Teachers' perceptions of the food consumption practices of a resource-constrained community

Elzaan Cook (nèe Smuts)

2016

Teachers' perceptions of the food consumption practices of a resource-constrained community

by

Elzaan Cook (nèe Smuts)

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
Mrs Karien Botha

CO-SUPERVISOR
Prof. Ronél Ferreira

PRETORIA
2016

Acknowledgements

- My supervisor - Mrs Karien Botha: I would like to thank you from the bottom of my heart for being such an amazing supervisor. Your kind heart always guides you and this will inspire me in the years to come. I appreciate your endless understanding, and that you went out of your way to assist me. Thank you for always being available and for being such an approachable person.

- My co-supervisor - Prof. Ronél Ferreira: I would like to thank you for your kindness and humble nature. I hope that I can one day inspire others in the quiet, down-to-earth manner that you do. Thank you for knowing and respecting the human heart and what it needs to stay motivated. You also have my gratitude for organising financial support for this study.

- My heavenly father - God, Jesus Christ, Holy Spirit: For endless grace and favour. Thank you, Lord, for choosing this path for me and for keeping me going. I will not disappoint you.

- My amazing husband - Justin: I love you. Thank you for supporting me through this journey. Thank you for believing in me and for believing the best about me. Thank you for your endless optimism and for being the motivator of all motivators. I admire you and you inspire me to excel every day.

- My little ray of sunshine - Leiya-Love: I am sorry for the time spent away from you as I finished my dissertation. Thank you for being such a joyful little one. Mommy loves you so much and finished this for you.

- My parents - Adri and Marietjie: Thank you for supporting me and believing in the career path that I chose. I always felt that you stood behind me, no matter which decisions I made.

- My parents-in-law: Thank you for your support and for the interest you have shown in my studies.

- My friends and family: Thank you for your prayers and endless support.

- The Institute of Food, Nutrition and Wellbeing (IFNuW) at the University of Pretoria: Thank you for providing me with a bursary and the opportunity to complete my degree.

- My language and technical editors - Sarah and Adrie: Thank you so much for all your hard work and for really going the extra mile to help me complete this undertaking.

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

GRAMMARFFITI

12 December 2015

DECLARATION OF LANGUAGE EDITING FOR ELZAAN COOK

Dear Mrs Botha / Prof. Ferreira

I, Sarah Heuer, hereby declare that I have edited the Master's dissertation: ***Teachers' perceptions of the food consumption practices of a resource-constrained community*** for language, formatting and style. Unfortunately, I cannot accept responsibility either for work that I did not edit, or for changes that were made to my editing.

If you have any queries, feel free to contact me by emailing sheuer20@gmail.com.

Sincerely

Sarah Heuer

BIS Hons (UP)

Declaration of Authenticity

I, Elzaan Cook (student number: 25011830) hereby declare that all the resources consulted are included in the reference list and that this study, titled:

Teachers' perceptions of the food consumption practices of a resource-constrained community

is my original work. This mini-dissertation has not been submitted by me for any degree at another educational institution.

_____ _____

Elzaan Cook **Date**

--oOo—

Ethics Statement

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

_____

Elzaan Cook

January 2016

---oOo---

Abstract

Supervisor : Mrs. Karien Botha
Co-supervisor : Prof. Ronél Ferreira
Degree : M.Ed (Educational Psychology)

The purpose of this study was to investigate teachers' perceptions of the food consumption practices and nutrition-related needs in a resource-constrained community, in terms of food choice, food production and food preparation. The study forms part of a broader research project, which aims to facilitate health and well-being in resource-constrained communities, in support of reaching the Millennium Development Goals (MDGs).

Interpretivism was utilised as meta-theoretical lens and a qualitative approach was followed. The Food Decision-making Framework (FDF) and Bioecological Theory of Human Development constitute the conceptual framework. A Participatory Reflection and Action (PRA) research design was utilised to generate data with 45 purposefully selected Intermediate Phase (Grades 4 to 6) teachers from three primary schools in the Bronkhorstspruit area. Data were generated and documented through PRA-based workshops, observation, visual techniques, field notes and a reflective journal.

Following inductive thematic analysis, four themes and related sub-themes emerged. The first theme relates to the eating behaviour of the community, reflecting food consumed during breakfast, lunch and dinner. Secondly, consumer behaviour was identified as a theme, indicating that community members primarily obtain food from the school feeding scheme and donations, local shops and vendors, the local dumping site, and community-based food gardens. The third theme highlights knowledge and skills required by community members, as perceived by the teachers. Finally, the fourth theme indicates information that could be included in the current Intermediate Phase school curriculum.

Based on the findings it can be concluded that this community's food consumption patterns are primarily affected by factors in the macrosystem, namely poverty, unemployment and westernisation. Teachers were of the view that parents may benefit from information sessions/workshops, as this could facilitate change on the micro-level, macro-level and exosystems. Changed food consumption practices within the community may, in turn, effect change in the macrosystem by informing related future interventions.

---oOo—

List of Keywords and Abbreviations

Keywords

- Curriculum enrichment
- Food choice
- Food consumption practices
- Food Decision-making Framework
- Food preparation
- Food production
- Millennium Development Goals (MDGs)
- Nutrition-related needs
- Participatory Reflection and Action (PRA)
- Resource-constrained communities

Abbreviations

- Curriculum and Assessment Policy Statements (CAPS)
- Department of Agriculture (DoA)
- Department of Basic Education (DoBE)
- Department of Health (DoH)
- Department of Social Development (DoSD)
- Food and Agricultural Organisation (FAO)
- Food-based Dietary Guidelines (FBDG)
- Food Decision-making Framework (FDF)
- Integrated Food Security Strategy (IFSS)
- Integrated School Health Policy (ISHP)
- Millennium Development Goals (MDGs)
- Minimum Living Level (MLL)
- National Food Consumption Survey (NFCS)
- National School Nutrition Programme (NSNP)
- Non-Communicable Diseases (NCDs)
- Non-Government Organisations (NGOs)
- Participant (P)
- Participatory Action Research (PAR)

