi:10.1080/01609513.2020.1828227

Rosa, E. M., & Tudge, J. (2013). Urie Bronfenbrenner's theory of human development: Its evolution from ecology to bioecology. *Journal of Family Theory & Review*, *5,* 243–258. doi:10.1111/jftr.12022

Rutter, M. (2012). Resilience as a dynamic concept [Special section]. *Development and Psychopathology, 24,* 335–344. doi:10.1017/S0954579412000028

Satumba, T., Bayat, A., & Mohamed, S. (2017). The impact of social grants on poverty reduction in South Africa. *Journal of Economics, 8*(1), 33–49. doi:10.1080/09765239.2017.1336304

Scherr, R. E., Linnell, J. D., Smith, M. H., Briggs, M., Bergman, J., Brian, K. M., ... Zidenberg-Cherr, S. (2014). The Shaping Healthy Choices Program: Design and implementation methodologies for a multicomponent, school-based nutrition education intervention. *Journal of Nutrition Education and Behavior, 46,* e13–e21. doi:10.1016/j.jneb.2014.08.010

Schönfeldt, H. C., Hall, N., & Pretorius, B. (2018). The important role of food composition in policies and programmes for better public health: A South African case study. *Food Chemistry, 238,* 94–100. doi:10.1016/j.foodchem.2016.12.067

Schreinemachers, P., Baliki, G., Shrestha, R. M., Bhattarai, D. R., Gautam, I. P., Ghimire, P. L., … Brück, T. (2020). Nudging children toward healthier food choices: An experiment combining school and home gardens. *Global Food Security, 26,* 1–8. doi:10.1016/j.gfs.2020.100454

Schurink, W., Fouché, C. B., & De Vos, A. S. (2011). Qualitative data analysis and interpretation. In A. S. De Vos, H. Strydom, C. B. Fouché, & C. S. L. Delport (Eds.), *Research at grass roots: For the social sciences and human service professions* (4th ed., pp. 397–423). Pretoria, South Africa: Van Schaik.

Seale, C. (1999). *The quality of qualitative research.* London, England: Sage.

Seymour, J., Kennedy, S., Froggatt, K., Almack, K., Clarke, A., & Sanders, C. (2010). A training programme for volunteer peer educators in end of life care education for older people. *Palliative Medicine, 24,* 208. doi:10.1177/0269216310363376

Sharp, C., Penner, F., Marais, L., & Skinner, D. (2018). School connectedness as psychological resilience factor in children affected by HIV/AIDS. *AIDS Care, 30*(Suppl. 4), 34–41. doi:10.1080/09540121.2018.1511045

Shelton, L. G. (2018). *The Bronfenbrenner primer: A guide to develecology*. London, England: Routledge.

Sibanyoni, J. J. (2017). *Food safety and quality assurance measures of the National School Nutrition Programme in Mpumalanga Province, South Africa* (Doctoral thesis, University of South Africa, Pretoria, South Africa). Retrieved from https://core.ac.uk/download/pdf/129899165.pdf

Silverman, D. (2000). *Doing qualitative research: A practical handbook*. Thousand Oaks, CA: Sage.

Silverman, D. (2014). *Doing qualitative research* (4th ed.). Los Angeles, CA: Sage.

Snyman, E. (2012). *An exploration of the socio-ecological antecedents of youth resilience: A visual study* (Master's dissertation, North-West University, Vanderbijlpark, South Africa). Retrieved from http://repository.nwu.ac.za/bitstream/handle/10394/10360/Snyman_E.pdf?sequence=1&isAllowed=y

Soyer, G. F. (2019). Book review: The ecology of human development by Urie Bronfenbrenner. *Journal of Culture and Values in Education, 2*(2), 77–80.

Spencer, T., & Williams, N. T. (2017). *An introduction to community asset mapping* [PowerPoint slides]. Jacksonville, FL: Nemours Children's Health System. Retrieved from https://www.doe.k12.de.us/cms/lib/DE01922744/Centricity/Domain/470/Asset%20Mapping%20Presentation_Spencer_Williams.pdf

Stake, R. E. (1995). *The art of case study research.* London, England: Sage.

Stake, R. E. (2005). Qualitative case studies. In N. K. Denzin & Y. S. Lincoln (Eds.), *The Sage handbook of qualitative research* (3rd ed., pp. 443–466). Thousand Oaks, CA: Sage.

Statistics South Africa. (2016). *General household survey 2015*. Pretoria, South Africa: Author. Retrieved from https://www.statssa.gov.za/publications/P0318/P03182015.pdf

Statistics South Africa. (2017). *Poverty trends in South Africa: An examination of absolute poverty between 2006 and 2015.* Pretoria, South Africa: Author. Retrieved from https://www.statssa.gov.za/publications/Report-03-10-06/Report-03-10-062015.pdf

Statistics South Africa. (2019). *Quarterly Labour Force Survey. Quarter 1: 2019*. Pretoria, South Africa: Author. Retrieved from https://www.statssa.gov.za/publications/P0211/P02111stQuarter2019.pdf

Statistics South Africa. (2020). *National poverty lines 2020*. Pretoria, South Africa: Author. Retrieved from http://www.statssa.gov.za/publications/P03101/P031012020.pdf

Stringer, E. T. (2014). *Action research* (4th ed.). Thousand Oaks, CA: Sage.

Strydom, H. (2011). Information collection: Participant observation. In A. S. De Vos, H. Strydom, C. B. Fouché, & C. S. L. Delport (Eds.), *Research at grass roots: A primer for the social science and human professions* (pp. 328–339). Pretoria, South Africa: Van Schaik.

Swank, J. M., & Huber, P. (2013). Employment preparation and life skill development initiatives for high school students with emotional and behavioral disabilities. *The Professional Counselor, 3,* 73–81. doi:10.15241/jms.3.2.73

Swart, E., & Pettipher, R. (2011). Perspectives on inclusive education. In E. Landsberg, D. Kruger, & E. Swart (Eds.), *Addressing barriers to learning in South Africa* (pp. 1–27). Pretoria, South Africa: Van Schaik.

Thabe, M. (2015). *The development of supportive school-community plans by community volunteers* (Master's dissertation, University of Pretoria, Pretoria, South Africa). Retrieved from https://repository.up.ac.za/bitstream/handle/2263/52973/Thabe_Development_2015.pdf?sequence=1&isAllowed=y

Theron, L. (2020). Adolescent versus adult explanations of resilience enablers: A South African study. *Youth & Society, 52*(1), 78–98. doi:10.1177/0044118X17731032

Theron, L. C. (2013). Black students' recollections of pathways to resilience: Lessons for school psychologists. *School Psychology International, 34,* 527–539. doi:10.1177/0143034312472762

Theron, L. C., & Malindi, M. J. (2012). Conducting qualitative research: Practical guidelines on fieldwork. In J. G. Maree (Ed.), *Complete your thesis or dissertation successfully: Practical guidelines* (pp. 96–108). Cape Town, South Africa: Juta.

Theron, L. C., & Theron, A. M. C. (2014). Education services and resilience processes: Resilient Black South African students' experiences. *Children and Youth Services Review, 47,* 297–306. doi:10.1016/j.childyouth.2014.10.003

Tight, M. (2017). Case study research. In D. Wyse, N. Selwyn, E. Smith, & L. E. Suter (Eds.), *The BERA/SAGE handbook of educational research* (Vol. 1, pp. 376–394). London, England: Sage.

Ungar, M. (2013). Resilience, trauma, context, and culture. *Trauma, Violence, & Abuse*, *14,* 255–266. doi:10.1177%2F1524838013487805

Ungar, M. (2015). Resilience and culture: The diversity of protective processes and positive adaptation. In L. C. Theron, L. Liebenberg, & M. Ungar (Eds.), *Youth resilience and culture: Commonalities and complexities* (pp. 37–48). Dordrecht, The Netherlands: Springer. doi:10.1007/978-94-017-9415-2

Ungar, M., Connelly, G., Liebenberg, L., & Theron, L. (2019). How schools enhance the development of young people's resilience. *Social Indicators Research, 145,* 615–627. doi:10.1007/s11205-017-1728-8

United Nations Children's Fund. (1999). *Children orphaned by AIDS: Front-line responses from eastern and southern Africa*. New York, NY: UNICEF Division of Communication. Retrieved from https://healtheducationresources.unesco.org/sites/default/files/resources/AIDSen.pdf

United Nations Children's Fund. (2012). *South Africa annual report 2012*. Pretoria, South Africa: UNICEF South Africa. Retrieved from https://www.unicef.org/southafrica/media/681/file/ZAF-annual-report-2012.pdf

van Breda, A. D., & Theron, L. C. (2018). A critical review of South African child and youth resilience studies, 2009–2017. *Children and Youth Services Review, 91,* 237–247. doi:10.1016/j.childyouth.2018.06.022

van der Westhuizen, T. L. (2019). *Teachers' perceptions of involving different role-players in school-based vegetable gardens in resource-constrained contexts* (Master's dissertation, University of Pretoria, Pretoria, South Africa). Retrieved from https://repository.up.ac.za/handle/2263/76809

van Dyk, H., & White, C. J. (2019). Theory and practice of the quintile ranking of schools in South Africa: A financial management perspective [Special issue].

