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Potential value of school-based vegetable gardens in promoting the resilience of primary school learners

Mini-dissertation

by

Stephan Dippenaar

Submitted in partial fulfilment of the requirements for the degree

MAGISTER EDUCATIONIS

(Educational Psychology)

Department of Educational Psychology

Faculty of Education

University of Pretoria

Supervisor

Prof. R. Ferreira

PRETORIA

October 2018

Declaration

I, Stephan Dippenaar, student number 10491385, hereby declare that this mini-dissertation, "*Potential value of school-based vegetable gardens in promoting the resilience of primary school learners,*" submitted in accordance with the requirements for the Magister Educationis (Educational Psychology) degree at the University of Pretoria, is my own original work and has not previously been submitted to any other institution of higher learning. All sources cited or quoted in this mini-dissertation are indicated and acknowledged with a comprehensive list of references.

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STEPHAN DIPPENAAR

05 October 2018

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Dedication

I dedicate this mini-dissertation to my Father in Heaven and family on earth as an expression of love and gratitude towards each of you.

Firstly, to God whom has given me the strength and perseverance in completing this mini-dissertation. Secondly to my always encouraging, ever faithful parents André and Reinet Dippenaar, as well as my wonderful and loving sisters, Ronél Kemp, Elsabé Strydom, Corné Terblans, and Anet Dippenaar.

Finally, to my life mentor and supervisor of this mini-dissertation, Professor Ronél Ferreira – this would not have been possible without you.

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Acknowledgements

After a 2-year journey, it has come to this point, where I am able to add the finishing touch to my mini-dissertation: Acknowledging those whom have been encouraging and supporting me from start to finish. The process of writing this mini-dissertation has been a period of intensive learning and development on both professional and personal level.

Firstly, I would like to acknowledge my Heavenly Father Jesus Christ, who has instilled within me a purpose and a gift to serve as a vessel in touching the lives of the vulnerable. He has given me the grace and the opportunity to complete my Master's degree in Educational Psychology. My Heavenly Father, You have been my main source of strength and hope throughout this mini-dissertation, without Your faithfulness I would not have been able to do this. Thank You, for your divine plan for my life; this mini-dissertation has strengthened my faith, skills, and personal development.

Secondly. I want to thank my supervisor Professor Ronél Ferreira. You are the most pivotal mentor in my life who has seen potential and value in me since the first day we met in 2016. You have created opportunities for me, instilled in me a sense of self-belief, have been there for me on my toughest days, constantly encouraged me, but most importantly imparted knowledge and skills that can never be taken away. Thank you for being reachable any day or time whenever I experienced difficulty (which happened quite frequently) or had a question about my research or writing. You consistently allowed this study to be my own work, but steered me in the right direction. Thank you for your unconditional love, patience, motivation, enthusiasm, and immense knowledge. Your guidance helped me at all times of research and writing up of this mini-dissertation. I cannot imagine having a better supervisor and mentor for my MEd study.

Next, nobody has been more important to me in the pursuit of this degree than the members of my family. I express my profound gratitude to my parents Reinet and André Dippenaar for providing me with unfailing support, love and continuous encouragement throughout my years of study. Since the first day you adopted me, you have made the biggest impact on my life. You are a living example of unconditional love. You changed my life and taught me the value of education through being a constant source of support and encouragement during the challenges of graduate school and life itself. Furthermore, a special thank you to my sisters, whom have been my cheerleaders on the sidewalk: Ronél Kemp, Elsabé Strydom, Corné Terblans and Anet Dippenaar.

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Abstract

The current study formed part of a broader NRF-funded project (FIRST-Gate: Food Intake and Resilience Support: Gardens as Taught by Educators), coordinated by Professor Ronél Ferreira. As part of the broader project, I aimed to determine how school-based vegetable gardens can potentially promote the resilience of primary school learners in resource-constrained communities. To this end, I explored the value of school-based vegetable gardens in nine schools and 49 participants in the Eastern Cape Province, South Africa that have been participating in the broader project.

For my study, I utilised interpretivism as epistemological paradigm, qualitative research as methodological approach and case study applying certain Participatory Reflection and Action (PRA) principles as research design. I generated and documented data through PRA-based workshops and discussions, observation-as-context-of-interaction, field notes and a research journal, as well as visual data generation and documentation strategies. Following inductive thematic analysis, I identified four main themes, each with related sub-themes. The themes I identified, in terms of the potential value of school-based vegetable gardens for resilience of primary school learners, relate to addressing basic needs, increased knowledge, skills and school performance, personal development and indirect additional benefits.

Based on the findings I obtained, I can conclude that, school-based vegetable gardens can be utilised by schools and/or communities to support the resilience of learners, and potentially also that of their families and the community at large. Based on this conclusion, I recommend that future researchers and facilitators of resilience interventions may focus on similar studies or initiatives, specifically when working in resource-constrained communities.

Key Terms:

List of key words

- Empowerment
- Health and well-being
- Interpretivism
- Participatory Reflection and Action (PRA)
- Primary school learners
- Resilience
- Resource-constrained communities
- School-based vegetable garden
- Vulnerability

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Language editor

8 October 2018

Louise van Niekerk
Editing, writing and translation services

To whom it concerns:

This letter serves to confirm that I have edited a mini dissertation by Stephan Dippenaar for English language usage, titled:

Potential value of school-based vegetable gardens in promoting the resilience of primary school learners,

submitted in partial fulfilment of the requirements for the degree Magister Educationis (Educational Psychology) in the Department of Educational Psychology, Faculty of Education, University of Pretoria.

Yours sincerely

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Ethical clearance certificate

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RESEARCH ETHICS COMMITTEE

CLEARANCE CERTIFICATE	CLEARANCE NUMBER: **EP 06/11/01 Ferreira 17-001**
DEGREE AND PROJECT	M.Ed Potential value of school-based vegetable gardens in promoting the resilience of primary school learners
INVESTIGATOR	Mr Stephan Dippenaar
DEPARTMENT	Educational Psychology
APPROVAL TO COMMENCE STUDY	16 May 2017
DATE OF CLEARANCE CERTIFICATE	12 October 2018

CHAIRPERSON OF ETHICS COMMITTEE: Prof Liesel Ebersöhn

CC

Ms Bronwynne Swarts

Prof Ronel Ferreira

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.

List of abbreviations

FIRST-Gate project:	Food Intake and Resilience Support: Gardens as Taught by Educators, funded by the National Research Foundation of South Africa (project 93320)
FN:	Field notes
HIV/AIDS:	Human Immunodeficiency Virus / Acquired Immunodeficiency Syndrome
MC:	Member checking session conducted on 28 May 2018
P:	Participant
PRA-1:	PRA-based workshop conducted in May 2017
PRA-2:	PRA- based workshops conducted in September 2017
RJ:	Research journal
S:	School, followed by a symbol of the School, e.g. S-A
SHEBA:	Supporting Home Environments in Beating Adversity
SNP:	School Nutritional Programme
ST:	Sub-Theme
STAR:	Supportive Teachers, Assets and Resilience
T:	Theme

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CHAPTER 1

SETTING THE STAGE

1.1 INTRODUCTION AND RATIONALE FOR UNDERTAKING THE STUDY

This study forms part of the broader FIRST-Gate project[1], which focuses on the implementation and outcome of a teacher-to-teacher intervention for initiating and sustaining school-based vegetable gardens in support of the resilience of school-communities. The broader project commenced in 2015 and followed two preceding projects namely the STAR (Supportive Teachers, Assets and Resilience, 2003-) and SHEBA (Supporting Home Environments in Beating Adversity, 2011-) projects. Within the broader project, I aimed to determine how school-based vegetable gardens can potentially promote the resilience of primary school learners in resource-constrained communities. As school-based vegetable gardens have been emphasised in the preceding projects, I aimed to discover whether or not a conscientious understanding exists among the schools that have participated in the projects over the years, in terms of the potential contribution the school-based vegetable gardens have for learners' resilience.

In addition to the findings of the preceding projects, my initial literature review indicated the need for ongoing research in the field. On local ground specifically, the Department of Basic Education considers school gardening as an essential component of schools that can support meal provision in the form of fresh vegetables (Department of Basic Education, 2011). More specifically, school-based vegetable gardens imply the potential of changing attitudes in terms of the value of hands-on learning. According to the Department of Basic Education (2011), the overarching aim of school-based vegetable gardens are to mobilise and capitalise school-communities in order for them to potentially play a role in alleviating hunger and reducing malnutrition in the long term.

1.2 RESEARCH QUESTIONS PURPOSE, AIM AND OBJECTIVES OF THE STUDY

The current study was guided by the following primary research question:

How can school- based vegetable gardens promote the resilience of primary school learners

[1] Food Intake and Resilience Support: Gardens as Taught by Educators, funded by the National Research Foundation of South Africa (project 93320).

in resource- constrained communities?

In addressing this question, the following secondary questions guided this study:

- How can school-based vegetable gardens support the healthy functioning of primary school learners?
- How can school-based vegetable gardens enhance (or not) the learning and development of primary school learners?
- Which knowledge and skills can potentially be gained by learners as outcome of a school-based vegetable garden project?

1.3 WORKING ASSUMPTIONS

As a participatory researcher following a qualitative approach, I undertook my study against the background of certain theoretical and methodological working assumptions. First, I assumed that school-based vegetable gardens can have a positive effect on the lives of primary school learners in resource-constrained communities. Next, I assumed that resources do exist and that these can be identified in all communities, and potentially promote community collaboration, economic growth, personal growth, health and well-being. Finally, I assumed that teachers who have been involved in school-based vegetable garden projects will be able to identify the various areas where vegetable gardens can potentially promote the resilience of learners in resource-constrained settings.

1.4 PURPOSE, AIM AND OBJECTIVES OF THE STUDY

Resource-constrained communities do not always recognise potential and existing resources within a community and environment to find sustainable solutions to the problems they face. As opposed to a focus on external support provision, my study focused on a potential internal community-based resource by investigating to what extent school-based vegetable gardens can potentially promote the resilience of primary school learners in resource-constrained communities. My purpose was thus to gain insight into how school-based vegetable gardens can support learners to overcome the challenges they may face, as well as, to explore, with the aid of data generation techniques, the perceptions and quality of vegetable gardens in resource-constrained schools. As such, the aim of my study was to explore the contribution of school-based vegetable gardens in promoting the resilience of

primary school children in resource-constrained communities. I thus aimed to discover whether a conscientious understanding of vegetable gardens and their potential contribution exists, and also how the related assets within the respective communities can potentially promote resilience amongst learners.

To this end, I formulated the following objectives:

- To explore how teachers, view a happy, well-functioning learner.
- To explore and describe the perceptions of teachers from nine schools in the Eastern Cape, on the value of school-based vegetable gardens for learners in their schools.
- To investigate how learners in these schools were perceived to have been supported in terms of their health and well-being, and the promotion of their resilience, by means of school-based vegetable garden support initiatives.

As such, the current study may add insight into the way in which school-based support initiatives can assist learners and their families, more specifically, in resource-constrained communities. Recommendations may subsequently be formulated to implement such initiatives that can promote health and positive change among primary school learners.

1.5 CONCEPT CLARIFICATION

In this section I explain the key concepts underlying this study.

1.5.1 School-based vegetable gardens

Schmutz, Lennartsson, Williams, Devereaux, and Davies (2014) define a school-based vegetable garden as an innovative teaching tool and strategy that allows educators to incorporate hands-on activities in a diversity of interdisciplinary, standards-based lessons. Barkley (2014) similarly refers to school-based vegetable gardens as living laboratories where lessons can be drawn from real-life experiences while providing learners with an opportunity to become active participants in the learning process. Barkley (2014) furthermore states that school-based vegetable gardens can provide learners with an environment where they can observe, discover, experiment, nurture and learn.

Galhena, Freed and Maredia (2013) relied on research and observations of home/school-based vegetable gardens in developing and developed countries to provide a comprehensive definition for the concept vegetable garden. They describe a home/school-

based vegetable garden as a well-defined, multi-storied and multi-used area near a dwelling, which may serve as small-scale supplementary food production system and is maintained by either households or school members (depending on where it is situated).

For the purpose of this study, a school-based vegetable garden refers to a specific piece of land where fruit and vegetables are grown for the benefit of primary school children, their families and the community. Both school and community members can be involved in maintaining the garden.

1.5.2 Resilience

According to Tierney (2003), the term resilience implies the ability to both adjust to normal or anticipated stressors and strains, and to adapt to sudden shocks and extraordinary demands. Broadly speaking, Fiksel (2006) refers to resilience as the capacity of a system to survive, adapt and grow in the face of change and uncertainty.

Ungar (2015) states that, from a child's perspective, resilience relates to the processes that children engage in to gain access to different types of capital and/or resources such as social capital, human capital, financial capital, natural capital and built capital. Theron (2012), who works in South-African resource-constrained contexts, similarly views resilience as a pathway to identify factors that can assist young people to do well despite the risks they face. For the current study, I viewed resilience in accordance with the aforementioned conceptualisation.

1.5.3 Resource-constrained communities

Nakabugo, Opolot-Okurut, Ssebbunga, Maani, and Byamugisha (2008) define resource-constrained communities as settings that experience a lack, misallocation or misconduct of resources required for a particular task, on an enduring basis. According to Green and Mercer (2001), a community generally refers to a particular group of people who rely on each other to satisfy their needs, who live in the same geographic area, under particular laws and/or rules, and who have certain characteristics in common. More comprehensively, Jary and Jary (1995) state that the term community refers to any set of social relationships operating within certain boundaries, and a specific location or territory.

In this study, resources refer to basic requirements for healthy living such as water, food and medical supplies; infrastructure; basic equipment, skills and training for effective farming; as

well as core business and education practices. As such, by referring to resource- constrained communities, I imply South African communities where resources are limited, unknown or inaccessible to community members. In such communities, children are typically in need of sufficient water, food and basic health services. Many communities in South Africa, more specifically in rural areas, meet these criteria.

1.5.4 Primary school learners

According to the South African Constitution (Republic of South Africa [RSA], 1996a), a child is a human being below the age of 18 years. The generic term child is thus typically used for human beings from birth to late adolescence (Louw & Louw, 2007). The South African Schools Act 84 of 1996 (RSA, 1996b) sections (4) (a) (i) and (ii) determines that children can enrol for formal education at the age of five (turning six in the Grade R - year) and that the normative age of completing primary school is 14 years.

In defining a learner, the South African Council for Educators, (Act 31 of 2000), views a learner as a young person who attends a learning institution in order to acquire new knowledge and skills (Smith & Coleman, 2010). For the purpose of this study a primary school learner is thus regarded as a child who attends a primary school in South Africa in a resource-constrained setting, and is between six and 14 years of age.

1.6 CONCEPTUAL FRAMEWORK OF THE STUDY

I integrated concepts of Bronfenbrenner's bio-ecological model (Krishnan, 2010; Visser & Moleko, 2012), and the asset-based approach (Ebersöhn & Eloff, 2006b), as well as resilience theory (Ebersöhn & Eloff, 2006a, 2010; Ungar, 2015) in compiling a conceptual framework. According to the asset-focussed resilience approach (Ebersöhn, 2008), adversity can be counteracted by focussing on resources in a community and by promoting individuals' access to available resources. The asset-focussed resilience approach emphasises the strengths of individuals in times of adversity, and highlights challenges as well as resources that can potentially facilitate resilience.

The asset-based approach (Ebersöhn, 2008) implies an interactive model of resilience which similarly focusses on available, positive and protective resources within individuals and communities. This approach can enable individuals to identify and address barriers as well as risk factors. Through implementation of the strategies associated with this approach, such

as awareness, identification, access, mobilisation and sustainability, individuals may be better able to cope with adversity and challenges, and return to a state of well-being after being confronted with challenges or crises (Ebersöhn, 2008).

As any individual is seen as part of a system, people are in the position to identify assets both within a community as well as in the individual, which can potentially be utilised as building blocks to counteract adversity (Kretzmann & McKnight, 1993). As such, by applying the theory mentioned in this section, I was able to focus on not only what individuals and their communities possess and know, but also on what they do not possess and are not aware of. By identifying resources within individuals and the community with the aid of the three domains proposed by Ungar (2015), individuals and communities in resource-constrained settings can potentially become more resilient. I summarise this argument in the conceptual framework I developed, which is discussed in more detail in Chapter 2.

1.7 PARADIGMATIC PERSPECTIVES

A paradigmatic perspective entails a broad theoretical orientation to which a particular study belongs (Eloff & Ebersöhn, 2004). Paradigms typically assist and guide researchers to clearly understand the function of the researcher, as well as what falls inside and outside the limits of trustworthy research (Eloff & Ebersöhn, 2004). In this section, I introduce my selected paradigms. More detailed discussions follow in Chapter 3.

1.7.1 Epistemological paradigm

I selected interpretivism as epistemological paradigm as I attempted to gain an understanding of a specific situation and event, namely how school-based vegetable gardens can potentially promote the resilience of primary school learners in South African resource-constrained communities. To this end, I aimed to provide insight in terms of the way in which teachers make meaning of their experiences and perceptions.

From the perspective of an interpretivist, social reality is viewed as inherently meaningful. According Van Rensburg, Theron, and Rothmann (2015), interpretivism emphasises the importance of individuals' viewpoints to understanding social realities. Individuals are thus regarded as able to interpret a particular situation and decide how they will act in response to a particular context (Sarantakos, 1998; Wilson, 1983). As such, interpretivists generally search for subjective knowledge and will follow an inductive or theory-building approach

(Raddon, 2010). Throughout my study, I accordingly aimed to acquire, understand and provide participants with opportunities to conceptualise meaning in terms of their experiences and immediate surroundings, as well as that which the research process expected of them.

I selected interpretivism as it allowed me to consider cultural, environmental and personal perspectives and meanings, as well as the way in which people experience their daily lives. A specific advantage of this particular paradigm is that it enabled me to understand social processes, while leaving room for complexity and contextual factors (Raddon, 2010). This approach aligns with my selected conceptual framework, where I integrated concepts of Bronfenbrenner's bio-ecological model (Krishnan, 2010; Visser & Moleko, 2012), the asset-based approach (Ebersöhn & Eloff, 2006b), and Ungar's (2015) theory of resilience - all implying similar underlying principles.

An interpretivist philosophy as paradigm, however, also implies certain potential challenges. Interpretivist research is, for example, often perceived as not sufficiently credible as clear patterns may not easily emerge. Data generation can be challenging and complex, and data analysis can be time consuming (Raddon, 2010). According to Idowu (2016), results may furthermore be personal and not generalisable. In addition, interpretivists can potentially be influenced by emotion and biased views, which may affect the way of reporting what occurred. In this study, I attempted to address these potential challenges through careful planning and commitment to understand the data. I remained cautious to not allow my own views to influence my analysis or the results, as this could possibly gave incorrect interpretations. My aim was furthermore not to produce generalisable findings, but to rather gain an in-depth understanding of the phenomenon I set out to explore, in a specific context.

1.7.2 Methodological approach

I followed a qualitative approach which, according to Goldkuhl (2012b), is often associated with interpretivist studies (Mack, Woodsong, MacQueen, Guest, & Namey, 2005). Maree (2016) states that qualitative research is concerned with exploring "why?" questions, allowing researchers to gain an understanding of human beings' experiences of a phenomenon. As such, qualitative research focusses on an understanding of processes, as well as social and cultural contexts that can be ascribed to behavioural patterns (Maree, 2016).

To this end, Denzin and Lincoln (2000) regard qualitative research as designed to describe and interpret the experiences of research participants in a context-specific setting. As my study required the in-depth understanding of a phenomenon as experienced in primary schools in resource-constrained communities, a qualitative approach seemed suitable. According to Willig (2001), this approach can enable researchers to evaluate subjects in detail, and reuse the direction and framework of research when new information and findings emerge. When conducting this type of research, the researcher will typically have a clear vision of what to expect (Willig, 2001).

1.8 OVERVIEW OF THE RESEARCH PROCESS AND METHODOLOGICAL STRATEGIES

In this section I introduce the research design, selection of participants, and methodological strategies I utilised in conducting my study. More detailed discussions follow in Chapter 3.

1.8.1 Research design

I implemented a case study design applying participatory reflection and action (PRA) principles. Case study designs are commonly associated with qualitative research, and can be used to describe a unit of analysis or a research method (Maree, 2016). According to Bromley (1990), case study research involves the organised investigation of an event which aims to describe and explain a phenomenon of interest.

Gomm, Hammersley, and Foster (2000), as well as Yin (2009), similarly indicate that a case study research design implies the investigation of one or more specific instance of something that comprises the cases of a study. These authors furthermore emphasise that a case can be something relatively concrete such as an organisation, a group or an individual; or something more abstract such as an event (Gomm et al., 2000; Yin 2009). Cases are typically studied in their real-life contexts, thereby also providing insight into how the cases influence and are influenced by their contexts. In applying PRA principles, I included participation-based activities while studying the value of school-based vegetable gardens, in terms of learners' well-being and functioning. Throughout, I provided probing questions and expected participants to generate data, do planning when needed, and fulfil the role of research partners (Maree, 2016).

A potential advantage of case study research applying PRA principles is that the format of such a study and research report generally support accessibility of the findings to a wider

audience (Dubé & Paré, 2003). George and Bennett (2005) however raise some concerns about case study research, as neither experimental nor statistical controls can be used when implementing this design, which will in turn limit generalisability. Case study research applying PRA principles can furthermore be demanding to carry out, as gaining in-depth access to case sites and describing these in detail may require a lot of time and resources (George & Bennett, 2005). I aimed to address these potential challenges through careful planning and commitment, as well as regular reflections on my progress and the research process. Furthermore, as determined by my selected epistemological paradigm, generalisability was not my aim.

1.8.2 Selection of cases and participants

In selecting the cases and participants, I relied on both convenience and purposeful sampling. Convenience sampling involves research in which an easily accessible group is involved, whereas purposive sampling is used for research where a researcher selects a particular group of people based on specific characteristics, circumstances or criteria (Van Rensburg, et al., 2015).

I relied on convenience sampling in selecting the cases (nine schools), due to the fact that my study forms part of the existing FIRST-Gate project, involving specific schools that have been participating in the project for several years. These schools continued their participation for the purpose of the current study. Educators (49 in total, refer to Chapter 3, 3.3.2, for more detail) whom I selected to participate were however identified according to specific selection criteria namely that they had to be part of the existing FIRST-Gate project; had to provide informed consent; had to be able to understand, speak and write English; and had to be involved in their schools' vegetable garden projects. The schools that participated are all situated in the Eastern Cape Province, in resource- constrained areas, with educators teaching learners in primary schools in the relevant communities.

1.8.3 Data generation and documentation

Data generation (according to Maree, 2012) is seen as a process whereby the researcher moves form working assumptions to the selection of participants, data collection and data analysis. I utilised a variety of data generation and documentation strategies, namely PRA-based workshops and discussions, observation-as-context-of-interaction, field notes, and a research journal, as well as visual and audio strategies. I briefly introduce these strategies

in this section and then discuss them in more detail in Chapter 3.

PRA-based workshops and discussions have been successfully implemented in numerous studies, including the broader FIRST-Gate project that my study forms part of. I similarly implemented various concrete and creative techniques with the aim of promoting active participation during data generation (Maree, 2016). In this regard, Burgess (1991) views PRA-based workshops as participatory sessions where participants utilise their local knowledge during activities of data generation. Since these activities are often visual and concrete (as in the current study), all participants can contribute during activities, despite their literacy levels or background.

Observation-as-context-of-interaction is often utilised in settings where the observer has no control over variables, with the aim of gaining insight into participants' perspectives and establishing a golden thread among the interplays that take place (Angrosino & Mays de Pérez, 2000; Burgess, 1991; Vogt, 1993). During data-generation activities, I recorded all my observations in the form of field notes (Newbury, 2001) which enabled me to familiarise myself with what occurred and documented the relevant social settings, cultures and other variables I observed. A challenge I experienced was to write down what I encountered while also participating in the data generation activities. As such, I had to rely on my memory following the PRA-sessions and aimed to document my notes as soon as possible after completion of the sessions and discussions, as suggested by Burgess (1991).

Field notes and *a research journal* is generally used to document the research process, progress of a study, and new insight that is gained (Newbury, 2001). I used descriptive field notes to record my observations, as well as reflective notes in order to capture ideas on the research process, as according to Burgess (1991) as well as Patton (2002b) this is good practice. Field notes thus allowed me to revisit everything I encountered during the data generation process (Burgess, 1991). In addition, I captured personal reflections in a research journal, thereby documenting my reflective thoughts, as well as insights I gained as supported by Mayan (2001) as well as Patton (2002a).

Visual and Visual and audio data generation and documentation strategies entail techniques through which data generation activities, discussions and observations can be captured. In the case of my study, I audio-recorded all PRA-based discussions, which were later transcribed verbatim for the purpose of data analysis. I also relied on visual data, in the form of PRA- posters/matrices and photographs of data generation sessions (refer to Mason, 2002).

1.8.4 Data analysis and interpretation

I conducted inductive thematic analysis which involves a systemic approach to qualitative analysis that can enable a researcher to identify key aspects and elements in generated data (Maree, 2016). Alhojailan (2012) states that thematic analysis will allow a researcher to make associations of the frequency of a theme within an entire set of generated data.

Braun and Clarke (2006) define a theme as an important pattern that can be identified within generated data. Themes typically relate to research questions and will represent a level of meaning or a patterned response that can be identified in the data (Braun & Clarke, 2006). As a qualitative researcher making use of thematic analysis, I thus aimed to make meaning of and enhancing my understanding of the data by identifying key aspects and meanings in the form of themes, patterns, categorisations and interrelationships, subsequently moving from detailed themes to more general ideas. To this end, I followed the six phases of thematic analysis proposed by Braun and Clarke (2006). I discuss the way in which I completed the data analysis in more detail in Chapter 3.

1.9 ETHICAL CONSIDERATIONS

As a qualitative researcher, I was guided by specific ethical principles that allowed me to conduct my study in a way that respected the rights of the participants. Throughout, I attended to the principles of confidentiality, anonymity, voluntary participation and the right of participants to withdraw their contributions at any time as explained by Allan (2016). I thus assured the participants that all the generated data would be safeguarded without making known any identifiable aspects of the participants, if this was not their wish (Burns, 2000). Adhering to these ethical principles allowed me to conduct the study without harming any participant in a physical or mental way while upholding the professional standards that are expected from a qualitative researcher, such as honesty and accuracy (Leedy & Ormrod, 2001).

Before commencing with the current study, I obtained permission to conduct this research from the University of Pretoria (Appendix A). Permission for the study from the national Department of Basic Education and informed consent from the participants was obtained as part of the broader research project. Throughout, I ensured that the schools' names or people associated with the schools were not disclosed (Burns, 2000). As a qualitative researcher, I thus continuously upheld the necessary professional standards of conduct. I

informed the participants at the start of the study of my role and status as a researcher, and what my expectations of them entailed. I elaborate on the way in which I respected ethical guidelines in Chapter 3.

1.10 QUALITY CRITERIA

The rigour of a qualitative study will determine to what extent a particular study is taken note of and the findings are regarded as representing reality (Babbie & Mouton, 2001). Shenton (2004) initially identified four criteria for trustworthiness of qualitative research, namely credibility, transferability, dependability and confirmability. According to Johnson and Rasulova (2016) authenticity was later added as a criterion.

To this end, I followed the strategies proposed by Maree (2016) in order to enhance the rigour of my study. As suggested by Maree (2016) I thus relied on different types of data sources to enable me to confirm the findings of my study. I also included member checking to present my initial interpretations of the data to the participants to check, verify and correct any errors. Next, I kept a research journal to document all research decisions as this may enable other researchers to follow and understand the reasoning of the current study. Finally, I focused on maintaining anonymity and confidentiality, and reflect on the potential limitations of the study in the final chapter, as proposed by Maree (2016). I elaborate on the meaning of these criteria and how I adhered to them in Chapter 3.

1.11 OUTLINE OF THE CHAPTERS

The outline of chapters in this mini-dissertation is stipulated below.

Chapter 1: Setting the stage

Chapter 1 serves as a background chapter and provides an introductory orientation and general overview of the study. I explain my reasons for focussing on the particular phenomenon, formulate research questions and the research purpose, clarify key concepts, and provide a brief overview of the selected paradigms, research design and methodological choices I made. I also introduce the ethical principles I considered and refer to the quality criteria I aimed to adhere to.

Chapter 2: Exploring existing literature as background to the study

In Chapter 2, I explore authoritative literature on the topic that I researched. I discuss the resilience theory, with specific reference to community-based coping. I explore existing literature on poverty and vulnerability in South Africa, promoting resilience in resources-constrained communities and the potential value of school-based interventions for this purpose. I conclude the chapter with a discussion of my conceptual framework.

Chapter 3: Designing and conducting research in the field

In Chapter 3, I describe the research process in detail, in terms of the selected paradigms, research design and methodological strategies I utilised for the empirical part of my study. I explain my selected data generation, documentation, analysis and interpretation methods, and refer to the strengths and challenges implied by these choices. I conclude the chapter by discussing ethical considerations and quality criteria.

Chapter 4: Reporting on the results of the study

Chapter 4 entails my discussion of the data that were generated and thematically analysed for the current study. Results are discussed in terms of the main themes and sub-themes I identified. Throughout, I include verbatim responses in my discussions to elucidate the results I present.

Chapter 5: Findings, conclusions and recommendations

In Chapter 5, I discuss the findings of the study by situating the results in terms of existing literature (as presented in Chapter 2). I come to conclusions after highlighting correlations and contradictions between the findings I obtained and those reflected in existing literature. I re-visit the research questions and reflect on the contributions of the study, as well as the challenges I experienced. I conclude the mini-dissertation with recommendations for training, practice and future research.

1.12 CONCLUSION

In this chapter, I introduced the focus of the current study, against which the rest of the mini-dissertation can be read. I discussed the rationale and relevance of the study, and formulated research questions, aim and objectives. I stated my working assumptions in undertaking this research and clarified the key concepts against the background of my selected framework. I introduced the selected paradigms, methodological choices and

research process. In addition, I briefly referred to how I addressed ethical considerations and quality criteria.

In the following chapter, I explore existing literature on the challenges generally faced by resource-constrained South African communities, and the potential value of school-based interventions in promoting resilience among children in these communities. I furthermore explain how I integrated concepts of Bronfenbrenner's bio-ecological model, the asset-based approach, as well as Ungar's theory of resilience, in compiling a conceptual framework for the study. These discussions serve as background to the empirical study I undertook, as described in Chapter 3.

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CHAPTER 2

EXPLORING EXISTING LITERATURE AS BACKGROUND TO THE STUDY

2.1 INTRODUCTION

In Chapter 1, I provided an overview of the study I conducted on how vegetable gardens can potentially promote the resilience of primary school learners living in resource-constrained communities in South Africa. I stated the problem, clarified the core concepts and introduced the methodological approach and processes I followed.