- Participatory Reflection and Action (PRA)
- Prevention of Mother to Child Transmission (PMTCT)
- Reconstruction and Development Programme (RDP)
- School-based Support Team (SBST)
- School Governing Body (SGB)
- Social economic status (SES)
- Wellness in Lifestyle, Intake, Fitness and Environment (Win-LIFE)
- World Health Organization (WHO)

---oOo---

Table of Content

Page

Chapter 1
Introduction and General Orientation

---oOo---

Page

Chapter 2
Literature Review

---oOo---

Page

Chapter 3
Research Methodology

---oOo---

Page

Chapter 4
Results and Findings of the Study

Page

---oOo---

Page

Chapter 5
Conclusions and Recommendations

APPENDICES 131

---oOo---

List of Figures, Tables and Photographs

Page

---ooOoo---

Chapter 1
Introduction and General Orientation

1.1 INTRODUCTION AND RATIONALE FOR UNDERTAKING THE STUDY

The current study forms part of a broad research project that focuses on schools as potential sites for social change that could facilitate adjusted food consumption behaviour within resource-constrained communities[1]. The project is specifically directed at addressing nutrition-related needs in resource-constrained communities as part of the targets of the Millennium Development Goals (MDGs), in an attempt to decrease the number of people affected by hunger by 50% before the end of 2015 (Fanzo & Pronyk, 2011; Statistics South Africa, 2010). The broader research project could potentially narrow the gap in nutrition research in South Africa (Schönfeldt, Gibson & Vermeulen, 2010). As part of the project, a health promoting intervention[2] has been developed, and is implemented by teachers with Grade 4 to 6 learners in three selected schools in a resource-constrained community.

The project has been divided into two legs, namely the said school-based intervention, and an overall wellness index[3]. The first leg of the study entails five phases:

- Obtaining baseline information.
- Developing, revising with and training teachers in a health-promoting intervention.
- Implementing the intervention (by teachers).
- Monitoring and evaluating the outcome of the health promoting intervention.
- Reporting findings to stakeholders and investigating the possibility of extending the intervention to other schools and potentially other contexts.

My study forms part of the first phase listed above. I have focused on teachers' perceptions related to community members' knowledge, skills, attitudes, and nutritional behaviours as background knowledge that could inform the development of the Win-LIFE intervention. To this end, I co-facilitated Participatory Reflection and Action-based (PRA) workshops with the Grade 4 to 6 teachers of the participating schools.

South Africa, currently described as a middle-income country (Statistics South Africa, 2010), falls among the countries that are off-track with regard to achieving public health-related targets as stipulated by the MDGs, possibly as a result of challenges such as HIV & AIDS, as well as other non-communicable

[1] Institute for Food, Nutrition and Well-being funded research project, University of Pretoria.
[2] Win-LIFE (Wellness in Lifestyle, Intake, Fitness and Environment) intervention.
[3] As my study forms part of the first leg of the project, I do not include the detail of the second leg of the project in my discussions.

Diseases (NCDs) (Stuckler, Basu & McKee, 2010), such as type 2 diabetes, cardiovascular diseases, depression, chronic lung diseases and cancer (Mayosi et al., 2009).

Resource-constrained environments in South Africa are typically challenged by poverty, unemployment, lack of job opportunities, difficulty in growing foods, and poor access to water (Taylor & Jinabhai, 2001). Furthermore, these communities usually have to deal with poor hygienic and sanitary conditions and practices; perceived food insecurity; and insufficient diversification and coping strategies with regard to food and diet (Green, Botha & Schönfeldt, 2004). In order to address health-related targets of the MDGs in South Africa, Statistics South Africa (2010), among others, suggests that improvement needs to occur within South African environments in terms of water, nutrition, sanitation and household food security.

Although trends in malnutrition seem to have stabilised in the last few years (United Nations, 2012), South Africa still faces challenges related to food security. Food security in this context can be defined as *"the success of local livelihood strategies to guarantee access to sufficient food at the household or family level"* (Devereux & Maxwell, as cited in Drimie & Casale, 2009, p.29). In particular, South African communities face a unique nutritional burden characterised by overweight mothers and underweight children (Kimani-murage et al., 2010). Illiteracy and ignorance may contribute to this form of malnutrition (Oldewage-Theron & Egal, 2012).

Among other avenues, school-based studies have the potential to promote children's health and development, especially in developing countries (Cortina et al., 2008). As children spend most of their day at school, and considering worldwide growth in primary school enrolments, primary school settings offer an ideal and critical setting for effective interventions, with specific reference to health and nutrition-related aspects (Forneris et al., 2010; Naidoo & Coopoo, 2012).

School-based interventions related to food consumption, nutrition and well-being, such as those conducted by Gortmaker et al. (1999) and Prelip, Slusser, Thai, Kinsler and Erausquin (2011) have resulted in significant changes in teachers' influence on well-being, as well as learners' behaviour related to food consumption and their own health. Internationally, school-based nutrition-related interventions have thus resulted in significant change in knowledge, skills and behaviour related to health (Steyn, Lambert, Parker, Mchiza & de Villiers, 2009).

Although limited, South African school-based studies (Naidoo & Coopoo, 2012; Draper et al., 2010) show increased physical activity, learner self-efficacy, as well as improved knowledge, perceptions and attitudes related to health, following interventions. Successful school-based nutrition-related interventions are generally those that intervene on the levels of curriculum, physical activity and food service; and include a family or parental component (Steyn et al., 2009).

The Norms and Standards for Educators (Department of Education 2000) stipulate seven roles that capable teachers should fulfil (Landsberg, Kruger & Swart, 2011). Involving teachers in school-based studies allows for teachers to fulfil their roles as community members and pastoral caregivers (Department of Education 2000). According to the Department of Higher Education and Training (2010, p.52) a teacher, in filling the community, citizenship and pastoral role, is expected to *"develop supportive relations with parents and other key persons and organisations based on a critical understanding of community and environmental development issues".* Furthermore, through collaboration with community members and other stakeholders in the various positions and teams as stipulated by policy (Department of Basic Education & Department of Health, 2012; Department of Basic Education 2013), teachers can fulfil their role as community members, potentially impacting on the community in which they teach (Landsberg et al., 2011).