South African Journal of Education, *39*(Suppl. 1), S1–S9. doi:10.15700/saje.v39ns1a1820

van Wyk, M. (2015). Afrocentricity as a research philosophy. In C. Okeke & M. Van Wyk (Eds.), *Educational research: An African perspective*. Cape Town, South Africa: Oxford University Press Southern Africa.

Walsh, F. (Ed.). (2003) *Normal family processes: Growing diversity and complexity* (3rd ed.). New York, NY: Guilford Press.

Waterlander, W. E., Mhurchu, C. N., Eyles, H., Vandevijvere, S., Cleghorn, C., Scarborough, P., ... Seidell, J. (2018). Food futures: Developing effective food systems interventions to improve public health nutrition. *Agricultural Systems, 160,* 124–131. doi:10.1016/j.agsy.2017.01.006

Weber, R. (2004). Editor's comments: The rhetoric of positivism versus interpretivism: A personal view. *MIS Quarterly, 28*(1), iii–xii. doi:10.2307/25148621

Yin, R. K. (2009). *Case study research: Design and methods* (4th ed.). London, England: Sage.

Yin, R. K. (2014). *Case study research: Design and methods* (5th ed.). London, England: Sage.

Yin, R. K. (2016). *Qualitative research from start to finish* (2nd ed.). New York, NY: The Guilford Press.

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APPENDICES

Appendix A
Informed Consent

Appendix B
Research Schedule

Appendix C
Analysis of Focus Group Transcription (Sample)

Appendix D
Analysis of Member Checking Transcription (Sample)

Appendix E
E1: PRA-Based Posters
E2: Member Checking Posters

Appendix F
Photographs

Appendix G
G1: Reflective Journal
G2: Field notes

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APPENDIX A: INFORMED CONSENT

REQUEST FOR PARTICIPATION AND INFORMED CONSENT: TEACHERS

23 March 2016

Dear Sir/Madam

I am currently busy with a doctoral study in Educational Psychology at the University of Pretoria on the following topic: "**A teacher-to-teacher intervention on school-based vegetable gardens to support resilience**". My research forms part of the broader STAR (Supportive Teachers Assets and Resilience) and FIRST GATE (Food Intake and Resilience Support: Gardens as Taught by Educators) projects, in which your school have been participating.

I hereby request your participation in a workshop as part of the colloquium you are currently attending, and some follow-up conversations at a later stage. During the workshop session you will be required to share your experiences and views on the ways in which your school have been and still are supporting vulnerable children. You will be requested to discuss your experiences in small groups, writing these down and then sharing them with the broader group. I will also visit your school some time and observe the initiatives you report on.

Your participation is voluntary and you have the right to withdraw from the project at any time if you wish to do so. All data will be treated confidentially and no identifiable information will be provided when reporting on the study, except if this is your choice. During your participation you will not be exposed to any form of harm.

You will have full access to the results of the study and data will be stored in a secure place at the University of Pretoria for 15 years, in accordance with the requirements for conducting ethical research. As this is a funded project data will also be available

in an open repository for scientific use when needed. The findings of this research may provide valuable information to report to the Department of Education and relevant stakeholders following completion of the study. If you have any questions, please do not hesitate to ask my supervisor or me at any time.

If you are willing to participate in this study, please complete the form below.

Ms Cleopatra Chambati (Researcher)
chambaticleo@gmail.com

Prof Ronél Ferreira (Supervisor)
ronel.ferreira@up.ac.za

INFORMED CONSENT

I hereby agree to take part in this study. I understand that all data will be treated as confidential and anonymous (if that is my choice), and that I may withdraw at any time, if I wish to do so.

	YES	**NO**
You may take photographs of me while I am involved in the participatory workshop session and use this when writing up the findings of the study.		

School Principal's / Teacher's signature: ……

Date: ……

Researcher's signature: ……

Witness: ……

APPENDIX B: RESEARCH SCHEDULE

Date	Purpose of Visit	Activity	Data Source	Participants
First Visit: 17-23 March 2016 Colloquium	• Establish rapport with teacher-participants • Gaining written informed consent from teacher-participants • PRA-based activities and discussions (planning the way forward for school-based vegetable gardens with the nine schools and 37 participants	• Informal engagements with teacher-participants, build rapport with them and introduce the project. • Thorough explanation of the informed consent principles. • **PRA activity 1**: Mapping a plan for establishing/maintaining a school-based vegetable garden • **PRA activity 2:** Mapping a strategic plan of establishing and maintaining school-based vegetable gardens at schools A-I	• PRA-posters and audio recordings of discussions • Field notes • Reflective journal	Teacher-participants, with some of them being school principals and deputy principals
4-11August 2016	• Understand the context to be able to provide support and monitor progress • PRA-based activities and discussions with the nine participating schools clustered into three groups	• Site visit to schools A-I to observe and monitor progress of school-based vegetable gardens • Reflect on progress and map a revised plan for school-based vegetable garden	• Visual data • Field notes • Reflective journal • PRA-posters and audio recordings	Teacher-participants Group 1 (Schools A, D and F) Group 2 (Schools B, G and I) Group 3 (Schools C, E and H)

Date	Purpose of Visit	Activity	Data Source	Participants
			of discussions	
10-18 April 2017	• Monitoring and evaluation • Support provision	Site visit to schools A-I. To support and progress on the school-based vegetable gardens.	• Photographs • Field notes • Reflective journal	Teacher-participants
27-28 May 2017 Colloquium	PRA-based activities and discussions	• **PRA activity 1:** Mapping a plan forward in maintain a school-based vegetable garden. • **PRA activity 2**: Strategic plan to establish and maintain a school-based vegetable garden.	• Visual data • Field notes • Reflective journal • PRA-posters and audio recordings of discussions	Teacher-participants
19-21 September 2018	• Site visits to Schools A-I • PRA-based activities and discussions with the nine participating schools clustered into three groups	• **PRA activity 1:** Mapping what has been established through school-based vegetable gardens • **PRA activity 2:** Mapping experiences of the intervention and the value/challenges of participation	• Visual data • Field notes • Reflective journal • PRA-posters and audio recordings of discussions	Teacher-participants Group 1 Group 2 Group 3

Date	Purpose of Visit	Activity	Data Source	Participants
16-17 April 2018	• Member checking sessions with the nine participating schools clustered into three groups	Presentation of summary and group discussion/ confirmation of analysis	• Visual data • Field notes • Reflective journal • Audio recordings of discussions	Teacher-participants Group1 Group 2 Group 3

APPENDIX C: ANALYSIS OF FOCUS GROUP TRANSCRIPTION (SAMPLE)

THEMATIC INDUCTIVE DATA ANALYSIS
THEME 1: Being involved in a teacher-to-teacher intervention
Sub-theme 1.1: Development
Sub-theme 1.2: Social capital gains
Sub-theme 1.3: Project management capacity
THEME 2: Supporting unexpected positive outcomes (resilience) in a school-community
Sub-theme 2.1: Strengthened participation of systemic role players in schools
Category 2.1.1: Strengthened participation of systemic role players in schools
Category 2.1.2: Strengthened participation of teachers within schools
Category 2.1.3: Strengthened participation of teachers in other schools
Sub-theme 2.2: Strengthening teacher ownership, accountability and agency
Sub-theme 2.3: Food and nutrition-related outcomes
Sub-theme 2.4: Positive economic outcomes
Sub-theme 2.5: Health and well-being outcomes
THEME 3: Challenges experienced in a teacher-to-teacher intervention
Sub-theme 3.1: Environmental challenges
Sub-theme 3.2: Sub-theme 3.2: Role collision

Data source: PRA-Based Workshop 1, Site 1: 23 March 2016

FIRST-GATE Colloquium

Key Abbreviations/codes

PRA-BD 1: PRA-Based Discussion 1

TP: Teacher-participant

F: Facilitator

PM: Panel Member

TP 1: We are starting with our presentation, we will go through what is working in our school we already have a garden, there's only one man that is working on it. We do have enough plants the it's kind of smooth running although not everyone is on board that is in our premises.

Coming to the challenges, they are no teachers involved in the garden because only that one man that is working, we think we need proper planning. We will involve the community stakeholders. These are the challenges.

Another challenge that, we are having when there are heavy rains in our area, we find that there's flooding that is taking place in our yard. We do not have a caretaker as we speak, and also there are not enough tools and we do not have a storage.