In this chapter, guided by my research questions, I explore existing literature on the topic of my study. To this end, I discuss literature on poverty and vulnerability in South Africa and promoting resilience in vulnerable South African communities, as well as the related potential value of school-based vegetable gardens. I also contemplate the potential value of school-based interventions in promoting resilience among learners in resource-constrained school-communities. I conclude the chapter by explaining my conceptual framework.

2.2 POVERTY AND VULNERABILITY IN SOUTH AFRICA

Growing up in poverty is one of the main threats to healthy childhood development (Wilkinson, 2018). Wilkinson (2018) reports on statistics of South Africa mentioning that children aged 17 years and younger, black Africans, females, people from resource-constrained communities, residents of the Eastern Cape province and Limpopo, and those with little or no education are the main victims of the ongoing struggle against poverty.

2.2.1 Challenges typically faced by resource-constrained South African communities

The economic downturn in South Africa over recent years has undoubtedly resulted in high levels of poverty. During the run-up to the 2015 elections, the majority of political parties therefore cited unemployment and poverty as key issues that should be addressed, thus highlighting current concerns relating to the health, mental health and educational risks of young children in the country's resource-constrained communities. According to the Department of Agriculture, Forestry and Fisheries (2017), more than 750 million people worldwide are affected by poverty and hunger, resulting in them being food insecure and threatened by malnutrition. To this end, the devastating loss of income has left many South Africans facing the plight of food insecurity.

According to Wilkinson (2018), 30,4 million people in the country are living below the poverty line, with the percentage of people living in poverty having gradually increased in all provinces over recent years. According to Wilkinson (2018), the Eastern Cape is home to the highest number of people living in poverty, namely 72,9% of its population, followed by Limpopo with 72,4% of its population.

Two thirds of South Africa's child population live in low-income households, which makes them vulnerable to poverty (Ivanic, Martin, & Zaman, 2011). More specifically, the basic needs of children who live in households with many dependants, are generally not met (Wilkinson, 2018). As available resources generally depend on the area where people live, children who live in resource-constrained communities will typically not have access to quality services (Wilkinson, 2018).

Poverty is, however, more than just the lack of income and material possessions, it influences all aspects of both individual and community functioning (Grantham-McGregor et al., 2007; Ratele, 2007). To this end, Louw and Louw (2007) state that the impact of poverty on people's quality of life will affect every aspect of their existence. In undertaking the current study in resource-constrained communities in the Eastern Cape, I remained aware of the vulnerability of the learners at the participating schools due to the effect of poverty and the associated risk factors.

2.2.2 Conceptualising vulnerable learners in South Africa

Vulnerability is defined differently by different authors and publications, but in general it relates to the negative effect of physical, psychosocial and sociological circumstances on an individual younger than 18 years (Ebersöhn & Eloff, 2006b; Gillespie, 2006). As such, vulnerability is a complex concept to define and is therefore viewed differently by different researchers and authors, in differing contexts and across disciplines (Luthar & Zelazo, 2003). According to Luthar and Zelazo (2003), vulnerability can be described in terms of the relationship between an individual and the immediate environment, and to what extent the environment is supportive or inhibiting for healthy living.

The concept 'vulnerable learners' thus refer to school children who are in a position where they find it challenging to cope with the aspects that have a negative impact on their day-to-day functioning (Gillespie, 2006). They are regarded as individuals who do not have the necessary material, social and psychological support provided by either both or one of their primary caregivers (Gillespie, 2006). As such, these children are typically exposed to the potential of being susceptible to malnutrition, ill-health and abuse, as well as exploitation with

various psychological consequences (Gillespie, 2006; Nyangara, Thurman, Hutchinson, & Obiero, 2009).

In South Africa, vulnerable learners are a common phenomenon due to the high levels of poverty and the number of households that lack resources to meet learners' basic needs. Large numbers of vulnerable learners pose many challenges, not only to the system and specific communities, but also to schools and educators. Ebersöhn and Eloff (2006a) draw on research from Smart (2003, p. 458) to identify the following groups of children as being vulnerable: "children with disabilities; children with chronic diseases; children infected and affected by HIV/AIDS; children without caregivers; children living in poverty-stricken conditions; children who have been abandoned; children who work; children working as sex-workers; children living on the streets; children who are being neglected; children who are being and/or have been abused."

Existing research indicate that children living in resource-constrained communities generally experience common risk factors. These will have an impact on their general abilities and functioning, as well as their health, development and school performance. According to Masten and Sesma (1999), the following risk factors may affect children in resource-constrained communities: living in households where there is no parent or caregiver, or where children have a single parent; parents who have little or no education; and parents who are unemployed or have a low income. These families often experience stressful life situations as well as health-related challenges such as HIV and/or AIDS; migration and moving around; violence; unsafe conditions; and the death of family members. These factors generally contribute to behavioural and emotional problems displayed by young children (Masten & Sesma, 1999). As such, the need exists for ongoing research on how to promote healthy eating behaviour, access to food and nutrition, and the physical health and well-being of children in resource- constrained communities.

Vulnerable learners thus face a variety of challenges that are not common to all learners across the various socio-economic spheres (Ebersöhn & Eloff, 2006b). Such challenges can have several repercussions and lead to problems that can, however, be generalised among certain populations. Schools can serve as a fast and feasible platform to address problems and support vulnerable learners and their immediate society. School-based initiatives and interventions may therefore potentially support people in resource-constrained communities, for example by promoting the resilience and healthy development of vulnerable learners.

According to Ebersöhn and Eloff (2006a) and Nyangara et al. (2009), children will also be left vulnerable when their parents die. Such children can assume different roles, for example

that of caregiver for younger siblings in child-headed families. They will typically struggle to get food, shelter, and access to health facilities, clothes and other essentials. Some may also face the risk of being sexually and emotionally abused or subjected to child labour in order to supplement their daily needs.

2.2.3 Needs of vulnerable learners in South African resource-constrained communities

Young children are shaped by their life experiences, personality traits, characteristics and temperaments. This will in turn affect their academic performance, social interactions, health and development. Louw and Louw (2007) regard young children between six and twelve years as finding themselves in middle childhood, and highlights the importance of this time for cognitive, social and emotional development. All developing learners display certain needs that must be fulfilled for them to be able to function optimally and live a healthy satisfactory life (Louw & Louw, 2007). According to Maslow's theory (as explained by Griffin, Ledbetter, & Sparks, 2015), and well-known hierarchy of needs, all human beings display physiological needs, the need for safety and security, socialisation needs, esteem needs and the need to self-actualise.

To this end, vulnerable learners typically display emotional, physical, psychosocial and personal, as well as intellectual needs. With regard to nutrition and physical well-being, it seems evident that a lack of sufficient nutrition and physical health can have numerous negative effects on children's cognitive development. It follows that the need for healthy eating behaviour, food and nutrition, physical health and well-being can be regarded as crucial determinants for middle childhood development; and that a healthy lifestyle and sufficient nutrition should be encouraged in support of the cognitive functioning and development of children (Hyde, Maher, & Elavsky, 2013).

In this regard, Griffin et al. (2015) indicate that it is vitally important for young children to learn and maintain healthy nutritional habits in order to improve their school performance. As the young child's nutritional state will influence physical and intellectual ability that may in turn influence academic development and performance, school-based interventions in this field may have a positive impact on children's holistic functioning and well-being. Proper nutrition will furthermore prevent malnutrition among young children (Griffin et al., 2015).

Pollitt, Gorman, Engle, Martorell, and Rivera (1993) similarly views food and nutrition as two important determinants in the physical well-being of children, with nutrition playing an important role specifically during the early development years, due to the brain undergoing

rapid growth between the ages of 0 to 8. Similarly, the intake of protein and nutrition-rich food can have a positive impact on the future mental abilities of a child. In terms of micronutrients, Pollitt et al. (1993) found that iodine and iron deficiencies are two of the leading reasons for poor developmental outcomes for young children in developing countries. On the other hand, various studies indicate the positive impact of good nutrition and physical activity on academic performance throughout childhood and adolescence (Blair, 2009; Gillespie, 2006; Okiror, Matsiko, & Oonyu, 2011; Pollitt et al., 1993).

The needs of vulnerable learners may be addressed by schools, depending on the nature of the child (Gillespie, 2006). As existing studies indicate that malnutrition during a child's school-aged years will have a negative impact on the young child's life in terms of general health, development and educational achievement, the importance of nutrition interventions with regard to school-aged learners in resource-constrained communities is highlighted (Faber, Laurie, Maduna, Magudulela, & Muehlhoff, 2014). To this end, school-based vegetable gardens have the potential to support and promote learners' mental, emotional and social development, allowing for multiple learning styles (CARE USA, 2007).

2.3 PROMOTING RESILIENCE IN VULNERABLE COMMUNITIES

Resilience focuses on the personal capacity and ability of individuals to localise available resources within themselves as well as the broader community in order to face adversity and reach developmental needs (Ungar, 2008). As such, resilience implies the ability and capacity of individuals and communities to sustain themselves in counteracting risk and adversity (Chazin, Kaplan, & Terio, 2000; Norman, 2000).

2.3.1 Understanding resilience

Various definitions can be found for the concept 'resilience', with most of them emphasising that resilience relates to the capacity to overcome challenges, adapt to changing circumstances, recover from trauma, and thrive or survive despite adversity (Luthar & Zelazo, 2003). These components rest on the belief that people can cope with stress or adversity in various ways, depending on the person or the situation in which a person may find him/herself (Wilson, 1983).

Rutter (2013) views resilience as an interactive phenomenon indicating that some individuals perform and function well despite having experienced serious stresses or adversities. The phenomenon of successful development in resource-constrained conditions thus implies

resilience (Braverman, 2001). Following the definition of resilience as stated by Ungar (2015), from a child's perspective, resilience involves the processes children engage in to gain access to different types of capital. These types of capital include social capital (relationships, interactions and cultural embeddedness), human capital (ability to learn, play and work), financial capital (social welfare programmes, health care, specialised support at school or even mentoring programmes), natural capital (land, water and biological diversity) and built capital (safe streets, public transport, recreational facilities, housing and schools) (Ungar, 2015).

Although many scholars assume that resilience is only about coping, recent evidence provides a more comprehensive picture of what the concept entails (Wilson, 1983). In this regard, Masten (2016) states that previous definitions of resilience contain simple descriptions referring to people doing well despite risks, yet those definitions vary in terms of emphasis, capacity and outcome. From a systems theory perspective, resilience is, for example, not perceived as a fixed trait but rather as a method through which children access different types of capital, as previously mentioned, in order to safeguard themselves from the influence of stress, or help them improve when their mental health has declined (Ungar, 2015).

According to Ebersöhn and Eloff (2006a), whose research is based in South Africa, resilience can be defined as the adjustment required to cope with challenging conditions and to cope in the face of difficulties so that individuals can enjoy life and be functional in their day-to-day lives. As such, resilience refers to the ability to bounce back and cope after experiencing life challenges (Ebersöhn & Ferreira, 2012). Closely related, Theron (2012) defines resilience as a pathway towards identifying the factors that can assist young people to do well, despite the fact that they face risks.

Resilience can therefore be understood as a process of adjusting to challenging circumstances by relying on techniques that can assist individuals to progress through environmental, cultural, social, psychological and physiological processes (Cameron, Ungar, & Liebenberg, 2007). It is regarded as a development task of children and youth to obtain resources in order to become resilient. Cameron et al. (2007) regard this development task as dependent on the interaction between developing individuals' abilities and their contextual backgrounds. As such, research in the field of resilience aims to discover the factors that may promote the health and well-being of people by exploring individual, family and community resources – from a systemic perspective – as well as the developmental pathways of vulnerable learners and young adults (Ungar, 2008).

Fergusson and Horwood (2003), as well as Ungar (2008), state that resilience emphasises the positive characteristics of individuals rather than their areas of growth. These positive characteristics include personality traits, ways of adjusting in the midst of challenges, themes relating to positive adjustment, processes enduring satisfactory functioning, and the ability to bounce back from adversity (Shaikh & Kauppi, 2010).

Mosavel, Ahmed, Ports, and Simon (2015), Rolland and Walsh (2006) and Rutter (2000), similarly regard resilience as the way in which individuals respond to challenging circumstances, with an implied interaction between risk and protective factors. Protective factors can be seen as attributes of individuals that can result in positive outcomes during high levels of adversity, for example self-esteem, humour and hope. These characteristics can help prevent negative results, and enhance resilience outcomes in terms of health, well-being and quality of life (Dass-Brailsford, 2005; King & Madsen, 2007; Mosavel et al., 2015; Windle, 2011). As such, protective factors can be regarded as resources embedded within individuals as personality traits, skills and genetic predispositions (Van Rensburg et al., 2015).

Risk factors on the other hand, will increase the likelihood of negative cognitive, behavioural and health outcomes due to challenging circumstance, such as poverty and violence. Many at-risk South African youths are exposed to risk factors such as poverty, segregation, deprivation, violence and exposure to daily stressors. These in turn, can increase the incidences of negative results such as drug abuse, at-risk sexual behaviour and challenges stemming from existing social, political and economic adversity (Mampane, 2014; Mosavel et al., 2015).

In support of this view, Theron and Theron (2010) refer to economic challenges, terrorism, violence, crime, disease outbreaks, food shortages, increasing divorce rates and failing education systems, as well as natural disasters, as risks often faced by South African youth, families and communities. South African resource-constrained communities are thus exposed to high levels of adversity on a daily basis. However, in these contexts, resilience may enable youth to withstand challenging circumstances and promote their own positive development (Mosavel et al., 2015).

2.3.2 Interventions in support of resilience in vulnerable communities

As previously mentioned, learners in resource-constrained communities face various challenges relating to single parenthood, poverty, unemployed parents, teenage pregnancy, crime, HIV and AIDS, poor academic performance, etc. These needs and barriers can for

example be addressed through life-skills interventions, school-based vegetable garden initiatives, or mobilising and facilitating strengths and assets within a school or community, to mention but a few (Ebersöhn & Ferreira, 2012).

Interventions focussing on learners' resilience can be seen as pathways that may result in positive psychosocial outcomes for learners who face various levels of adversity. Examples of interventions that can be implemented to promote learners' resilience in resource-constrained communities include programmes and services that build social, emotional and personal competency skills, that promote self-efficacy through helping learners define their own outcomes, or that support learners in their ability to build social capital and connectedness with the resources available in their communities (Theron, 2012).

Interventions that include opportunities for prosocial activities; educating parents; improving teacher training or knowledge; and providing school, community and home visits can furthermore potentially improve the resilience of vulnerable learners (Masten, 2016). To this end, programmes aimed at enhancing resilience, will take various systemic levels into account when creating pathways for resilience to provide the necessary support to learners before and after facing challenging circumstance and crises (Veronese & Barola, 2018).

Veronese and Barola (2018) are of the opinion that psychotherapeutic and psychosocial interventions are required to enhance resilience and well-being, since such interventions are less focussed on reducing symptoms or psychological pain and rather focus on available resources within individuals and their systems, which can be utilised to overcome adversity. Ager and Metzler (2017) state that, in order to enhance resilience, individual resources and community connectedness, as well as social and cultural capital, should be considered where individuals and the broader context may acquire coping strategies (Veronese & Barola, 2018).

A study conducted by Ferreira, Ebershön, and Botha (2013) focussed on the way in which educators can enhance learners' resilience. Their findings indicate that educators can mobilise resources in school contexts as well as partnering relationships as a platform to enhance the resilience of individuals and communities. Their findings furthermore highlight that educators hold the capacity to mobilise social capital to enhance resilience through identifying and utilising resources among vulnerable individuals and their communities.

In this regard, a study by Theron, Cockcroft, and Wood (2017) demonstrates how biblio-therapy can be used to support learners in the identification and utilisation of resources. Their study indicates that learners who are exposed to indigenous resilience-themed stories, can

be sensitised to display an increased awareness of personal and community protective resources. A similar study by Veronese and Barola (2018) indicates the potential value of narrative-driven interventions that may promote learners' quality and satisfaction of life as a protective factor that can enable them to openly express their feelings and thoughts, as well as the challenges experienced in vulnerable communities.

2.4 POTENTIAL VALUE OF SCHOOL-BASED VEGETABLE GARDENS IN PROMOTING THE RESILIENCE OF LEARNERS IN RESOURCE-CONSTRAINED COMMUNITIES

While schools may serve as a platform to reach vulnerable communities through gardening innovations, vegetable garden initiatives may also fail due to, for example, poor management and the sustainability of such projects (Okiror et al., 2011). When planned and maintained efficiently, school-based vegetable gardens can support children in terms of real-life experiences, encouragement and motivation, opportunities to learn in and outside of the classroom, and being able to learn by doing (experiential learning) (Okiror et al., 2011).

Devereux et al. (2018), perceive school-based vegetable gardens as an important tool for social protection in South Africa and furthermore states that such initiatives imply the possibility of positive transformation within communities. Such projects can thus contribute to individual households' food security, promote access to education and also support learning outcomes, food production and local livelihoods.

2.4.1 History of school-based vegetable gardens in South Africa

The initial introduction of school-based vegetable gardens date back as far as the early 20th century, when this trend originated in Europe and the United States of America during World War I and II (Blair, 2009). The aim of the initial vegetable gardens was to increase food supply. According to the South African Department of Basic Education (2011), the overarching aim of school-based vegetable gardens is to mobilise and capitalise school-communities to play a role in alleviating hunger and reducing malnutrition. Currently, school-based vegetable gardens mainly aim to address challenges associated with poverty and other risk factors in an attempt to promote the health, nutrition and well-being of vulnerable people (Blair, 2009). To this end, school-based vegetable gardens may teach and promote healthy eating behaviour and promote nutritional intake. Such gardens can furthermore increase interdisciplinary and hands-on learning for learners by providing an opportunity for experiential learning (Blair, 2009).

In South Africa, school-based vegetable garden programmes dates back to 1958, when the Peninsula School Feeding Association (PSFA) started to provide meals for school learners. The National School Nutrition Programme (NSNP) was implemented in 1994 and this specific programme currently provides fruit and vegetables on a daily basis to around nine million learners across South Africa (Devereux et al., 2018). In this regard, Devereux et al. (2018) report that the aim of school-based vegetable gardens is to support young learners' health, as well as their nutritional consumption.

The implementation of fruit and vegetable enriching programmes such as gardening projects, has increased over the past few decades. Such projects often aim to educate learners and their families about the benefits of increasing fruit and vegetable consumption (Heimendinger, Van Duyn, Chapelsky, Foerster, & Stables, 1996). According to the South African Department of Basic Education's (2011) *Horticulture Manual for Schools: A Guide to Establish and Sustain Food Gardens*, school gardening is regarded as an essential component of schools that can provide meals in the form of fresh vegetables. School-based vegetable gardens furthermore imply the potential to change participant and learner attitudes in terms of the value of rewards and hands-on learning (Department of Basic Education, 2011).

According to Poston, Shoemaker, and Dzewaltowski (2005), learners are required to eat a minimum of five fruits and vegetables daily to promote their health and prevent diseases. It is important to instil healthy eating habits among learners, based on the direct impact that nutrition has on development, as well as learners' ability to learn (Koch, Waliczek, & Zajicek, 2006). Currently, South-Africa is one of many countries globally that finds itself in a nutrition transition phase, which includes under-nutrition as well as over-nutrition, and generally negatively affect learners' capacity to learn and their subsequent school performance, adding to health problems that can in turn result in early school dropout (Department of Basic Education, 2011).

The social aspects of culture and certain demographic factors can furthermore play a role in terms of when, where, what, and with whom children eat (Koch et al., 2006). A study by Dittus, Hillers, and Beerman (1995), indicates that males in low-income groups with low literacy levels, for example, displayed low vegetable intake. Koch et al. (2006) express the opinion that by exposing learners to fruit and vegetables, and involving them in food preparation, their consumption of fruit and vegetables may increase. To this end, school-based vegetable gardens can potentially serve as a platform to increase learners' awareness and knowledge of the value of fruit and vegetables. In this regard, Blair, Giesecke, and Sherman (1991) found

that learners in his study who were more regularly involved in school-based vegetable gardens, more often consumed vegetables compared to learners who did not participate in gardening. School-based vegetable gardens can furthermore develop learners' attitudes, values and life skills relating to food and nutrition (Department of Basic Education, 2011).

According to the Food and Agriculture Organization of the United Nations (FAO, 2014), even though school-based vegetable gardens cannot feed an entire school, they can add to the nutritional value and variety of school meals provided at schools to learners in resource-constrained contexts. The FAO (2014) emphasises that school-based vegetable gardens will not only make a difference to learners' health, but can also add to their day-to-day diets with nutrition-rich fruit and vegetables, and show learners how to grow, prepare and eat these products. In addition, families may be encouraged to start and grow vegetables at their homes too.

2.4.2 Supporting learners, health and well-being

School-based vegetable gardens can increase learners' nutritional knowledge and preferences for fruit and vegetables (O'Brien & Shoemaker, 2006). In this way, the need to address unhealthy lifestyles among learners can be attended to by means of education on healthy dietary habits and physical activities, in resource-constrained, as well as urban communities (Okiror et al., 2011). According to Nguyen, De Villiers, Fourie, Bourne, and Hendricks (2015). Nguyen et al. (2015), educators are in an ideal position to promote healthy dietary habits and physical activity among children who spend a great deal of time at school.

According to Gross and Lane (2007), school-based vegetable gardens can thus expose learners to healthy food, moderate exercise, and positive social interaction. Closely related to this finding, Habib and Doherty (2007) report that a school-based vegetable garden holds the potential to provide an environment considered to be a safe place. Studies by these authors indicate that learners who actively participate in school-based vegetable gardens, generally feel safe, calm, happy and relaxed.

As parents are often preoccupied with the tasks of securing resources (financial and others) to help them overcome the risks they face, they may neglect the nurturing of their children, leaving this task to the school. In such cases, school-based interventions such as vegetable garden projects, may potentially support vulnerable learners, not only in terms of their health and well-being, but also in terms of their physical needs and subsequently their general performance and behaviour.

Bell and Dyment (2008) furthermore state that if learners are exposed to, and become familiar with planting seeds and growing their own food, they tend to consume more fruit and vegetables. According to Gross and Lane (2007), this may lead to a lifetime of gardening. In terms of the value of school-based vegetable gardens, Robinson and Zajicek (2005) found that learners who were involved in school-based vegetable gardens displayed increased self-understanding, interpersonal skills, and cooperative skills. In this regard, school-based vegetable gardens can provide a valuable space that can be enjoyed in collaboration with peers, where relationships can be built and improved. As such, social skills can improve with an ongoing emphasis on respecting the environment and taking pride in one's school and community (FAO, 2005).

A study by O'Brien and Shoemaker (2006), which entailed a gardening and nutrition-focussed after-school programme, indicates that school-based nutrition lessons and programmes can be successful in teaching nutritional knowledge. O'Brien and Shoemaker (2006), however, furthermore emphasise that knowledge can only create a precondition for change and that additional self-influences are needed to overcome barriers by adopting new lifestyle habits. A related study by Bell and Dyment (2008) indicate that school-based vegetable gardens can encourage healthy food consumption at home since their study supplemented family foods and allowed learners to take the food grown at school home to eat. This led to an increased willingness among learners to try new foods, and to enhanced knowledge of fruit and vegetables, which could lead to increased consumption of fruit and vegetables (Bell & Dyment, 2008).

Closely related, Lineberger and Zajicek (2000) found increased preferences for fruit and vegetables following their intervention. Hence, school-based vegetable gardens can encourage, develop and promote self-confidence through experienced responsibility and a sense of belonging to a particular community. As such, school-based vegetable gardens can support community coherence to the extent that stakeholders such as parents, learners, educators and other community participants can collaborate to design, build and ultimately maintain a vegetable garden at school (Bell & Dyment, 2008; Lineberger & Zajicek, 2000).

2.4.3 Potential value of school-based vegetable gardens for learning

According to Kolb (1984[2]), learning can be seen as a process of transformation where knowledge is acquired, created and mastered through experience. The theory presents a cyclical model of learning, consisting of four stages, as illustrated in Figure 2.1 (McLeod, 2013). One can start at any stage, but must follow the stages in sequence.

Figure 2.1: Kolb's learning cycle (McLeod, 2013)

Experiential Learning Theory (ELT) similarly proposes a holistic model of learning and emphasises the central role that experience plays in the learning process (McLeod, 2013; Mobs, 2003). Hands-on learning can thus enable learners to be part of the learning process, by becoming active participants instead of being passive learners. When learners are actively involved, their work will become personally meaningful, with learning being richer and having a lifelong effect. Such learning may allow the learner to engage in in-depth investigations with objects, materials, phenomena, and ideas, and draw meaning and understanding from such experiences (Haury & Rillero, 1994).

To the end, school-based vegetable gardens can be utilised to integrate classroom learning from various subjects (Subramaniam, 2002). More specifically, science, mathematics, social studies, art, language, and other subjects can be taught using nature as the learning environment (Subramaniam, 2002). According to Subramaniam (2002) school-based vegetable gardens can thus support core academic training, while adding a sense of excitement and adventure. As such, learning can take place regardless of a learner's background, learning barrier, preferred language or abilities. Furthermore, such learning

[2] I acknowledge the fact that this is a dated source, yet opted to include Kolb's original work.

may have a positive effect on emotions, and foster appreciation for learning.

As an example, Habib and Doherty (2007) conducted a study involving pre-school children in school-based vegetable gardens. The outcome of their study showed that school-based vegetable gardens supported the participating learners' inquiry, connection to the natural world and involvement in formulating meaningful questions. Dirks and Orvis (2005) furthermore found that learners who are involved in school-based vegetable gardens typically tend to take pleasure in learning and develop positive attitudes towards education in general.

In addition to subject-specific knowledge, learners who are involved in vegetable garden-based activities, may acquire basic skills and vocational competencies, gain knowledge on food and fibre production and acquire ecological literacy and environmental education, as well as knowledge on sustainable development. They may also gain experience in producing food and other commodities for subsistence consumption and trade that can improve their own nutrition, diet and health. As such, outdoor classroom teaching can provide learners with an opportunity to learn more freely while reinforcing and imparting basic skills to them (Haury & Rillero, 1994). As school-based vegetable gardens represent the idea of learning through experience, such an approach aligns with Kolb's experiential learning theory (McLeod, 2013).

Shair (1999) agrees that hands-on learning activities such as gardening can promote learners' achievement. Pigg, Waliczek, and Zajicek (2006) similarly state that especially mathematics and science require activities which apply real- world problems, the collection and analysis of data, problem solving assignments and using newly gained information in unfamiliar situations (Klemmer, Waliczek, & Zajicek, 2005).

In summary, school-based vegetable garden projects imply the potential of bringing theory to life through nature and agriculture, and therefore involve the practical application of theory. Learners' excitement for subjects and topics such as science, mathematics and nutrition can be enhanced through their experiences in vegetable gardens, while their creative skills and physical fitness may develop and be enhanced (Bell & Dyment, 2008; Lineberger & Zajicek, 2000). Such experiences will allow children to gain experience and knowledge through a better understanding of their relationship with nature, within the learning environment.

2.5 CONCEPTUAL FRAMEWORK

For my conceptual framework, I integrated concepts from Bronfenbrenner's bio-ecological model (Krishnan, 2010; Visser & Moleko, 2012), and the asset-based approach (Ebersöhn & Eloff, 2006b), as well as Ungar's theory of resilience (Ungar, 2015). In combining these theories, I attempted to highlight the relevance and importance of certain aspects of the theories and how they relate to each other. With this conceptual framework I aimed to indicate ways of identifying resources and assets within resource-constrained communities. Furthermore, I attempted to indicate how positive changes within communities, as well as in the lives of individuals, can be implemented by utilising various assets and resources within the community to improve the quality of their lives and ultimately support resilience.

2.5.1 Bronfenbrenner's bio-ecological model

As learners do not exist nor develop in isolation, it is important to consider the systems in which they function (Visser & Moleko, 2012). Bronfenbrenner's bio-ecological model foregrounds context (Krishnan, 2010) and states that through various interactions between subsystems within a larger system, influences are generated which will affect a person's (learner's) overall development and well-being. Sub-systems include individuals whom learners come into regular contact with such as parents, siblings, peers and teachers, but also factors such as socio-economic status, access to resources, and governance (Swart & Pettipher, 2016; Visser & Moleko, 2012).

The bio-ecological model is a multidimensional model of human development that is useful in unfolding the fundamental processes involved in change (Swart & Pettipher, 2016). This model acknowledges contributions on micro-, meso-, exo- and macro-levels "understanding how the origins, maintenance, and solutions to social issues … cannot be separated from the broader social context and the systems within it" (Donald, Lazarus, & Lolwana, 2010, p. 58).

According to Donald et al. (2010) and Swart and Pettipher (2016), research has shown that behaviour is seldom a result of individual factors (intrinsic factors) and that it is mostly derived from physical and social environments, school and public policy. Multiple sources of positive and negative influences can have an effect on individuals, which stem from interaction with the family, school, community and society. Such influences can be direct (proximal) for example an individual's beliefs and attitudes, or indirect (distal) for example socio-economic factors and public policy, which can either increase risk or provide protection

to individuals or communities (Swart & Pettipher, 2016; Visser & Moleko, 2012).

The various sources of influence can derive from intrapersonal or individual characteristics (e.g. cognitive ability, attitude and personality), interpersonal or relationships (e.g. parents, caregivers, siblings and family), community/societal or institutional influences (e.g. socio-economic context and culture), or policies, laws, and programmes (Swart & Pettipher, 2016). According to the White Paper 6 (Department of Education, 2001) barriers to education and learning can be located anywhere in a system, for example within the learner, school, education system, or broader social, economic and political context. It is therefore imperative that all systems in an individual's life should be examined when identifying a source of influence. As any individual functions as part of a system, both the assets within a community, as well as those within the individual which can be utilised as building blocks to counteract adversity, are acknowledged (Kretzmann & McKnight, 1993).

2.5.2 Asset-based approach

The asset-based approach reflects key aspects of Bronfenbrenner's bio-ecological model (Bronfenbrenner & Morris, 1998). This approach is regarded as a bottom-up approach with a focus on enabling individuals who possess the necessary abilities and strengths to contribute to their own well-being. Accordingly, such contributing aspects are mobilised to their full potential in order to empower both the individual and the community (Ebersöhn & Eloff, 2006a).

Ebersöhn and Eloff (2006a, p. 14) define assets as "skills, talents, gifts, resources, capacities and strengths that are shared with individuals, families, schools, institutions, associations, the community and organisations". Three important issues are implied, namely the recognition of assets, attention to the bio-ecological model, and the notion of sharing resources and talents. As such, the focus falls on two sets of resources or assets, namely that of the individual and that of the environment.