Through implementing this study, it is believed that teachers, as community members, have the potential to be both sources of knowledge and instruments for change to support current policy. Other studies will follow this baseline research as part of the broader research initiative. As a result, teachers' potential impact on learners' behaviour, as well as learners' potential impact on their families' and communities' behaviour, may contribute positively to the health of the communities, and subsequently toward progress related to the targets of the MDGs. Furthermore, this study may narrow the gap existing between school-based food practices and nutrition-related studies, thus contributing to the literature.

1.2 PURPOSE OF THE STUDY

Against the background of the discussion in the previous section, the purpose of this study was to explore and describe (Marshall & Rossman, 2011; Mouton, 2001) teachers' perceptions of a resource-constrained community's food consumption practices, with these practices including, among others, food choice, food preparation and food production.

As a descriptive study (Marshall & Rossman, 2011; Mouton, 2001), this inquiry describes nutrition and diet-related needs and trends, as perceived by teachers in a resource-constrained community. In order to achieve my purpose I focused on the teachers' knowledge, perceptions and experiences of the community's food consumption behaviours. To this end, I co-facilitated PRA-based workshops during which teachers brainstormed and discussed questions that were posed to them regarding the food consumption practices of the community in which they teach.

1.3 RESEARCH QUESTIONS

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

- *What are Intermediate Phase teachers' perceptions of the food consumption practices and nutrition-related needs of the surrounding resource-constrained community?*

In order to address the primary research question, I explored the following secondary research questions:

- *What are the food consumption practices of families in this community?*
- *Which factors determine food consumption practices for this particular community?*
- *What are teachers' views on the guidance, skills, and/or information that parents in this community may benefit from in terms of food consumption practices?*
- *What kind of information may potentially be included in the different subjects for Grades 4 to 6, with the aim of transferring knowledge and skills to the communities in the Bronkhorstspruit area in terms of food consumption behaviour?*

1.4 WORKING ASSUMPTIONS

Based on my initial literature review, I conducted the study against the background of the following assumptions:

- Schools are potential resources for the transfer of knowledge to learners and communities regarding food consumption practices.
- Teachers are knowledgeable about general practices and the needs of the communities where they teach.
- Learners have the ability to transfer acquired knowledge and skills related to food consumption practices to their parents.
- Learners are a potential resource that could be relied upon when aiming to facilitate behavioural change.
- Learners in the Intermediate Phase are receptive and open to guidance.
- The current Intermediate Phase curriculum allows for the possibility of curriculum enrichment related to food, nutrition, health and well-being.
- Community members (especially children) have the potential to make changes to their own food consumption practices based on newly gained knowledge and skills.

1.5 CONCEPT CLARIFICATION

In this section, I clarify the concepts central to my study.

1.5.1 INTERMEDIATE PHASE TEACHER

Wallace (2008) as well as Strauss and Ziv (2012) describe a teacher as a professional person who acts intentionally to increase the knowledge of others in the setting of a school or other educational institution. For the purpose of this study, participating teachers specialise in teaching learners in the Intermediate Phase of learning, in other words Grades 4, 5 and 6 in the South African school system. The participating teachers in the three selected schools teach in a resource-constrained community in the province of Gauteng.

1.5.2 PERCEPTION

Mareno (2013, p.35) summarises historical views of perception as "*the construction of mental symbols or representations of reality gained from the senses*". In this study, perceptions therefore refer to teachers' representations or understandings of food consumption practices and needs within the community, based on information gathered through the teachers' senses, in other words what they have seen, heard, or otherwise sensed.

1.5.3 FOOD CONSUMPTION PRACTICES AND NEEDS

For the purpose of this study, Green et al.'s (2004) conceptualisation of dietary patterns is utilised to define food consumption practices and needs. This conceptualisation includes "*food production and availability"*, "*food practices"* and "*food preservation"* within the community (Green et al., 2004, p.52). This study therefore, under the umbrella of food consumption, focuses on practices and needs pertaining to which foods are eaten, how food is produced, when it is eaten and how often it is eaten. I further focus on practices and needs pertaining to the manner in which food is obtained, distributed and preserved, as well as on specific traditions and taboos related to food consumption (Green et al., 2004).

1.5.4 RESOURCE-CONSTRAINED

Resources entail the assets that are employed to fulfil needs or overcome challenges (Chaskin, 2001; Green et al., 2004). Resources can take the form of economic, human, physical and political resources (Chaskin, 2001). In the context of this study, the term 'resource-constrained' refers to limited economic, human, physical and political resources, resulting in a decreased ability to fulfil needs or overcome challenges.

1.5.5 COMMUNITY

For the purpose of this study, a community is defined as a geographical location (Ferreira & Ebersöhn, 2012; Gillespie & Smith, 2008) and, within this geographical location, as a "*group of people or families living...under common laws, having certain things in common and being made up of individuals who rely*

on one another to help satisfy their needs and live according to certain norms, rules or common policies" (Ferreira & Ebersöhn, 2012, p.48). The particular community in this study finds itself situated in a peri-urban location in the Gauteng province of South Africa.

1.6 PARADIGMATIC PERSPECTIVES

In this section I provide a brief overview of the epistemology, methodological approach and conceptual framework that guided this study. Detailed discussions will follow in Chapter 3.

1.6.1 EPISTEMOLOGICAL PARADIGM

I relied on interpretivism as meta-theory (Taylor & Medina, 2013). I therefore viewed participants' perceptions and knowledge as multifaceted, inter-subjective and socially constructed, and understood that these perceptions could not be understood simply by means of objective observation (Nieuwenhuis, 2007a; Taylor & Medina, 2013). As such, I approached the research by "*study(ing) (participants) in their natural settings, attempting to make sense of or interpret phenomena in terms of the meanings people bring to them*" (Denzin & Lincoln, 2005, p.3).