Currently, there is no proper management of the garden. The community and the learners and the teachers as well are not involved in the garden. We also do not have people that are trained or skilled and there is no support within the school except for that one particular man that works in the garden.

In 6 months' time, we think that we will have to do the proper planning and we will introduce the garden as we were taught here, we will make everybody know the purpose of having the garden and the importance. We will try and make sure that there is training, and after some time we will see if our planning does have the outcome and we wish to harvest and be able to feed the kids and the community. And we will make arrangements to get the necessary tools as well as to make sure that if we do have space somewhere, or we will find out if we cannot get a space to store our things and we will do the networking. We will make sure that in six months time that we know everybody that is here will work with us.

Our dream will be to improve the garden, we will be marketing our products that will be coming from the garden, we will be entering competitions and we will make sure that when we get to the competition we will start. We will reduce the poverty that is going on in our areas.

TP 2: We will also make sure that we are one of the marketers. The last one. Now with the two minutes that is left for us. How do we go forward, we will start

Involvement of various role-players

Monitoring and evaluation

Planning

Involvement of role players

Joint planning - Environmental challenges

The need to involve relevant stake holders

Planning

Value of the garden

Planning and evaluation

Value of the garden

now when we go back to our school by having the staff meeting, the SGB meeting, the parents meeting. We will address the learners and the stakeholders and we will also make sure that we seek assistance from all the relevant NGO's. — Joint planning and monitoring

Who is going to do all this, I mentioned? The SGB will play its own part, the teachers, the principal as well. When? 12 of April we will let the first week pass, we won't do anything in the first week because there will be other matters and we will be dealing with them. On the 12th of April that will be on a Monday we will call the entire staff, we will report this and make sure that we are starting with the project. — Involvement of various role-players

On the 15th of April, we have the SGB as well as the SGP/Parent meeting. On the 18th of April when we are having our prayers, we will make sure that the teachers are making our learners aware of the entire project that we will be kick starting and how …(unclear) we do the awareness programme. We write email letter of invite to all stakeholders that we want to work with and also we do marketing pamphlets and go distribute them in shops and taxi rank and everywhere. Thank you very much. Don't kill us we are still babies in this project. — Joint planning; Involvement of role players

TP 1: Okay in our challenges we will make mention of the fact that there is only one man that is working there. We will make sure that as a solution, that we introduce this thing as we were thought here so that everybody that is in our school can be on …(unclear) so that we can work together. I am making an example, maybe there is a particular challenge that you have noted. — Involvement of various role players

PM 1: How are you going to solve the problem of flooding in your garden? So that there can maybe a way of avoiding the flooding?

TP 1: On top of that if I may add, maybe we can even change the place, that our garden, because our yard is so big, is not like the whole yard has got that problem of flooding, you know maybe we can use another part. — Joint planning

TP 1: Thanks a lot mam, since you are an NGO I think so …, you are from …, now you don't leave this room without giving us your number. Thank you. — Various role players

62	**F**: Do you know what she is emphasising, planning. The planning is vital, you	Gaining and sharing of knowledge, skills and resources
63	need to sit down, you need to get as many people as you can that can help you,	
64	and plan before you start because it's got to work. ...(unclear) your story, it's	
65	great that you got water on your premises, find a way of capturing it, you can	
66	dig trenches, you can store in some tanks, just .., you've got problems obviously	
67	you need to plan.	
68	**TP 1**: My friend you are writing there. Okay point taken mam, thank you very	Involvement in the intervention
69	much.	
70	**F**: Any other questions?	
71	**TP 1**: Oh please guys don't kill us	Joint planning
72	**PM 1**: Please make a follow up of the tools that we gave you last year because	
73	under challenges you said there is no support from inside nor outside and we	
74	are perhaps the outside, so we did offer you garden tools and also seeds,	
75	everything last year, make a follow up about it.	
76	**TP 1**: Thank you Mrs Fisher, you see we said there's one man working there,	Involvement of various role-players
77	he doesn't have the support. We didn't even know that he got the tools or not.	
78	So we will go back to our homes and make sure that you everything is on	
79	standard. Thank you.	
80	**F**: Thank you.	
81	**TP 3**: Hello everyone, our garden. Where are we now? In our school we had	Involvement of various role-players.
82	a vegetable garden but I think at the beginning of this year we were lazy to do	
83	it. So we must talk the truth. But what we will do after this is we will start	
84	preparing that area again by watering that part so that it can be moist and it's	
85	easy to dug. We will also use the fertiliser and when we use the fertilisers we	Planning
86	will take the combos. There's an area which is closer to our school where once	
87	we go there and ask for fertiliser, that is manure ... And then another thing, I	
88	think we will also involve the teachers and we have also got the HAC committee	
89	in our school because sometimes you will find that the teachers are lazy to help	Involvement of various role-players
90	us in the garden. The good thing that we have is .., a caregiver and the little	
91	ones. They like to go into the garden and do all these things.	

92 In six months, time we think we will be able to do this seed packs, and then use
93 those seed packs and then transplant them to the different beds and we will
94 involve the learners in each grade. Each grade must have its plot so that we
95 know that it is not only one grade because most of the time is the grade 4s who
96 do the garden in our school but now we will also involve the bigger ones so that
97 they can be proud to be doing the job.

98 We will also enter the competition as Sis Nomonde said there will be
99 competitions and we think we will be picked there in those competitions.

100 Our dream, is that we will use our crops for nutrition for the little ones in the
101 school and then if there is more, we will also sell to the community so that we
102 can get money in order to get more seeds going forward.

103 We will also teach the learners that they must start gardens in their homes.

104 We will contact Mrs Nomonde as usual but I think this time we will go to you
105 frequently. We will also visit the neighbouring school that so that we can get
106 ideas from them. The people who will contact those persons that is me, that is
107 Nobuhle and Thoko when we start that on the 7th of April, we will be making
108 appointments that when we meet them. How do we do it, we will phone.

109 And then what is working: So we are so passionate to do the garden and we
110 are also having a garden which is already fenced and there are also a few tools
111 which we got from Nomonde at Centenary and then we will also have a HEC
112 Committee to work.

113 What is the challenges?: The taps which we have got are far away from the
114 garden, and then we have asked the principal to make bring them closer to the
115 garden so that it is easy to transport the water and then I think we also need
116 more tools and also to fertilise our soil. That's it.

117 : Any questions from the panel?

118 **PM 1**: Nomonde I like the fact that you will encourage learners to start their
119 own gardens at home …

Planning

Role players

Networking and establishing partner-ships
Potential value

Involvement of various role-players

Planning

Potential value
Role players

Gaining and sharing of knowledge, skills and resources

Involvement role players

PM 1 M/2016: It's very very important, but I also wish for you when you have done the feedback you give them some seedlings so that you don't just give them seeds in the beginning, you share some of the seedlings that you have .., and if you are going to close the school and you haven't done the transplanting, don't be jealous of the seeds, just share with them, you will see they will be excited and I like that idea, but I won't visit you again.

Planning

TP 4: How do you encourage people so that they can be part of the garden? So let us know how are you going to do it because in the past we had a problem with the older ones, they don't want to go to the gardens. So I would like to know how are you going to instil the love of agriculture to those who are already older because it's easy for you to take the small ones than the old ones, thank you!

Challenges in involving learners

TP 1: In our case, last year at it was agreed with the caregiver, I just go to my grade 4s because I am teaching grade 4 and then I take them to garden, I usually take the last period and then go to the garden with them and the caregiver. And I think now as I said I will call all the teachers and make them interested in the garden so that when they've got that last period, they will take their groups. If it's ...., let's say each day grade 7s must go is their day today and then grade 5s and then continue so that they can have an interest in the garden. I think with the help of my principal this can be achieved.

Gaining and sharing of knowledge, skills and resources

Involve-ment of various role-players

F: Thank you so much.

TP 5: Good afternoon ladies and gentlemen. Our vegetable garden, where are we now? We've already started weeding because the garden was already there. We've had a garden for a long time but we were ..., it didn't belong to any project at the time. There were some parents from Co-Ops that approached the school to start a gardening project but they became demotivated because they were getting a stipend and then they just stopped. So this year we thought we should start from .., so we've already started with the weeding of the backyard. Ronel was there last year, we had some spinach behind the administration block and we found that it could not grow because when it starts to grow the stock comes in because we didn't have proper fencing. So Mr Nyuageni and I started something informal with no

Involve-ment of various role-players

measurements of the plot but there are potatoes that are growing there and beans and also a few learners are involved. Only the grade 4s, his classes are there. And then there's a stakeholder, our neighbour, Mr Xalane, he is helping us out with some few men who are weeding the garden. And then as we come from this, we think that we will go back to relate the stories from this project so that more teachers are involved and learners. We will team up with schools already in the project like say is far away but if you want something you will go there to ask for help and also there's Ntyatyambo nearby, we could maybe have some seedlings from them.