This principle supports my decision to include the asset-based approach in my conceptual framework as it corresponds with my view that learners in resource-constrained communities are not entirely aware of all the resources located within themselves, and the broader contexts. Any individual functions within a social context, which is characterised by dynamic interaction. Within such a social context, various assets can be identified, in the same way that possible barriers and challenges can be present. A strong community relies on its own assets, but also recognises and mobilises relevant partners' assets through sharing. The

asset-based approach therefore illustrates the importance of a systems approach and is fundamentally a support-based and relationship-driven theory aimed at recognising assets, mobilising these assets and creating sustainable skills (Ebersöhn & Eloff, 2006a).

2.5.3 Asset-focused resilience framework

According to Eloff and Ebersöhn (2006b), assets and strengths are localised through the identification of skills, social and ecological resources within individuals and communities. The asset-focussed resilience framework aims to encourage and improve resilient functioning among vulnerable individuals and communities (Masten & Reed, 2005). By implementing the asset-focussed resilience framework, which is based on the asset-based approach, learners' psychosocial systems can be enhanced, including aspects such as competence within the child and the family, as well as the broader community (Masten, 2016).

Both assets and strengths within the community, as well as within individuals, can be examined when implementing an asset-focussed resilience framework. These identified strengths and assets can then be used as resources to enable communities and individuals to withstand identified risks and adversity (Ebersöhn, 2010). Through implementation of the strategies of the asset-focussed resilience framework such as awareness, identification, access, mobilisation and sustainability, individuals may cope with adversity and challenges, and subsequently return to a state of well-being (Ebersöhn, 2010).

Ungar (2015) states that resilience implies the adaptability of individuals when exposed to adversity, threats or stresses. This author furthermore sates that it is not only the individual's capacity that matters in the face of adversity, threats, or stresses, but also the capacity of social and physical ecologies which can facilitate coping in culturally meaningful ways. Since any individual is part of a broader community, it is important to consider both the individual and community when determining resilience. To this end, Ungar (2015) proposes certain domains for diagnosing resilience.

For the first domain, the aim is to determine the effect of risk factors on an individual's experience of well-being. The level and exposure to stress, risks, and adversity will have an impact on the promotive and protective factors that influence the developmental outcomes of the individual. Within the second domain, there is an exploration of firstly, the individual's temperament, personality, cognition, self-regulation and empowerment, and secondly, a contextual exploration to determine the availability of resources within an individual, family, community and political system, and the accessibility thereof.

For the third domain, Ungar (2015) points out that resilience has both temporal influences (physical and cognitive development of a learner that makes coping strategies more or less viable) and cultural influences (the context that shapes a learner's access to different types of capital). These domains can ensure that both an individual and the community are explored in terms of the availability and accessibility of resources that could potentially counteract adversity and enable them to become resilient.

2.5.4 Integrating Bronfenbrenner's bio-ecological model, the asset-based approach and Ungar's theory of resilience

Figure 2.2 captures my conceptual framework in the form of a metaphor. I accordingly view Bronfenbrenner's bio-ecological model as pivotal to the asset-based approach. I regard this approach as relationship-driven, aimed at counteracting adversity in order for individuals to become resilient. Individuals do not see themselves as isolated from their communities as they generally interact with various systems that are rooted in the bio-ecological model. Conducting my research through the lens of the bio-ecological model in combination with the asset-based approach, enabled me to not only focus on creating awareness, identification, mobilisation and sustaining of, as well as access to individuals, but also to the communities within which individuals find themselves.

To this end, my conceptual framework may be regarded as an interactive model of resilience focussing on the available, positive and protective resources within each individual and community, which combines the bio-ecological model and the asset-based approach. This in turn enabled me to focus on the strengths of individuals in times of adversity and challenges that have the potential to facilitate resilience. For this purpose, according to Ungar (2015), a systemic approach should be followed in diagnosing resilience, in terms of adapting to opposing social and physical environments (Ebersöhn, 2010).

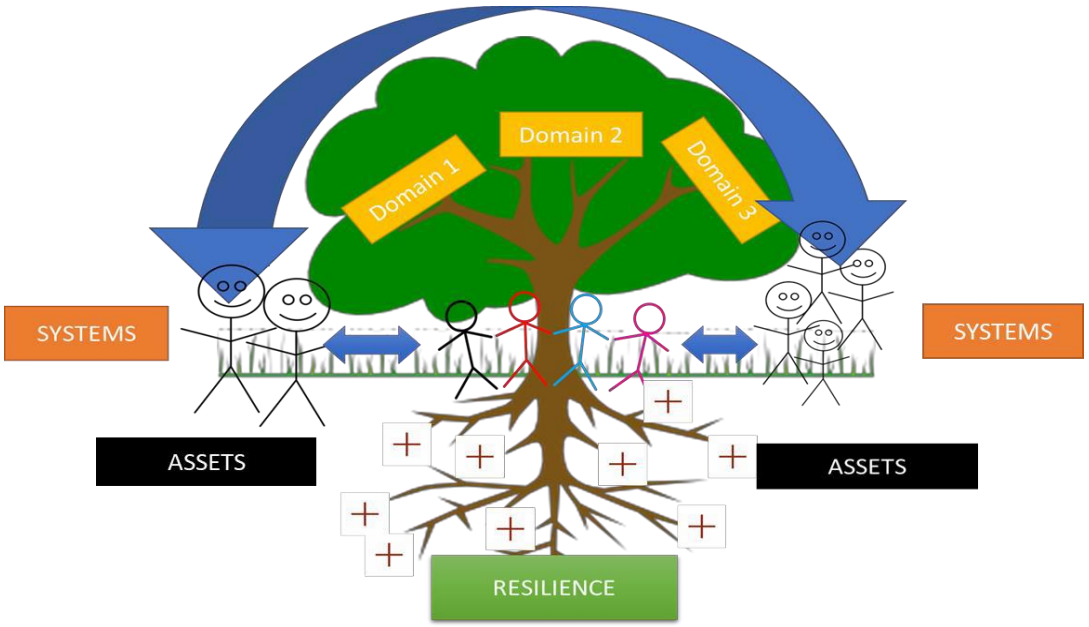

Figure 2.2: Conceptual framework

In presenting my conceptual framework in the form of a tree, I represent resilience as the main root of a tree, as core to any community or individual coping with challenges. The rest of the roots (or basic building blocks for resilience) represent the principles of the asset-based approach that people can rely on to cope and that allow for growth (represented by the leaves of the tree). As such, the branches of the tree indicate the three domains important to determine community as well as individual resilience. These are the potential risks individuals and communities face and the protective factors that can potentially enhance community and individual resilience, as well as the physical and cognitive development of individuals that can make coping strategies more or less viable.

In this way, I view the asset-based approach as embedded in community-based development and as being inclusive of the interacting systems proposed by the bio-ecological model. The arrows included in Figure 2.2 indicate that individuals and their broader communities cannot be seen in isolation; they are involved in interactive systems that influence each other.

2.6 CONCLUSION

In this chapter, I discussed the existing literature I explored as part of my literature review. I started by exploring poverty and vulnerability in South Africa, specifically looking at the challenges that are typically faced by resource-constrained South African communities, making meaning of vulnerable learners in South Africa and exploring the needs of vulnerable

learners in South African resource-constrained communities. I subsequently focused on how vegetable gardens can potentially promote the resilience of learners in South African resource-constrained communities. As such, I undertook an in-depth exploration of the term resilience and made reference to interventions of resilience within resource-constrained South African communities. Furthermore, I made a brief exploration on the history of school-based vegetable gardens within both international and national contexts. Finally, I explained the conceptual framework I compiled, that guided me in undertaking this study through integrating the various theories used in compiling the conceptual framework.

In the next chapter, I describe my selected research design and the methods I utilised to generate, document and analyse data. I justify the choices I made and explain how I conducted ethical research to address the formulated research questions.

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CHAPTER 3

DESIGNING AND CONDUCTING RESEARCH IN THE FIELD

3.1 INTRODUCTION

In Chapter 2, I explored existing literature on the potential value of school-based vegetable gardens to promote the resilience of primary school learners in resource-constrained settings. I discussed the challenges often faced by resource-constrained South African communities, and the needs of children in such communities. I explained the meaning of the term 'resilience', and described the potential value of school-based interventions in promoting the health and well-being of learners in resource-constrained communities. I concluded the chapter with a discussion of my conceptual framework.

In presenting and justifying the methodological choices for my study in this chapter against the background of the research questions and purpose of the study, I explain how I conducted my research. I describe my selected methodological procedures and refer to related advantages and potential limitations of which I was aware. I namely explain my choices of interpretivism and a qualitative case study research design applying PRA principles. I also explain how I employed PRA-based workshops, observation-as-context-of-interaction, a research journal and field notes, as well as audio and visual techniques for data generation and documentation purposes. I subsequently discuss the process of data analysis and interpretation I completed, and conclude the chapter with a discussion on the ethical guidelines I followed and the strategies I relied on to improve the trustworthiness of my findings.

3.2 PARADIGMATIC PERSPECTIVES

Maree (2016) refers to a paradigm as a particular set of assumptions about essential parts of reality which represents a certain world view, and can be regarded as an individualistic lens through which reality is interpreted (Lincoln & Guba, 1985). As such, a paradigmatic perspective entails a broad theoretical orientation applied for a particular study (Eloff & Ebersöhn, 2004). According to Lincoln and Guba (1985), a paradigm is a representation of what a researcher thinks about the world, permitting the individual to describe a world that is both functional and meaningful, yet also culturally subjective (Maree, 2016; Schwartz & Ogilvy as cited in Lincoln & Guba, 1985). As such, I entered the research field with a set of

ideas, values and methods based on my unique and specific history, background, gender, class and race. Keeping this in mind, I selected the interpretivist paradigm (metatheory), and a qualitative approach (methodological paradigm) in undertaking my research.

3.2.1 Epistemology

The interpretivist paradigm focuses on individuals and their subjective experiences with the researcher attempting to understand the individual from within (Cohen, Manion, & Morrison, 2011). Giving meaning takes place within a certain context, which points to the premise that human behaviour, feelings and experiences can be best understood in relation to a specific context, which in my study is that of primary schools in resource-constrained communities. According to the interpretivist perspective, the interpretation of human behaviour can only take place against the background of the particular participants' current understandings, past experiences and background (Terre Blanche & Durrheim, 2002).

From an interpretivist's perspective, social reality is thus viewed as inherently meaningful, emphasising the importance of individuals' viewpoints in understanding social realities (Van Rensburg et al., 2015). Individuals are seen as able to interpret particular situations and decide how they will act in response to the situations. Action is considered to be behaviour with meaning (Cohen et al., 2011). As such, individuals will create and make associations of their own subjective and intersubjective meanings while interacting with the world around them (Orlikowski & Baroudi, 1991). An interpretivist researcher therefore typically explores subjective knowledge and follows an inductive or theory-building approach (Raddon, 2010).

As the interpretivist perspective is regarded as subjective in nature, researchers may view a research situation with bias and make value-laden interpretations when applying this paradigm. As interpretivists believe that people make their own decisions and choices, these are not necessarily connected to the laws of science or nature (Idowu, 2016). In this regard, Maree (2012) highlights the facts that participants will accordingly assign their own personal meaning to experiences, and that there is no distinction between the researcher and the event being studied; in other words, the subject and the object. An interpretivist therefore typically focuses on the complete complexity of individuals' meaning making.

A particular strength of this paradigm is that it can facilitate an understanding of how and why certain phenomena occur. This paradigm can thus enable a researcher to understand social processes while also leaving room for complexity and contextual factors (Raddon, 2010). Interpretive researchers therefore generally attempt to understand phenomena through

accessing the meanings participants assign to them (Orlikowski & Baroudi, 1991), with the aim of developing an understanding of the context as well as the process of meaning making (Walsham, 1993).

The interpretivist paradigm, however, also implies some potential limitations and challenges. Interpretivist research may for example be perceived as not sufficiently credible as researchers may face the challenge of clear patterns not emerging. Data generation can furthermore be challenging and complex, and data analysis time consuming (Raddon, 2010). According to Idowu (2016), results may also be personal and not generalisable. Closely related, interpretivists may be influenced by emotion and bias in their views and interpretations of the data (Idowu, 2016).

To this end, I remained aware of my own beliefs, values and attitudes that could potentially have an impact on my learning from the participants and their worldviews, meanings and actions. I thus attempted to address these potential challenges through careful planning and commitment, as well as by being mindful that my particular views could influence the results, regularly reflecting on my experiences and interpretations. I thus attempted to make meaning of the participants' experiences and views regarding their everyday lives. I respected the participants' internal as well as subjective experiences and/or opinions as important, and remained empathetic and inter-subjectively immersed within the research.

3.2.2 Methodological approach

I followed a qualitative approach, which according to Goldkuhl (2012a), is often associated with interpretivist studies (Mack et al., 2005). Maree (2012) states that qualitative studies are mostly concerned with exploring "why?" questions, allowing researchers to gain an understanding of human beings' experiences of a phenomenon. As such, qualitative research is concerned with an understanding of processes, as well as the social and cultural contexts that can be ascribed to behavioural patterns (Maree, 2016).

Qualitative research is thus generally used when studying people and/or systems, by interacting with them in various ways. It follows that qualitative research facilitates understanding of the interpretations and meanings of individuals related to certain situations and circumstances (Maree, 2016). In support of this view, Denzin and Lincoln (2000) regard qualitative research as designed to describe and interpret the experiences of research participants in a context-specific setting. Since my study required an in-depth understanding of a phenomenon as experienced in primary schools in resource-constrained communities,

a qualitative approach was deemed to be suitable.

According to Willig (2001), a qualitative approach can enable researchers to evaluate subjects in detail, reusing the direction and framework of research when new information and findings emerge. When conducting research, a researcher often has a vision on what to expect (Willig, 2001). However, qualitative research implies the potential of providing a rich and clearer understanding of a phenomenon, and adds insight into various fields of existing knowledge (Anderson, 2010).

A qualitative approach, however, also implies possible limitations and challenges. As the trustworthiness of qualitative research is largely dependent on the skills of the researcher and can easily be influenced by personal idiosyncrasies and biases, researchers need to be trained for data generation. The typical quantity of qualitative data can furthermore result in data analysis and interpretation being time-consuming (Willig, 2001). I addressed these potential challenges under the guidance of my supervisor and by gaining as much knowledge and experience as possible in research before entering the field, to strengthen my ability to conduct research. I followed thorough planning schedules for data generation and analysis, and I reflected on my own biases and potential influences on the results throughout the study. I relied on detailed descriptions of my research procedures and regular reflection and debriefing sessions with my supervisor.

3.3 RESEARCH PROCESS AND METHODOLOGICAL STRATEGIES

In this section, I explain the selected research design and provide a description of how I selected the participants, as well as the way in which data were generated and documented. As such, I provide a detailed description of the research process and selected methodological strategies.

3.3.1 Research design

I employed a case study design applying participatory reflection and action (PRA) principles. According to Bromley (1990), case study research involves an organised investigation of an event aimed at describing and explaining a phenomenon of interest (Bromley, 1990). In this regard, Stake (1995:135) uses the term case study to indicate a focus on something that can “be learned from a single case.” Weiten, Dunn, and Hammer (2015) similarly states that case study research entails thorough explanations of specific topics.

A case study can involve a single case or multiple cases of real people within real-life situations that allow the reader to understand phenomena and the way in which abstract principles fit together (Cohen et al., 2011; Stake, 2000). In accordance, Stake (1995) observes that a case consists of working parts, is purposive, and can be viewed as an integrated system. Case study designs are commonly associated with qualitative research (Maree, 2012; Stake, 1995).

Weiten et al. (2015) describes case study research as investigations that analyse a collection and/or consecutive series of events in order to identify patterns that permit general conclusions. According to both Gomm et al. (2000) and Yin (2009), case study research therefore implies the investigation of one or more specific instances of something that comprises the cases of a study. These authors state that a case can be something relatively concrete, such as an organisation, a group or an individual, or something more abstract such as an event (Gomm et al., 2000; Yin 2009). Gomm et al. (2000) and Stake (2000), as well as Yin (2009) furthermore describe a case study design as indicative of an in-depth study of a small number of cases where data are generated and analysed in terms of a number of features of each case. The particular cases are studied in their real-life contexts; understanding how the cases influence and are influenced by their contexts. Multiple sources of data are typically relied on, such as interviews, observation, existing documents or physical artefacts (Gomm et al., 2000; Yin 2009).

Based on my research question, which can best be answered through qualitative data, I selected an explanatory case study design. According to Yin (2003), this type of case study design may enable researchers to provide an answer to research questions that can explain causal links in real-life situations. I selected an explanatory case study design owing to its aim to determine how events occur and how certain events may potentially influence certain outcomes (Hancock & Algozzine, 2006).

In conducting case study research, I applied PRA principles and included participation-based activities. According to Maree (2012), such activities are guided by probing questions and requires participants to do planning when needed and monitor their own progress. Chambers (1994, p. 953) points out that PRA implies a selection and collaboration of various strategies to equip local people to “share, enhance and analyse their knowledge of life and conditions to plan and act.” To this end, Alam and Ihsan (2012) is of the opinion that PRA is an effective way to involve local people in research and decision making and then prompt them to take suitable action to better their own circumstances.

This view resonates with my study because through my research, I endeavoured to encourage community collaboration in school-based vegetable gardens to fulfil the immediate needs of school learners and community members (Cavestro, 2003). PRA can thus be seen as a way of education where researchers learn both from and with community members to examine and/or explore, as well as modify limitations and opportunities and make timely decisions regarding development projects (Alam & Ihsan, 2012). In applying PRA principles, I could thus rely on the participants fulfilling the role of partners in research, being regarded as the experts of the phenomenon I explored (Chambers, 1994).

One of the greatest strengths of a case study design applying PRA principles, is its adaptability to different types of research questions and to different research settings (Yin, 2009). This advantage links with the selected epistemology of my study as the interpretivist philosophy also focuses on particular situations in detail. Another potential advantage of a case study design applying PRA principles is that the format may make the research accessible to a wide audience (Dubé & Paré, 2003). Nisbet and Watt (1984) state that since the results of case study research are normally recorded in a non-professional and easy to understand language, it can generally be understood by a wide audience. Zaidah (2007) furthermore emphasises that the rich and in-depth accounts that are put forth in case study research, may result in clear and understandable explanations of real-life challenges.

Principles set out by Narayanasamy (2009) in facilitating the PRA-based workshops that I employed for my study, includes the preparation before each PRA-based workshop. This implied collaborating with external stakeholders, as well as my supervisor who has thorough knowledge of the local participants and their communities. As such, I discussed the objectives of each PRA-based workshop beforehand with my supervisor. I also adhered to the PRA facilitation principle by creating an atmosphere of opportunity during workshops where participants could participate actively in the investigation of the phenomenon (Freudenberger, 1999). As such, in order to follow the principle of behaviour during PRA-based workshops, I remained critically aware of my role as researcher and my position to not lecture the participants during the PRA-based workshops, but to listen to them and learn from them (Narayanasamy, 2009).

During the PRA-based workshops, I applied triangulation which is an essential part of PRA. This implies that I cross-checked the information gained from the participants obtained from different sources. This assisted me in aiming for interpretations of the data and bias-free information (FAO, 2000b; Freudenberger, 1999). I furthermore aimed for optimal ignorance, which implies that only the information that is relevant to the phenomenon was captured

(Cavestro, 2003; FAO, 2000a; Freudenberger, 1999; Narayanasamy, 2009).

George and Bennett (2005) however raise the concern that neither experimental nor statistical controls can be used in case study research applying PRA principles. Other possible limitations relate to limited generalisability (Nisbet & Watt, 1984) and the demand of in-depth access to case sites, as well as studying and evaluating these in detail, which can potentially require a lot of time and resources (George & Bennett, 2005). According to Nisbet and Watt (1984), case study research is furthermore susceptible to observer bias and subjective interpretations. To this end, I relied on reflexivity to avoid my own experiences and background influencing any process involved in my study.

I thus remained mindful in having a sense of reality about my study and the potential limitations I had to guard against. I focussed on being an effective questioner, listener, prober and master of the skills necessary to make informed inferences (Yin, 2009). I furthermore relied on careful planning and commitment, as well as regular debriefing sessions with my supervisor, which included reflections on my progress. As determined by my selected epistemological paradigm, generalisability was not my aim.

3.3.2 Selection of participants

I relied on both convenience and purposeful sampling in selecting the cases and participants for my study. Convenience sampling is implemented when an easily accessible group of people are selected to participate (Van Rensburg et al., 2015). It is a type of non-probability sampling where members of the targeted population meet the practical criteria of accessibility, availability and willingness (Dörnyei, 2007; Etikan, Musa, & Alkassim, 2016). Etikan et al. (2016) however, points out that a limitation of convenience sampling is the fact that it may be biased as the possibility does not necessarily exist for a range of participants to be involved.

I relied on convenience sampling in selecting nine primary schools in the Eastern Cape (cases) due to the fact that my study forms part of an existing project and that the schools have been participating in this project for a number of years. All schools are situated in resource-constrained communities, characterised by poverty, unemployment, hunger, malnutrition and violence, to mention but a few.

Purposive sampling, on the other hand, implies selection based on specific characteristics, circumstances or criteria (Van Rensburg et al., 2015). As such, a deliberate decision is made about participants since they possess specific qualities. The advantage of using purposive

sampling is that it does not require underlying theories nor a set number of participants. Bernard (2002) views purposive sampling as a process where the researcher is aware of what needs to be known and then sets out to find participants who are in a position to provide such information through knowledge and experience.

For this study, I purposefully selected 49 participants (refer to table 3.1) according to particular selection criteria. They included principals, educators, parents, and community volunteers, who had to -

- be part of the existing FIRST-Gate project, and attend two colloquiums that formed part of the research project;
- provide informed consent;
- be able to understand, speak and write English;
- be involved in a school-based vegetable garden project.

Table 3.1: Schools and participants of the study

SCHOOL	NUMBER OF PARTICIPANTS	SCHOOL	NUMBER OF PARTICIPANTS	SCHOOL	NUMBER OF PARTICIPANTS
School A	5	School D	6	School G	10
School B	4	School E	2	School H	11
School C	4	School F	3	School I	4

3.3.3 Data generation and documentation

I utilised PRA-based workshops and discussions, observation-as-context-of-interaction, field notes and a research journal, as well as visual and audio strategies. A detailed discussion on each of these follows.

3.3.3.1 PRA-based workshops and discussions

Although initially developed for use in rural areas, PRA has been employed successfully in a variety of settings over recent years (Cohen et al., 2011). PRA techniques are generally colourful, visual and concrete, based on the assumption that visual methods can promote participation (Maree, 2016). Through the use of such techniques, the active participation of all participants can thus be encouraged since these techniques do not depend on literacy

levels, but rather on the representation of ideas and thoughts through symbols and concrete objects (Maree, 2016).

PRA is seen as a participatory approach that emphasises the knowledge of local people, thereby enabling them to do their own appraisals, analysis and planning. PRA activities involve continuous reflection, followed by action which ultimately leads to reflection (Chambers, 2004). As such, PRA-based workshops and discussions rely on group animation and exercises to facilitate information sharing, analysis, and action among all participants (Mack et al., 2005). In the current study, PRA activities focussed on exploring the views and opinions of participants regarding the value of school-based vegetable gardens in promoting the resilience of primary school learners.

I undertook three field visits and co-facilitated several PRA-based workshops. The first three-hour workshop was conducted in Port-Elizabeth at a local conference centre on 28 May 2017 as part of a colloquium that was held for the broader project. Following on some other discussions by the participating teachers on sustaining school-based vegetable gardens, I facilitated a PRA-based activity and discussion where I asked participants to reflect on and discuss the value of the FIRST-Gate project for the (i) schools, (ii) educators, (iii) learners and (iv) their families. The first two prompts did not form part of my study yet served as introduction to the questions on the value for the learners. During this activity, participants completed posters in small groups of three to five; they then shared their experiences and ideas with the rest of the participants on the value of school-based vegetable gardens for learners, educators, the school and the community. Photographs 3.1 to 3.4 were taken during this session.

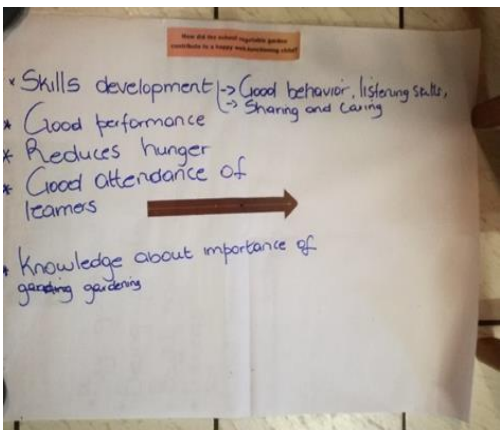
Photograph 3.1: Researcher engaging in PRA-based workshop (May 2017)

Photograph 3.2: Participants compiling posters in small groups

Photograph 3.3: Participants engaged in PRA-based discussions

Photograph 3.4: Small group presenting their ideas to the rest of the participants

During my second field visit, I conducted follow-up PRA-based workshops and discussions at three of the nine schools in the respective staff rooms, involving three schools at each session. These two-hour sessions (x 3 = 6 hours in total) were facilitated after school hours to allow participants from the other schools to travel to the three schools where I conducted the sessions. During these visits (19, 20 and 21 September 2017), I was able to observe three schools' vegetable gardens and engage in on-site informal discussions on the progress of the vegetable gardens, in addition to the PRA-based discussions. These discussions once again involved a small group activity where the participants shared their experiences in terms of the value of school-based vegetable gardens relating to learners' well-being and happiness. For this purpose, I requested teachers to discuss (i) the meaning of a well-functioning child, and then (ii) explain to what extent vegetable gardens could contribute to this. Photograph 3.5 capture an example of the posters that were compiled in September 2017, during small group discussions, as depicted in Photograph 3.6:



Photograph 3.5: PRA poster on the value of a vegetable garden for the functioning of learners

Photograph 3.6: Small group discussion (September 2017)

My final visit, on 28 May 2018, focussed on member checking. For this one-hour session, all the schools' participants joined the research team after school hours at a local school (not one of the participating schools), taking part in the activities simultaneously. Photographs 3.7 and 3.8 were taken during the member-checking session where I presented the identified themes to the participants to ensure that my research report would be a true representation of what the participants had said.

Photograph 3.7: Researcher presenting identified themes and related sub-themes during member checking (May 2018)

Photograph 3.8: Researcher engaging in a discussion, where participants elaborated on the identified themes

In facilitating the sessions, I could rely on the benefits of PRA-based workshops and discussions about facilitating interactive data generation sessions. This included visual tools that enabled participation regardless of literacy levels; elucidating research and planning processes by drawing on everyday experience; and facilitating a process whereby participants were empowered through a sense that their contributions were valued (Mack et al., 2005). Another advantage of PRA-based workshops is that they enabled me to gain accurate information, provided by the participants themselves based on their personal knowledge (Webber & Ison, 1995).

Chambers (2003) emphasises that PRA-based workshops and discussions can result in both the participants and facilitators taking action and doing things they did not know they were capable of. As such, the PRA-based workshops and discussions I facilitated enabled me to shift my role from finding and solving problems to facilitating change owing to participants feeling empowered as a result of the research process and their active participation in discussions (Webber & Ison, 1995).

Other principles that I relied on include awareness of my personal biases and ensuring that I did not prompt for more information than needed, adhering to focussed learning, and

maintaining a professional and respectful attitude that could build and foster community relationships, and lead to collaborative partnerships. I furthermore created an opportunity for all participants to share their experiences and views (Cavestro, 2003). I followed my own judgement in order to enhance creativity in conducting PRA workshops and discussions and as such, I enabled flexibility during these sessions (Chambers, 2004).

I expanded my knowledge of what PRA entails and how to conduct PRA sessions before I conducted the first PRA workshop and discussion. I informed the participants what I expected from them and that the goal was not to teach them, but to foster a collaborative learning process through sharing experiences and views. As such, I encouraged participants to have fun, feel comfortable and engage in order to build relationships with the community. I furthermore ensured that the environment in which I conducted the PRA-sessions provided a space where participants could feel safe, comfortable and able to reach their goals, as this is suggested by various authors such as, Cavestro (2003) as well as Chambers (2003) and Leach (2003). A potential limitation of using PRA-based workshops relates to positive energy quickly subsiding if it is not channelled into actual tasks and programmes. As such, I had to motivate the participants to actively engage in the study, based on the recommendation made by Mack et al. (2005).

3.3.3.2 Observation-as-context-of-interaction

During all PRA-based workshops and discussions, I took the role of a participant which enabled me to observe while attempting to gain an insider's perspective. In this regard, Angrosino and Mays de Pérez (2000) state that it is important for researchers to change their perspective of observation as a method of data generation to a perspective of observation-as-context-of-interaction between themselves and the participants with whom they collaborate. Closely related, Cohen et al. (2011) perceive observation as a way of generating live data within natural settings. To this end, Angrosino and Mays de Pérez (2000) emphasise that a researcher who observes human actions and interactions can only interpret what is observed when considering the situational context. In qualitative research the researcher therefore generally aims to gain insight into the perspectives of participants and understand the interplay and/or link between them, which is possible through observation (Mack et al., 2005).

According to Maree (2012), observation entails a process whereby the researcher can take notes and record the behavioural patterns of participants and their surroundings, as well as occurrences they encounter without explicitly commenting on any of these. Observations

can therefore allow the researcher to gain insight into the participants' physical, social, cultural and economic contexts, as well as their relationships among and between each other, with associated ideas, norms and events (Mack et al., 2005). Through observation I was thus able to familiarise myself with the social settings and different cultures of the participants. I documented my observations in the form of field notes and a research journal, as well as photographs wherever possible as Mack et al. (2005) made the recommendation of adding photographs where possible.

Observation-as-context-of-interaction, however, imply some potential limitations. Researchers can for example be perceived as intrusive, and confidential or sensitive information may be observed that cannot be reported on due to ethical considerations (Creswell, 2014). It may furthermore be difficult to write down everything that is important or what is observed while actively participating in the research process (Creswell, 2014). I aimed to address these potential challenges by relying on my own memory, applying personal discipline and making notes as soon as possible after sessions had been completed. I also had regular reflective discussions with my supervisor and co-researchers as recommended by Mack et al. (2005). Throughout, I ensured that I remained sensitive towards the participants, and that I adjusted according to their sense of comfort and beliefs.

3.3.3.3 Field notes and research journal

Field notes are generally used during observation to document what is experienced. According to Burgess (1991) field notes are created to record and remember the behaviours, activities, events and features of participants and social settings that had been observed. According to Mack et al. (2005), informal interactions and conversations between a researcher and participants can also be recorded by means of field notes. When field notes are made it is thus important to include the date, time, and location, as well as participants' details, to enable the researcher to later return to what had been observed or experienced (Webb, 1991).