An interpretivist meta-theory allowed me to shift the focus of the research away from generalising the findings (Williams, 2000) toward developing a true, deep understanding of the teacher participants' experiences of their community (Ruben & Babbie, 2014). Furthermore, an interpretivist approach enabled me to work in a flexible manner and to be actively involved in the data-generation process, as opposed to removing myself from the process in an attempt to ensure objectivity (Ruben & Babbie, 2014).

1.6.2 METHODOLOGICAL PARADIGM

I followed a qualitative approach as methodological paradigm (Silverman, 2013), which is described by Denzin and Lincoln (2005, p.3) as "*a set of interpretive, material practices that make the world visible*". I was therefore able to extract the "*depth and richness*" of the way in which participants experience the community where they teach (James, Milenkiewicz & Bucknam, 2008, p.58).

A qualitative paradigm acknowledges the value of studying single settings or phenomena (Creswell, 2013), which made it possible for me to work with one particular community. In addition, qualitative research allows for detailed description and thorough exploration of the research topic (Nieuwenhuis, 2007a). I was able to gain comprehensive insight into the teachers' perceptions of the current food consumption practices and needs of the community in which this study was undertaken. I did this by collaborating with the participants, which is characteristic of qualitative research (Creswell, 2013), as well as a participatory research design.

1.6.3 CONCEPTUAL FRAMEWORK

As underlying theory, I relied on ideas from the Food Decision-making Framework (FDF) (Gillespie & Smith, 2008), as well as the Bioecological Theory of Human Development (Bronfenbrenner, 2005). Through the exploration of teachers' perceptions of the food consumption patterns and needs of the community, I gathered information indirectly about the food decision-making of the particular community. The FDF notes that food decision-making is complex and affected by a variety of factors (Gillespie & Smith, 2008), which could potentially be identified during the thematic analysis of the data generated during this study. These data are important, as decision-making regarding food interrelates with the community food system, as well as the well-being of the community (Gillespie & Smith, 2008).

The context dimension of Bronfenbrenner's Bioecological Theory of Human Development (Bronfenbrenner, 2005) posits that individuals find themselves in various systems within their unique context at any time; namely microsystems, mesosystems, exosystems and macrosystems (Tudge, Mokrova, Hatfield & Karnik, 2009). The FDF builds on ideas that acknowledge how individual (or microsystemic) behavioural change can bring about change within families and the community (mesosystems) (Gillespie & Smith, 2008). This is consistent with the aim of the greater research project, namely to bring about change within the community by impacting on children through the school system, as discussed previously.

1.7 BRIEF OVERVIEW OF RESEARCH METHODOLOGY

Figure 1.1 provides an overview of the research process of the study. I briefly introduce the research methodology in the section following Figure 1.1. More detailed explanations are included in Chapter 3.