Joint Planning
Involvement of various role-players

Gaining and sharing of knowledge, skills and resources

And there are also some seeds that were left then by the Co-Op but we've been advised that some of them might have expired but we will try some of them.

And then we decided as a group that next week, just for one day to make one plot, that 1m X 2, we will be doing that three of us, so that we are able to showcase when we open the schools, when we invite the SGB's and when we report to the teachers that this is something that we have learnt from the workshop that we attended. So we decided on Wednesday next week. And then we are thinking of starting small, we think big but we will start small and then we will grow with time. We will ask for some sponsors from the NGO's around us and the other stakeholders. We've approached the councillor several times about fencing, even the ANC people around us have promised, we've written letters to the Public Works Department. Our dream is to equip learners and parents with garden skills. Also we've been feeding learners with nutritious meals from our garden as we have been ... (unclear) we had a garden manned by the Co-Op so we've been feeding the kids from our garden.

Involvement of various role-players

Joint planning and monitoring

Involvement of various role players

Potential value

We hope to make a profit so that we can develop our school, maybe we will be able, out of the funds that we get, to fence the school. We were advised that the maintenance money could use some of the money for fencing and we were thinking that we have a big yard, we start fencing the part that we will be using for gardening.

Potential value

And then we sensitised the learners about the importance of plants so they grow their own gardens in their homes. We hope that we will be able to sustain the garden for generation to come.

Potential Value
Role player

How do we get there? As we have said we liaising with the Department of Basic Education with and then the Department of Agriculture, the NMMU, WESA and other NGO's. We will be meeting the parents to sensitise them about the project. We also invite some of you guys to do capacity building with our parents because they do need motivation. They should be made aware that we can live from the little land that you own.

Networks of support

And also who is going to do it? It is the teachers at the school, the SGB and then when are we going to start. We've already indicated next week on Wednesday and then the following when the school re-open, we have a meeting for the garden committee.

Involvement of role players

Joint planning

And then how? The delegates from this workshop that is us, we steer the project.

And then what is working? The availability of space in our school last? School, we have gym? and resource, we will be teaming starting from us and then we will advocate about the project.

What is challenging? Challenges are proper fencing, also (thieving) burglaries, and then water. We do have a tank that was donated to us, I'm sure we will make use of it because it is not being used properly. One more thing, there is lack of cooperation on the part of the parents and the lack of commitment. Thank you very much.

Potential value

F: I just want so say I think the plan is wonderful and I really am proud of the commitment that you are making, good luck.

PM 2: I want to comment on the plots, don't go for that one, just use the minimum you can do, be creative and design whatever, be very very creative.

Gaining and sharing of knowledge, skills and resources

PM 1: I just wanted say they must bring me the ... (unclear) when I am starting so that I can ..(unclear) involved ...(there's a lot of noise, it sounds like it is in a hall).

F: Thank you.

213	**TP 5**: We are from Ntyatyambo Primary, as you know that we do have the	Planning
214	vegetable garden for many years. Where are we now? We already planted the	
215	plants and do the mushroom just to cover the soil to be warm, to keep the water,	Involve-ment of stakehold-ers
216	as we know that there is wind and a lot of sun. We involved other stakeholders.	
217	In six month's time we are going to own a beautiful garden with many blocks	Gaining and sharing of knowledge, skills and resources
218	that are productive, going to sell vegetables and enter competitions as usual.	
219	Our dream is to have a simple vegetable garden where everyone is involved.	Potential value
220	What is working? We need to work on our soil? Preparing the soil, the parents	
221	are there helping us a lot and the stakeholders.	Involve-ment of various role players
222	What is the challenge? Challenge I became so motivated by Nomonde's	
223	speech when I decided to have my own plots with ... (unclear). I think we need	
224	more trees at our school because we've got only three. There are things around	
225	the plot which eat our plants, and I think also we need more garden tools from	Potential value
226	Agriculture …	
227	How do we get there? With only beautiful … (unclear) garden. Who? Teachers	
228	will give structured guidance, learners will prepare and water the plants, parents	Involve-ment of various players
229	will work on their own plot, NGO's will give us support. When? At the	
230	..(unclear). How? By involving interested parties, stakeholders with proper	Planning
231	communication.	
232	**F**: Is there any input from other members?	
233	**TP 1**: We are going organic we don't go for artificial food products, you take	Sharing and gaining of knowledge
234	your ..(unclear- all talking at the same time) that ..(unclear) that you've got – the	
235	… (unclear) we take that one and then we put it on the sofa or maybe something	
236	like a small dish and then you put beer in ...(unclear) and then you mix with the	
237	… (unclear) mix with it for something like 20 minutes and then late around 6 in	
238	the evening we put it right ..., (unclear) and then you put it there later on to a	
239	..(unclear) that little thing together with the beer, the beer will make them dry	
240	because of the alcohol and the nicotine is very … (unclear) to be ..(unclear) or	
241	take the axel, the dry one and crush them and just put them around where they	
242	used to walk. They can't lie on that they are going to be injured and they will	
243	die.	

244 **TP 2**: You can take the grade R's to collect the things (clapping of hands)

245 **TP 6**: Afternoon again ladies and gentlemen. Where are we now with our
246 garden? We already have a vegetable garden as you know. We've got a
247 tunnel, we've got permi culture and around the tunnel there are small plots and
248 the tyres. In six months time from now, we are going to wish to expand our
249 garden to plant more herbs and we are going to involve more learners and
250 community members to help us in the garden. Learners are going to be given
251 seeds to plant in their homes and we will make a plan to supervise that, if it is
252 happening.

Involvement of relevant stakeholders/ role players Planning

253 We also intend to take part in more competitions like the one which is going to
254 be in April in the next term Edu-Plant and other competitions.

Potential value

255 Our dream about our garden: We want to grow fruit trees and our long term
256 vision about this gardening is to commercialise our veggies. Instead of buying
257 from service providers for our nutrition, we want to buy from the school garden.

Income production

258 How do we get there? We are going to establish relations with the champion
259 school like Faith and to sustain our garden. Who is going to do it? It's me, Mrs
260 Wombela. When are we going to do that? When we open schools in April.
261 And how are we going to do that? We are going to communicate with relevant
262 sources through telephone and email.

Involvement of relevant stakeholders

263 What is working for us now? Is the support from parents, support from NGO's,
264 support from the Department of Education. And we also get water from the
265 tanks because we had a problem with the water.

266 What is our challenge? As mentioned earlier, we had a problem of flooding,
267 and the type of soil we have because our soil is very hard when it's sunny it
268 becomes very dry and draught is also another challenge which we have. The
269 other problem is the problem of climate change and insects.

270 **TP 6**: Excuse me?

271 **PM 2**: You need to make a thick ridges on your grounds .. (unclear)

Sharing and gaining of knowledge

272 **TP 6**: Okay thank you....

PM 2: It will help you with your draught problem and help with erosion and the flooding ... (unclear)

TP 1: Okay thank you. We are dreaming so big you will hear. We have all the planten, we are planting and we will planting. Where are we now? We have already planted, we are planting and we will be planting and we ... (unclear) our crops and then we have wind breakers to protect our crops. And then we will be having ... (unclear) we will supplement the school nutrition and sell our produce. In six months time we are planning for a market day. And then on that market day we are ... (unclear) about such ...(unclear) to make it, or to gain or to make a profit from our produce. And then on that day we will invite other schools and the community. We will be willing to let them sell their products. And then also we are inviting all the departments we are working with including the NGO's because it is a market day. As I said we are dreaming so big, every month, every day we will be selling, we are producing something from our garden. So we are doing that to keep our garden sustainable. And then as I said our dream is so big, we dream about teachers to be commercial farmers one day. Our learners to choose farming or agriculture as a career. I think I am done with that.

What is working? For us to work together, is the passion, we are passionate about what we are doing, in working, dedication, clustering, accountability, respect, learning lifelong relations with others and then marketing entrepreneurs. What is challenging? Time is a big challenge to us, water, ...(unclear) the manpower that is all.

TP 6 M/2016: Good afternoon ladies and gentlemen. This is our last day. How do we get there? We are planning a Market Day, we are planning a big event we don't know how it will be like but we are planning a Market Day. We planning to ... (unclear) hope it will be ready by then. Networking with other funders, we know our funders the ... (unclear) department, the NGO's and teaching our learners packaging the vegetables and processing the vegetables. More soil improvement like we are doing compost and manure and we are looking for more volunteers to work with us.

Gaining and sharing of knowledge, skills and resources
Potential value
Food production and promoting a healthy lifestyle
Planning
Income production-
Potential value
Involve-ment of various role players
Potential value

Involve-ment of various role players

Feeling empow-ered

Initiation of other projects
Involve-ment of relevant stakehold-ers
Potential value

Who will be doing this job? Peter as usual, learners as usual and our community members, the SGB of our schools and our extension?? Officer. And then teachers, Department of Agriculture as usual and Mrs ... (unclear). Learners will bring local grass for our ... (unclear) we will be asking our learners to bring the grass. And we will also be using correctional services, those who are on parole, so we are going to ask the warders to give us some to assist us. When are we going to do this? We planning to do this as from April to September but we want the events to be in September. How? We are hoping to communicate with our principal, we sell this to our principal, to our teachers to the staff, to the SGB, to the Department of Education and also the media. Thank you very much!