I used both descriptive and reflective field notes (Appendix B). To keep a record of the research process, I compiled descriptive hand-written notes in a research journal and later converted these to electronic documents (Appendix C). In addition, I used reflective field notes to document personal reflections, emotions and experiences, successes, as well as areas where I identified a need for improvement (Mayan, 2001; Patton, 2002a; Percy, 1999).

In qualitative research, it is common practice to document proceedings and observations by means of field notes, as well as making notes on preliminary conclusions (Newbury, 2001). According to Newbury (2001), a research diary can be kept to document and record observations, thoughts and questions as they occur, for later use by the researcher, and to stimulate reflective thinking (Newbury, 2001). To this end, I captured my thoughts and reflections in my research journal; recorded insights on literature, telephone calls and meetings; and made notes about the methodology and research decisions, my observations, unresolved problems, issues or questions, as well as plans of action. This process of regular documentation of thoughts and experiences supported continuous reflexivity, which is an important PRA principle, according to Patton (2002b).

3.3.3.4 Visual and audio data generation and documentation strategies

Mason (2002) states that, when visual data generation is undertaken in the form of observations being transformed into visual data, such as photographs, it implies the engagement of the researcher in relationships (Mason, 2002). PRA often relies on techniques that are colourful, visual and concrete involving creative activities (Maree, 2016). The techniques that I implemented entailed posters that were compiled by small groups of participants, during small group discussions. These activities did not depend on the literacy levels of the participants but rather on their representation of ideas in the form of words, drawings or symbols, which were subsequently photographed for data analysis purposes (Archer & Cottingham, 1996; Shah, 1995). Photographs of the PRA-matrices that were compiled by the participants are included in Appendix E.

In addition to visual methods, I used audio recordings to capture participants' feedback during PRA-discussions, which were transcribed verbatim, to enable analysis of the generated data. Besides the advantage that visual and audio data generation is creative and can capture the participants' contributions, it also allows for an unobtrusive way of generating data, and can furthermore provide participants with an opportunity to share their realities with the researcher.

Heath, Hindmarsh, and Luff (2010) report that visual data such as photographs, as well as voice and video recordings can provide a representation of an actual event that took place. Visual methods are valuable as data are generated that can be revisited, reviewed and reflected on at any time during and after a study (O'Connell, 2013). As researchers may be challenged to write detailed observations, audio recordings can be implemented to capture participants' words directly. In this regard, Rapley (2007) points out that transcribing audio

recordings will also enable the researcher to become familiar with what was being observed and can thus contribute to the detail captured in field notes.

I also had to consider possible limitations associated with visual and audio methods, such as the challenge of interpreting this kind of data. Furthermore, visual and audio data may not be readily available, neither publicly nor privately. Similarly, to Creswell (2014) another potential challenge I faced relates to my physical presence, which could potentially have been experienced as intrusive and could thus have affected the participants' responses and potentially the results and findings of the study. I attended to these potential challenges by guarding against biased interpretations of the data, ensuring that I adhered to professional standards throughout the process, and by being mindful of the way I presented myself during data generation and creating a space where participants could freely share their experiences.

Davidson (2009) observes that during the translation of recorded data, data may be lost as a result of various factors such as poor-quality recordings or multiple simultaneous contributions. As such, Transana (2012) points out that voice recognition software used during transcription of audio data should be set to a single voice recording, which more accurately captures what is said, while blocking out overlapping speech and background noise. In addition, Markle, West, and Rich (2011) indicate that audio recordings may present technical difficulties when a recording malfunctions.

To avoid these challenges, I ensured that multiple audio recordings were made and that the sound levels were appropriately set to fully capture what was said. I furthermore attempted to address the challenges listed above, through listening to voice recordings multiple times in order to ensure that transcriptions are in accordance with what was said by the participants, in order to ensure accuracy, and truthfulness of the data.

3.3.4 Data analysis and interpretation

For this study I chose to conduct inductive thematic data analysis. According to Alhojailan (2012), thematic analysis is suitable for data generated during qualitative studies. Thematic analysis implies a systemic approach, which generally enables the researcher to identify key aspects and elements in generated data (Maree, 2016). Alhojailan (2012) furthermore states that thematic analysis can allow a researcher to make associations regarding the frequency of a theme within an entire set of generated data. As such, thematic analysis can assist a researcher to gain a better understanding of a particular phenomenon (Alhojailan, 2012). To this end, similarly to Braun and Clarke (2006), I also relied on thematic analysis to recognise,

identify and analyse themes captured in the generated data.

Braun and Clarke (2006) define a theme as an important pattern within generated data that relates to the research questions and represents a level of meaning or a patterned response within the data. As a qualitative researcher making use of thematic analysis, I thus aimed to make meaning and understand the data by identifying key aspects and meanings in the form of themes, patterns, categorisations and interrelationships, moving from detailed themes to more general ideas. This enabled me, according to Blacker (2009), to obtain an overall sense of the emerging, relevant and important themes from the data. I could accomplish this by adhering to the six phases of thematic analysis as set out by Braun and Clarke (2006).

During phase one, I namely focused on becoming familiar with the data by immersing myself in the raw data. For this purpose, I reviewed all photographs taken during PRA-based workshops and discussions, I re-read what had been captured on the posters, read through the transcripts, and became familiar with the data that had been generated. I furthermore read through my field notes and research journal. During phase two, I identified recurring important features in the raw data that seemed relevant to the research questions in order to complete the step of initial coding. I read the data once again and highlighted what stood out for me. I then re-read the highlighted parts and started making meaning of this by writing down statements that seemed relevant to my research questions. For this phase, I coded the schools that participated as Schools A to I (Refer to Appendix D).

Phase three of the analysis process entailed the identification of initial themes that could potentially represent meaningful patterns relevant to the research questions. To this end, I re-read my meaning making of phase two and grouped words and statements together which expressed the same meaning. I then identified possible themes by naming the grouped words and statements. During phase four, I reviewed the initial themes and ensured that these were suitable in terms of the coded, as well as the full set of data.

Phase five required me to define and name the final themes and to compile an analysis of each identified theme, as well as the related sub-themes. Finally, in phase six, I reported on the themes in a narrative way thus presenting my results coherently (refer to Chapter 4). As a last step, I contextualised my results by presenting the findings of the study in relation to existing literature (refer to Chapter 5).

In applying these guidelines of thematic analysis, I was able to analyse and interpret the raw data that were generated during and as a result of PRA-based workshops and discussions, observations, field notes and my research journal, as well as visual and audio techniques.

Throughout the analysis process, I made notes of the patterns and themes I identified and took note of statements that were in accordance with or in contrast to the relevance of my study. I thus grouped patterns and themes accordingly, and aimed to identify conformity between factors and variables that could add to conceptual coherence. I ultimately used this to determine the trustworthiness of the findings in terms of alignment with the conceptual framework of the study, as mentioned by Miles and Huberman (1994).

3.4 RIGOUR OF THE STUDY

The trustworthiness of a qualitative study indicates to what extent the particular study is worth taking note of and whether or not the findings represent reality and phenomena as they occur (Babbie & Mouton, 2001). Morse, Barrett, Mayan, Olson, and Spiers (2002) suggest that in order to maintain the trustworthiness of a qualitative study, researchers can employ strategies such as peer debriefing, continued field visits, collaboration, engagement and persistent observation, as well as audit trails and member checking. According to Morse et al. (2002) researchers can furthermore rely on personal competence and uphold certain characteristics, such as being responsive towards change while being sensitive and maintaining a holistic perception based on regular clarification and summarisation.

Maree (2016) agrees that several strategies can support the trustworthiness of qualitative studies. In addition to the strategies captured in the previous paragraph, Maree (2012) suggests that researchers can include different types of data sources, such as keeping research journals to capture all research-related decisions about the implementation of certain strategies as this may enable other researchers to follow and understand a study. Maree (2016) further suggests that other researchers and experts in the field may be invited to comment on the research, and that generalisation can be avoided through seeking the true understanding of participants' perspectives. In an attempt to ensure the trustworthiness of the current study, I implemented the proposed strategies, thereby attending to the qualitative criteria of credibility, transferability, dependability, confirmability and authenticity as proposed by Schwandt, Lincoln, and Guba (2007).

Johnson and Rasulova (2016) indicates that *credibility* will increase when researchers discuss their behaviour together with the behaviour of the participants and reflects on how it connects to the data in order to recognise personal positions and interpretations when analysing and interpreting data. In this regard, Shenton (2004) points out that credibility in qualitative research deals with the question of whether the results are compatible with reality. Billups (2014) similarly highlights that credibility will ensure that the findings of a study are

represented in a holistic, truthful and believable way. Maree (2016) supports this and claims that credibility can thus ensure that a reader believes the findings of a study as being in line with reality.

As such, Johnson and Rasulova (2016) believe that for credible research, researchers will have confidence in their findings regarding the subjects of research and the context within which research is conducted. I aimed to ensure credibility by engaging in regular debriefing sessions with my supervisor in order to discuss any potential biased interpretations. I remained aware of my personal background in terms of my competency, qualifications and experiences in comparison to those of the participants. I also included member checking to make sure that I presented findings that align with the participants' views as suggested by Schwandt et al. (2007). In addition, I aimed for credibility through prolonged engagement, as well as thorough observations to become familiar with the participants and their environments so that I could set aside my own potential biases. Lastly, I used triangulation in support of credibility by using multiple sources for data generation to enable me to cross-reference raw data and findings I obtained in support of my understanding of the particular phenomenon as authors such as Billups (2014) as well as Cohen and Crabtree (2006) suggest.

Transferability can be obtained when research descriptions and findings are sufficient to draw similarities with other contexts (Johnson & Rasulova, 2016). As such, transferability implies the potential of findings being generalised to other settings, thus opening up the possibility of further exploration on a particular phenomenon (Elo, Kääriänen, Kanste, Pölkii, Utrianen, & Kyngäs, 2014). Following an interpretivist approach, my aim was not to generalise my findings but to rather focus on the perceptions of a specific group of participants belonging to a unique community as this aim was followed by various authors as well, such as Babbie and Mouton (2001), Henning, Van Rensburg, and Smit (2004) as well as Patton (2002a). Billups (2014) suggested that a researcher should include in-depth descriptions of the background and research process in order to obtain transferable results. I therefore endeavoured to obtain transferable results through the inclusion of thorough descriptions of the background and research process in this mini-dissertation to confirm the formation of the context of the study.

Dependability ensures that, if a study is repeated in a similar context by applying the same methods, the results of the study will be similar (Billups, 2014; Shenton, 2004). As such, Elo et al. (2014) claim that data must be stable over time and within different contexts. I aimed to ensure dependability by thoroughly explaining the research process and methodological

choices of my study to allow for further follow-up research in this field in a similar way to be in line with what Schwandt et al. (2007) suggest. According to Miles and Huberman (1994), it is advisable that preliminary findings are subject to an external audit to ensure that the findings are authentic and to provide an opportunity to revise findings to ensure truthfulness. I attended to this criterion by revisiting the themes and related sub-themes, and making changes after member checking to present the themes in a truthful way.

Conformability refers to a degree of neutrality, thereby implying that findings were not influenced by any biases from the researcher, but were shaped by the participants in a study (Johnson & Rasulova, 2016; Maree, 2016). Conformability relates to objectivity which can be achieved through reflexivity. As such, conformability refers to ways in which the results of a study can be verified to ensure that the results are a true representation of the participants' perspectives, as well as their experiences (Billups, 2014). To this end, triangulation may reduce the influence of researcher bias in support of a researcher disclosing personal predispositions and regularly guarding against these (Miles & Huberman, 1994; Shenton, 2004).

Throughout the current study, I provided detailed descriptions of my personal beliefs and assumptions as a researcher. I also focussed on recognising and describing potential limitations and reflected on these throughout. I aimed to interpret the data in a neutral way, free from personal biases as suggested by Johnson and Rasulova (2016). To this end, I strongly relied on reflexivity to reduce any potential preconceived ideas that I may have held regarding the research participants, their contexts or background, which could have had an influence on the results of the study.

Finally, *authenticity* recognises that a researcher's judgement and understanding is based on sound values (Johnson & Rasulova, 2016) and implies recognition of transformative emancipation, which can take on a critical and constructive stance (Johnson & Rasulova, 2016). Authenticity thus refers to the aim of a study and the value thereof, and examines the potential benefits for participants within a particular study (Billup, 2014; Patton, 2002b; Pollitt et al., 1993). According to Elo et al. (2014, p. 2), authenticity is also regarded as "the extent to which researchers, fairly and faithfully, show a range of realities". Authenticity can be attained by ensuring that during a study all the perspectives, voices and opinions of the participants and stakeholders involved are taken into consideration when presenting the final findings and conclusions. I ensured authenticity through regular meetings with my supervisor and other stakeholders involved to make sure that the data were accurately analysed. Throughout, I remained aware of my developing skills and knowledge, and aimed to

represent the voices of the participants as they intended.

3.5 ETHICAL CONSIDERATIONS

Research ethics involves the careful consideration of certain requirements in order to respect the participants who are involved (Fouka & Mantzorou, 2011). According to the American Psychological Association ([APA], 2001), approval should be obtained from host institutions as a first step to any study. Before conducting my study and entering the research field, I therefore obtained the necessary permission for my study from the University of Pretoria (refer to Appendix A). Permission from the Department of Basic Education in the Eastern Cape was obtained for the broader project prior to me joining the project team.

3.5.1 Informed consent and voluntary participation

Informed consent is important in gaining confirmation of autonomy from all the relevant participants before undertaking a research study (Allan, 2016; Halai, 2006). Informed consent is usually obtained from participants in writing, after they had been informed about the research process and the purpose of the study, as well as the risks and benefits of the study. This provides them with an opportunity to make an informed decision about their participation, with the option of withdrawing from the study at any given time (Halai, 2006; Orb, Eisenhauer, & Wynaden, 2001). Before starting my study, I explained its purpose to the participants and made sure that they understood what was expected from them. Even though voluntary written informed consent was obtained in 2015 from the participants as part of the broader project, I again emphasised that participants could withdraw their participation if they wished to, and explained ethical principles when entering the field.

3.5.2 Confidentiality and anonymity

Confidentiality and anonymity are critical ethical considerations in qualitative research and are closely related (Crow, Wiles, Heath, & Charles, 2006). Confidentiality and anonymity imply that nothing that participants disclose during a research process is repeated in such a way that their identities can be traced. Should this however be possible, it will only take place after gaining permission from the particular participant (Allan, 2016; Crow et al., 2006; Orb et al., 2001).

A related ethical aspect involves confidentiality of participants' identities, and the results and findings of the study, as well as not revealing to outsiders what a specific participant had

said. According to Burns (2000), Fouka and Mantzorou (2011) as well as Maree (2012), this is particularly important when findings are published. To respect anonymity and confidentiality, I do not include any identifying information in my research report. I also undertook to destroy all audio recordings after they had been transcribed and to ensure that no school's name or people associated with the schools would be disclosed.

As such, I kept all data safe, while presenting the findings anonymously in this mini-dissertation to protect the participants' identities as suggested by Burns (2000). In addition, all members of the research team who had access to the raw data, have been dealing with it confidentially and I have ensured that there is no link between the generated data and the participants in this study. According to Allan (2016) a researcher should aim to ensure that no data could in any way be connected with any specific participant, which is also recommended by the American Psychology Association ([APA], 2001).

Protection from harm Halai (2006) states that protection form harm can be ensured by providing participants with a summary of both the risks and benefits of a particular study. This is usually captured in the consent form which is given to the selected participants prior to a study. In introducing myself at the start of my study, I explained this to the participants.

Leedy and Ormrod (2001) states that researchers should always ensure that no participant is exposed to physical or psychological harm during research. As a qualitative researcher, I continuously upheld high professional standards of conduct, informed all the participants of my role and status as a researcher and what was expected from them. I furthermore avoided any potential conflict of interest that could lead to exploitation or harm, and safeguarded the welfare and rights of the participants with whom I interacted as suggested by Maree (2012). As part of this strategy, all data-generation activities were conducted in English, ensuring that all the participants could participate and understand.

3.5.3 Trust

Trust in qualitative research implies that participants' consent is gained to willingly participate through sharing information with the researcher, while being perceived as autonomous people (Orb et al., 2001). I attempted to adhere to the criteria of accuracy, honesty and truthfulness during the research process by keeping to commitments and promises and avoiding any unwise or unclear commitments (Maree, 2016) In all communications I was driven by honesty, also when reporting on the results and findings. To this end, I did not

fabricate, falsify or misrepresent any data that were generated as Shamoo and Resnik (2015) recommended. I also strived to maintain integrity and authenticity while interacting with participants.

3.6 MY ROLE AS PARTICIPATORY, QUALITATIVE RESEARCHER

Within qualitative research, the researcher is perceived as the main tool for data generation (Creswell, 2014), which implies that the data for this study were generated by me, in collaboration with my supervisor and research team members of the FIRST-Gate project. As such, I was required to regularly reflect about my intentions as a researcher, in terms of personal ethics, my assumptions and prejudices, and my experiences as well as expectations of the study as identified as requirements by Creswell (2014) and Greenbank (2003) amongst other researchers. As previously stated, participatory qualitative research requires interpretations which imply that the researcher engages with the participants in a continuous way. As such, I had to be mindful of myself as researcher and of the roles I fulfilled.

Jameton (1984) regards the competence of the researcher as central when conducting qualitative research. To this end, I relied on my experience as a researcher, as well as the fact that I worked under qualified supervision alongside experienced researchers in the field. I communicated any feelings of uncertainty to my supervisor and remained aware of my personal competence, based on previous training and experience with research projects. I engaged in regular meetings with my supervisor to clarify any uncertainties, to reflect on what had been done, and to discuss the way forward. Being part of a research team also allowed me to participate in regular debriefing sessions following data generation meetings, and to discuss preliminary analysis and ideas with others who had been part of the data-generation process.

3.7 CONCLUSION

Based on the literature review presented in Chapter 2, I undertook an empirical study to explore the potential value of school-based vegetable gardens in promoting the resilience of primary school learners in resource-constrained settings. In this chapter, I provide a detailed description of the empirical investigation I undertook. To this end, I discussed the research process and selected methodological strategies in terms of the implied benefits, as well as the challenges based on the choices I made. In Chapter 4, I report on the results of the study,

by presenting and substantiating the main themes and sub-themes identified during thematic inductive analysis. I enrich my discussions by including examples of the participants' contributions.

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CHAPTER 4

REPORTING ON THE RESULTS OF THE STUDY

4.1 INTRODUCTION

In Chapter 3, I described the empirical part of my study, conducted over a period of two years at nine schools with (n=49) participants in resource-constrained communities in the Eastern Cape Province, South Africa. I justified my selected research design as interpretivism and a qualitative case study research design applying PRA principles as the related methodological choices in terms of my research questions (Chapter 1; 1.7) and the purpose, aim and objectives (Chapter 1; 1.4) of the study. In this chapter, I report the results of my study. I discuss the results in terms of the themes and sub-themes I identified during thematic analysis of the raw data. Throughout, I include verbatim responses and visual images to enrich my discussions.

4.2 RESULTS OF THE STUDY

Table 4.1 provides a summary of the four main themes and sub-themes I identified from the data, related to the value of school-based vegetable gardens for learners in resource-constrained school- community contexts.

Table 4.1: Overview of themes and sub-themes

Themes	Sub-themes
Theme 1: **Addressing basic needs**	**Sub-theme 1.1:** Addressing hunger and malnutrition
	Sub-theme 1.2: Enriching meals provided at school
	Sub-theme 1.3: Supporting healthy eating habits
Theme 2: **Increased knowledge, skills and school performance**	**Sub-theme 2.1:** Enriching subject-related knowledge
	Sub-theme 2.2: Acquiring skills
	Sub-theme 2.3: Reduced absenteeism and better school performance
Theme 3: **Personal development**	**Sub-theme 3.1:** Feelings of pride, self-confidence and self-esteem
	Sub-theme 3.2: Commitment, responsibility and accountability
	Sub-theme 3.3: Improved healthy functioning and social skills
Theme 4: **Indirect additional benefits**	**Sub-theme 4.1:** Benefiting from the value of vegetable gardens for teachers
	Sub-theme 4.2: Benefiting from parent and community involvement
	Sub-theme 4.3: Benefiting from financial gains

4.2.1 Theme 1: Addressing basic needs

This theme represents the results obtained on the value of school-based vegetable gardens in addressing the basic needs of the learners. The applicable sub-themes relate to addressing hunger and malnutrition, enriching the meals provided at school and supporting healthy eating habits. In Table 4.2, I summarise the inclusion and exclusion criteria I applied in identifying these sub-themes.

Table 4.2: Inclusion and exclusion criteria for Theme 1

SUB-THEMES	INCLUSION CRITERIA	EXCLUSION CRITERIA
Sub-theme 1.1: Addressing hunger and malnutrition	All data that relate to the way in which school-based vegetable gardens addressed the basic needs of the learners in terms of food provision	Data referring to the value of school-based vegetable gardens for enriching the meals provided to learners at school, or how school-based vegetable gardens supported healthy eating habits
Sub-theme 1.2: Enriching meals provided at school	Data referring to the way in which produce from school-based vegetable gardens enriched the meals provided to learners at school	Data related to the value of school-based vegetable gardens in addressing the basic needs of learners, or supporting healthy eating habits
Sub-theme 1.3: Supporting healthy eating habits	Data indicating how school-based vegetable gardens supported the healthy eating habits of primary school learners	Data referring to how school-based vegetable gardens contributed to the basic needs of learners, or enriched the meals provided by schools

4.2.1.1 Sub-theme 1.1: Addressing hunger and malnutrition

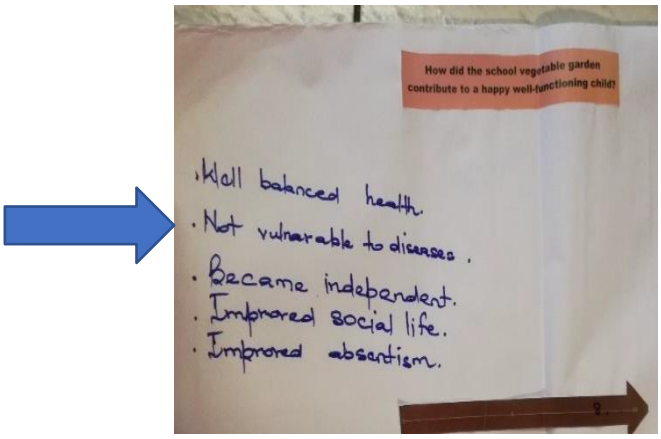
The participants reported that the school-based vegetable gardens they were involved in met the basic needs of learners and their families by providing them with food.

Henceforth, the following abbreviations apply: PRA-1= PRA- based workshop conducted in May 2017; PRA- 2 = PRA- based workshops conducted in September 2017; MC = Member checking session conducted on 28 May 2018; P = Participant, S = School, followed by a symbol of the school, e.g. S-A; FN = Field notes; RJ = Research journal. At each school the specific participant response is indicated with a small number e.g. C[3]; SNP = School Nutritional Programme. The number of each participant in each school is: School A1-5, school B 1-4, school C 1-4, school D 1-6, school E 1 and 2, school F 1-3, school G 1-10, school H 1-11, school I 1-4.

The following contributions taken from the PRA-matrices illustrate this experienced benefit of school-based vegetable gardens:

- *"Vulnerable learners are supported by the project because they are getting healthy food from the products"* (PRA-1, S-C[3])
- *"Helps the most vulnerable learners to have a meal"* (PRA-1, S-H[11]).

As such, participants reported that school-based vegetable gardens assisted in addressing learners' hunger. Participants from School C namely stated on their PRA-matrix that school-based vegetable gardens served as a tool to *"reduce hunger"* (PRA-1, S-C[4]). Participants furthermore reported that school-based vegetable gardens supported learners' health, leading to them *"not being vulnerable to any diseases"* (PRA-1, S-G[10]), as captured in Photograph 4.1, illustrating School D's similar experience.

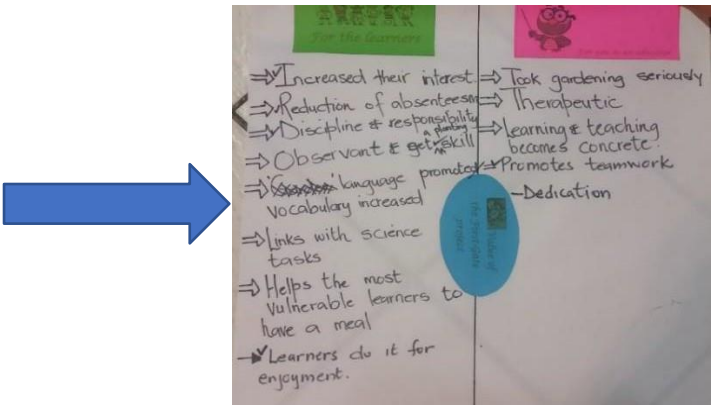


Photograph 4.1: Addressing vulnerability to disease (PRA-2, S-D[6])

Closely related, participants seemingly held the view that school-based vegetable gardens increased healthy living among learners by providing access to nutritional meals. In this regard, participants from School B mentioned that their school-based vegetable garden

added *"nutritional food"* to learners' meals (PRA-1, S-B[4]). Similarly, School F reported that their school-based vegetable garden addressed *"nutritional needs through support provided"* (PRA-1, S-F[3]). This idea is confirmed by the field notes I made during the first PRA- based workshop when School I reported that their school-based vegetable garden provided *"nutritional food"* (PRA-1, S-I[4]). I namely noted that *"food for vulnerable…supporting vulnerable children"* (FN, 28 May 2017).

In attempting to address hunger and malnutrition, participants therefore seemingly experienced school-based vegetable gardens as enabling them to help learners from disadvantaged communities. In this regard, School D stated that *"It has brought hope to our school…for children from disadvantaged communities"* (PRA-1, S-D[6]; FN, 28 May 2017). I made similar field notes when School C reported back during this PRA-based workshop, stating the following: *"brings hope to vulnerable children"* (PRA-1, S-C[4]; FN, 28 May 2017). In further confirmation, School H captured this experience as indicated in Photograph 4.2.



Photograph 4.2: Supporting vulnerable learners within communities (PRA-1, S-H[11])

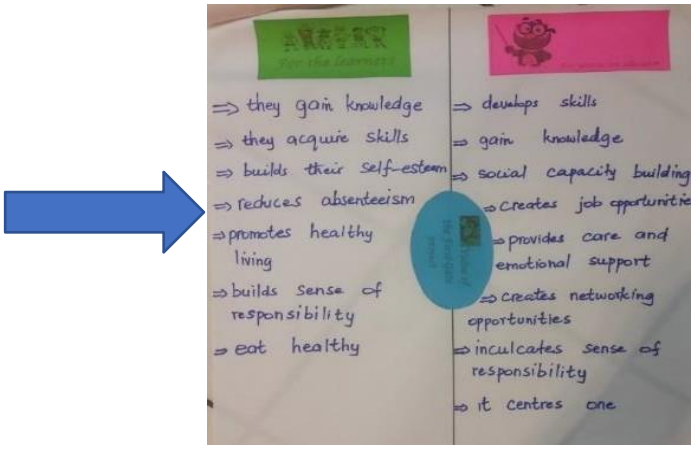
4.2.1.2 Sub-theme 1.2: Enriching meals provided at school

The participants indicated that the school-based vegetable gardens contributed to the meals provided to the learners at school as part of the national school feeding scheme. More specifically, school-based vegetable gardens reportedly enabled them to provide vegetables from the gardens that could be added to the meals prepared for the learners. The following excerpts taken from the PRA-matrices illustrate this experienced benefit:

- *"Supports the school SNP[4]"* (PRA-1, S-D[6])
- *"It has brought hope to the school nutrition committee in enabling to feed those kids from disadvantaged homes or families"* (PRA-1, S-G[10])
- *"Vegetables for nutrition programme"* (PRA-1, S-B[4] and S-I[4]).

In support, I noted the following in my field notes when School F reported back at the first PRA-based workshop: *"contributed to the feeding programme…eating healthier"* (PRA-1, S-F[3]; FN, 20 September 2017). Similarly, School I referred to *"good vegetables for nutritional programme"* (PRA-1, S-I[4]). In further confirmation, I captured School B's contribution during the first PRA-based workshop as follows: *"gets vegetables for nutrition programme"* (FN, 28 May 2017).

This result was confirmed during the member checking session I conducted, with a participant from School A adding that *"it supplements the school's kitchen as well as nutrition programme"* (FN, 28 May 2018). As the school feeding programme were thus enriched through school-based vegetable gardens, participants highlighted the value of healthier eating for learners, as captured in Photograph 4.3.



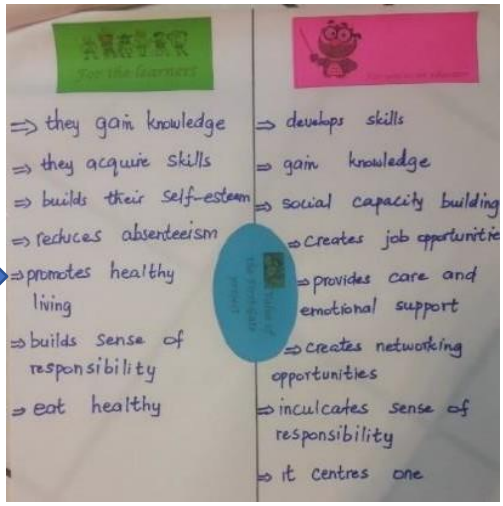
Photograph 4.3: Improved healthy eating habits (PRA-1, S-D[6])

4.2.1.3 Sub-theme 1.3: Supporting healthy eating habits

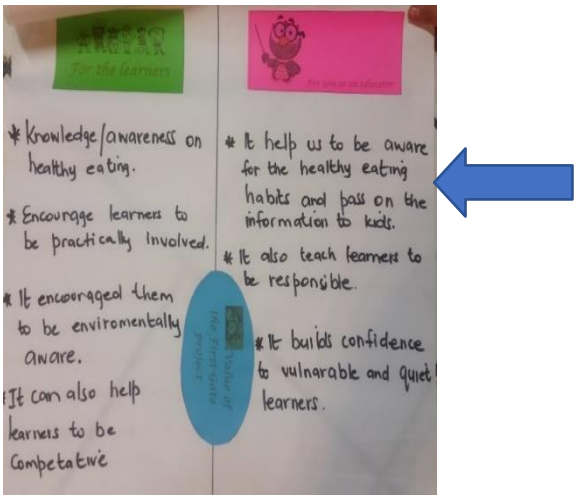
The participants reported that school-based vegetable gardens had the value of contributing to a balanced diet. The following contributions serve as supportive evidence of this view:

- *"Improved eating habits"* (PRA-1, S-B[4] and S-D[6])
- *"Healthy living"* (PRA-1, S-I[4])
- *"Promoting healthy living"* (PRA-2, S-A[5]).