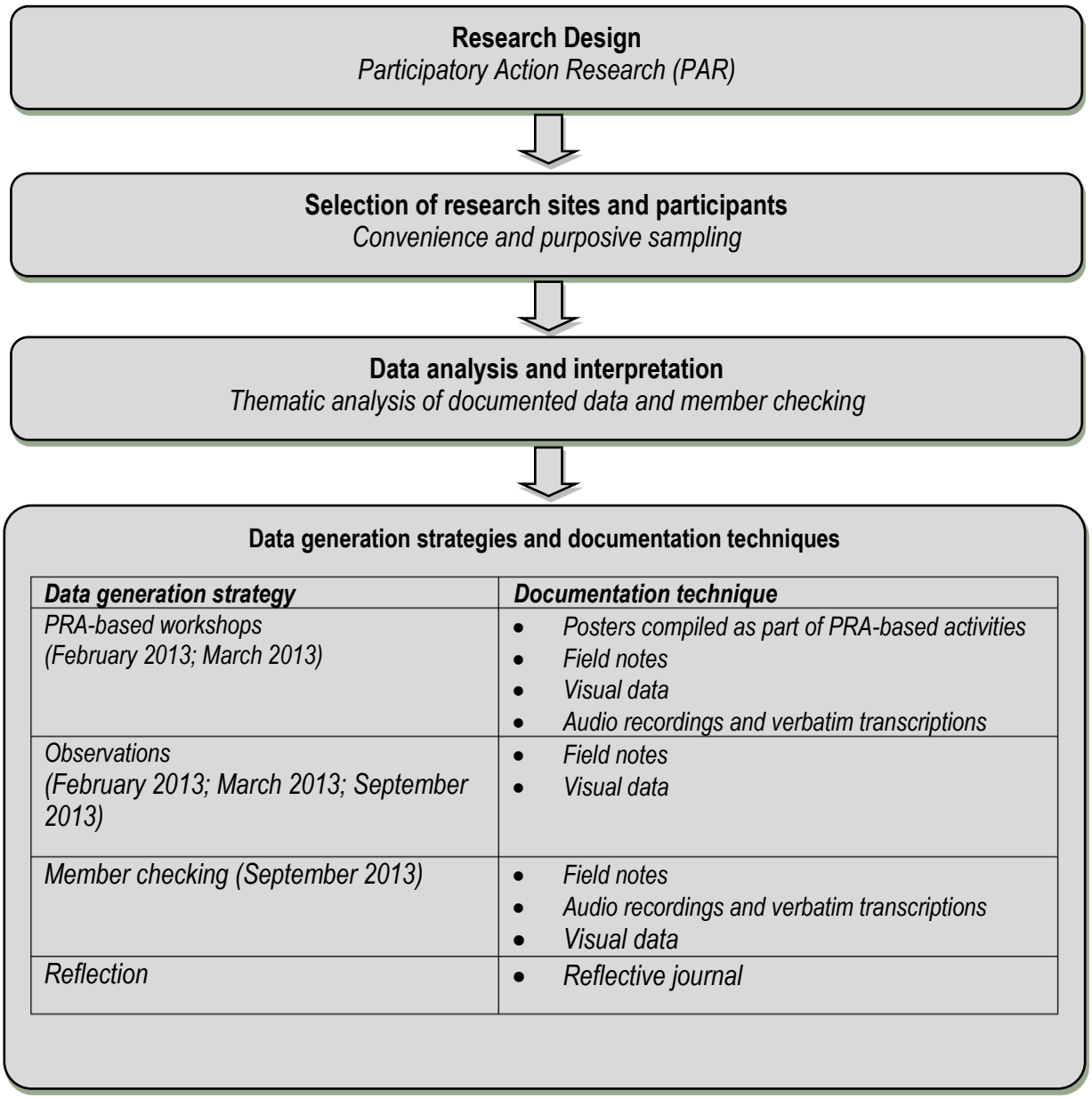


Figure 1.1: Overview of the research process

For the purpose of this study, I was informed by the theory underlying Action Research design (Tomal, 2010). More specifically, I employed Participatory Reflection and Action (PRA) (Ebersöhn, Eloff & Ferreira, 2007). This allowed me to study a social issue that may affect or constrain community members' lives, namely their practices and needs related to food consumption. Furthermore, this may create opportunities for further studies that may act as vehicles for empowerment to bring about "*life-enhancing changes"* within communities (Ebersöhn et al., 2007, p.126). As such, this design allowed for the active involvement of participants in generating information, intended as a baseline assessment for later studies that will be focused on action.

The research sites, which were determined in discussion with the Department of Basic Education (DoBE), were three primary schools in the Bronkhorstspruit area. I relied on convenience sampling in selecting

the three schools (Farrokhi & Mahmoudi-Hamidabad, 2012), as I conducted research within a broader project for which the sites had already been determined. In addition, I used purposive sampling to select Intermediate Phase (Grades 4 to 6) teachers as participants (Maree & Pietersen, 2007; Morgan, 1997). Respectively, eleven, eighteen, and fifteen teachers from the three schools partook in the study.

Data generation took the form of PRA-based workshops (Chambers, 2008b; Ferreira, 2006). I co-facilitated these workshops at each of the participating schools, working aside my supervisors, who are researchers in the broader project. Teachers worked in groups of four to five participants each. The sessions took place in a relaxed manner, in the form of what Chambers (2002a, p.93) describes as "*buzzing clusters*". Groups discussed predetermined questions and represented their ideas in the form of posters, which each group presented to the bigger group (Chambers, 2002a).

I relied on field notes to capture my observations (James et al., 2008; Ebersöhn et al., 2007). Furthermore, I made audio recordings of the group presentations, which, together with the posters they designed, were transcribed to capture spoken and written information during the research process (Chambers, 2007; Nieuwenhuis, 2007b; Tessier, 2012). This was supplemented by my field notes (and those of my supervisors) to ensure that as much information as possible is retained (Kamimura, Schneider, Lee, Crawford & Friese, 2013). Throughout my involvement in the broad research project, I kept a reflective journal to facilitate reflexivity in my capacity as a researcher (Ortlipp, 2008; Spiegel & Foulk, 2006).

Once the data had been generated, I conducted inductive thematic analysis (Clarke & Braun, 2013; Kamimura et al., 2013) by "*identifying, analysing, and reporting patterns (themes) within (the) data*" (Braun & Clarke, 2006, p. 82), based on "*recurrence and importance*" (Buetow, 2010, p.123). I conducted member checking during a follow-up field visit in September 2013 in order to enhance the trustworthiness of the research (Carlson, 2010; Creswell & Miller, 2000).

1.8 ETHICAL CONSIDERATIONS

In order to ensure that my study was conducted in an ethical manner, I was guided by the ethical guidelines captured in literature on qualitative research (Tracy, 2010) together with the ethical guidelines stipulated by the Ethics Committee of the Faculty of Education of the University of Pretoria (University of Pretoria, 2013). Permission to conduct the research [see Appendix B] was obtained from the Gauteng DoBE prior to my entering the research field, as well as from the principals of the three participating schools [see Appendix C]. In the same manner, I obtained ethical clearance to conduct the study (as part of the broader project) from the University of Pretoria prior to commencing with the study [see Appendix A]. Before any data generation activities, I informed participants about the details of the research and requested that they provide written informed consent [Appendix C]. Informed consent was treated as an ongoing, renegotiated process (Miller & Bell, 2004, p.53). Throughout, I clearly outlined the details and

intentions of the research, and participants were not exposed to any form of deception, thus inculcating trust. Participants also had the option of withdrawing from the research at any point. I did not deceive the participants in any way and prevented them from harm during the data generation strategies (Hammersley & Traianou, 2012).

As the participants are of a different ethnicity from my own, I accustomed myself to existing differences in order to be sensitive and aware of any practices that could potentially be experienced as undermining by the participants. Throughout my study I respected the participants and any differences that existed between us. I attempted always to be open to learning from them about their traditional ways of doing things (Gonzalez, as cited by Tracy, 2010). All forms of data (written or recorded) were kept confidential by means of pseudonyms, and not disclosing the identities of the participants. I have also ensured that my field notes, audio recordings and research journal have been kept in a safe and secure environment. In Chapter 3 I elaborate further on the ethical procedures, guidelines and strategies that I employed for this purpose.

1.9 QUALITY CRITERIA

I aimed to conduct my research in a trustworthy manner that will add to rigorous findings (Thomas & Magilvy, 2011). To accomplish this, I made use of the quality criteria established by Lincoln and Guba (2007), namely credibility, transferability, dependability, confirmability and authenticity.

Credible studies provide detailed descriptions of the participants and allow outsiders to better understand the experiences of those involved in a study (Elo et al., 2014; Thomas & Magilvy, 2011). The credibility of my study was enhanced by the lengthy descriptions and detail I provide (in this dissertation of limited scope) of the data generated during the research, by prolonged time spent with the transcripts, as well as through the facilitation of member checking following the documentation of the generated data (Tracy, 2010; Whiting & Sines, 2012). *Transferability* of the findings to other settings (Elo et al., 2014) was enhanced by means of the provision of detailed descriptions and information related to the participants and the context of the study (Morrow, 2005). With regard to *dependability*, in other words the degree to which a study can be repeated, as well as the extent to which its difference to other similar studies can be understood (Petty, Thomson & Stew, 2012), I provide a thorough audit trail, giving comprehensive information of the research activities (Morrow, 2005).