Planning and monitoring
Involvement of relevant stakeholders
Involvement of various role players

F: I just want to say this to everyone, we suggest that you use the resources you have available to you. You can generate an income out of your field, just to invite parents to come, you know try and generate money out of your school. Look at it like a business and try and channel that way of thinking. Okay.

Gaining and sharing of knowledge, skills and resources

TP 7: Okay our vegetable garden (some were singing in the background). Where are we now? As my colleague has already stated, we are no longer having gardens but we are starting at the beginning of April. So with where are we now, we will be identifying the plot, involving the learners as well as the educators, also notifying the SGB as the stakeholder of the school. And then in six months time, we believe and we know that the vegetable garden will already be in place and we will organise tanks for water and also we will use, we will organise drain for the flooding water because our school is situated in a muddy area. And everybody will take ownership of this vegetable garden, meaning the staff, community learners and SGB because we will be having a community garden as well as the school garden.

Planning
Involvement of relevant role players
Planning
Income production
Taking ownership

Our dream is to have a big garden with different types of vegetables. We want to produce our own FNB vegetables. We will also market our produce to various shops but before that we will feed our orphans and the vulnerable learners as well as support the child headed homes.

Food Production

We will try, with the help of the NGO's that we met here to develop and make our own nutrition for HDR, HIV and Aids.

Potential value

How do we get there? Now what will happen, we will identify the plot, we will involve the learners and the educators. We will start with a small plot, that is why we said we don't want to start with a big garden, it will be a manageable garden. We will have partnership and we will network with the relevant stakeholders. Who will be doing that? The co-ordinator of the food garden. To involve the learners and educators we need to have a plan, you can't have a ...(unclear), so again the co-ordinating team members will set up a roster or whatever for us to move with the vegetable garden. The partners will network with the relevant stakeholders Mrs Vetby Mthana the co-ordinator of the food garden will meet with the NGO's, agriculture, Department of Education with the municipality and the NMMU. When will this happen? First week of the 2nd term, that is the 5th ..., we will start in that week of April with the identification of the plot. By the 8th Mrs Mthana will try and phone the stakeholders for assistance because we need them to come to the school if possible to help with the plot that we would have identified because as I have said our soil is a little bit problematic. The first one was the one that was used for the Grade R project.

How will this happen? By phoning, email, sms's and meetings that is of course for the parents and the teachers.

What is working? It is saying what is working, it is saying for us what was working because we had a garden then so we used that experience. It has improved the school attendance because my colleagues has said that with the surplus of the veggies we were having there, we used to make soup and then we were feeding the learners. So most of them were coming ..., then FNB was not the best like it is now, so the whole surplus was helping, that is why it improved our school attendance, it beautified our school, the community and the learners benefited in terms of we were selling, we were giving out and we were also making that soup kitchen, identifying the vulnerable kids with the help of the LSA. So the LSA helps us with the identification of the learners that are having problems that have been identified by the teachers in the classroom. But the LSA goes out and get to know ..., get to the bottom of what is happen then we give out those vegetables. There was progress in learner concentration, there was more community involvement, our school was never

Involvement of various role players

Involvement of relevant stakeholders

Partnership and networking

Food production and promoting a healthy lifestyle

Potential value

368 burgled into during that time. No vandalism whatsoever, but right now it is every
369 week.

370 What was challenging then? The first one was the infighting amongst them,
371 about the produce. And the second one that is the one that make us now to
372 say what was working because we do not have a garden, what's the use of that
373 plot for the Grade R project. The last one was the community demanding
374 payment. Our communities they want to be paid even to belong to the SGB,
375 some of them resigned last year they didn't know that there is no payment.

376 **TP 7**: (unclear) to control the numbers since we know their story and try to
377 choose very few ..., about .(unclear) because we have problems with them, we
378 know how they are ..., so if you are doing a school garden and you are going to
379 involve the parents, you must try to minimise the ... (unclear)

380 Female Respondent: Thank you.

381 **F**: Next group.

382 **TP 8**: Okay I'm just here on behalf of Elukhaweni. This is where we are now
383 we have an established garden, we have water issues, we have water but we
384 can do with more community support, it can be more effective, limited
385 resources, need more structure, that means organisation. You know that time
386 table, we've got classroom issues all sorts of things, so it's one ... (unclear).
387 Communication, we do communicate, we've got a group that communicates
388 and talks about the veggie garden, we have children involvement, we have ...,
389 we used the food for the feeding of the school, so we supplement that. We do
390 that. And we also have limited produce for sale, so we do already sell some
391 produce. In six months time we want to improve our funding stream and our
392 support from government and NGO. More storage tanks for water, we definitely
393 need that, we've got one so far, we need four more. We want continued
394 community support, implementation of the curriculum, some we desperately
395 trying to get a curriculum so we can start teaching properly and Cindy does
396 have contacts.

Planning
Involve-
ment of
relevant
stakehold-
ers

We want to have workshops and training for the staff of the school, to enable them to use veggie garden effectively. So if they get training they can use it for their subjects and they will be more encouraged to support the venture.

Networking to improve, create a competitive environment and encouraging other schools to start veggie gardens. So we would like to be a model that would encourage other schools.

Our dream is total sustainability, that is effective teaching of children with the curriculum, children using what they are taught and the skill to go home and grow veggie gardens and then to encourage other people in the community to do the same. We want healthy children, we also want to take the produce and preserve in some way to be able ... (unclear) the longevity of the product and then to market it. And other value added techniques, we want to develop a brand name and a model that can be replicated. That's what our dream is. So it must be a model so that everybody can follow.

What is working? Our shared vision. There are a whole lot of us that have the same vision and that's definitely working. The production of food, we are producing food, volunteers in the community getting involved, we got plenty of those, created awareness. The upgrading of the facilities at Elukweni and adding value to the children, that's what we are and is working. We challenge this, we need to produce more vegetables, so we need to up our produce, increase our capacity, time management ..., there's only so many hours in a day, and we in the area of ownership. We want the school to take ownership of the whole project.

F: Give them a round of applause. Thank you very much, I love the motivation I love the....

Training

Networking and establishing partnerships

Feeling empowered

Food production

Potential value

Food production

APPENDIX D: ANALYSIS OF MEMBER CHECKING TRANSCRIPTION (SAMPLE)

Member checking (MC) Transcript MC1, 16 April 2018	Themes and sub-themes
F1 A/2018: In terms of the value of the school-based vegetable gardens that was one of the things that you could group highlighted. You mentioned that you found value in joint planning and sharing of knowledge, resources and skills. You expressed that you valued working with other schools, also with them sometimes, checking with them, and planning at a colloquium and talking and sharing ideas was beneficial in that one. So, did you experience this as captured on the poster? Respondents: Yes, that's correct. **F1 A/2018:** Okay I what I hear is that there were other things that I felt in terms of our involvement, is that there was peer support, there was support from the other teachers, the nearby school you will get information and share ideas and support each other in terms of the school garden. I don't know if there's anyone who would like to add anything underneath that or do you agree that that's what you experienced?	Joint planning and sharing of knowledge
TP1 A/2018: I fully agree because I think last time, we had a meeting where we had some schools, by the way here, and it was quite helpful to learn from them. So, the first we shared knowledge and now it gave us a guide of what is. **F1 A/2018:** Okay, alright, is there anyone that wants to add anything. Okay on the support on how establish on our vegetable gardens. **TP1 A/2018:** Put more effort under that one then things can be turned around here (pointing towards PRA-based poster).	Sharing of knowledge
F1 A/2018: Okay, alright. And another thing that I also found out was that there was increased networking and established partnerships, you will recall from the colloquium and from you as well, there was so much from parents and remember we had the one gentleman that was networking a partnership and the learners themselves being involved as well, like all that was established and with other schools, there was the involvement of new students, there was the Correctional Service Department and also those that was brought about through the involvement of the vegetable gardens and the programme. Do you agree with this as well for your schools?	Establishing partnerships Involvement of various role players Establishment of partnerships
TPs A/2018: Yes.…	
F1 A/2018: Okay, then another thing that I found out, through listening to the conversations and our discussion was that there was a gaining shared knowledge, skills and resources, in terms of what you even saying that there was so much of sharing what other schools are doing and perhaps the skills, remember the one school shared on how they dealt with the problem of flooding in their schools and … in the region. So, there was a gaining, and shared knowledge, skills and resources. And did you also experience that?	Gaining and sharing of knowledge, resources and skills by peers Environmental challenges
TP A/2018: Yes.…	