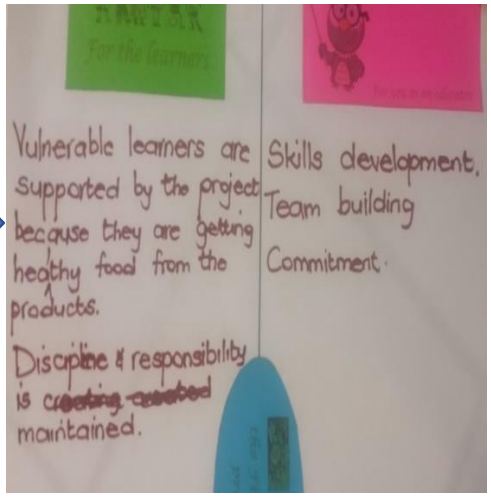
In support, Photographs 4.4 to 4.7 capture similar contributions.



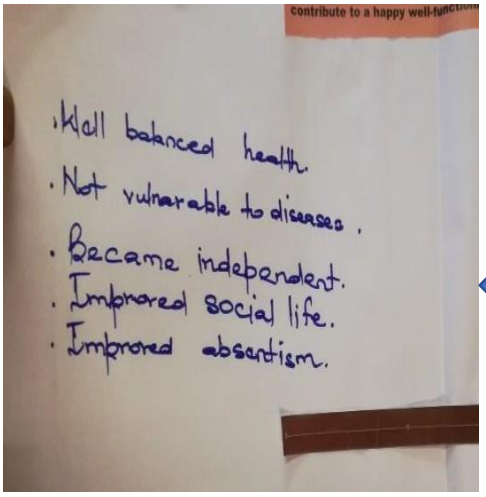
Photograph 4.4: Promoting healthy living (PRA-1, S-D[6])



Photograph 4.5: Supporting healthy eating habits (PRA-1, S-G[10])



Photograph 4.6: Providing healthy food (PRA-1, S-C[4])



Photograph 4.7: Supporting a balanced diet (PRA-2, S-D[6])

In further support, a contribution by School H points to the value of school-based vegetable gardens for learners as they reportedly *"…got nutritious food to eat"* (PRA-2, S-H[11]). I similarly noted that a school-based vegetable garden *"promotes health"* of vulnerable learners (RJ, 28 May 2017), and that *"school-based vegetable gardens make a real difference to children's health and life-skill development"* (FN, 28 May 2017).

4.2.2 Theme 2: Increased knowledge, skills and school performance

In this section, I report on the results that relate to the value of vegetable gardens for learners' knowledge, skills and performance in school. Sub-themes concern enriching subject-related knowledge, acquiring skills, reduced absenteeism, and better school performance. In Table 4.3, I provide a summary of the inclusion and exclusion criteria I

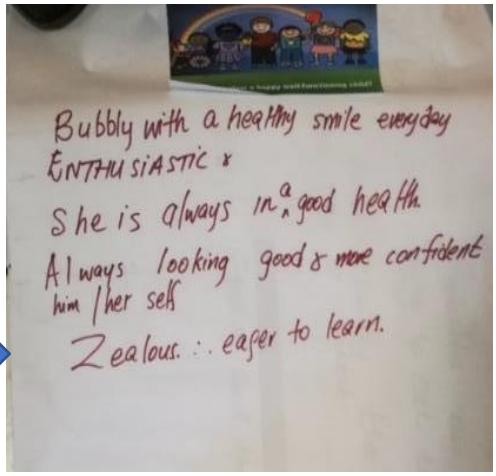
applied in identifying the sub-themes.

Table 4.3: Inclusion and exclusion criteria for Theme 2

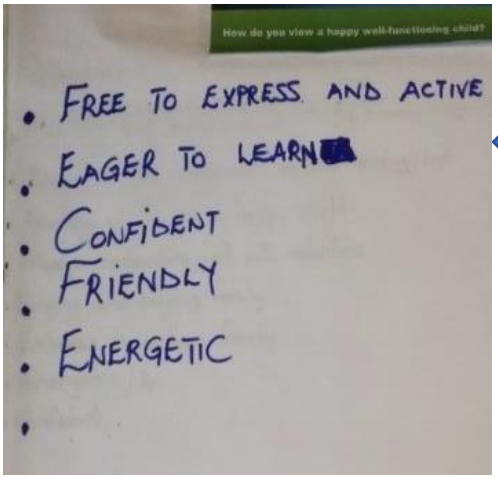
SUB-THEMES	INCLUSION CRITERIA	EXCLUSION CRITERIA
Sub-theme 2.1: Enriching subject-related knowledge	Data that relate to how school-based vegetable gardens were utilised to enrich specific subject-related knowledge of learners	Data relating to the value of school-based vegetable gardens for learners' skills acquisition, or their academic performance and school attendance
Sub-theme 2.2: Acquiring skills	All data relating to ways in which school-based vegetable gardens assisted learners to acquire new skills	Data relating to the value of school-based vegetable gardens for enriching subject-related knowledge, or supporting learners' school attendance and performance
Sub-theme 2.3: Reduced absenteeism and better school performance	Data that refer to the impact of school-based vegetable gardens on learners' school attendance and academic performance	Data that refer to the effect of school-based vegetable gardens on enriching subject-related knowledge or skills acquisition by learners

4.2.2.1 Sub-theme 2.1: Enriching subject-related knowledge

The participants reported that school-based vegetable gardens can improve learners' willingness to learn new knowledge and skills. In this regard, participants from School F mentioned that their school-based vegetable garden made learners more *"eager to learn"* (PRA-2, S-F[3]). School E confirmed this positive experience, as captured in Photographs 4.8 and 4.9.



Photograph 4.8: Learners becoming more zealous, indicating an eagerness to learn (PRA-2, S-E[1 and 2])

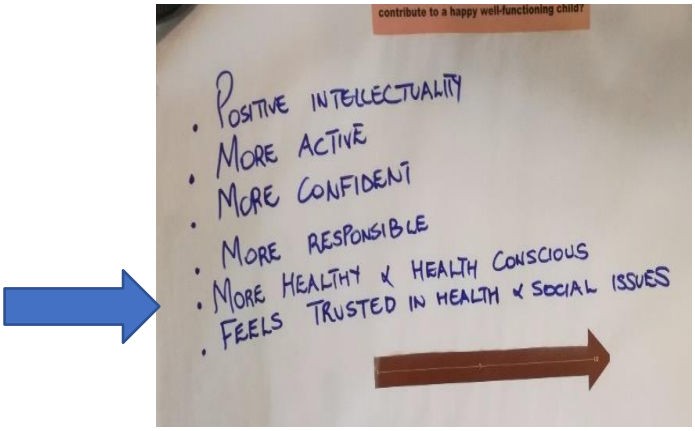


Photograph 4.9: Learners eager to learn (PRA-2, S-G[10])

Following on the participants' experience of learners being more eager to learn, teacher-participants reported that school-based vegetable gardens – as a result – had led to learners gaining subject-related knowledge. Participants from Schools C and D reported that the learners for example gained *"knowledge about the importance of gardening"* (PRA-2, S-C4[4]; PRA-1, S-D[6]). The following excerpts relate to this perceived benefit of school-based vegetable gardens, also pointing to the application value of newly gained knowledge:

- *"Planting seeds"* as well as *"skills that the learners can plough back into the school"* (PRA-1, S-D[6])
- *"Teaching them to have their own home gardens"* (PRA-2, S-A[5])
- *"They are able to start their own vegetable garden, know how to take care of the garden"* (PRA-2, S-H[11]).

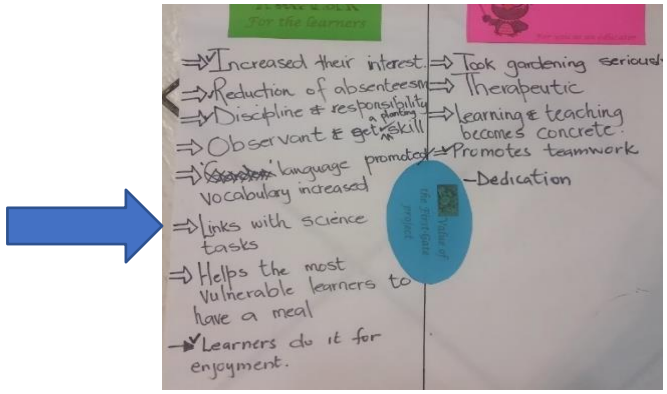
Participants from School F similarly mentioned that the learners' *"intellect improves"* through their school-based vegetable garden (PRA-2, S-F[3]). This contribution is confirmed by the contribution of School G, as indicated on the PRA-matrix they compiled, referring to *"positive intellectuality"* (Photograph 4.10).



Photograph 4.10: Learners becoming more health conscious (PRA-2, S-G[10])

In addition, participants referred to several other positive outcomes of learners gaining knowledge. School I for example reported that learners' self-esteem improved due to them gaining knowledge and being more willing to answer when asked a question. In this regard, I noted that learners *"feel confident in the knowledge they gained"* (FN, 20 September 2017). Participants from School G reported that learners furthermore became more *"healthy and health conscious"* and that they as a result developed a sense of feeling *"trusted in health and social issues"* (PRA-2, S-G[10], also refer to Photograph 4.10). Participants from School F similarly mentioned that the learners *"know exactly the benefits of eating veggies raw or cooked"* (PRA-2, S-F[3]).

In terms of subject-related knowledge, participants from School E mentioned that learners were able to *"learn more mathematics"* (PRA-1, S-E[1 and 2]) when involved in school-based vegetable gardens. Participants from School H referred to Science, indicating that school-based vegetable gardens made it possible for learners to *"link the vegetable gardens to science"* (FN, 20 September 2017), as also illustrated in Photograph 4.11.



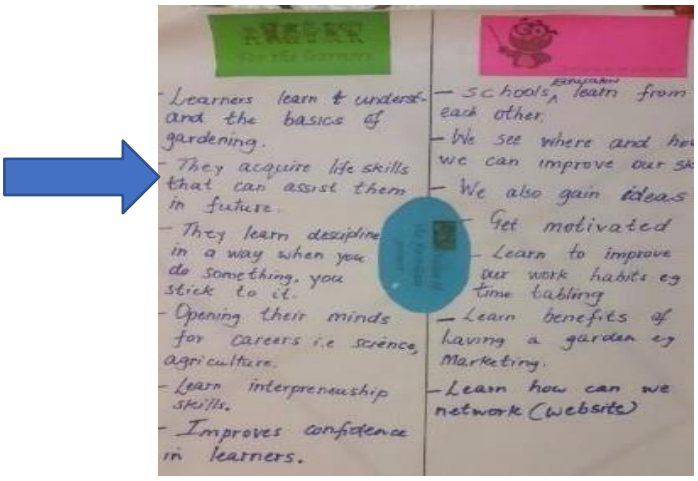
Photograph 4.11: Linking science with school-based vegetable gardens (PRA-1, S-H[11])

This indicated benefit was confirmed by participants from School I, who mentioned that their school-based vegetable garden made it possible for them to *"integrate gardening with other learning areas"* (RJ, 28 May 2017). More specifically, participants from School E indicated that school-based vegetable gardens can "*enhance the vocabulary of learners"* (FN, 28 May 2017). This reported benefit is furthermore confirmed by the following contributions:

- *"Increased vocabulary, development of new words such as; pawpaw and mint leaves"* (PRA-1, S-E[1 and 2])
- *"Language promoted, vocabulary increased"* (PRA-1, S-H[11]).

4.2.2.2 Sub-theme 2.2: Acquiring skills

Participants reported that school-based vegetable gardens provided an environment where learners *"gained skills"* (PRA-1, S-D[6]; PRA-2, S-H[11] and S-B[4]). In terms of such *"skills development"* (PRA-1, S-F[3]; PRA-2, S-C[4]), participants from School A mentioned that learners gained *"skills that are life long and will assist them in their futures"*, as captured in Photograph 4.12.



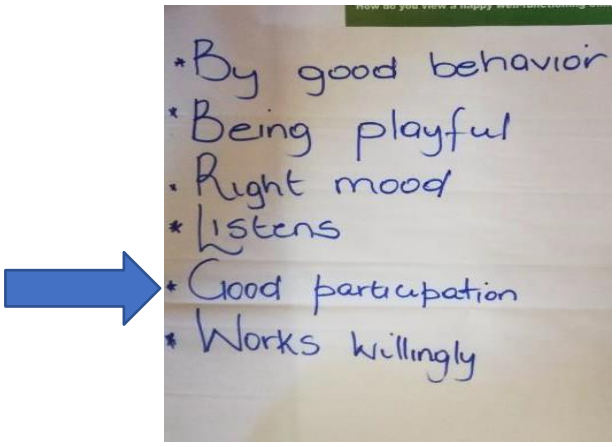
Photograph 4.12: Acquiring skills as a result of vegetable gardens (PRA-1, S-A[5])

Participants referred to various kinds of specific skills acquired by learners. For example, participants from School H reported that learners gained *"observational skills"* (PRA-1, S-H[11]), while other participants referred to *"listening skills"* (PRA-2, S-C[4] and S-E[1 and 2]). In addition, participants referred to learners acquiring *"good behaviour"* skills and *"being well-mannered"* (PRA-2, S-B[4] and S-C[4]). Participants from School C mentioned that learners learned how to share with and care for each other, referring to *"sharing and caring"* (PRA-2, S-C[4]) – thereby pointing to social skills. Closely related, school-based vegetable gardens

reportedly created an opportunity for learners to acquire the skill of working together. In this regard, participants from Schools H and I reported the following:

- *"It gave them the opportunity to work with others"* (PRA-2, S-H[11])
- *"Teamwork"* (PRA-2, S-I[4]).

In further confirmation of the benefit of acquiring social skills, School B indicated that school-based vegetable gardens supported *"cooperation"* and *"participation"* among the learners (PRA-1, S-B[4]). Furthermore, participants from School G mentioned that the learners acquired skills that enabled them to become more *"environmentally aware"* and being *"competitive"* in a healthy way (PRA-1, S-G[10]). School C's similar contribution is captured in Photograph 4.13.



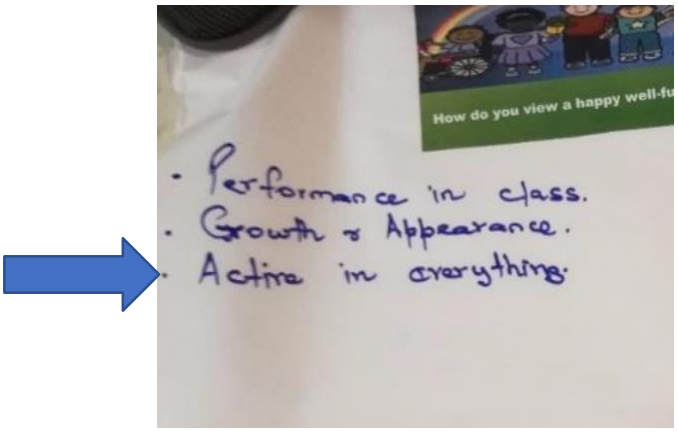
Photograph 4.13: Enhanced participation through vegetable gardens (PRA-2, S-C[4])

One of the main benefits of school-based vegetable gardens, according to the participants, relates to the *"entrepreneurial skills"* that learners reportedly gained. This benefit was confirmed by participants from Schools A, B, E and I (PRA-1, S-E[1 and 2] and S-I[4]; PRA-2, S-A[5] and S-B[4]), thereby indicating this view across the various participating schools. Participants specifically mentioned that through *"entrepreneurship",* learners could gain the opportunity to access *"possible income and job opportunities"* (PRA-1, S-D[6] and S-G[10]; PRA-2, S-A[5], S-B[4] and S-I[4]). My field notes confirm these contributions, where I also referred to *"job creation and skills development"* (FN, 28 May 2017).

4.2.2.3 Sub-theme 2.3: Reduced absenteeism and better school performance

School-based vegetable gardens reportedly supported learners' participation in school activities and similarly promoted their school performance. Participants from School A

mentioned that learners became more *"involved in physical activities"* (PRA-2, S-A[5]) as a result of the school-based vegetable garden, while participants from School E more broadly referred to the benefit that learners *"always responds well to activities"* (PRA-2, S-E[1 and 2]). This benefit is further confirmed by the contribution of School G, where participants mentioned that their school-based vegetable garden *"encouraged learners to be practically involved"* in activities (PRA-1, S-G[10]). This benefit is furthermore confirmed by the PRA-matrix compiled by participants from School D, as depicted in Photograph 4.14.



Photograph 4.14: Supporting learners' active participation (PRA-1, S-D[6])

Following the participants' experience that learners' knowledge and skills increased when involved in school-based vegetable garden activities, teacher-participants indicated that this ultimately resulted in *"good performance"* (PRA-2, S-C[4]). Participants from Schools D and G similarly referred to improved *"performance in class"* (PRA-2, S-D[6] and S-G[10]). According to the participants from School I, learners' performance improved because of *"responsibility and discipline"* (PRA-2, S-I[4]).

Involvement in school-based vegetable gardens also seemingly increased learners' attendance and resulted in reduced absenteeism. The following contributions provide supportive evidence:

- *"Reduces absenteeism"* (PRA-1, S-D[6])
- *"Reduction of absenteeism"* (PRA-1, S-I[4])
- *"Good attendance of learners"* (PRA-2, S-C[4])
- *"Improved absenteeism"* (PRA-2, S-I[4]).

Even though the reason for learners attending school was not explored, possible reasons include learners receiving nourishment at school and learners taking responsibility and gaining self-confidence by being involved in garden activities. More research is however

required before drawing final conclusions about this.

4.2.3 Theme 3: Personal development

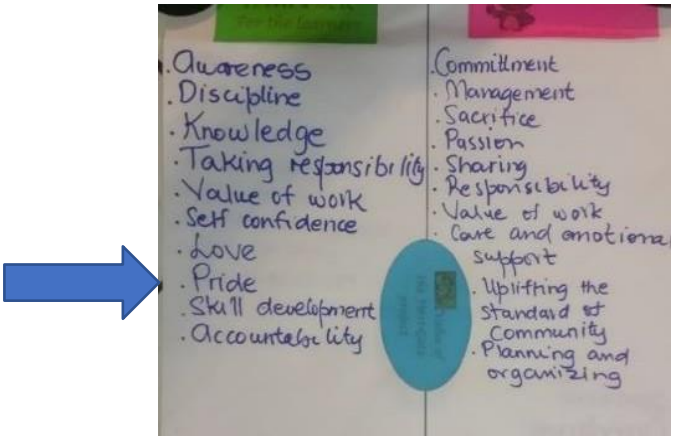
This theme captures the results obtained on the value of school-based vegetable gardens for enhancing learners' personal development. The sub-themes that apply relate to learners' feelings of pride, self-confidence and self-esteem; commitment, responsibility and accountability; and improved healthy functioning and social skills. In Table 4.4, I summarise the inclusion and exclusion criteria I applied in identifying the sub-themes.

Table 4.4: Inclusion and exclusion criteria for Theme 3

Sub-themes	Inclusion criteria	Exclusion criteria
Sub-theme 3.1: Feelings of pride, self-confidence and self-esteem	All data related to the contribution of school-based vegetable gardens to learners' self-confidence and self-esteem based on feelings of pride, that can contribute to emotional well-being	Data that refer to learners being committed, responsible and accountable, or improved social skills and functioning as a result of their engagement in school-based vegetable garden projects
Sub-theme 3.2: Commitment, responsibility and accountability	Data that relate to the value of school-based vegetable gardens for fostering commitment, responsibility and accountability among learners who are involved in such initiatives	Data that relate to the impact of school-based vegetable gardens on learners' levels of pride, self-confidence and self-esteem, or their social skills development, culminating in healthy functioning
Sub-theme 3.3: Improved healthy functioning and social skills	Data that refer to learners' social skills being improved, and the related healthy functioning that could be observed	Data that relate to higher levels of pride, self-confidence and self-esteem as a result of being involved in school-based vegetable gardens, or to increased levels of commitment, responsibility and accountability

4.2.3.1 Sub-theme 3.1: Feelings of pride, self-confidence and self-esteem

According to the participants, school-based vegetable gardens had a positive effect in terms of the learners' experiences of feelings of pride. Participants from both Schools B and I referred to a *"sense of pride"* (PRA-1, S-B[4] and S-I[4]), and participants from School F similarly indicated this when compiling a PRA-poster, as depicted in Photograph 4.15.

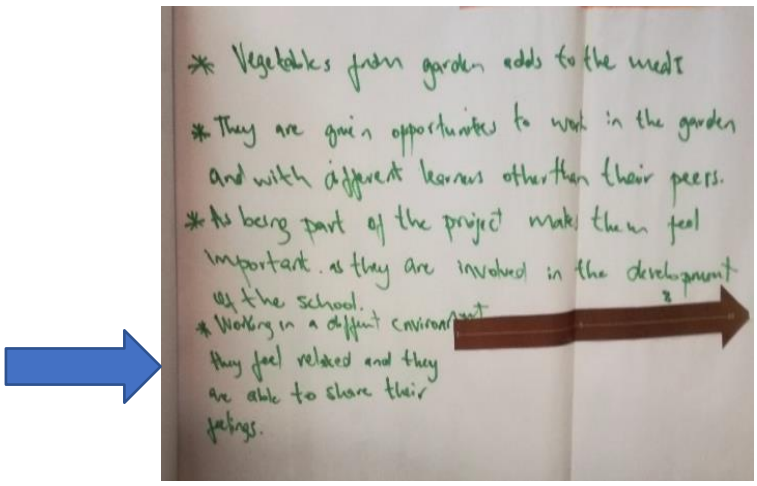


Photograph 4.15: Reference to feelings of pride (PRA-1, S-F[3])

When noting my observations, I related such feelings of pride to the knowledge learners gained, which seemingly resulted in them being self-confident and experiencing higher levels of self-esteem, making it possible for them to more willingly participate. I noted: *"feel confident in the knowledge they gained"* (FN, 20 September 2017). In support of my observations and the link I made, the following contributions provide supportive evidence:

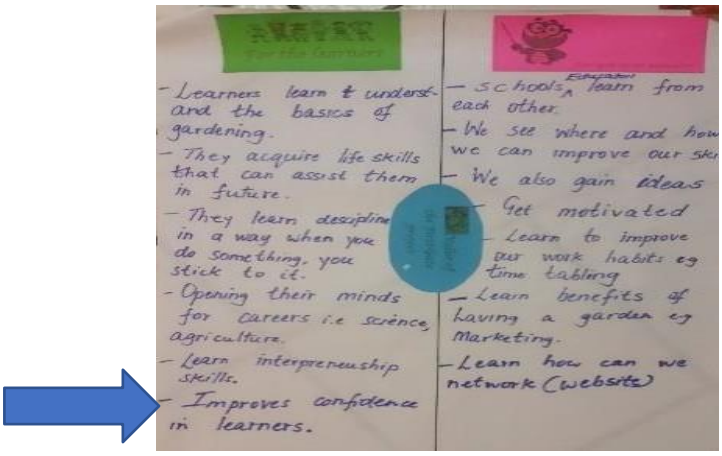
- *"Express themselves freely"* (PRA-2, S-E[1 and 2])
- *"Free to express"* (PRA-2, S-G[10]).

This experience is furthermore confirmed by Photograph 4.16, indicating the idea of learners being willing to share their thoughts and ideas.



Photograph 4.16: Learners able to express themselves more freely (PRA-2, S-A[5])

As stated, involvement in school-based vegetable garden projects seemingly had a positive effect on learners, specifically in terms of their self-confidence. Participants from School H for example mentioned that learners were able to *"speak their minds"* (PRA-2, S-H[11]), while participants from School A referred to the benefit of improved confidence, as indicated in Photograph 4.17.



Photograph 4.17: Improved learner's confidence (PRA-1, S-A[5])

In further confirmation, the following excerpts taken from the PRA-matrices illustrate this experienced benefit:

- *"Self-confidence"* (PRA-1, S-F[3] and S-I[4]; PRA-2, S-B[4])
- *"More confident"* (PRA-2, S-C[4])
- *"Confident"* (PRA-2, S-H[11]).

Closely related and as an effect, school-based vegetable garden participation reportedly also had an impact on learners' self-esteem, as captured in the following contributions:

- *"Builds their self-esteem"* (PRA-1, S-D[6])
- *"Self-esteem"* (PRA-1, S-E[1 and 2])
- *"Self-esteem boost"* (PRA-2, S-I[4]).

Participants from various schools reported that they observed a general positive change among the learners involved in school-based vegetable garden projects. Participants from School D for example referred to *"growth in the appearance from the learners"* (PRA-2, S-D[6]). As a result, participants seemingly felt that learners *"feel valued and loved"* (PRA-2, S-A[5]). Participants from Schools C, E and F similarly reported that learners were more often in the *"right mood"* as they *"smile"* regularly, and were *"bubbly with a healthy smile everyday"*, *"singing and playing freely"* when participating in school-based vegetable gardens (PRA-2, S-B[4], S-C[4], S-E[1 and 2], S-F[3] and S-G[10]).

4.2.3.2 Sub-theme 3.2: Commitment, responsibility and accountability

Participants indicated that learner involvement in school-based vegetable garden projects was beneficial as *"it promotes responsibility…combats irresponsibility, because the learners feel that they own something"* (FN, 28 May 2018). Participants from School G shared the view that involvement in school-based vegetable gardens can promote good behaviour, saying that *"it helps learners behave in a better way. In my project the learners who really don't behave in my project I say you are going out of my project, so they must start to behave",* and also that, *"when we talk, they listen"* (MC, 28 May 2018). In this way, learners were seemingly held accountable for their participation and actions.

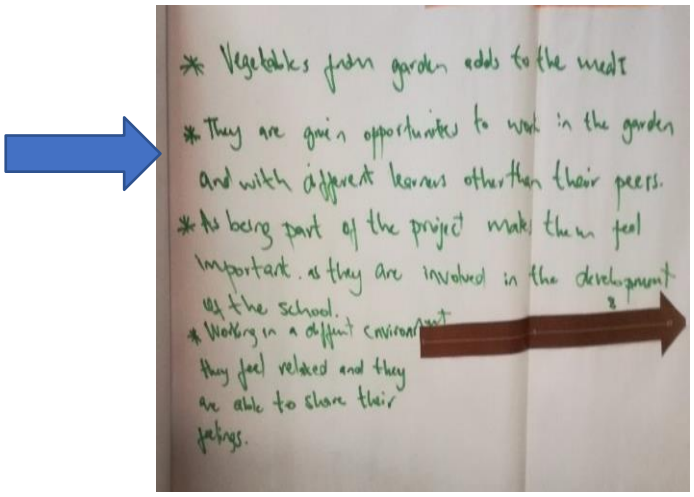
For this purpose, the participants from School E explained that they formulated some rules to be adhered to when learners entered the vegetable garden, as they initially experienced some learners not displaying the necessary respect (PRA-1, S-E[1 and 2]; FN, 28 May 2017). However, the participants furthermore reported that school-based vegetable gardens thus ultimately instilled an increased sense of discipline within learners (PRA-2, S-E[1 and 2]). This benefit is confirmed by the following excerpts taken from the PRA-data that were generated:

- *"They learn discipline in a way when you do something, you stick to it"* (PRA-1, S-A[5])
- *"Discipline"* (PRA-1, S-B[4] and S-I[4])
- *"Discipline and responsibility are maintained"* (PRA-1, S-C[4] and S-H[11])

- *"Builds a sense of responsibility"* (PRA-1, S-D[6])
- *"Responsibility"* (PRA-2, S-B[4])
- *"More responsible"* (PRA-2, S-G[10])
- *"Become more independent and improving their social life"* (PRA-2, S-H[11])
- *"Education, responsibility and discipline"* (PRA-2, S-I[4]).

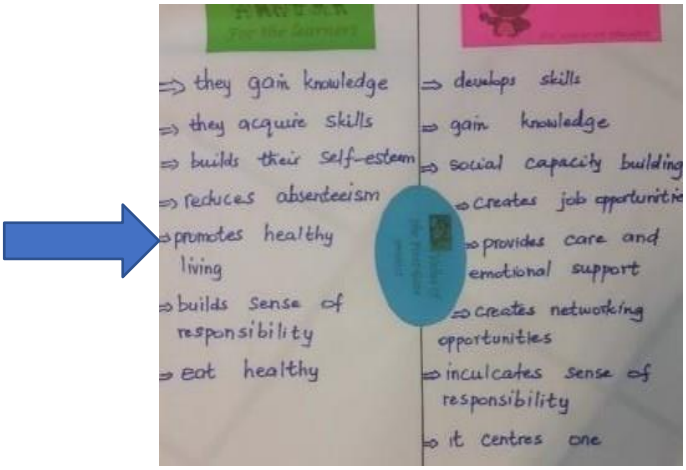
4.2.3.3 Sub-theme 3.3: Improved healthy functioning and social skills

Participants reported that school-based vegetable gardens enabled learners to *"become more independent and improving their social life"* (PRA-1, S-D[6]; PRA-2, S-H[11]). More specifically, participants from School-H mentioned that it gave learners the *"opportunity to work with others"* (PRA-2, S-H[11]). This benefit was confirmed by participants from School A who mentioned that school-based vegetable gardens created opportunities for learners to get to know other learners, as depicted in Photograph 4.18.



Photograph 4.18: Possibility of interaction with other learners (PRA-1, S-A[5])

Interaction with others reportedly led to *an "increase in the social life"* of the learners and in learners being *"in a good health"* (PRA-1, S-D[6]). This idea is also captured in Photograph 4.19.



Photograph 4.19: School-based vegetable gardens promoting healthy living (PRA-1, S-D[6])

4.2.4 Theme 4: Indirect additional benefits

This theme represents the results obtained on the value of school-based vegetable gardens in terms of the benefits implied for learners due to the value of gardens for teachers; parent and community involvement in gardens; and benefits of financial gains. In Table 4.4, I summarise the inclusion and exclusion criteria I applied in identifying the sub-themes.