Confirmability of a study refers to the extent to which the focus of a study is reflected in the findings (Petty et al., 2012). By acknowledging and managing my subjectivity in my role as researcher through the practice of reflexivity, I was able to maintain confirmability (Morrow, 2005). Finally, *authenticity* is concerned with the fairness of a study, the manner in which a study raises the awareness of participants, the potential of a study to encourage action and decision-making among participants, as well as its ability to empower participants (Yilmaz, 2013). I strived to conduct authentic research by "*solicit(ing) and*

honour(ing)" the constructions obtained from different teachers, and by potentially catalysing social action through the discussion of possible solutions to community challenges (Morrow, 2005, p.252). A more detailed discussion of the quality criteria I aimed to adhere to is provided in Chapter 3.

1.10 OUTLINE OF CHAPTERS

Chapter 1: Introduction and General Orientation

Chapter 1 serves as a brief introductory orientation, illustrating the rationale for undertaking the study. I outlined the purpose of my study, and formulated the primary and secondary research questions that guided the research. I also briefly introduced the theoretical, epistemological and methodological paradigms I relied on, and briefly explained the research process in terms of the selected research design and methodological strategies I employed. Lastly, I introduced the quality criteria and ethical guidelines considered throughout the study.

Chapter 2: Literature Review

In this chapter I discuss the literature relevant to the state of food security in South Africa, typical challenges faced by resource-constrained communities, as well as the food consumption-related needs and practices of such communities. Chapter 2 further outlines the potential roles of various stakeholders within the education system in addressing current challenges. I also explore the current academic curriculum, specifically for the Intermediate Phase (Grades 4 to 6). I conclude the chapter with a discussion of the FDF and Bronfenbrenner' Bioecological Theory of Human Development, in order to provide an integrated theoretical conceptualisation of the study.

Chapter 3: Research Methodology

In Chapter 3 I discuss the research process. I explain my selected epistemological paradigm, research methodological approach, research design, data generation and documentation strategies, as well as the data analysis and interpretation I completed. I conclude the chapter with a discussion on the ethical considerations and quality criteria I considered in an attempt to enhance the rigour of the study.

Chapter 4: Results and Findings of the Study

In Chapter 4 I discuss the findings of the study. I present the results I obtained following data analysis, in terms of the themes and sub-themes that I identified. I then interpret these results in terms of the literature I reviewed in Chapter 2, thereby discussing my findings. I conclude the chapter by highlighting similarities and differences between the findings of this study and the existing body of knowledge. I also refer to silences I identified in the data.

Chapter 5: Conclusion and Recommendations

In Chapter 5 I come to conclusions in terms of the research questions and purpose of the study, based on the findings outlined in Chapter 4. I reflect on the study in terms of the challenges I faced, as well as the potential value and strengths of the study. I conclude by making recommendations for future research, training and practice.

1.11 CONCLUSION

In this introductory chapter, I presented the rationale for undertaking this study and outlined the purpose of my research. Additionally, I formulated the research questions and stated the assumptions that guided the investigation. I clarified key concepts and briefly introduced the selected paradigms I employed. I referred to the quality criteria to which I adhered, as well as the ethical guidelines I considered throughout the study.

In Chapter 2 I present underlying theory and existing literature related to the focus of my study. Based on the discussions included in Chapter 2 I subsequently planned my empirical study and later analysed the data and interpreted the results I obtained.

---oOo---

Chapter 2
Literature Review

2.1 INTRODUCTION

The purpose of the preceding chapter was to provide an introduction and general orientation in terms of the study. In Chapter 1, I presented the rationale and purpose of the study, formulated the research questions and presented the working assumptions with which I approached the study. Thereafter I clarified key concepts and provided an overview of the selected research design and methodology.

In this chapter I discuss existing literature on progress to date toward achieving the MDGs, specifically in sub-Saharan Africa. This is followed by a detailed outline of the challenges, needs and perceptions related to the food consumption practices and nutrition-related issues of resource-constrained communities in South Africa. Thereafter I explain the current role and structure of the South African DoBE in terms of supporting food consumption practices and nutrition-related needs in South African schools. I conclude the chapter with an explanation of the Food Decision-making Framework and Bronfenbrenner's Bioecological Model, which I integrate into a guiding conceptual framework for the study.

2.2 PROGRESS TOWARD ACHIEVING THE MDGs

The MDGs were derived from the Millennium Declaration and adopted by all the United Member States at the Millennium Summit in 2000 (Statistics South Africa, 2010; United Nations, 2013). Through the MDGs, world leaders committed their nations to reducing and combating poverty, hunger and disease; providing equal opportunities to both women and men; promoting quality education for all children; protecting the environment; improving maternal health by three quarters; reducing mortality of children under five by two thirds; and establishing a sustainable global partnership for development by 2015 (United Nations, 2012; 2013).

In the paragraphs that follow, I elaborate on selected MDGs and discuss the progress that has been made toward attaining each of these, focusing on sub-Saharan Africa, and more specifically on South Africa. In doing so, I set the background against which this study was undertaken. As previously mentioned, my study forms part of the Win-LIFE intervention (see Chapter 1, section 1.1) taking place at the University of Pretoria: the project was initiated as a contribution aimed at the realisation of MDGs in South Africa. Although this initiative is linked specifically to the health-related MDGs, all the MDGs are interdependent. Thus one can infer that progress or lack thereof in one MDG may affect progress in another (Fanzo & Pronyk, 2011; Financial and Fiscal Commission, 2011; Bue, 2013). As a result, I

discuss MDGs that are not directly related to the study, but that may affect the current state of food consumption and nutrition-related needs in South Africa.