Member checking (MC) Transcript MC1, 16 April 2018	Themes and sub-themes
F1 A/2018: Okay, is there anything that you would like to add here or …, that you feel maybe I did not capture like you said it from the previous discussions that we had?	Learning from peers
TP2 A/2018: You know I think there's a lot that we learned from being part of the project. One school where I was recording or what, they came pictures of what they did with their Grade Rs and with the curriculum, so it has helped me a lot because sometimes you know if you do it for the kids. in that regard, the inside the classroom for what is in our garden, especially. I like that kids, all learners can tidy the school.	Involvement of various role players
F1 A/2018: Alright, thank you. So, moving on to the next point. What I thought about was that there was value of shared knowledge and experiences on school-based vegetable garden, did you experience that, that there was value, the children are getting the experiences of the school-based vegetable garden over the years? Okay and this increased involvement of the various stakeholders, that is the learners, the teachers, the community at large, the universities, NMMU, Correctional Services, and other NGOs within the community. That is one of the things that came out open, do you agree with this.	Establishment of partnerships and access to networks
TPs A/2018: Yes.…	
F1 A/2018: Okay. Then another thing that came out was that there was increased food production and promotion of a healthy lifestyle. There were other projects that emanated from this intervention, they may have been slightly different to the school-based vegetable garden, the one school there was fencing, there was donation of computers, there were competitions that they entered.…	Potential value-addressing poverty, increased food production Potential value – establishment of other projects
TP2 A/2018: That's something that the vegetable garden actually sparked that creative thinking.	Potential value – income generation
F1 A/2018: Another thing was, there was also income generation because the teachers were buying the produce, the learners were also selling the produce, and that generated income and if you remember also there was even selling through the school. So, the school was actually in itself generating income for itself. Okay, is there anything you would like to add in this regard that you think they have left out or that you want to add in?	Involvement of various role players
TP3 A/2018: I'm not sure whether it was on the mass meeting or what, the learners were keen to engage in the gardening project.	Potential value
F1 A/2018: Yes, okay thank you so much. So, another aspect that I identified was that the outcomes of the vegetable garden that supported resilience, so do you agree with that that there were factors that the garden actually supported thriving through circumstances and being able to continue on …, and one of the things that I identified was that from your talks and conversations was that, school garden will add a resource in fulfilling the basic needs. So, there was food being given to the learners, the school could generate money which was also needed, so those are the basic needs that I'm referring to. And that there were learners and	Fulfilling basic needs -food production and promotion of a healthy lifestyle Potential value

Member checking (MC) Transcript MC1, 16 April 2018	Themes and sub-themes
even some schools that were given food that were learners and families or they were offered, that were also given produce from the vegetable garden. I don't know if you also agree with this or …, okay. And then one of the factors of the school-based vegetable garden was that there were strong relationships and community support as foundation for resilience. If you remember you had the gardener working, there was a strong relationship in support of the vegetable garden and the parents coming in wanting to take part …, and working with you, those were relationships where the students from NMMU as well, coming in, that was a strong relationship and … (unclear) NGO's and other stakeholders …, and even other teachers coming in to support, build strong relationships as a result of the vegetable garden. Do you agree with this, did you experience it? Okay. Another aspect or factor was that for promoting factor and that's what Ronel pointed out, the garden going through the. Oh, this part of the vegetable, or this land that we have chosen is not working, let's change to another patch land. So, there was some tangible change as a resilience promoting centre, and remember when you went to that beautiful and newly established garden that we can come there. So, there was that sustainable thing. Did you experience that? **TPs A/2018:** Yes. **F1 A/2018:** Okay, and another aspect that identified from our conversation is that there was a feeling a power to take ownership. So, this was now a garden for you as the school and taking ownership to change it into a space that you wanted it to be. **TP 3 A/2018:** Yes.… **F1 A/2018:** Do you agree with that? I already had a response. I don't know if there is anything that I left out or anything that you would like to add into what I found out from our previous conversation. **TP3 A/2018:** We happy.… **F1 A/2018:** Thank you very much for being part of it and thank you for creating this platform. We had a discussion, you know when … (unclear) he also come around last year or the year before, at the end of last year and then when you finish your dissertation and PhD two other universities must market and get feedback, and one of the external examiners wrote in the report that commend what are you doing to help the kids, what are they doing in the schools, and the one external comment that I was going say this that he wrote up is beautiful, but we must also say how the link through you being involved in this bigger project, because this don't happen in all schools, and we forget that, because we are so used to you doing such marvellous work, to me this is what schools do …, but no is not what schools do, is what these 8 schools that are involved are doing it, because you are running it, and develops resilience in the children and the community, it has positive effect, even though we will be in	Potential value - strengthening relationships Involvement of various role players Potential value - building stronger relationships Feeling empowered to take ownership of the project Potential value

Member checking (MC) Transcript MC1, 16 April 2018	Themes and sub-themes
the situation that challenges were experienced. You may feel that you want us to be models, if not an example to other schools. I think to me that would be the next phase of the project, to see how the 9 schools can now spread to other schools in the community, because I do think if we find such a model, the schools that make positive differences, how they help others not necessarily our own community we support with the learning of children in class to learn these essential vegetable garden skills. I thank you. **F2 A/2018**: Thank you very much and we will see you in a month.	Feeling empowered to ownership Potential value – peer teaching other schools

APPENDIX E1: PRA-MATRICES (POSTERS)

Attached in electronic format.

APPENDIX E2: MEMBER CHECKING POSTERS

Attached in electronic format.

APPENDIX F: PHOTOGRAPHS

Attached in electronic format.

APPENDIX G1: REFLECTIVE JOURNAL

Date	Notes	Themes/Sub-themes
21 February 2016	As I close the masters' student chapter, I begin this whole new chapter as a PhD student! I continue to ask myself how am I contributing to the academic world with the research study that I am now embarking on. I feel very excited and privileged as I embark on this journey. I remain cognisant of both the personal and academic significance of this journey. I am ready to mold and be moulded into the person that I must metamorphose. I feel privileged to continue the PhD journey within the same broader project and with the same guided by supervisors as my mentors. I continue to trust God for this new Chapter.	
3 March 2016	A meeting with my research supervisor is just what I needed to get on track. I am very excited to explore how school-based vegetable gardens can support resilience in vulnerable communities. South Africa just like Zimbabwe presents with some communities are high risk and vulnerable that are low in resources. Hence there is need to explore how resilience may be promoted in order to address the challenges that are faced by some of the local communities in South Africa. As I read the recommended articles related to the broader FIRST-GATE project, I continued to reflect on what then is my role as a practicing/participating? educational psychologist. Two eminent reasons were the need to academically learn and grow as a professional and to contribute to the knowledge base.	

Date	Notes	Themes/Sub-themes
17 March 2016	In planning for the FIRST-GATE colloquium, I'm slightly anxious and unsure of what to expect. I anticipate that some of the teachers would be knowledgeable in implementing and sustaining vegetable gardens. I hope that I will be able to build rapport with the participants.	
23 March 2016	The first two days of the colloquium entailed planning for the PRA-based group discussion. I ensured that I developed PRA Posters. My experience of the colloquium was a breath taking one. I noted that the teachers were very eager to make a difference and implement vegetable gardens in their schools. Some of the schools already had well-functioning school-based vegetable gardens. During the colloquium, I realised that teacher-participants resounded rich knowledge regarding vegetable gardens. I continuously reflected on my role as an educational psychologist. It was imminent that there was an integration of multiple fields including other branches of psychology, agriculture, environmental studies and education. This experience of the colloquium has left me excited and looking forward to the anticipated site visits in August.	Capacity in knowledge
10 August 2016	The site visits provided me with a comprehensive picture of the plans and intentions of the teacher-participants. As we drove to the sites, it was quite evident that some schools were situated in communities. Many of the areas encompassed RDP houses, squatters and littered communities. In some of the schools they were no running water, this provided evidence of the water crisis	Environmental challenges

Date	Notes	Themes/Sub-themes
	in the Eastern Cape. In spite of this environmental outlook, the research team was greeted with a school of vibrant school-going children with needs similar to any other child. The walkabouts in the vegetable gardens, exposed how much work had been put in since the March 2016 colloquium. Some of the gardens were progressing well. The other challenges identified by teachers were, the imminent environmental and water challenges of drought, water crisis and goats breaking in the gardens. In many of the challenging situations, the teacher-participants had come up with their own solution and resolved the crises within the school-based vegetable gardens.	Planning and monitoring Environmental challenges Taking ownership for positive change
11 August 2016	After visiting all sites, it was apparent that school-based vegetable gardens were thriving. The school-based vegetable gardens are progressing at different stages. Some being very well-functioning and others are experiencing challenges. In spite of the varying ranges of the different gardens within the school-communities, it was amazing to note that the teacher-participants were willing to ensure that their vegetable gardens were functioning. In most of the school-based vegetable gardens, learners were fully involved. Teacher-participants mentioned that the establishment of school-based vegetable gardens within the schools strengthened participation and interactions of teachers within the whole school. Other teachers within the school became involved in the school-based vegetable garden	Taking ownership Learner involvement Teacher involvement