Table 4.5: Inclusion and exclusion criteria for Theme 4

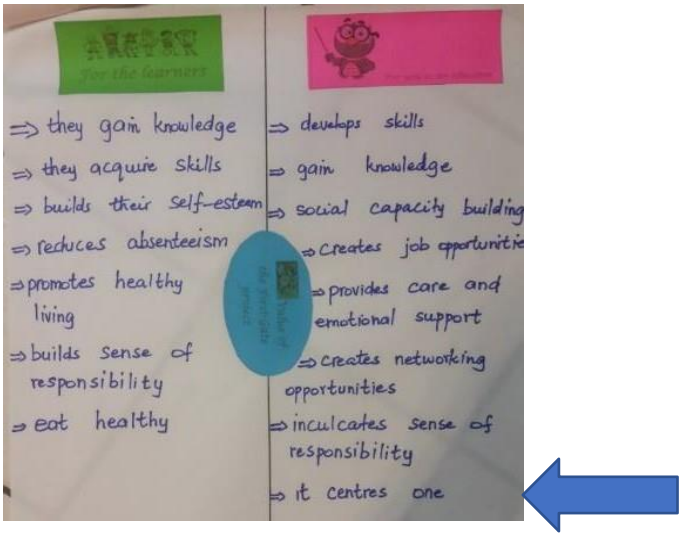
SUB-THEMES	INCLUSION CRITERIA	EXCLUSION CRITERIA
Sub-theme 4.1: Benefiting from the value of vegetable gardens for teachers	Data that relate to the benefits of school-based vegetable gardens for teachers, with an implied benefit for learners	Data that relate to additional benefits of school-based vegetable gardens based on parent and community involvement or financial benefits stemming from such initiatives
Sub-theme 4.2: Benefiting from parent and community involvement	Data related to the implied benefits of school-based vegetable gardens for learners due to the involvement of parents and the community	Data that refer to the implied benefits of school-based vegetable gardens due to the value for teachers, or financial benefits experienced
Sub-theme 4.3: Benefiting from financial gains	All data referring to financial benefits of school-based vegetable gardens, which imply additional benefits for learners	Data that relate to the benefits of school-based vegetable gardens due to the involvement of parents and the community, or the value for teachers

4.2.4.1 Sub-theme 4.1: Benefiting from the value of vegetable gardens for teachers

School-based vegetable gardens reportedly did not only benefit learners, but also the teachers who were involved. In addition to learners acquiring new knowledge and skills, participants from Schools B and I reported that their participation in vegetable gardens had enabled them to gain *"more skills"* (PRA-1, S-B[4] and S-I[4]). Other schools similarly indicated that vegetable gardens had led *"to an awareness and taught them more about nutrition"* (PRA-1, S-A[5], S-B[4], S-D[6] and S-I[4]). According to the participants from School A, they *"gained knowledge on how to improve what we have learned already and building on that knowledge"* (FN, 28 May 2017). In addition, participants from School D indicated how participation in their vegetable garden had led to the *"development of love, passion and sacrifice within the teachers"* (FN, 28 Mei 2017).

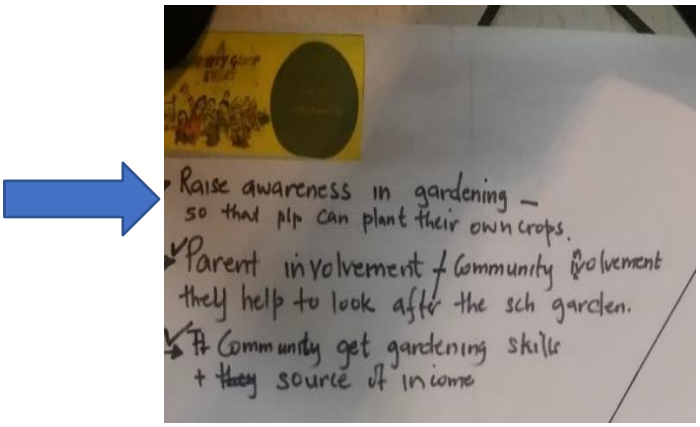
As additional value, participants from School G mentioned that: *"In our school we had a corner that used to be a dumping site. We had a new gardener who came up with new ideas. He cleaned up the space and created a love place where anyone can sit during their free time or breaker time to go sit there. We call it our peace corner"* (MC, S-G[10]). as such, their school-based vegetable garden provided a space where teachers could relax and regain energy. The participants from School H similarly mentioned that school-based vegetable gardens have "*therapeutic value"* (PRA-1, S-H[11]). Participants from Schools F and D confirmed this view and stated that "*it creates a place where you can just think, and that it is a place where they can go after a rough day"* (PRA-1, S-F[3]).

Participants also referred to the value of being focussed, yet also engaging with others. School G for example mentioned that their vegetable garden resulted in a *"strong working committee",* not only within their own school, but also in collaboration with other schools within the community (PRA-1, S-G[10]; PRA-2, S-G[10]). This was confirmed by participants from School A, who reported that vegetable gardens can "*unify staff members"* (PRA-1, S-A[5]). Participants from School D reported that they could be *"more focused and centred when I am done in the garden"* (PRA-1, S-D[6]), indicating the benefit of re-focussing ideas and concentration, as also depicted in Photograph 4.20. This was confirmed by another participant from School D, who noted that the vegetable garden is *"a place of care and support"* (PRA-1, S-D[6]).



Photograph 4.20: School-based vegetable gardens as platform to re-focus (PRA-1, S-C[4])

Vegetable garden initiatives furthermore reportedly led to a more positive community experience through empowerment and taking agency. Participants from School H in this regard indicated that their vegetable garden resulted in them having an *"increased awareness"* in terms of *"nutrition"* and the *"value of the vegetable gardens"* (PRA-1, S-H[11]). This benefit was similarly indicated by participants from Schools B, G and I, who reported that they experienced *"increased knowledge and skills"* (PRA-1, S-B[4], S-G[10] and S-I[4]). A participant from School G confirmed that through school-based vegetable gardens, teachers can become *"aware of what they eat"* (PRA-1, S-G[10]). Photograph 4.21 provides additional evidence of this view.



Photograph 4.21: Raised awareness of planting crops (PRA-1, S-H[11])

During member checking, participants confirmed that they had acquired knowledge and gardening skills they did not previously possess. They explained: *"I am now a pro in planting trees. I got a neighbour whose trees seeds fell in my yard and I take them and plant it"* (MC, 28 May 2018).

This knowledge and skills could in turn be transferred to the learners involved in school-based vegetable gardens, as captured by the participants from School C, who mentioned that their participation enabled *"Skill development"* (PRA-1, S-C[4]).

4.2.4.2 Sub-theme 4.2: Benefiting from parent and community involvement

According to the participants, school-based vegetable gardens supported *"collaboration"* (PRA-1, S-F[3]) between educators and schools on the one hand, and communities on the other, on *"multiple levels"* (PRA-1, S-A[5], S-B[4], S-C[4], S-D[6], S-F[1 and 2], S-G[10], S-H[11] and S-I[4]). All the schools indicated that increased collaboration in turn strengthened relationships within schools, as well as between the schools and broader community. According to the participants, school-based vegetable gardens *"increased community involvement within schools"* (FN, 28 May 2017, 20 September 2017), which in turn strengthened the working committees that were established as they took responsibility and got involved in school-based activities.

Participants from School F explained how their school-based vegetable garden enabled parents from the community to become involved. They mentioned that *"grade seven's parents contributed in donating some gardening tools"* (PRA-1, S-F[3]), and assisted them to overcome some challenges they faced. More specifically, participants reported that they *"made friends with members within their communities to help sustain the gardens on weekends, public holidays as well as during school holidays"* (PRA-1, S-F[3]), thereby taking care of the garden during times that educators found it hard to do so. Such involvement seemingly implied benefits not only to the schools, but also to the community who became involved.

In this regard, participants from Schools B and I similarly mentioned that *"the vegetable gardens enabled them to take responsibility and leads to sharing mutual feelings or pride"* among the teachers (PRA-1, S-B[4]). Other participants emphasised the benefit of school-based vegetable gardens as providing opportunities to develop *"good relationships with the community…"* (PRA-1, S-B[4] and S-I[4]). In support, I noted that the participants indicated that school-based vegetable gardens enabled them to bring external *"stakeholders closer such as the department of agriculture, department of basic education, the department of health as well as the department of water and sanitation"* (FN, 20 September 2017).

To this end, participants seemingly valued the option of networking and collaboration. They stated the following: *"In terms of networking and collaboration for our school this platform is a community of practice where we share best practice, because for the people who are willing and the people who are interested in our project we have created a WhatsApp group where we are sharing everything about gardening. We are sharing photos and beautiful ideas about gardening. So, this platform really has created something for us"* (FN, 28 May 2018).

In confirming of this experience, participants from School I reported that their vegetable garden led to more *"exposure towards sponsors and networking with other stakeholders"* (FN, 28 May 2017). This benefit was furthermore confirmed by the participants from School A who mentioned how they experienced a shortage of space which led them to *"visit a garden at another location where they observed and learned"*, once again pointing to *"networking and collaboration"* (FN, 28 May 2018) – in this case with peers at a neighbouring school. While a few participants reported that they applied newly gained knowledge and skills by starting *"home-based-vegetable gardens"* (PRA-1, S-A[5]), they also referred to an "*increase of home-based vegetable gardens"* (PRA-1, S-G[10]). They added that *"it motivates parents to do their own home gardens…"* (PRA-1, S-G[10]) which once again implies benefits to learners.

4.2.4.3 Sub-theme 4.3: Benefiting from financial gains

Participants shared ideas about school-based vegetable gardens providing opportunities for "*fundraising effort"* (PRA-1, S-G[10]). They noted the following example: *"We hold market day's where we sell our plants and use half of the money for the grade seven's farewell at the end of the year and the other, we used to buy something for the school which is the grade seven's present towards the school"* (MC, 28 May 2018). Other participants confirmed that they "*sell the vegetables at a reasonable price"* (PRA-1, S-B[4]).

According to the participants, school-based vegetable gardens could in this way be utilised to address vulnerability. Vegetable gardens thus reportedly created opportunities for "*possible income* and *job opportunities"* (PRA-1, S-A[5], S-B[4], S-D[6], S-G[10] and S-I[4]), as it enabled entrepreneurship. In summary, participants from School B regarded their vegetable garden to be a source of "*financial gain as we sell the veggies"* (PRA-1, S-B[4]). Confirming this view, participants from School A observed that they "*gain ideas on how to generate funds, knowledge on how to improve what we have learned already and building on that knowledge"* (PRA-1, S-A[5]) as a result of their school-based vegetable garden. The way in

which school-based vegetable gardens thus allowed schools to raise funds, seemingly supported the schools and benefited the learners.

4.3 CONCLUSION

In this chapter, I reported on the results I obtained. I discussed the results in terms of the themes and sub-themes I identified during my inductive thematic analysis of the raw data.

In the following chapter, I interpret the results against existing literature, thereby presenting the findings. I highlight correlations and contradictions between the results of the current study and existing research in terms of the findings, and attempt to explain inconsistencies within the context of my study. I then address the research questions formulated in Chapter 1, before drawing conclusions and making recommendations based on the study.

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CHAPTER 5

FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION AND OVERVIEW OF THE PREVIOUS CHAPTERS

In the previous chapter, I reported on the results of my study after introducing the study and describing the empirical investigation I undertook in the preceding chapters. More specifically, I provided an introduction and contextual background to the study in Chapter 1, positioning the current focus within the broader NRF-funded FIRST-Gate project. I explained the purpose and aim of my study, formulated research questions and objectives and also clarified key concepts. I furthermore introduced the selected paradigmatic lenses and research methodology.

In Chapter 2, I explored existing literature on the research topic. I discussed existing literature on poverty and vulnerability in South Africa, with specific reference to learners. I explained the term 'resilience' and focussed on community-based coping, exploring the potential value of school-based vegetable gardens to promote the resilience of learners in resource-constrained school-communities. I subsequently explained the conceptual framework I compiled for the study, which guided me throughout my research.

Chapter 3 focused on the research process. I discussed the selected paradigms, research design and methodological strategies in detail, and explained the data generation, documentation and analysis methods. I concluded the chapter with explanations of the quality criteria and ethical considerations that guided me.

I then reported the results in Chapter 4, following thematic analysis. I presented the results in terms of the four themes I identified, related to addressing learners' basic needs; increased knowledge, skills and school performance of learners; their personal development; and the indirect additional benefits of school-based vegetable gardens for primary school learners.

In this final chapter of the mini-dissertation, I present the findings of my study by positioning the results I obtained in existing literature. I draw conclusions while addressing the formulated research questions. Next, I reflect on the contribution and limitations of the study, and conclude with recommendations for training, practice and future research.

5.2 FINDINGS OF THE STUDY

In this section, I discuss the findings of the study. In comparing the results, I obtained with existing literature, I refer to correlations, contradictions and new insights.

5.2.1 Value of school-based vegetable gardens in supporting learners on multiple levels

My study provides an example of how school-based vegetable garden initiatives can have a positive impact on children's holistic functioning and well-being. This finding confirms the work of Kupolati et al. (2016), who state that learners need to establish and sustain healthy nutritional habits to improve their school performance. Closely related, CARE USA (2007) found that school-based vegetable gardens can support and promote learners' mental, emotional and social development. In support of these authors' findings, I found that school-based vegetable gardens improved the eating habits of primary school learners involved in gardening projects, more specifically in terms of their fruit and vegetable intake. This in turn promoted balanced diets among learners, and contributed to specific subject-related knowledge which may have led to an increase in their school performance. These findings are supported by existing literature (Devereux et al., 2018), indicating how school-based vegetable garden projects can promote access to education and support learning performance. In addition, Blair (2009) emphasises that school-based vegetable gardens can increase interdisciplinary and hands-on learning by providing an opportunity for experiential learning.

In terms of subject-related knowledge, I found that the learners were better able to understand mathematics when involved in school-based vegetable gardens. Furthermore, learners were able to link vegetable gardens to science, thus allowing them to integrate gardening with other learning areas. In addition, learners' vocabulary improved, and they acquired some basic skills and vocational competencies, while gaining knowledge on food and fibre production, acquiring ecological literacy and mastering environmental knowledge. They were also exposed to knowledge on sustainable development, as pointed out by O'Brien and Shoemaker (2006). School-based vegetable gardens thus represent the concept of learning through experience, which corresponds with Kolb's experiential learning theory (McLeod, 2013). As such, I found that school-based vegetable gardens served as a platform for the application of classroom learning in subjects such as science, mathematics, and language, as also confirmed by Subramaniam (2002).

As an outcome of the school-based vegetable garden projects at the participating schools, primary school learners furthermore experienced increased levels of confidence based on the knowledge and skills they acquired. Learners involved in the vegetable garden projects gained more confidence in participating in educational activities, specifically being more eager to answer questions and share their knowledge and experiences with others. The learners also gained specific knowledge and skills related to the benefits of eating vegetables raw or cooked, thereby reportedly becoming more health conscious. These findings of the current study support the work of Bell and Dyment (2008), as well as that of Koch et al. (2006). These researchers namely report that when exposing learners to fruit and vegetables, allowing them the opportunity to plant seeds and grow their own food, and through involving them in food preparation, an increase in the consumption of fruit and vegetables will occur.

Similarly, Koch et al. (2006) report that it is important to instil healthy eating habits in learners based on the direct impact that nutrition can have on their development, as well as their ability to learn, which is also confirmed by my findings. I namely found that the learners gained knowledge on the importance of healthy eating, became aware of the benefits of fruit and vegetable intake, and gained skills such as planting seeds and sustaining a vegetable garden. Their creative skills and physical fitness also seemed to have developed and improved through their participation. This is confirmed by Allen et al. (2008), who state that participation in school-based vegetable gardens may allow children to gain experience and knowledge through a better understanding of their relationship with nature, as well as within the learning environment. He also found that school-based vegetable gardens can encourage healthy food consumption at home.

In further support, I also found that the results of the current study correlate with the work of Robinson and Zajicek (2005), who found that learners involved in school-based vegetable gardens typically display increased levels of self-understanding, interpersonal skills, and social skills, which can improve respect for the environment and taking pride in one's school and community (FAO, 2005). To this end, the findings of my study confirm the value of school-based vegetable gardens for promoting social skills among learners, as these projects provided them with the opportunity to get to know other learners, and provided educators with more insight into learners' functioning. In addition, and closely related, I found that learners' academic performances improved due to them gaining listening skills, observational skills, good behaviour patterns, and cooperation skills. These findings support the work of Robinson and Zajicek (2005).

My findings furthermore indicate that school-based vegetable gardens can instil life skills and have personal value for learners in terms of improving self-esteem, self-confidence, pride and general mood. These findings confirm literature in the field of resilience, which report on positive factors that can enhance resilience such as self-esteem, humour and hope during challenging circumstances, (Mosavel et al., 2015; Rutter, 2013; Walsh, 2006). To this end, the results of the current study thus add insight to the work of these authors, indicating how learners gained a sense of self-esteem and responsibility when involved in school-based vegetable gardens. This enabled learners to act responsibly during participation in vegetable garden projects and instilled in them the awareness that when you start something, you should see it through. In this regard, the results of the current study also correlate with existing studies as reported by the Department of Basic Education (2011), as well as by O'Brien and Shoemaker (2006), who explain that school-based vegetable gardens can develop learners' attitudes, values and life skills relating to food and nutrition.

In line with literature on resilience, indicating how learners may face adversity and reach developmental milestones through personal capacity and ability, and the identification of various resources within themselves and their community (Chazin et al., 2000; Ungar, 2008), I found that school-based vegetable garden involvement developed learners' positive characteristics. This was evident through participants reporting that school-based vegetable gardens did not only address learners' basic needs, but also increased their knowledge and skills on healthy living, nutrition, entrepreneurship and crop growing. Learners involved in school-based vegetable gardens furthermore gained knowledge about the importance of gardening and the benefits thereof.

I was unable to find any existing literature relating to how school-based vegetable gardens may influence absenteeism among learners. In this regard, the current study adds new insight indicating a reduction in absenteeism among learners who were involved in school-based vegetable gardens at the time of my study. Even though this finding is not conclusive and requires further research to confirm it, such a finding once again points to the value of school-based vegetable gardens in enhancing learners' resilience. It is however also possible that learners' attendance improved due to them knowing that they would get a nutritious meal, or potentially because they enjoyed experiential learning. More research is however required before coming to conclusions.

5.2.2 School-based vegetable gardens as supplement to the national school feeding scheme

In South Africa, learners in resource-constrained communities are assisted through the national school feeding scheme (Devereux et al. 2018). In this regard, schools provide nutritional support as a way of addressing learners' basic needs. It is evident through the findings of the current study that school-based vegetable gardens can support, as well as promote vulnerable learner's mental, emotional and, social development (CARE USA, 2007; Faber et al., 2014) through providing more nutritious meals to learners, while also enhancing their resilience.

I found that school-based vegetable gardens brought hope to the school nutrition committees of the participating schools, in enabling them to support learners from resource-constrained communities by means of healthier meal provision. As the school feeding programmes were enriched through school-based vegetable gardens, participants highlighted the value of healthier eating for learners.

According to the South African Department of Basic Education (2011), school-based vegetable gardens is a pivotal school initiative that can enrich the meals provided at school in the form of fresh fruit and vegetables (Department of Basic Education, 2011). The findings of the current study thus confirm existing literature, as all nine schools reported that their school-based vegetable gardens provided fruit and vegetables which added to their school nutrition programmes. It is evident from these findings that the fruit and vegetables that were added to the schools' nutrition programmes enhanced the nutritional value of the meals provided to the learners. An increased volume of food also enabled schools to feed more learners. As such, school-based vegetable gardens assisted in alleviating hunger among learners, thus improving their general health, developing their self-esteem and resilience. In addition, awareness of the value of healthy living and eating habits was raised amongst the learners involved in vegetable gardens at school.

5.2.3 Supporting other role-players through school-based vegetable gardens

This study provides an example of how school-based vegetable garden initiatives will not only have positive outcomes for learners, but also imply benefits on a wider scale. More specifically I found that school-based vegetable gardens holistically influenced the stakeholders involved in these school-based initiatives. It supported the learners and educators, as well as their families and the broader community. This finding confirms existing

literature on resilience, as I found that school-based vegetable gardens thus addressed various systemic levels which could promote the resilience of learners, in facing challenging circumstances, as also stated by Masten (2016) as well as Veronese and Barola (2018).

School-based vegetable gardens can furthermore support community coherence in the sense that stakeholders such as parents, learners, educators and other community participants can collaborate to design, build and ultimately maintain a garden at school and at home (Veronese & Barola, 2018). This idea is confirmed by the findings of the current study which indicate that learners were able to use the skills they gained through their participation in school-based vegetable gardens to start home-based vegetable gardens. Members from the community furthermore also became involved in helping to sustain the vegetable gardens during school holidays when teachers and learners were unable to attend to the gardens. This finding confirms Devereux et al. (2018) study, which indicates that school-based gardening projects can contribute to individual households' food security, food production and livelihoods.

The above-mentioned literature (Devereux et al., 2018) is furthermore substantiated by my finding that school- based vegetable gardens reportedly empowered the community through increasing their awareness of nutrition, enhancing their knowledge and skills, and promoting healthier lifestyles. As such, school-based vegetable gardens may have addressed community vulnerability due to the possibility of income, job opportunities and nutritional support, even though I did not specifically explore this. I however found that, community coherence was enhanced, as also pointed out by the above-mentioned literature (Devereux et al., 2018), through strengthening relationships and partnerships among community members and increasing community involvement in schools.

Heimendinger et al. (1996) report that school-based gardening programmes can enhance awareness among learners, as well as their families, of the benefits of increasing their consumption of fruit and vegetables. The findings of the current study confirm that the involvement of both learners and their families in school-based vegetable gardens increased their knowledge about the importance and benefits of gardening and the consumption of healthy food, thus supporting the work of Heimendinger et al. (1996). As such, I found that school-based vegetable gardens enhanced people's skills that could in turn assist learners in their future endeavours. Potentially reducing unemployment and enhancing resilience to the advantage of the broader community.

I could not find any literature regarding the acquisition of entrepreneurial skills through school-based vegetable gardens. As such, the current study adds new insight, indicating

that school-based vegetable gardens can instil entrepreneurial skills in learners and others, thereby highlighting the value of school-based vegetable gardens in enhancing resilience. These findings however, are not conclusive and require further research to be confirmed.

In this regard, I specifically found that educators reportedly acquired entrepreneurial skills. Educators indicated that they started to sell some of the vegetables and used the income to enhance the schools' needs by purchasing much-needed resources for the school. The current study thus provides new insight into the potential benefits of school-based vegetable gardens for educators. The findings furthermore namely indicate that school-based vegetable gardens had a therapeutic effect on the educators, as they experienced their gardens as safe and calm places, where they could regain strength. No literature could be found to support this finding, and further research is required to confirm this finding.

5.3 CONCLUSIONS IN TERMS OF RESEARCH QUESTIONS

The current study was guided by the following primary research question: *How can school-based vegetable gardens promote the resilience of primary school learners in resource-constrained communities?* In this section, I come to conclusions. As the secondary questions assisted me in ultimately addressing the primary research question, I first discuss the latter. Thereafter, I integrate my discussions of the secondary questions to answer the primary research question.

5.3.1 Secondary question 1: Which knowledge and skills can potentially be gained by learners as an outcome of a school-based vegetable garden project?

A positive effect of school-based vegetable gardens is indicated by the finding that learners acquired knowledge and skills that could enable them to counteract adversity and enhance the quality of their lives. To this end, I can conclude that, as a result of their participation, learners acquired knowledge, awareness and skills related to healthy living, sustaining a vegetable garden, planting seeds, and about the consumption and benefits of fruit and vegetables.

I argue that the learners who participated in school-based vegetable gardens gained skills that they could use in their school work, which can positively impact their academic performance. I for example found that the learners gained listening skills, observational skills, cooperation skills, and good behaviour skills, which can all have a positive effect on scholastic performances and ultimately resilience. In relation to specific subject-related

knowledge, I found that the learners' vocabulary increased, as well as their science and mathematical skills due to the integration of the curriculum with the school-based vegetable gardens through experiential learning.

To this end, I posit that school-based vegetable gardens opened participating learners' minds to possible future careers and improved their knowledge of agriculture. School-based vegetable gardens also instilled entrepreneurial skills in the learners, thus stimulating their creativity and awareness of earning an income through cultivating and selling vegetables.

5.3.2 Secondary question 2: How can school-based vegetable gardens support the healthy functioning of primary school learners?

A prominent finding that was reported by all nine schools that participated in my study, was that the learners' social skills and self-confidence improved through their involvement in vegetable gardens. To this end, I can conclude that school-based vegetable gardens can create a place where learners can get to know other learners through interaction. I furthermore argue that school-based vegetable gardens can create a platform where learners interact with each other and share their feelings, thoughts and experiences with one another.

As stated, another positive outcome as a result of learners' participation in school-based vegetable gardens, relate to improvements in their self-esteem and confidence. To this end, I posit that school-based vegetable gardens can foster values and attributes such as love, a sense of caring for one another, and a sense of feeling proud of what one achieves. I furthermore conclude that learners will gain a sense of responsibility when involved in such projects as they become aware of the importance of continuing and finishing a task once started it. They can therefore gain a sense of accountability and commitment. As such, learners' holistic functioning can be supported by involving them in school-based vegetable garden projects.

I moreover argue that school-based vegetable gardens can instil discipline in learners. Learners can learn how to respect rules that everyone has to adhere to. This in turn, can result in learners developing respect for the environment, learning good manners and improving their behaviour. In this regard, I can conclude that learners may experience an increased sense of human dignity and belonging, which can contribute to a more optimistic mind-set thereby supporting resilience.

Finally, I posit that learner's development and performance can be enhanced through them

gaining knowledge and skills from educators, whose knowledge, skills, and awareness of the importance of healthy living and the benefits of a school-based vegetable garden can also be enhanced as a result of their involvement in such projects. In addition to learning from their educators, learners' active involvement in cultivating vegetable gardens can also lead to positive outcomes in terms of physical development and healthy eating habits.

5.3.3 Secondary question 3: How can school-based vegetable gardens enhance (or not) the learning and development of primary school learners?

Regarding the intrapersonal areas of learners' psychosocial well-being, learners seemingly became more eager to learn through their involvement in school-based vegetable gardens. As a result, learners displayed 'good performance' as a result of their involvement as reported by the teacher-participants. To this end, I posit that school-based vegetable gardens can contribute to the well-being of learners by providing them with an opportunity to work and learn in a different environment, other than the classroom. As such, learners' overall psychosocial functioning can improve, when school-based vegetable gardens facilitate a mind shift and support learners' overall mood.

I can furthermore conclude that school-based vegetable gardens can enable learners to become more independent and self-reliant. This positive outcome is based on my finding on the learners' participation in school-based vegetable gardens that promoted gardening skills, which were utilised to start home-based gardens in some cases. Learners' participation also promoted entrepreneurial skills, enabling them to create opportunities to earn an income in future.

I moreover argue that school-based vegetable gardens can also reduce learner absenteeism. I found that the learners were more willing to attend school as they knew that they had a garden to take care of, thus instilling in them a sense of responsibility. In addition, they were also aware of the fact that they would receive a healthy meal at school, which was enriched by the vegetable gardens in which they fulfilled a function.

5.3.4 Primary research question: How can school-based vegetable gardens promote the resilience of primary school learners in resource-constrained communities?

In the current study I found that school-based vegetable gardens created a platform that resulted in positive outcomes in terms of the physical, emotional and social development of

learners. To this end, school-based vegetable gardens created opportunities for parents, learners and educators, who gained on several levels. In addition to their needs being met, learners acquired knowledge and skills, and could grow on a personal level. Furthermore, school, community and home connectedness were supported, which in turn could potentially have led to the improvement of vulnerable learners' resilience.

In this regard, I propose that school-based vegetable gardens can provide learners with protective factors, which will enhance their ability to bounce back from adversity. These protective factors include positive attributes that developed such as responsibility, good behaviour, listening skills, observational skills, gardening skills, and improved general moods amongst learners. As a result, learners seemed happier and more relaxed and gained valuable knowledge and self-confidence. All these outcomes in turn supported learners' resilience in terms of health, well-being and quality of life.

To this end, I can conclude that school-based vegetable gardens may serve as a pivotal resource that can provide in basic food-related needs, yet also support the psycho-social well-being of vulnerable learners within resource-constrained communities. As such, school-based vegetable gardens can promote healthy living as it can result in increased knowledge, skills, self-confidence and better eating habits. School-based vegetable garden initiatives can thus be utilised in support of learners' health, well-being, and subsequently their academic performance and behaviour.

In conclusion, I argue that school-based vegetable gardens can create a two-way learning platform where educators and learners are able to learn together by sharing knowledge, experiences and thoughts. This can enhance learners' skills, encourage them to start home-based gardens and promote self-reliance, lead to higher self-esteem and more confidence, as well as their eagerness to learn. In addition, subject-related knowledge and skills can improve, and hope for the future can be fostered due to the skills gained.

5.4 CONTRIBUTION OF THE STUDY

This study adds to existing knowledge on how the resilience of learners in resource-constrained communities can potentially be supported, more specifically in terms of the value of school-based vegetable gardens namely imply the possibility instilling positive attributes and skills amongst learners and expanding their general and subject-related knowledge. As such, school-based garden initiatives can promote the resilience of learners, their families and their communities through partnered relationships and the sharing of

knowledge and skills. The findings of this study therefore add to the way in which community coherence can be established and individual qualities and life-long skills can be enhanced, that can be used to enhance quality of life.

In terms of the value for the participating schools, the current study positively contributed to the relevant role-players as well as the broader community. As such, school-based vegetable gardens reportedly encouraged home-based vegetable gardens, beautified the school, generated funds and enabled the establishment of networking and collaboration. In addition, school-based vegetable gardens contributed to learners' knowledge and skills development, encouraged participation, reduced absenteeism, provided exposure to fruit and vegetables, and thereby supported vulnerable learners, as well as educators involved in these initiatives.

School-based vegetable gardens furthermore promoted communities' involvement in schools, strengthened relationships as well as partnerships, and empowered the community to address vulnerability through e.g. job opportunities and funds generation. School-based vegetable gardens also contributed to the participating educators' awareness of healthy eating and the benefits of gardening. It promoted educators' values and skills, while encouraging team work and collaboration among the various role-players. School-based vegetable gardens created a platform where educators could integrate the curriculum with vegetable gardening, in order to enhance learners' academic performance through experiential learning, creativity and interaction.

In interpreting this contribution against the background of the theoretical framework I provided in Chapter 2, confirmation is gained that nobody functions in isolation of the system within which they live or work. As such, the system in which learners function, were found to potentially have either a positive or a negative effect on their vulnerability, well-being and resilience. To this end, I argue that, on a community level, many factors can promote learners' psychosocial development, which may in turn result in resilience. The contribution in this finding lies in the possibility of resource-constrained communities potentially promoting the sustainability of school-based initiatives by identifying and mobilising available assets within the school-community, such as vegetable garden initiatives. Such efforts may in turn contribute to equipping learners, as well as the broader community, with protective factors which can serve as a pathway towards becoming resilient, thereby once again foregrounding the contribution of the current study to existing theory on both the asset- based approach and resilience.