The first MDG (i.e. the eradication of extreme poverty and hunger) aims to "*reduce poverty, create employment and promote food security*" (African Development Bank, 2013; United Nations, 2013). Although the global proportion of individuals living in extreme poverty has been halved, women and children still seem to be affected most extremely by the different forms of poverty (Statistics South Africa, 2013; United Nations, 2013). The United Nations (2012; 2013) indicated that poverty had decreased in every region at the time of publication, but that sub-Saharan Africa remains the region that is most notably affected by this challenge (Statistics South Africa, 2013).

As such, hunger remains a global challenge (United Nations, 2012), with one out of eight individuals worldwide reported to be hungry (United Nations, 2013). Although the global number of malnourished individuals has stabilised, recent food and economic crises have brought about an erosion in the progress made thus far by developing countries (Fanzo & Pronyk, 2011; Godfray et al., 2010). As a result, the prevalence of underweight children and malnourished individuals in sub-Saharan Africa is unlikely to decrease to the extent envisioned for 2015 (United Nations, 2012; 2013; Fanzo & Pronyk, 2011; Stevens et al., 2012).

Although South Africa has managed to reduce the number of individuals living below the $1 poverty line from 11.3% to 4%, thus achieving the MDG 1 target of halving the number of individuals living in absolute poverty, other issues pertaining to MDG 1 have not yet shown sufficient improvement. Inequality in South Africa is among the worst in the world, with the poorest individuals only sharing in 2.7% of the country's national consumption; far from the goal of 5.8%. Unemployment levels remain high, with only 40.8% of the country's working-age population employed in 2011 (Statistics South Africa, 2013). As a result, South Africa is unlikely to be able to demonstrate sufficient progress when this is measured in terms of many of the formulated targets set for 2015 (Statistics South Africa, 2013).

Some areas have however shown positive results and, in South Africa, the number of individuals from lower-income backgrounds with free access to services including running water, electricity, sewerage, sanitation and solid waste removal has increased by between 10% and 20% from 2002 to 2011 (Statistics South Africa, 2010). Furthermore, the social grant system has grown extensively, having provided aid to approximately 15 million individuals in 2011 (Statistics South Africa, 2013).

The importance of MDG 2 (i.e. universal primary education) is stressed by Statistics South Africa (2010, p.49), in the statement of the fact that "*quality education underpins the entire set of MDGs*". Many individuals are still illiterate (United Nations, 2013); however significant growth has been noted globally with regard to the attainment of primary education for all, with the number of primary school-aged children who are not attending school dropping from 102 million in 2000 to 57 million in 2011 (African

Development Bank, 2013; United Nations, 2013). Despite still being the lowest, enrolment rates in sub-Saharan Africa have shown a marked increase, with approximately 77% of all children having been enrolled for primary education (United Nations, 2013). Furthermore, despite improved literacy rates, the literacy gender gap is also most prominent in sub-Saharan Africa (United Nations, 2013). The gender gap for literacy refers to the difference between the percentage of male and female individuals who are considered literate. In the sub-Saharan region, about 85% of males are literate, as opposed to the 36% of females who are considered to be literate: a gender gap of over 40% (United Nations, 2013).

South Africa has come close to achieving the goal of universal primary education, with close to 99% enrolment rates for primary education, and a primary education completion rate of close to 95% (Statistics South Africa, 2013). However, secondary education completion rates remain problematic, and many individuals take longer than is stipulated to complete Grades 1 through 12, or drop out before completing their schooling (Statistics South Africa, 2010; 2013). Only 43.9% of enrolled children complete secondary school (Statistics South Africa, 2013). Early marriage appears to be a contributing factor in terms of poor education completion rates, and children from resource-constrained communities, as well as those who attend ill-equipped schools, are more likely to fail or drop out of school (African Development Bank, 2013; Branson, Hofmeyr & Lam, 2013; Statistics South Africa, 2013).

South African children tend to complete primary education when they are older than is generally expected (Statistics South Africa, 2010). Although the MDG for universal primary education for all by 2015 has in effect been achieved, the quality of education needs to improve (Statistics South Africa, 2010). Parents and guardians should be supported in raising the children in their care in such a way as to prevent abuse, teenage pregnancies, and risk-taking behaviour, which can be achieved through care networks in the communities and by means of parent education programmes (Statistics South Africa, 2010).

With reference to MDG 4 (i.e. reduction of child mortality), it has been highlighted by Statistics South Africa (2010) that, in order to attend to a variety of other potentially related challenges, the basic health needs of children need to be addressed. Worldwide, child mortality has decreased by more than 40%, with approximately 7.7 million child mortality cases reported in 2010 (African Development Bank, 2013; Rajaratnam et al., 2010). Child mortality is almost twice as likely to occur in poverty-stricken areas than is the case in wealthier, developed areas (United Nations, 2012; 2013).

Although sub-Saharan Africa has also shown promising decreases in this regard, childhood mortality remains high, with approximately 109 deaths per 1000 live births in 2011, as compared to 178 deaths per 1000 live births in 2000 (Rajaratnam et al., 2010; United Nations, 2013). Consequently, the majority of countries situated in sub-Saharan Africa are predicted to achieve this goal no sooner than 2040 (Lozano et al., 2011). HIV & AIDS, as well as certain non-communicable diseases (NCDs), have been found to play a significant role in the prevalence of infant mortality and the slow progress toward achieving

MDG 4 (Stuckler et al., 2010), and these also contribute to possible inaccuracy in terms of reported childhood mortality rates (Rajaratnam et al., 2010).

Despite South Africa showing a rapid decrease in child mortality (Kerber et al., 2013), infant mortality rates in South Africa are still higher than the global 2015 goal of no more than 20 per 1000 live births, with an estimated mortality rate of 58 childhood deaths per 1000 live births in 2011 (Statistics South Africa, 2013). The recently introduced Prevention of Mother to Child Transmission (PMTCT) programme as well as new and more effective vaccines have resulted in a rapid reduction in infant mortality (Kerber et al., 2013; Statistics South Africa, 2013). General immunisation of children has increased and should reach the MDG stated for 2015 (Statistics South Africa, 2010; 2013). Through improvements in the provision of clean, safe water and sanitation; access to health services and vaccinations; education; food security and sufficient nutritional practices; childhood mortality is likely to decrease even further (African Development Bank, 2013; Fotso, Ezeh, Madise & Ciera, 2007; Statistics South Africa, 2013).