Date	Notes	Themes/Sub-themes
	and as this promoted positive work relationships, a sense of collective ownership of the school. It also enabled other teachers to become involved in other projects.	Taking ownership for positive change
10 April 2017	As I plan for the April site visit, I was quite excited to see how the garden looks since the last visit in August 2016. I hope to hear stories of surrounding the school vegetable gardens. I'm cognisant to the fact that some of the vegetable gardens may not be as functional as the previous visit. I also want to believe that the vegetable gardens may have different crops than those that were previously in them.	
13 April 2017	In exploring the sites, it was evident that school gardens were thriving. Again, each school garden was in its own phase. Many of the school-communities had learners and parents involved in the school garden. Other projects such as selling of vegetable produce through a market day had been conducted. As I moved around looking at the gardens, it was significant to note that the teachers, learners and the parents took pride in their gardens. In addition, participating schools mentioned that school-based vegetable garden served as a food source for supporting vulnerable learners and their families. Some schools had extended the garden project into allocating parents with their own plot for a vegetable garden. This in turn improved their relationship with parents within the school-community.	Involvement of various role players Potential value-income generating Taking ownership of positive change Potential value – food source Involvement of various role players (parents/community members) Potential value – positive relationships

Date	Notes	Themes/Sub-themes
14 April 2017	As I do an overall reflection of this site visit to the Eastern Cape, I feel that it was rewarding in that we were able to provide psycho-social support in the form of soft skills development. At the end of the session, the teacher-participants reflected that they found the experience beneficial and of value in their professional development. This gave me the feeling that in my capacity as a novice researcher, I had a reciprocal relationship with my participants that was mutually benefiting us both.	Potential value – reciprocal benefits between participating school and university
26 May 2017	In anticipation of the May 2017 colloquium, I prepared myself to hear more stories that came through the vegetable gardens through the presentations by the teacher-participants. I was also looking forward to the second time of all teacher-participants sharing their knowledge and skills gained and implanted in the school vegetable garden and the school-community.	Sharing knowledge and skills
28 May 2017	The presentation by schools on their school-based gardens was just as I anticipated and more. It made me realise the extent to which each school-community had written its own story and with each school garden being uniquely different. As each school presented their story, it was clear they were the authors to this study. I got the positive sense that the teacher-participants had taken ownership of the vegetable gardens. Through the vegetable gardens, they were many success stories. In spite of the challenges experience in other school gardens, practical and positive aspects were also being yielded through the vegetable gardens.	

Date	Notes	Themes/Sub-themes
	I also noted that the colloquium was viewed as a platform amongst the teacher-participants to share knowledge, skills and resources.	
19 September 2017	As I reflected on the PRA discussion with the teacher-participants, I could clearly recall one statement "You know we are having a garden in school … and teaching those kids … because we understand that most kids don't like vegetables … it's quite interesting for them to start growing it themselves." Teacher-participants desired to further develop the learners sense appreciation of healthy eating habits and a deeper understanding of both fruits and vegetables. In schools that all teachers were actively involved in the school-based vegetable garden yielded positive results of the garden flourishing and with the whole school having a sense of ownership to the garden.	Promoting healthy lifestyles
21 September 2017	These PRA-based discussions have ignited an awareness of the growth that has taken place in the past two years. I felt a sense of ownership amongst the teacher-participants. The growth and value of the school-based vegetable garden project was so evidence in their responses during the discussions. Most of the teacher-participants experienced the value the vegetable garden would continue to be ongoing even well after the intervention to ensure that school-communities benefited from the projects. As co-researcher with the participants, I reflected on a deeper level whether there was more that I may need to explore and perhaps ensure that such a	Feeling empowered and taking ownership Involvement of various role players

Date	Notes	Themes/Sub-themes
	project benefits other vulnerable community similar in context.	
13 April 2018	During member checking, it was quite evident that the school-based vegetables had served a fundamental purpose in the school-community in spite some the experienced challenges with time and their busy schedules as teachers. The school vegetable-garden seemed to be a basis for acquiring knowledge and skills that a learner, parent, teacher or a community member could utilise in establishing a garden and ultimately provide self-sustainable, cheap and consistent sources of food. In reaching the very end of the research and returning to my co-researchers, the participants, I felt grateful that they willingly to share and generated knowledge through the research project. Their insights and experiences of the school-based vegetable garden.	Sharing and gaining knowledge and skills Involvement of various role players Potential value Generation of knowledge

APPENDIX G2: FIELD NOTES

Date	Comments	Themes and Sub-themes
23 March 2016	**Materials required for session**: PRA-based posters, audio recorder, markers Teacher-participants mentioned that they found it valuable to establish school-based vegetable gardens. One teacher mentioned that they found it valuable to involve learners in other activities that were not academically challenging and providing students that are find learning challenging with a sense of motivation their capacity to achieve in non-academic activities. In groups, participating school-mapped their planning on how they would establish their school-based vegetable gardens. The identified and stated what and whom they were to involve in establishing school-based vegetable gardens. Most participating school indicated that they were going to involve their learners, other teachers within the schools, parents and community members. Other participating schools identified government departments, NGOs' and universities. Teacher-participants mentioned that they were able to learn from their peers that had established school-based vegetable gardens.	Potential value Potential value Planning Involvement of various role players Established partnerships Sharing of knowledge and resources.
4 August 2016	**Site:** School F **Number of teacher-participants:** 11 The participants mentioned that their school garden was heavily affected by drought and thy had to consider another suitable patch to restart the vegetable gardens. The expressed that due to the lack of fencing goat were eating most of their produce. Nearby community members have been helpful in keeping the gardens safe from goats. In the same manner community members ensure that the school was safe from any vandalism.	Environmental challenges Challenges Involvement of various role players Challenges
4 August 2016	**Site:** School A **Number of teacher participants:** 10 The participants mentioned that the parents were willing to participate in the school-based vegetable project. The school has allocated the parents with a patch to establish their own school-based vegetable gardens. As such parents were able to establish their own	Involvement of various role players

Date	Comments	Themes and Sub-themes
	vegetable garden within the school-community. A teacher-participant indicated that this involvement in the school-based vegetable gardens by parents also increased the parents' involvement and visibility in the school. School and parent are to sell their vegetable produce and share proceeds accordingly.	Potential value Addressing poverty Income generation
05 August 2016	**School Garden D** We are still happy to be part of this programme. Really, our learners are coming from disadvantaged homes. Feeding scheme. They get food. You can see that they get nothing at home. The whole weekend they get nothing to eat. We can see they all get grants. Either social or foster. But when you have those meetings with parents you can see the hardship. Some of the parents misuse it. They enjoy food at school makes us realise that the garden is good. Give some of the veg to the ladies in the kitchen. And if a surplus there can be money that they can sell. We can also teach them to do this at home. Have tools, but they are not enough. There is a man from comm who volunteers, and two ladies (latter from Dept of Agric).	Addressing poverty Fulfilling basic needs and promoting healthy lifestyle Potential value Fulfilling basic needs and promoting a healthy lifestyle Challenges Involvement of various role players
09 August 2016	Teacher-participants found the process of engaging in the visual PRA-based posters and mapping their way forward (plan), identifying assets and setting garden goals helpful. A teacher-participants mentioned that the learners and parents were involved in the running the gardening project.	Planning
10 August 2016	We have a vegetable garden for parents and learners. The learners are selling their vegetable produce. They use 2 litre bottles to save. At the end of the year but something. Nothing educational. E.g. buy a Nike. It's important to say to learners if you want to be successful you have to work hard. This is because gardening is hard work. Each teacher has garden. Teacher-participants indicated that partnering with local companies was of benefit as the acquired sponsor for their 'Market Days' provided them with essential tools such a water tanks and gardening tools. Participants mentioned that involving parents and community members was quite helpful to ensuring that the school garden were safe and sustained. Community members	Involvement of various role players Potential value-entrepreneurial skills Involvement of various role players Establishment of partnership Potential value – income generation Involvement of various role players