The current study may furthermore serve as an inspiration for vegetable gardens to be implemented at homes, thereby extending the value of such efforts to the broader community. As such, this research may contribute to the existing body of knowledge on how school-based initiatives can promote resilience and reduce vulnerability among learners in resource-constrained communities yet also be extended to their communities, in support of health and well-being.

5.5 LIMITATIONS AND CHALLENGES EXPERIENCED

Following a case study design applying PRA principles posed the challenge of the findings of this study not being generalisable. Even though generalisability was not the aim of the study, the findings may be transferred to a similar context. It remains the reader's decision to what extent this is possible in related studies.

In terms of the data analysis, I initially experienced thematic analysis and the meaning making process of qualitative data generated through PRA-based workshops as challenging, due to my limited experience in this field. As a result, I had regular meetings with my supervisor to discuss important aspects and the phases of thematic analysis. I furthermore read widely before starting to analyse the generated data. To get to the final themes and sub-themes, I conducted various rounds of revisions, in consultation with my supervisor.

In terms of logistics, I experienced the challenge of the participating schools being situated far from each other, and far from where I live, in another province. This meant that I could not visit all the schools during each field visit, and had to cluster schools in groups, which led to another challenge, namely transportation for participants to the schools where we met. To this end, I had to determine times and dates which were convenient for all participants. In considering so many role players, this was sometimes challenging to organise.

Differences in home languages between the participants and most of the research team posed some challenges during the PRA-based workshops. Sometimes conversations occurred in Xhosa with the majority of the research team not understanding. This was overcome by asking one of the participants to translate all responses in English, or by asking the one team member who can speak Xhosa, to assist the others.

Finally, participatory qualitative research requires interpretations and continuous involvement of researchers with participants during PRA-based activities. As such, I had to remain mindful of my role as a participatory researcher, which implied that I regularly had to

reflect about myself as researcher in terms of ethics, my assumptions, experiences, expectations and biases. Even though this enabled me to be empathetic, I also had to separate my role as researcher from my role as educational psychologist in training and not fulfil such an empathetic role. My competence in this area posed a challenge at the beginning of the research project as this was the first participatory research study I undertook, and my experience and skills were thus initially limited.

5.6 RECOMMENDATIONS

Based on the findings and conclusions of this study, I formulate some recommendations for training, practice and future research in this section.

5.6.1 Recommendations for training

Based on what I found, I recommend that educational psychologists and educational psychology students be trained in terms of the potential value of school-based vegetable gardens and how such gardens can be utilised to support the holistic developmental needs of learners in resource-constrained South African communities. People in helping professions, such as educational psychologist, can be instrumental in reducing the vulnerability of these learners, as well as their broader communities, through the utilisation of school-based vegetable gardens. In addition, learners can be empowered and become more resilient if guided in the necessary way.

I furthermore recommend that students in education also receive training in the implementation and sustainability of health-promoting school-based interventions in an attempt to address the needs of learners in resource-constrained communities. Students in education can receive community-based training in the implementation of interventions that may promote the well-being and resilience of communities thereby equipping them to provide support at grassroots level. To this end, I recommend in-service training of educators already in the profession on how to mobilise and use vegetable gardens as a school-based initiative to address vulnerability and enhance the resilience of learners. As such, I recommend that the participants of this study share their knowledge and experiences with the broader community and neighbouring schools in an attempt to encourage school- based vegetable garden initiatives.

Finally, I recommend that educators, student-teachers and educational psychologists be trained on how to establish networks and partnerships in resource-constrained school-

community contexts. More specifically, if role-players can collaborate on school-based support initiatives, vulnerable learners may be better supported.

5.6.2 Recommendations for practice

Within the field of educational psychology, I recommend that educational psychologists in training, as well as practising educational psychologists undergo regular training on new school-based interventions as pathways towards enhancing community resilience. Due to the value of the school-based vegetable gardens foregrounded by this study, I urge practising educational psychologists to collaborate and form partnerships with educators in resource-constrained communities in order to incorporate school-based vegetable gardens in the school programme.

I furthermore recommend that the Department of Basic Education collaborate more closely with schools and assist them to initiate and sustain school-based vegetable gardens. Providing in-service training to educators as well as setting funds aside to assist them, may support the positive effect of school-based vegetable gardens. This may in turn encourage learners, educators and community members to develop the necessary skills, including resilience, to help them cope with challenging circumstances.

Within the immediate communities where I conducted my study, I recommend that the participants who were involved informally convey their experiences to community members and neighbouring schools. In this way, their own empowerment may be extended to others who can potentially also promote resilience within the broader community context.

5.6.3 Recommendations for future research

Based on the findings and conclusions of my study I recommend the following for future research:

- Exploratory studies that focus on the factors determining the success and sustainability of school-based vegetable gardens.
- Descriptive studies on other school-based initiatives that may promote resilience and facilitate positive change in primary schools in resource-constrained contexts.
- A follow-up study in resource-constrained communities, following the same research design and methodological strategies yet focussing on malnutrition among vulnerable primary school learners and addressing this through school-based vegetable garden initiatives.

- A follow-up exploratory study in the same communities to explore the way in which school-based vegetable gardens can be established to benefit the broader community.
- Comparative studies on the potential value of school-based vegetable gardens for secondary school learners' psychosocial functioning and academic performance.
- A descriptive study to examine the possible link, between school-based vegetable gardens, experiential learning and learner performance.

5.7 CONCLUSION

In this study, I focussed on a potential community-based resource (school-based vegetable gardens) to investigate its potential effect on the resilience of primary school learners in resource-constrained communities. More specifically, I explored the effect of such projects on the well-being of learners in nine schools in the Eastern Cape Province in South Africa. I aimed at gaining insight into how school-based vegetable gardens can support learners to overcome the challenges they face.

The findings of the current study indicate that the resilience of learners in schools in resource-constrained communities can be supported through their involvement in school-based vegetable gardens. This is due to the skills, knowledge, and personal attributes they may gain through their participation, as well as the knowledge and skills educators may gain by facilitating school-based vegetable gardens, which may ultimately lead to positive change. To this end, I can conclude that school-based vegetable gardens can be utilised by schools and/or communities to support the resilience of learners, and potentially also that of their families and the community at large. Based on this conclusion, I can recommend that future researchers and facilitators of resilience interventions may focus on similar studies or initiatives, specifically when working in resource-constrained contexts.

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APPENDIX A

PERMISSION TO CONDUCT RESEARCH

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Faculty of Education

Ethics Committee

16 May 2017

Mr S Dippenaar

Dear Mr Dippenaar

REFERENCE: EP 06/11/01 Ferreira 17-001

This letter serves to confirm that your application was carefully considered by the Faculty of Education Ethics Committee. The final decision of the Ethics Committee is that your application has been **approved.** The decision covers the entire research process, until completion of the study report, and not only the days that data will be collected.

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

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

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

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

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

Please quote the reference number **EP 06/11/01 Ferreira 17-001** in any communication with the Ethics Committee.

Best wishes

Prof Liesel Ebersöhn
Chair: Ethics Committee
Faculty of Education

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APPENDIX B

EXAMPLE OF FIELD NOTES

(ALL FIELD NOTES INCLUDED ON MEMORY STICK)

The following abbreviations apply: PRA-1= PRA- based workshop conducted in May 2017; PRA- 2 = PRA- based workshops conducted in September 2017; MC = Member checking session conducted on 28 May 2018; P = Participant, S = School, followed by a symbol of the school, e.g. S-A; FN = Field notes; RJ = Research journal. At each school the specific participant response is indicated with a small number e.g. C^3.

The number of each participant in each school is:
A1-5, School B 1-4, school C 1-4, school D 1-6, school E 1 and 2, school F 1-3, school G 1-10, school H 1-11, school I 1-4.

PRA-1 May 2017

SCHOOL	FIELD NOTES
F	**For the community:** Learner, Educator, School…we have the same things. **For the school:** Unity, collaboration. **For the learner:** Awareness. Some kids don't know what the garden is about. They gain knowledge. Develop pride. They become accountable. **For the educators:** "Share information and produce." "Uplifting the standard of our community." Increased community involvement within schools **$ST^5$4.2**
D	**For learners:** Sole beneficiaries, gain knowledge, skills, self-confidence, Promotes healthy living and a sense of responsibility **For teachers:** Develops their skills that we are going to plough back into our school, create. Care and emotional support. More focussed and more centred when I am done in the garden. Support school leadership programme. Attract outsiders. Helps long term partnerships. Job Opportunities. They take ownership of the school. It has brought hope to our School…for children from disadvantaged

communities **ST1.1**

Job creation and skills development **ST2.2**

Development of love, passion and sacrifice within the teachers **ST4.1**

Increased community involvement within schools **ST4.2**

G **For the learners:** “It gives knowledge.” “To be environmentally literate.” “To have a goal to achieve.” “To be able to take care of something.”

[5] ST = Sub-Theme

For teachers: “Aware of what to eat.” “Also teaches about confidence.” “It has brought hope to our school … For children from disadvantaged communities.” “Build networks.” “Motivates parents to do their own home gardens.” “Skills of entrepreneurship.” “Carry responsibility and to bring it back …. Ubuntu.”

Job creation and skills development **ST2.2**

Increased community involvement within schools **ST4.2**

B **For learners:** Interested in working in the garden. They get skills. Knowing about healthy living. They are entrepreneurs… They know how much they can charge. They get self-confidence to answer you, because they have knowledge.

For teachers: They got exposure. They go to exhibitions. They learn about discipline. Educators feel proud. Exposure to show skills. Integrate gardening with other learning areas. Teachers appreciate what they have done. Get knowledge from other. Teachers get to know teachers better.

For the school: Gets vegetables for nutrition programme. Exposure. More family members are sponsored. Financial gain, re-sell the veggies. Good relationship with the community. Good relationship with them. Community can help with the employment. Fresh veggies. sold at a reasonable price. Parents feel proud when they see the gardens of the children.

Gets vegetables for nutrition programme **ST1.2**

Increased community involvement within schools **ST4.2**

A Competitions put pressure on us. When learn from other schools get motivated. Gain ideas how to generate funds – websites to improve what we have learn what we have learned here. Discipline …. Rules…. Do and don’t. We are going to take it back.

For the community: Create jobs. Teaching them to have their own home gardens. Protect the school gardens. Generating funds …Edu plants, beautifying the school grounds. Re-use unwanted things. Use it to recycle. Health promotion. Unify staff members (agri-entrepreneurs). School based vegetable gardens make a real difference to child health

and life skill development. School-based-vegetable-garden have many roles in the life of the school as well as community. Social Capacity Building and preparation for the life after school.

Job creation and skills development **ST2.2**

Gained knowledge on how to improve what we have learned already and building on that knowledge **ST4.1**

Increased community involvement within schools **ST4.2**

I Vegetables for nutrition programme. Exposure – more spacious – networking with… Financial gains. Good relations with community. Beautify the school grounds.

For the community: Skills – through workshops. Employment opportunities. Fresh veggies, seeds. Good working relationships.

For teachers: Satisfaction – Team work. Exposure – networking with social partners. Skills (mere knowledge) – and potential partners. Get appreciated – get to know learners better. Sharing – therapeutic

For the learners: Nutritional food. Life skills – gardening, entrepreneurship skills. Assist in their projects for Natural Science (science club). Discipline. Knowledge. Exposure – do presentation about their garden. Self-confidence.

Food for vulnerable…supporting vulnerable children **ST1.1**

School-based vegetable gardens make a real difference to children's health and life skill development **ST2.2** **ST1.3**

Job creation and skills development **ST2.2**

Increased community involvement within schools **ST4.2**

Exposure towards sponsors and networking with other stakeholders **ST4.2**

C They get healthy food. Discipline. Team building. Mutual relationships. Fundraising effort.

Brings hope to vulnerable children **ST1.1**

Increased community involvement within schools **ST4.2**

E **For learners:** Self-reliance. Listening skills. Increased vocabulary. Sensory integration. For teachers: Teamwork. "We as teachers learn from children as well." "Share information." Three-way relationship

Enhance the vocabulary of learners **T[6]2**

Increased community involvement within schools **ST4.2**

H **For learners:** Increased interested. Absenteeism. Taken more responsibility. Level of observation. Language vocabulary. Links with science. Food for vulnerable

For educators: Take it more seriously… It is like theory … Teamwork.

For the school: Beautification. Attraction site for tourists. Food for trees for Africa. Edu plant. Awareness in gardening to plant own crops. Help to look after garden

Increased community involvement within schools **ST4.2**

PRA-1 MAY 2017

CONVERSATIONS WITH SCHOOL PRINCIPALS AND DBE REPRESENTATIVES

Ronel: Saturday 28 May 2017. Word of welcome, Intro and purpose of colloquium. Principle and management are the key.

Liesel: Reflecting on UP'S journey of partnering with schools in the Eastern Cape. What was the purpose of the partnership? A-B-A with teachers to provide psychosocial support in school communities because of HIV & AIDS. (STAR). Outcomes and support (Picture). From start to present. Vegetable gardens were consistent. First Gate See (Picture).

Andre: The school principle as key to successful project management. Respect. What does it say about you? (being here on a Sat – not being part of). Why are you starting the project? What is the need? Economic as a fundraiser for the school. Providing nutrition for children. Gain knowledge. Educating children to change attitude and environments

Project: Bringing about change.

[6] T = Theme

MANAGEMENT*:*

- Maintenance activity
- What do you maintain?
- How to do
- When to do

IMPROVEMENT AND CHANGE:

Leadership: Inspiring people to bring about change. Needs some management principles. 1st Thing that happens to project management?

Principles: Accountable for what happens at the school. Idea – inspiration visualisations. Applicating leadership to a certain person. Support to person's responsible of the vegetable gardens. What is project management? Be updated all the time. Advocating leadership role. Working for the 3 benefit of other people. Most important: Sponsor yourself.

Principles and planning: Promote project and explain the importance of the project. There is no fixed way: each project/context differs. Deliverables in terms of vegetable gardens – the harvest must be visualised. THE JOURNEY OF A THOUSAND MILES START WITH A SINGLE PERSON. Principle 9 (What can you do as Principle to promote active participants?) Sold and resold – communicate ideas.

POSSIBLE THEMES:

- Planning
- Proud of work & believing in themselves
- Work ethic
- Knowledge and skills
- Information sharing
- Awareness
- Change in learners: Self-sufficient. Independent. Entrepreneurial skills. Become less shy.

SCHOOL **FIELD NOTES**

D Identify ideal garden site

Choosing a garden site is as important as selecting the vegetables to grow in it. First, select for sunlight, but if you don't have that, look for a shade-free place. All vegetables need a minimum of six hours, preferably eight,

of sunshine.

Collecting manure to fertilize the soil.

Manure is an excellent fertilizer containing nitrogen, phosphorus, potassium and other nutrients. It also adds organic matter to the soil which may improve soil structure, aeration, soil moisture-holding capacity, and water infiltration

Digging and preparing the soil

When digging the soil, make sure that you lift-up the plots to make an allowance of roots to spread well. Cover the top with catted grass or any organic material for mulching. Make sure that you take out all the stones.

Fertilizing the soil with manure

Make sure that your garden is fertile by adding some manure, compost and much other organic matter.

Lay –outs

When doing lay-out makes sure that it is attractive, you can use anything e.g. Plastic bottles, tyres stones and other material that are not recyclable in order to help the environment.

Planting of seeds

When planting seed use trays with holes. Put soft soil in a tray and some seeds. You can also plant seeds direct to the garden in a small place with soft soil.

Watering the garden

When watering the garden use methods that will save water e.g. Plastic bottles, buckets. Do not use horse pipe x

Crop rotation system

Here is the example of crop rotation, this system can help the gardener to be able to get vegetable throughout the year.

E **Seed:**

- Small quantity of seed
- Lack of variety

Pests:

- Guinea fowls and other birds
- Monkeys
- Snakes
- Aphids

Fencing:

- Allowed pests to have access
- Children playing in the garden unattended

Scheduling:

- Initially having 2 breaks, but being reduces to just one
- Allow time for the children to eat

Rules of the garden:

- Respect each other
- No running in the garden
- No walking or standing in the vegetable beds
- Keep the garden clean
- Do not play with garden tools
- Do not pick fruit or vegetables without asking

Going forward:

- Visible board with garden rules
- Small tools for children to use
- Integrated “curriculum” or manual
- Sustained source of seed
- Pest control – snakes
- Functional compost system

- Fencing

G **Stakeholders:**

- Principal
- Educators
- School governing body

Garden committee:

- Educators
- SGB

Success:

- We managed to create a new garden
- We harvested some of our crops and use it for feeding
- Beautified the school
- Created healthy environment
- We have a strong working committee

Challenges:

- Infertile soil
- Shortage of tools
- Drought
- Didn’t do enough research
- No parental involvement yet
- Insects and bugs that eat crops
- Flooding

Future success:

- We would like to benefit school nutritional
- Also, the community (orphanage home, old age home and clinics)
- Sell our production so that we can buy more seeds and fundraise for the school.
- Bring back the culture of gardening in the school also have classes that will teach learners the importance of having a garden at home

A We have the problem of moles. So, we recycled the old cupboard. We made small holes for drainage underneath it. Mulching is important

especially between January – April. That is when the heat is intense grass becomes scarce. Then we use leaves from our trees. In the past we were under using the space. At one time I visited a garden in Seyisi location. I observed how they used their space well. It is easy to support them as they grow up. Tires are places in the garden that have uneven soil and the tires are used to straighten them. This controls soil erosion. Last year we produced very poorly. We decided to give up that part of our garden to an organisation. We are trying to overcome this problem by mulching our tree for better produce. Because of water shortage. We are trying by all means to save water. Learners putting planting compost under the tree.

B Our school has been gardening for years, it has helped us to contribute to the school's feeding scheme and we have given some needy children vegetables to take home. Earlier in the year we had a problem starting the garden because it was always hot and Nelson Mandela Bay had strict water restrictions in place. We were originally working with volunteers from the community. Unfortunately, they abandoned the project, since then we have been working with students. We requested and received help from Mr. Balangile and the students in Grade 4 and 7 with gardening and watering the garden We look forward to keep contributing to the school's feeding scheme. We hope that in future we can produce enough vegetables to donate to our needy children regularly.

F This project started in 2016 and it was the responsibility of the environment committee. The committee consists of six educators. The committee started the garden with grade 7 boys to clean the space. Fortunately, VW sponsored the school with trees and flowers. Grade 7 boys and girls helped in watering of trees and flowers, because there was no gardener at that time.

We had the following challenges in our backyard:

It was neglected and dirty with a lot of papers. It was home for snakes and frogs. We then decided to change it to a vegetable garden. Since our garden is in the backyard, we once had a challenge of finding our garden vandalized / destroyed by goats. Our soil is very sandy and this year it was

very hot in February to April, some vegetables died because of the heat from the sun. Another challenge we had in our garden was the problem of pests that destroyed our vegetables especially the spinach. We then made friends with people who live closer to the school. They helped us by looking after our garden during weekends and holidays. We started the garden with very limited resources (garden tools, man power etc.). The space where the garden is, was very grassy. Parents of grades 7 learners helped us with tools. Grade 7 boys were very much helpful in removing the grass for the garden.

Success and solutions: The committee sold the vegetable to the educators. We also managed to have some vegetable for feeding our learners. This year we are planning to sell to the parents. Also, we are going to give seedlings to the learners to plant at home.

PRA-2 September 2017

SCHOOL	**FIELD NOTES**
I	About the school: 653 learners, 16 teachers, 2 SGB. Eco code adopted as a school. Saving: electricity and water. Recycle and re-use. Garden providing vegetables for the food program. Spinach. Market day, R 6 per spring onion made R1200. Warm form: organic compost. Benefits from the garden project. Main challenge: school municipality, Water use, Minimise. Feel confident in the knowledge they gained **ST2.1** Feel confident in the knowledge they gained **ST3.1** Increased community involvement within schools **ST4.2**
F	**Challenges:** Backyard neglected. A lot of snakes and frogs. Garden vandalised by goats and dogs. Drought. Sand is very sandy and dry **Overcoming the challenge:** Friends who live near the garden to look after the garden over weekends as well as holidays. Selling vegetables to educators. Vegetables feeding some children. Planning to sell vegetables to parents. Give seedlings to

children to take home to plant gardens @ home. (Wanting to involve the smaller/younger children)

Contributed to the feeding programme…eating healthier **ST1.2**

Feel confident in the knowledge they gained **ST3.1**

Increased community involvement within schools **ST4.2**

A Found that the kids were feeling tired. Aim of a soup kitchen – feeding scheme.

Challenges: Drought. Problem of moles. Goats. Recycled board. Make holes and plant in. Ground uneven. Destroying the garden especially over weekends.

Water wasted: Drums under taps. Children wash their hands, water goes into drum and they pour it into their vegetable gardens

Feel confident in the knowledge they gained **ST3.1**

Increased community involvement within schools **ST4.2**

Stakeholders closer such as the department of agriculture, department of basic education, the department of health as well as the department of water and sanitation **ST4.2**

G Schools background (Gardener Spoke). Have they got involved (2016).

Success: Created new garden.

Challenges: Infertile soil. Shortage of seeds. Draught. No potential. Indifferent. Insects and bugs et crops. Flooding. They would like to benefit school nutritional. Also, the community, orphanage, old age, clinics.

Feel confident in the knowledge they gained **ST3.1**

It helps learners behave in a better way. In my project the learners who really don't behave in my project I say you are going out of my project, so they must start to behave **ST3.1**

When we talk, they listen **ST3.1**

Increased community involvement within schools **ST4.2**

E Semi-Rural setting. Vision – Garden to be a teaching school and feeding children in school. One Life funded the project (Allison Colin)

Challenges: Lack of variety of seeds. Pests. Schedule. Overcoming challenges. Asking children to commit (50c per child). Scarecrow. New borehole.

Rules of garden: New time table. Security for teacher involved. Visible board with garden rules. Small tools for beds. Going forward. Integrated curriculum. Sustained Save for seeds. Artificial compost. Pestered of snakes. Learning. Involvement of learners? Winning up the piece of garden.

Stakeholders closer such as the department of agriculture, department of basic education, the department of health as well as the department of water and sanitation **ST4.2**

Feel confident in the knowledge they gained **ST3.1**

Formulated some rules to be adhered to when learners entered the vegetable garden, as they initially experienced some learners not displaying the necessary respect **ST3.2**

Increased community involvement within schools **ST4.2**

D Arrive, no garden. Team of UP - Motivation given to pick up and start the garden. No security guards. No sponsor – providing themselves a lot of shortages. Garden still on a small scale

Aim: To have a garden for the rest of the year and not only for a season. Ultimate goal that the garden goes beyond just to be @ school but as their home to better their health. Despite shortage of watering tools (normal good) they plan to gain it. Trying to gather as many parents as possible. Trying to meet the needs of the community. Promoting – EL, NE, Food production and sustainability.

Feel confident in the knowledge they gained **ST3.1**

Increased community involvement within schools **ST4.2**

H Children bringing grey water from home to the school. Come even when sick. Providing Meals. More teachers aboard. Making gardens @ home Garden. Seeds from neighbouring schools.

Link the vegetable gardens to science **ST2.1**

Feel confident in the knowledge they gained **ST3.1**

Increased community involvement within schools **ST4.2**

MEMBER CHECKING 28 MAY 2018

SCHOOL	FIELDNOTES
A	It supplements the School's kitchen as well as nutrition programme
	Increased community involvement within schools **ST4.2**
	exposure towards sponsors and networking with other stakeholders **ST4.2**
	Networking and collaboration Networking and collaboration **ST4.2**
E	It promotes responsibility…combats irresponsibility, because the learners feel that they own something **ST3.2**
	Increased community involvement within schools **ST4.2**
B	Increased community involvement within schools **ST4.2**
C	Increased community involvement within schools **ST4.2**
D	Increased community involvement within schools **ST4.2**
F	Increased community involvement within schools **ST4.2**
G	Increased community involvement within schools **ST4.2**
	In terms of networking and collaboration for our School this platform is a community of practice where we share best practice, because for the people who are willing and the people who are interested in our project we have created a WhatsApp group where we are sharing everything about gardening. We are sharing photos and beautiful ideas about gardening. So, this platform really has created something for us **ST4.2**
H	Increased community involvement within schools **ST4.2**
I	Increased community involvement within schools **ST4.2**

APPENDIX C

RESEARCH JOURNAL

November 2016

The topic of my study caught my attention, since it is conducted in conjunction with Professor Ronél Ferreira whom I admire. This is one of the reasons why I chose the topic. Another reason why I initially chose this topic is because it is within my field of interest. Learners situated in resource-constrained communities, young learners, and promoting vulnerability are all aspects within my interest.

Potential research questions

Without really knowing much detail regarding my study, I have formulated a few questions I would like to know in undertaking the current study.

1. How can vegetable gardens promote the physical well-being of learners?
2. How are school-based vegetable gardens sustained?
3. How can vegetable gardens promote the health of young vulnerable learners?
4. What resources can be identified within resource constrained communities in the Eastern Cape Province, South Africa?

Meeting with Professor Ronél Ferreira, she guided me in terms of the research questions and explained how research questions is formulated. She gave me an over all introduction on the study I am conducted such as the purpose, aim, and the methodological strategies. She further gave me an overview on how the data is going to be documented as well as analysed.

I was overwhelmed, as my knowledge in terms of research is very limited. I was also confronted with the challenge of my writing skills as it posed numerous challenges at this stage. During this meeting we restructured my questions in order to fit the aim and purpose of the current study.

January 2017

During the start of January 2017, I had to submit our first drafts of assignments which prepared me in submitting my first drafts of chapters for this study. During this time, I found it very challenging to understand how to search for relevant articles and books which relates

to my topic under investigation. My knowledge on how to conduct research is very limited and it was difficult for me to understand and make meaning of articles related to my study. Furthermore, I am finding it difficult to reference articles correctly according to the APA method. I am discouraged by my first feedback, felt like a failure for having so many corrections, the need to read broader and to present my content in a well written, organised manner.

February 2017

I am excited for going to Port Elizabeth for my first field visit, where I will be collecting my first set of data. I am feeling like a true researcher, even though I still have to extend my knowledge on my data generation methods.

27 and 28 May 2017

I am ecstatic, we are in our way to the colloquium in Port Elizabeth in the Eastern Cape Province, South Africa. On the plane Friday evening, I met my co-researcher Cleo, whom is also working on the broader project whilst completing her PhD. I am in awe of her knowledge about the broader project. During our flight she has given me a lot of tips on what to do and how to do certain things. She has assured me that I do not need to stress as I have a lot of support during my PRA-Based session where I will be asking the participants, what the value of the school-based vegetable gardens are in regards to the learners, teachers, school and community. On Saturday I was nervous in meeting the participants of my study. I was introduced to the participants and there were a lot of discussion from the stakeholders involved in this project. These discussions broadened my understanding of my study. I learned a lot through observing how and what the stakeholders are doing during the facilitation of their PRA-workshops. Cleo, has helped me with writing down some field notes while I was facilitating my PRA-based workshop.

As the colloquium continued, I became more aware of the importance of my role as researcher and gaining a better understanding of what research entails. During this field visit, for the first time I am getting excited about my topic under investigation. I gained a lot more confidence in my study and it instilled in me the need to better myself as well as my understanding of my study. It saddens me that the colloquium came to an end and I can't wait for my next visit. I am astonished of what the participants were doing in regards to the school-based vegetable garden projects and how they utilise their resources and combat their challenges they face. I once again realised why I have a passion for being a vessel

which God can use, to better the lives of those who are in need.

June to August 2017

Starting to write my first drafts on Chapter one to three, I am overwhelmed by the challenges I faced with each. Regular meetings with Professor Ronél Ferreira was held. She guided me in the right direction, explaining to me the outline of each Chapter and setting up time line in which I should submit my first drafts. She explained to me to start analysing my data I collected during my first research visit. Furthermore, she explained to me that we will be visiting the research site in September again. We held meetings on what my aim should be for the PRA-workshops I will be facilitating. I am super excited to visit the research sites again, and are less stress than the first time.

September 2017

We are preparing for our next research visit. I will be facilitating a PRA-workshop in investigating how the school-based vegetable gardens contributed to the well-functioning of the learners whom participated in the garden initiatives. I feel that for the first time my research is adding value and that I will collect reach information which can support my research study and add value to existing knowledge. During my second research visit, we have visited all nine schools and observed their gardens. I was amazed by the amazing initiatives the participants took in sustaining their gardens. As such, I was deeply touched on how some participants integrated the school-based vegetable gardens with the curriculum. Observing how the learners participated and worked in the gardens left me speechless. I realised how blessed I am. The commitment of the teachers motivated me in becoming a better person myself. For the first time my research came to life. I would not trade this experience for anything. The personal development it caused within me is something no textbook can teach me. During the facilitation of the PRA workshop, Cleo again helped me take field notes while I was facilitating. The participants and myself were able to form better relationships and it caused me to be more at ease. It was remarkable to see how grateful the participants were, their excitement and their contribution towards their school-based gardens. Afterwards, myself, Cleo and Professor Ronél Ferreira discussed the progress of the research projects. We shared our thoughts and experiences and we discussed the way forward.

December 2017 to April 2018

During this time, I spent a lot of time thinking about the data generated and how it contributed to my study. I slowly started to make meaning of the data generated and came up with preliminary themes using thematic analysis. I had to a lot of reading in order to familiarise myself on how to do thematic analysis. Furthermore, I met with Professor Ronél Ferreira, where she guided me with practical tips of thematic analysis. We sat with my collected data and she showed me how to identify themes and related sub-themes in order for me to do member checking during May 2018.

The preliminary themes and sub-themes I identified were the following:

1. **VALUE FOR LEARNERS**

Addressing basic needs.

- Healthy food, meals, nutrients. Improved eating habits, increased veg-intake. Balanced diet. Economically, reduces hunger, not vulnerable to disease. ST1.1
- Gardening helped to contribute to schools feeding scheme. Gave needy children vegetables. ST1.2

Increased knowledge and skills.

- Healthy living, gardening, entrepreneurship. Learners participating and shoving skills in planting seedlings. **ST2.2**
- Knowledge about the importance of gardening and the benefits there of. Education **ST2.2** and **ST2.1**

Supporting school performance.

- Reduce absenteeism, increased curriculum, listening skills, vocabulary, knowledge on subjects. **ST2.3**
- Involvement in the development, good performance, good attendance of learners, learning mathematics, vocabulary increased. **ST2.3**

Instilling life skills and personal values.

- Responsibility, self- esteem, pride, discipline, cooperation, social skills. **ST 3.1 and ST3.2**
- Opportunity to get to know other children, socialising, increased sense of importance and value, good behaviour, listening skills, caring, became independent. **ST 3.1 and ST3.2**
- Improved social life. **ST3.3**
- Increased mood, more confident. **ST 3.1 and ST3.2**

2. **VALUE FOR EDUCATORS**

Increased knowledge and skills.

- Value of garden, skills, awareness, nutrition. **ST4.1**

Positive effect on teaching practice.

- Insight into learners, curriculum integration, making theory practical. **ST4.1**

Networking and collaboration.

- Strong working committee **ST 4.2**

Personal development and growth.

- Increased therapeutic value. **ST4.1**
- Lack of respect for the garden – set up rules for the garden. Scheduling – setting up new time tables etc. **ST4.1**

3. **VALUE FOR SCHOOL COMMUNITIES**

Addressing vulnerability

- Possibility of income, entrepreneurship **ST4.3**
- Job opportunities, nutritional support, addressing nutritional needs. **ST4.3**
- Garden helped to contribute to schools feeding scheme, gave needy children vegetables. **ST4.2**

Strengthened school-community partnerships, relationships and shared responsibility.

- Collaboration on multiple levels, relationships in community, relationships with schools. **ST4.2**
- Increased community involvement in schools. **ST4.2**
- Taking responsibility, involved in school-based activities, feelings of pride. **ST4.2**
- Strong working committee. **ST4.2**
- Grade 7 parents helped with gardening tools – made friends with people from the community who lives near the school to look at the garden on weekends, public holidays and school holidays. **ST4.2**

Being empowered and taking agency.

- Increased awareness (nutrition/value of garden) **ST4.1**
- Increased knowledge **ST4.1**

- Increased skills **ST4.1**
- Increased skills starting home- based veg garden **ST4.1**
- Healthy life style **ST4.1**

Possibility of external exposure – opportunities and networking.

- Beautifies school, attracts outsiders, getting funds **ST4.2**
- Visiting gardens at other schools **ST4.2**

In viewing these themes and identifying them I am actually starting to get excited to write Chapter 4. It made realise the importance of school-based initiatives and really enhanced my understanding of the value of school-based vegetable gardens. With Chapter two already written, and having the existing literature and studies already conducted on school- based vegetable gardens at the back of my mind, it felt like my research is coming to life as I am comparing it with the current findings.

May 2018

I am saddened by the fact that my research visits are coming to an end. I am now preparing to do member checking with the themes and related sub-themes identified. I am confident this time with not stressing at all in facilitating the PRA-workshop. I presented the findings to the participants and I was astonished that the participants agreed to the identified themes and sub-themes. This was the most exciting research visit of them all. I experienced mixed emotions, happiness and sadness.

July to October 2018

The most challenging time of the past two years! Rushing towards the finish line. I am experiencing sadness and complete happiness, as this amazing journey is coming to an end. During this time, I was overwhelmed by the pressure in completing the mini-dissertation. There were times where I felt like I did not want to do finish the mini-dissertation and just leaving it till I regain a sense of control but as I completed Chapter by Chapter and writing the declaration and acknowledgement I came to realise the vale this study had for me personally. I developed personally, academically as well as professionally. If I think about it now, I would do it over again!

APPENDIX D

EXAMPLES OF THEMATIC ANALYSIS

(ALL SESSIONS ANALYSIS ARE INCLUDED ON THE MEMORY STICK)

Themes	Sub-themes
Theme 1: **Addressing basic needs**	**Sub-theme 1.1:** Addressing hunger and malnutrition **Sub-theme 1.2:** Enriching meals provided at school **Sub-theme 1.3:** Supporting healthy eating habits
Theme 2: **Increased knowledge, skills and school performance**	**Sub-theme 2.1:** Enriching subject-related knowledge **Sub-theme 2.2:** Acquiring skills **Sub-theme 2.3:** Reduced absenteeism and better school performance
Theme 3: **Personal development**	**Sub-theme 3.1:** Feelings of pride, self-confidence and self-esteem **Sub-theme 3.2:** Commitment, responsibility and accountability **Sub-theme 3.3:** Improved healthy functioning and social skills
Theme 4: **Indirect additional benefits**	**Sub-theme 4.1:** Benefiting from the value of vegetable gardens for teachers **Sub-theme 4.2:** Benefiting from parent and community involvement **Sub-theme 4.3:** Benefiting from financial gains

Theme 1: Addressing basic needs

Sub-theme 1.1: Addressing hunger and malnutrition

- *"Vulnerable learners are supported by the project because they are getting healthy food from the products"*

- *"Helps the most vulnerable learners to have a meal"*
- *"reduce hunger"*
- *"not being vulnerable to any diseases"*
- *"nutritional food"*
- *"nutritional needs through support provided"*
- *"nutritional food"*
- *"food for vulnerable…supporting vulnerable children"*
- *"It has brought hope to our school…for children from disadvantaged communities"*
- *"brings hope to vulnerable children"*

Sub-theme 1.2: Enriching meals provided at school

- *"Supports the school SNP"*
- *"It has brought hope to the school nutrition committee in enabling to feed those kids from disadvantaged homes or families"*
- *"Vegetables for nutrition programme"*
- *"contributed to the feeding programme…eating healthier"*
- *"good vegetables for nutritional programme"*
- *"gets vegetables for nutrition programme"*
- *"it supplements the school's kitchen as well as nutrition programme"*

Sub-theme 1.3: Supporting healthy eating habits

- *"Improved eating habits"*
- *"Healthy living"*
- *"Promoting healthy living"*
- *"…got nutritious food to eat"*
- *"promotes health"*
- *"school-based vegetable gardens make a real difference to children's health and life-skill development"*

Theme 2: Increased knowledge, skills and school performance

Sub-theme 2.1: Enriching subject-related knowledge

- *"eager to learn"*
- *"knowledge about the importance of gardening"*

- *"Planting seeds"*
- *"skills that the learners can plough back into the school"*
- *"Teaching them to have their own home gardens"*
- *"They are able to start their own vegetable garden, know how to take care of the garden"*
- *"intellect improves"*
- *"positive intellectuality"*
- *"feel confident in the knowledge they gained"*
- *"healthy and health conscious"*
- *"trusted in health and social issues"*
- *"know exactly the benefits of eating veggies raw or cooked"*
- *"learn more mathematics"*
- *"link the vegetable gardens to science"*
- *"integrate gardening with other learning areas"*
- "*enhance the vocabulary of learners"*
- *"Increased vocabulary, development of new words such as; pawpaw and mint leaves"*
- *"Language promoted, vocabulary increased"*

Sub-theme 2.2: Acquiring skills

- *"gained skills"*
- *"skills development"*
- *"skills that are life long and will assist them in their futures"*
- *"observational skills"*
- *"listening skills"*
- *"good behaviour"*
- *"being well-mannered"*
- *"sharing and caring"*
- *"It gave them the opportunity to work with others"*
- *"Teamwork"*
- *"cooperation"*
- "*participation"*
- *"environmentally aware"*
- *"competitive"*
- *"entrepreneurial skills"*

- *“entrepreneurship”,*
- *“possible income and job opportunities”*
- *“job creation*
- *and skills development”*

Sub-theme 2.3: Reduced absenteeism and better school performance

- *“involved in physical activities”*
- *“always responds well to activities”*
- *“encouraged learners to be practically involved”*
- *“good performance”*
- *“performance in class”*
- *“responsibility and discipline”*
- *“Reduces absenteeism”*
- *“Reduction of absenteeism”*
- *“Good attendance of learners”*
- *“Improved absenteeism”*

Theme 3: Personal development

Sub-theme 3.1: Feelings of pride, self-confidence and self-esteem

- *“sense of pride”*
- *“feel confident in the knowledge they gained”*
- *“Express themselves freely”*
- *“Free to express”*
- *“speak their minds”*
- *“Self-confidence”*
- *“More confident”*
- *“Confident”*
- *“Builds their self-esteem”*
- *“Self-esteem”*
- *“Self-esteem boost”*
- *“growth in the appearance from the learners”*
- *“feel valued and loved”*
- *“right mood”*

- *"smile"*
- *"bubbly with a healthy smile everyday"*, *"singing and playing freely"*

Sub-theme 3.2: Commitment, responsibility and accountability

- *it promotes responsibility…combats irresponsibility, because the learners feel that they own something"*
- *"it helps learners behave in a better way. In my project the learners who really don't behave in my project I say you are going out of my project, so they must start to behave"*
- *"when we talk, they listen"*
- *"They learn discipline in a way when you do something, you stick to it"*
- *"Discipline"*
- *"Discipline and responsibility are maintained"*
- *"Builds a sense of responsibility"*
- *"Responsibility"*
- *"More responsible"*
- *"Become more independent and improving their social life"*
- *"Education, responsibility and discipline"*

Sub-theme 3.3: Improved healthy functioning and social skills

- *"become more independent and improving their social life"*
- *"opportunity to work with others"*
- *"increase in the social life"*
- *"in a good health"*

Theme 4: Indirect additional benefits

Sub-theme 4.1: Benefiting from the value of vegetable gardens for teachers

- *"more skills"*
- *"to an awareness and taught them more about nutrition"*
- *"gained knowledge on how to improve what we have learned already and building on that knowledge"*
- *"development of love, passion and sacrifice within the teachers"*
- *"In our school we had a corner that used to be a dumping site. We had a new*

gardener who came up with new ideas. He cleaned up the space and created a love place where anyone can sit during their free time or breaker time to go sit there. We call it our peace corner"

- "*therapeutic value"*
- "*it creates a place where you can just think, and that it is a place where they can go after a rough day"*
- *"strong working committee",*
- "*unify staff members"*
- *"more focused and centred when I am done in the garden"*
- *"a place of care and support"*
- "*increased awareness"*
- "*nutrition"*
- "*value of the vegetable gardens"*
- "*increased knowledge and skills"*
- "*aware of what they eat"*
- *"I am now a pro in planting trees. I got a neighbour whose trees seeds fell in my yard and I take them and plant it"*
- *"Skill development"*

Sub-theme 4.2: Benefiting from parent and community involvement

- *"collaboration"*
- *"multiple levels"*
- *"increased community involvement within schools"*
- *"grade seven's parents contributed in donating some gardening tools"*
- *"made friends with members within their communities to help sustain the gardens on weekends, public holidays as well as during school holidays"*
- *"the vegetable gardens enabled them to take responsibility and leads to sharing mutual feelings or pride"*
- *"good relationships with the community…"*
- *"stakeholders closer such as the department of agriculture, department of basic education, the department of health as well as the department of water and sanitation"*
- *"In terms of networking and collaboration for our school this platform is a community of practice where we share best practice, because for the people who are willing and the people who are interested in our project we have created a WhatsApp group*

where we are sharing everything about gardening. We are sharing photos and beautiful ideas about gardening. So, this platform really has created something for us"

- *"exposure towards sponsors and networking with other stakeholders"*
- *"visit a garden at another location where they observed and learned"*,
- *"networking and collaboration"*
- *"home-based-vegetable gardens"*
- "*increase of home-based vegetable gardens"*
- *"it motivates parents to do their own home gardens…"*

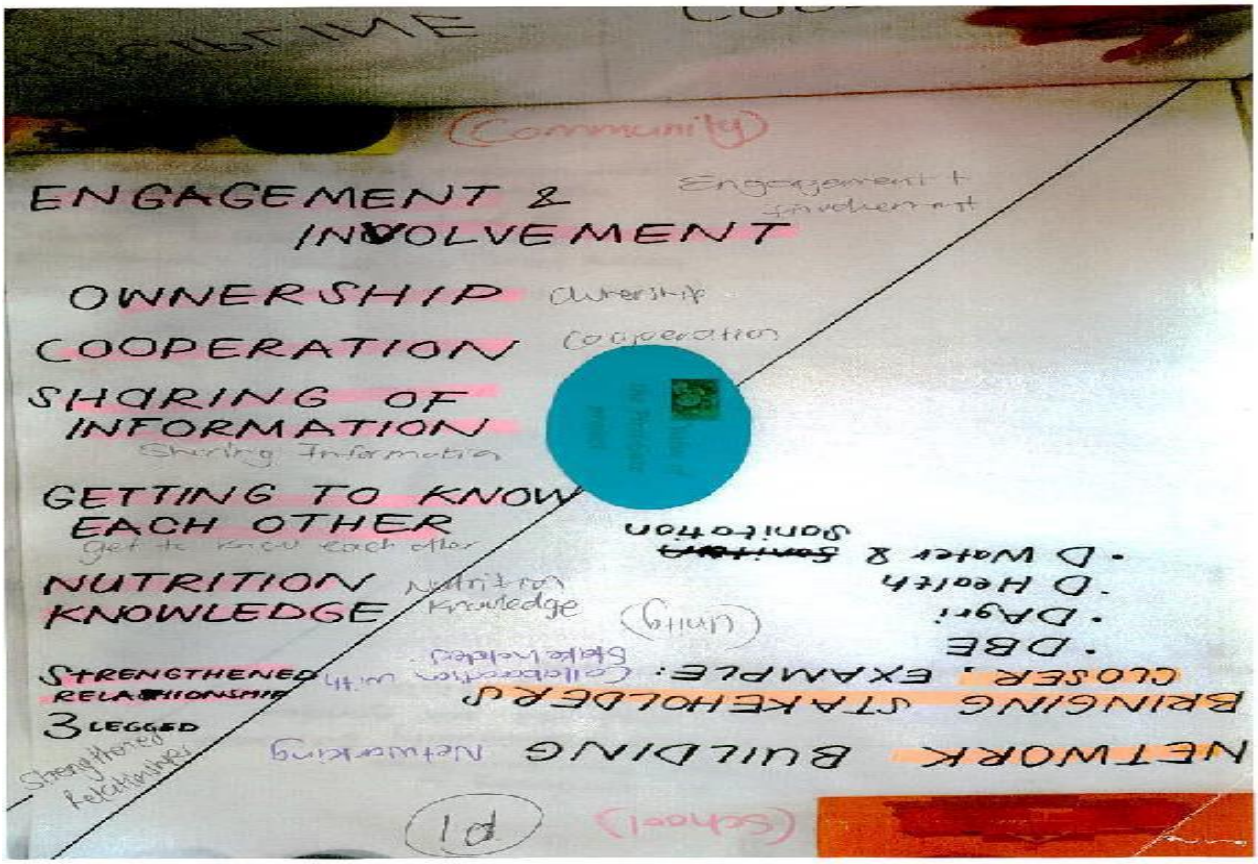
Sub-theme 4.3: Benefiting from financial gains

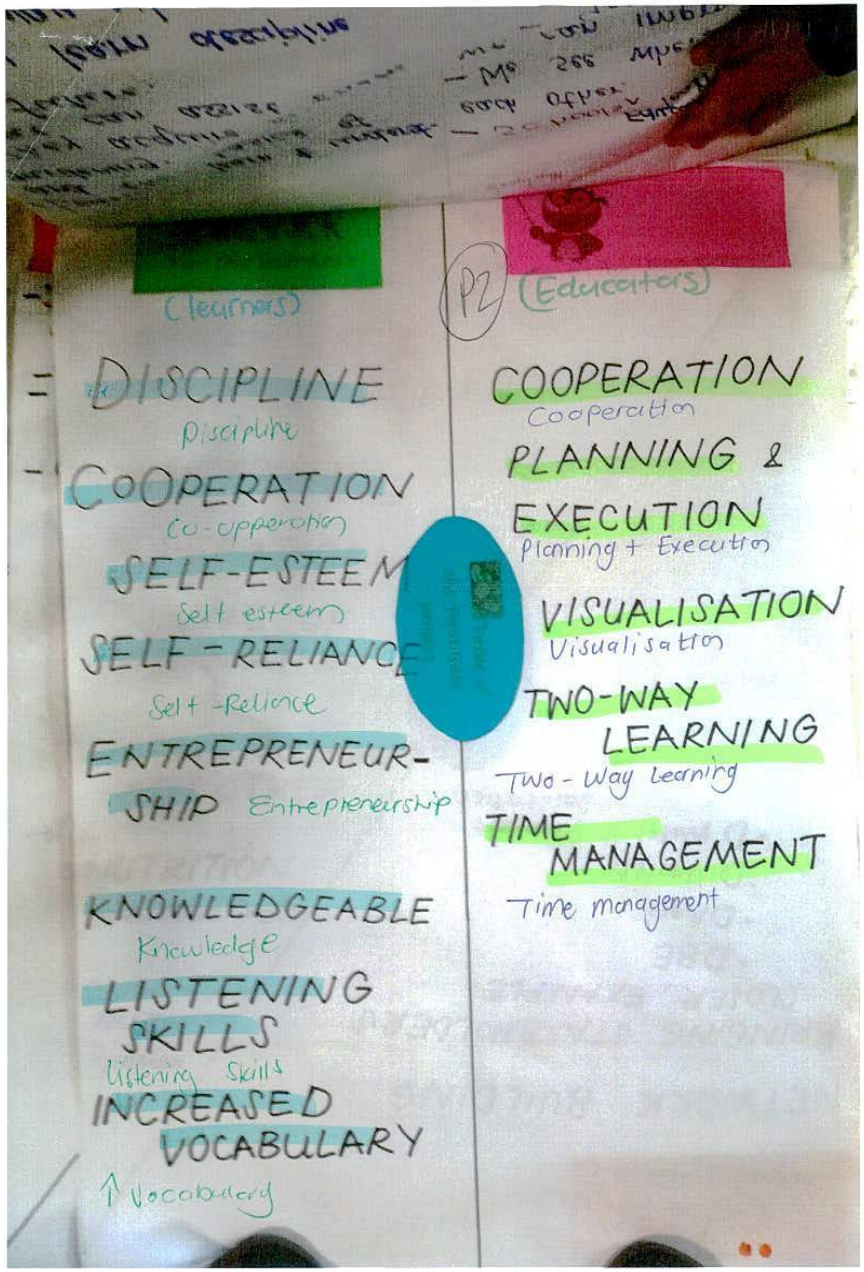
- "*fundraising effort"*
- *"We hold market day's where we sell our plants and use half of the money for the grade seven's farewell at the end of the year and the other we use to buy something for the school which is the grade seven's present towards the school"*
- "*sell the vegetables at a reasonable price"*
- "*possible income* and *job opportunities"*
- "*financial gain as we sell the veggies"*
- "*gain ideas on how to generate funds, knowledge on how to improve what we have learned already and building on that knowledge"*

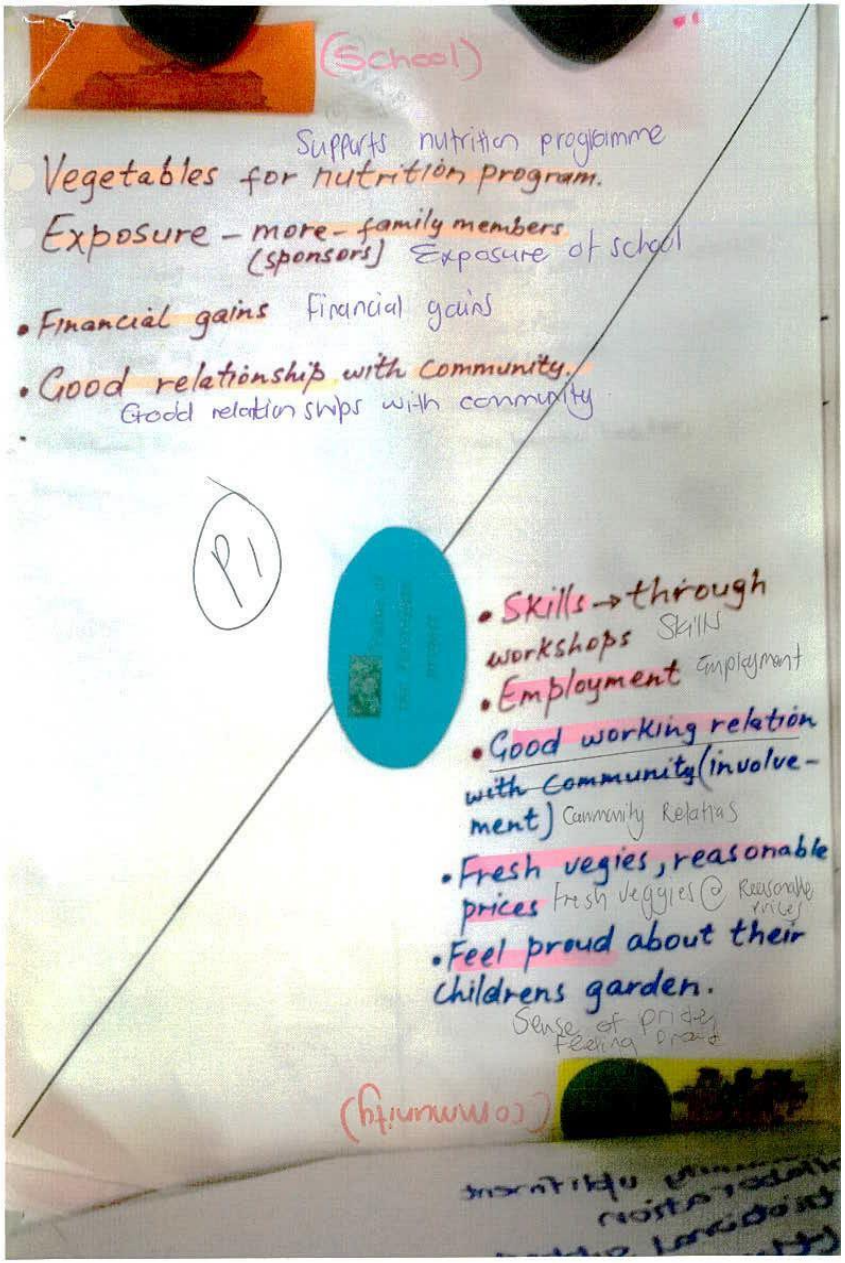
APPENDIX E

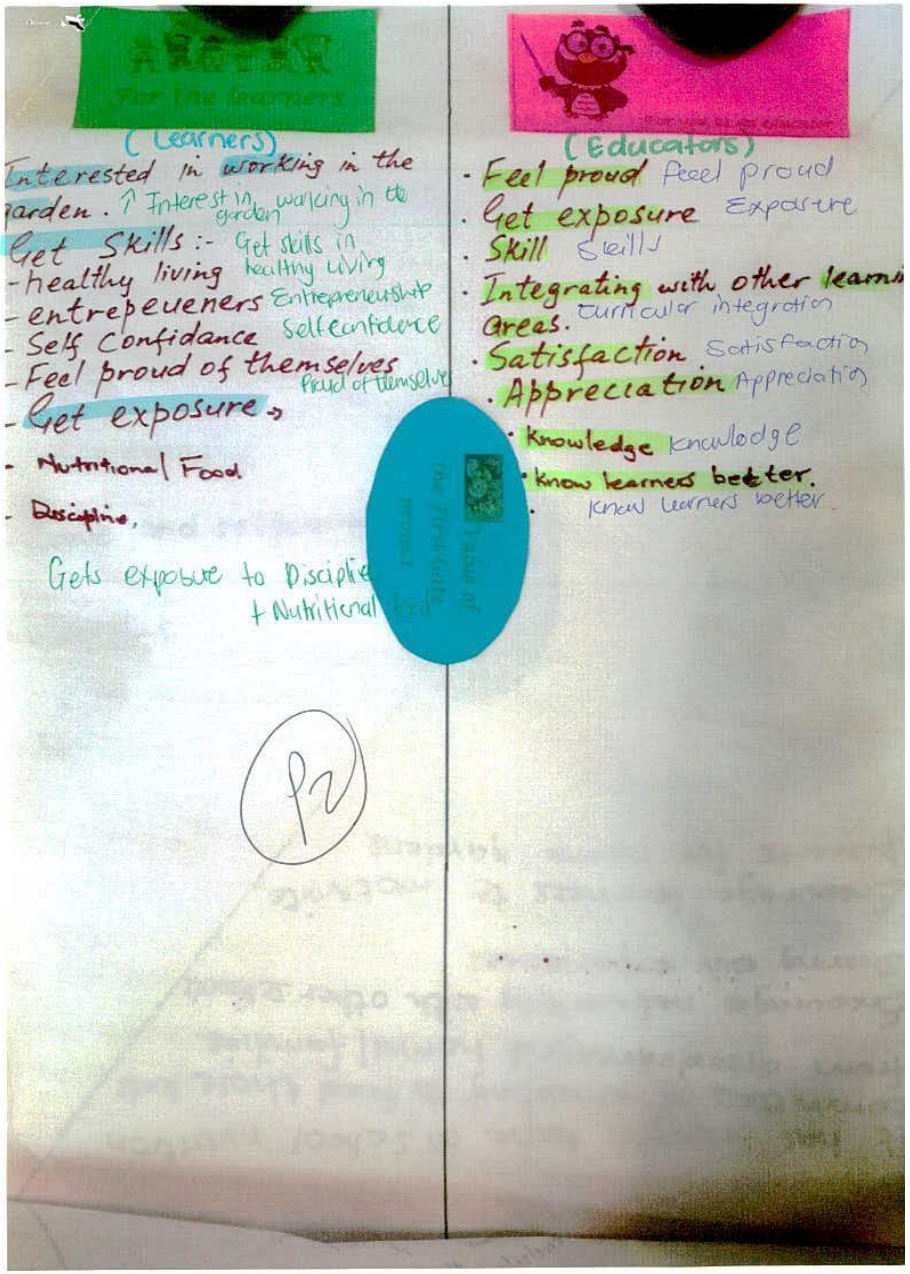
EXAMPLES OF ANALYSED VISUAL DATA

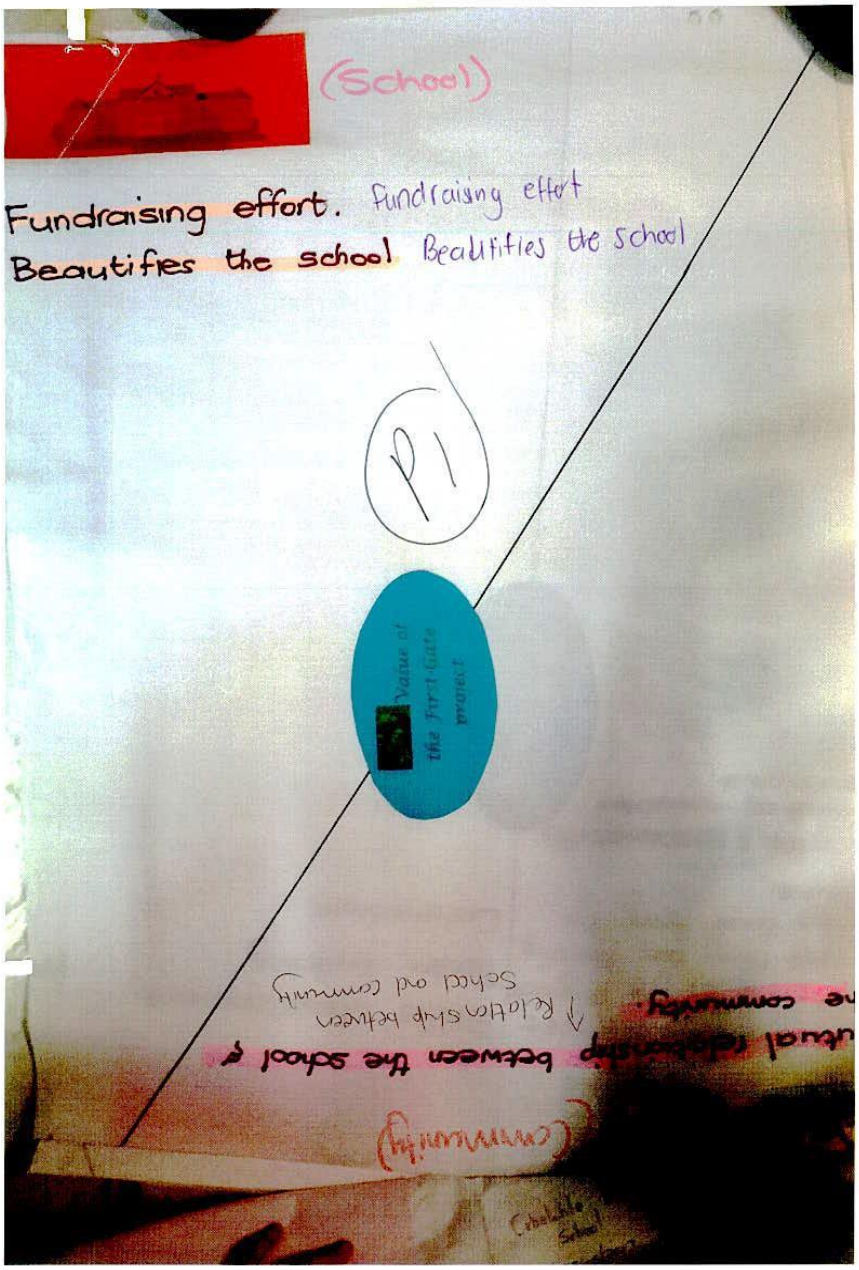
(ALL SESSIONS ANALYSIS ARE INCLUDED ON THE MEMORY STICK)




(learners)
P2
(Educaters)
DISCIPLINE
Discipline
COOPERATION
Co-upperation
SELF-ESTEEM
Self esteem
SELF-RELIANCE
Self-Reliance
ENTREPRENEUR-SHIP
Entrepreneurship
KNOWLEDGEABLE
Knowledge
LISTENING SKILLS
Listening Skills
INCREASED VOCABULARY
Vocabulary
COOPERATION
Cooperation
PLANNING & EXECUTION
Planning + Execution
VISUALISATION
Visualisation
TWO-WAY LEARNING
Two-Way Learning
TIME MANAGEMENT
Time management


(School)
Supports nutrition programme
Vegetables for nutrition program.
Exposure - more - family members (sponsors) Exposure of school
Financial gains Financial gains
Good relationship with community.
Good relationships with community
P1
Skills → through workshops Skills
Employment Employment
Good working relation with community (involvement) Community Relations
Fresh vegies, reasonable prices Fresh Veggies @ Reasonable prices
Feel proud about their childrens garden.
Sense of pride, feeling proud


(Learners)
Interested in working in the garden. ↑ Interest in garden working in the
Get Skills :- Get skills in
- healthy living healthy living
- entrepeueners Entrepreneurship
- Self Confidance Self confidence
- Feel proud of themselves Proud of themselves
- Get exposure →
- Nutritional Food
- Discipline.
Gets exposure to Discipli
+ Nutritional
P2
(Educators)
- Feel proud Feel proud
. Get exposure Exposure
. Skill Skills
. Integrating with other learn
areas. Curricular integration
. Satisfaction Satisfaction
. Appreciation Appreciation
. Knowledge Knowledge
. know learners better.
Knew Learners better


(School)
Fundraising effort. Fundraising effort
Beautifies the school Beautifies the school
P1
Value of the First Gate project
(community)
Relations ship between the school &
School and community