Date	Comments	Themes and Sub-themes
	in their participation in the school garden ensured that the garden was watered during school holidays; they made sure no goat would break fence and eat the plants and also made sure that the school was safe from burglary	
10 August 2016	We made a promise that we would talk with the other teachers. We didn't have a chance to talk to all of our teachers. We talked to the teachers who are in our HACC (Health and care committee). Our Seedbed is a spinach seedbed. We took our children during our period times. We don't have a garden period. We went to our gardening. We compare the soil. We even go to Nomonde for the seeds. We tried to plant those seeds We also had some challenges. We can't take the learners in the afternoon to school garden to help us. A strength is that we now have a tap in the garden now. So we can water our plants Some days so cold. There is also raining. The weather. I think it was a problem for us If you go see there is so little seeds there. But I think if we have enough time we will get through the project. We have started something. It is not easy but we will continue. Step by step we will be getting there. We have a committee of 6 - caregiver cannot come today because nurses are visiting the school. And one teacher is ill. In next 6 months: Harvest and give to vulnerable learners and some to the meal servers. The we will sell the rest to buy seeds. It's not easy. So, we (committee) do not have a period for gardening. So, I have to take the learners on my class. Can't leave others behind. Because then they make noise its science its, math's, culture - clean: pick up. And if free period they also go to us and to garden. So, all of them involved in one way or another. June 16 we were on ENCA Tv for our little ones to talk about their primary school We were the only primary school Dept of Rural Development. We were at Sandton. Just a walk to the mall. Earing and eating. Breakfast. Each owning a room. And a remote. Own special spot to boast about their school. They were so cute. So beautiful in their make-up. They believe if these	Challenges Involvement of various role players Potential value - establishing other projects Sharing of resources Challenges Acquiring of resources Environmental challenge Challenges -time constraints Involvement role players Fulfilling of basic needs – promoting healthy lifestyle Potential value Involvement various role players Potential value Potential value

Date	Comments	Themes and Sub-themes
	two can go, any of us can go. The learners are motivated. The Finalist of miss Earth is also participating in our school-based vegetable gardens. She is coming to the school. Talking about environmental awareness. Doing some recycling Beautiful pencil holder. We are hoping for her to a win. Wanting her to come back. Then we can have miss Earth in our school yard. We are rubbing shoulders with the beauties. Shoprite Checkers have been involved since June. Before we closed. She was. looking for me. I was missing. Luckily hey found me in the garden. It was Shoprite breathing good news lady of CSI. I met her at Greenacres. They were looking for me all over. I said my school is having entrepreneur in June holidays fixed gutters. Mandela day brought trees, seedlings, tools for little ones. Separate for small ones. Watering can, other tools everything we need to use in the garden including fruit trees. They were so expensive. And we were planting the whole week. We were also finalist at nursery garden competition. During June Holiday the lady from the nursery was here. Checking if what we were sending to her was present in the garden. We were waiting from 11. She was here past 4. We are crossing our fingers We see ourselves winning and going with the learner to Joburg as they shortlisted us. They came for the pictures. It a school garden not our garden. We are teaching the kids all about plants and things. The Extension officer (Rural development) assisting us. How to plants seeds from the trees. We are working trying. We want to do a market day. He bought for us some plastic bags. For us now in mid-August we will package. We want our things to be Woolworths things. So when we go into town, we look how we can properly package it. NGO is giving us R5,000 to make our things polished. Sell fresh herbs and seedlings. Rural development says first of their proteges to go entrepreneur route. We have a programme for grade 7 entrepreneurs Grade 6 and 7 and parents. So that parents can be aware of how they can be rich. To be the opposite of their mothers. Mother hungry. Child hungry. We want to break that cycle. We don't want them to be dependent on grants. We are looking for more	Involvement role players Potential value Involvement of various players Involvement role players Potential value Acquiring of resources Promoting a healthy style Involvement of various role players Potential value Feeling empowered to take ownership Potential value Involvement of various role players Potential Value Involvement of various role players Addressing poverty – income generation Feeling empowered to take ownership Addressing poverty-related challenges

Date	Comments	Themes and Sub-themes
	and more customers. They must tell the others. And then the others must come. What we will be doing we will just be adding. More types. Improving. Even maybe selling from Next year flowers. And compost Improving from our successes. Not from our failure. Target R10,000 for market day for next year. it should be doubling every season. If possible. We believe in our dreams. Our big dream is just to be growing forever and forever and forever. Gr6 will take over for next year. We are now talking money now We want to teach gr7s. Half of money to farewell. Half gift to school. Who? Teachers, learners, community. We are planting the same thing so that nobody can steal from anyone. When we ant we plant together. When we sell, we sell together 2 Sept is Entrepreneurship day (e.g. Market day). Even before this they have already reached their target of R5,000.	Potential value - increased production, income generation Potential value – branching to do other projects Feeling empowered Involvement of various role players Potential value- addressing poverty Income generation
11–14 April 2017	Teacher-participants view learners participating in gardening as essential in learning fundamental skills in an integrated and experiential way that an indoor classroom cannot provide. Teacher-participants working with community, community members would actively engage with the school and feel a sense of ownership of the school and the school garden. Teacher-participants were successfully producing a seed bank and producing seedlings to sale to the community and neighbouring schools. Teacher-participants mentioned that the school meal may the only nutritious meal that our learners get on a daily basis and this has increased the number of learners coming to school and reduced absenteeism.	Acquiring and sharing of resources and knowledge Feeling empowered Potential value Involvement of various role players Fulfilling basic needs - promoting healthy lifestyles
27 May 2017	FIRST-GATE 2017 Colloquium Each did a 15 minute presentation on their school-based vegetable gardens. Participating schools share their success on stories and the challenges that they experienced in setting up the school-based vegetable gardens. All schools indicated the involvement of teachers, learners, parents and community members.	Involvement of various role players
28 May 2017	**Materials required for the session: PRA**-based posters, markers, audio recording 2017 Colloquium	

Date	Comments	Themes and Sub-themes
	Teacher-participants mentioned that they gained so many ideas from their colleagues on how to manage gardens and overcome some of the challenges experienced due to drought, pets, water challenges and looking after the garden during the holidays. With regards to parent involvement, one school mentioned that Parents being involved in the school garden project seemed to yield a positive relationship as parents were gaining gardening skills and in turn become involved in the school-community and other activities that are related to the fundamental learning of their children. Most participating school motivated all teachers to participate so that they could actively participate in gardening activities. Seasonally, participating schools were able to establish school-based vegetable gardens and harvest produce from them successfully.	Environmental challenges Involvement of various role players Potential value
19 September 2017	Teacher-participants indicated that partnering with local companies was of benefit as the acquired sponsor for their "Market Days" and sponsor provided them with essential tools such a JoJo tanks and gardening tools. In schools that all teachers were actively involved in the school-based vegetable garden yielded positive results of the garden flourishing and with the whole school having a sense of ownership to the garden. In the second phase of planning the way of monitoring and evaluation, teacher-participants' plans were extended to other projects and expanding gardening. Participating school were setting a bigger margin for the financial profit margins than they initially made in the previous phase.	Involvement of various role players Potential value Involvement of various role players Feeling empowered Gaining knowledge and skills Potential value
20 September 2017	The PRA-based poster activities of planning and reviewing school-based vegetable gardens seem to unite teacher-participants toward a common goal of working together and pursuing set goals. A participant in the one school mentioned that engaging in this planning process of planning always keeps us alert and reminds us of vegetable gardens. Sometimes as teachers we don't due to work commitments. During the gardening activities participating schools indicated that it was challenging to involve more learners as a result of challenges as classroom learning took precedence over gardening	Planning and sharing of knowledge Work challenges Challenges – time constraints

Date	Comments	Themes and Sub-themes
	activities. Participating school mentioned the need to also feed learners and the community through the school-based vegetable garden	
21 September 2021	Participating schools are becoming innovative, each uniquely expanding the projects in accordance to their needs and goals. One school extended the project to worm farming. One teacher mentioned that at time the government's nutrition programme is unable to provide vegetables as part of the basic nutritious meal for learners; as such the school-based vegetable garden serves as a food hub in adding to the vegetable as part of a balanced diet.	Potential value – increase production Potential value
16 April 2018	The three participating school confirmed that they were beneficial in that the benefitted from the intervention as this enabled them to learn from their peers. They confirmed that the discussion with the other participants ignited the sharing knowledge, ideas and even networking to share resources and skills. The participants confirmed that the involved various role players in the establishment of their school-based vegetable gardens. They further confirmed that they were able to supplement that the food given under the nutrition programme. Participants indicated that they managed to provide healthy meals to learners. They generated income through the selling of produce to the school-community. The school also confirmed that they were able to address some of the challenges though time constraints and drought remained a presenting challenge to their school-based vegetable gardens.	Sharing of knowledge Involvement of various role players Promoting healthy lifestyles Addressing poverty Providing basic needs and promoting a healthy lifestyle. Challenges
17 April 2018	As part of the global warming challenges, flooding tends to affect the gardening process in spite of resilient teacher-participants being able to resolving this challenge. I noted teacher-participants mentioned that engaging in the peer-based intervention enabled them to find solutions to how to do water control. Participating school were able to obtain water tanks to collect water as an essential resource to address their challenges. Our target was the improvement of getting water.	Environmental challenges Acquiring of resources Potential value

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