MDG 5 focuses on the improvement of maternal health (United Nations, 2013). Maternal mortality refers to the death of women during pregnancy, childbirth, or within 42 days after giving birth (Hogan et al., 2010). Despite the average estimated decrease in maternal mortality worldwide of 1.3% per year since 1990 (Hogan et al., 2010; Lozano et al., 2011), progress to date falls short of the 2015 target (United Nations, 2013). Of the estimated 342 900 maternal deaths in 2008, 61 400 were related to HIV & AIDS (Hogan et al., 2010).

There has been an increase in maternal mortality in South Africa, in spite of the significant worldwide decrease (Statistics South Africa, 2010; United Nations, 2012). In 2008, the estimated maternal mortality rate had increased to 237 deaths per 100 000 live births (from 155 per 100 000 in 2000). This proportion is slightly lower than the global estimated rate of 251 deaths per 100 000 live births (Hogan et al., 2010). Sub-Saharan Africa experiences the highest number of babies born to adolescent mothers, and only approximately half of all prospective mothers visit antenatal care facilities the recommended number of at least four times during pregnancy (United Nations, 2013). Socio-economic conditions and lack of education inhibit maternal health, and it is suggested that women should be enabled to take part in programmes that support reproductive, maternal and neonatal health (Hogan et al., 2010; Statistics South Africa, 2013).

MDG 6 is targeted at combating diseases such as HIV & AIDS, malaria and tuberculosis (Statistics South Africa, 2013). The United Nations (2012; 2013) reports a decline and stabilisation in the rate of new HIV infections, which correlates with the situation in South Africa (Statistics South Africa, 2010). Although a significant decrease in the number of new HIV infections has been evident over recent years, more than two thirds of the new HIV infections reported in 2011 occurred in sub-Saharan Africa (United Nations, 2013).

Stuckler et al. (2010) found that low-income countries are one quarter less likely than middle- and high-income countries to achieve the HIV & AIDS and tuberculosis-related goals set out by MDG 6. Knowledge about HIV & AIDS remains far below the targets set for individuals in sub-Saharan Africa (United Nations, 2013) and the prevalence of HIV in South Africa remains high when compared to other African countries (Statistics South Africa, 2013). This, together with other NCDs, potentially contributes to the slow progress toward other targets linked to achieving MDG 6 (Stuckler et al., 2010). The world is close to achieving its target of providing antiretroviral treatment and access to such treatment to all those infected with HIV & AIDS (United Nations, 2012). Furthermore, the prevalence of malaria and tuberculosis worldwide is slowly decreasing (United Nations, 2013) and in South Africa, as is the case globally, the number of individuals who have been successfully treated for tuberculosis has increased (Statistics South Africa, 2010).

MDG 7 (i.e. environmental sustainability) focuses on reducing humans' impact on the environment, as well as improving the provision of basic services to individuals (Statistics South Africa, 2013). Few studies have been conducted on the progress toward this MDG, but it appears that, at international, national and local levels, the preliminary progress toward MDG 7 has been inadequate (Donat Castelló, Gil-González, Alvarez-Dardet Diaz & Hernández-Aguado, 2010). Global carbon dioxide emissions have increased and, despite having shown promising decreases in emissions, South Africa is responsible for the highest level of carbon dioxide emissions in Africa (United Nations, 2013; Statistics South Africa, 2013). Climate change as a result of ozone-depleting emissions poses difficulties for environmental sustainability (Statistics South Africa, 2013).

Worldwide, the target of reducing the number of people without sustainable access to clean water has been met (United Nations, 2012). Although most of sub-Saharan Africa is yet to achieve its related targets, South Africa has shown significant improvement in providing individuals with basic service delivery (United Nations, 2012; Statistics South Africa, 2010). Rural, poverty-stricken areas, however, appear to be lagging behind with regard to these indicators (United Nations, 2012). South Africa has managed to decrease the number of individuals living without sustainable access to safe drinking water by half and is likely to meet the target of providing 74.65% of the population with improved sanitation services by the end of 2015 (Statistics South Africa, 2013).

At the time of writing, as 2015 drew to a close, discussions have shifted from a focus on achieving the MDGs toward emphasising a post-2015 progress agenda (African Development Bank, 2013; Vandemoortele, 2012). Because many of the MDGs would not have been met by the end of 2015, and because the world looks very different from when the MDGs were first formulated, it is suggested that a post-2015 agenda should address issues such as urbanisation, climate change, poverty, inequality and unemployment (Melamed & Scott, 2011). With the attainment of all the MDGs for South Africa by 2015 being unlikely and in some cases impossible (Peltzer, 2009), it has been suggested that the government

should extend the time frames for the attainment of the MDGs (Financial and Fiscal Commission, 2011). It is further suggested that MDGs 2 and 6 should be prioritised, as they may positively impact on progress toward the other MDGs (Financial and Fiscal Commission, 2011).

2.3 MDG-RELATED NEEDS AND CHALLENGES OF RESOURCE-CONSTRAINED COMMUNITIES

In this section, I discuss current literature related to the needs and challenges typically experienced by individuals in resource-constrained communities. I first review general challenges faced by such communities within a global setting. Thereafter, I discuss challenges faced by South African resource-constrained communities, specifically focusing on the food consumption practices and nutrition-related needs of these communities, unpacking what is known in relation to the focus of this study.

2.3.1 A GLOBAL PHENOMENON

As the population of the world continues to grow, and as a result of climate change, land and biodiversity degradation occurs, which, in turn, is leading to increased competition and pressure to obtain and/or produce sufficient water, arable land, energy and food (Beddington et al., 2011; Gelsdorf, 2010; Godfray et al., 2010; Von Braun, 2007). Globally, extreme poverty and inequality are predicted to continue increasing, and challenges related to migration, urbanisation and population growth are predicted to give rise to even more challenges for resource-constrained populations (Gelsdorf, 2010). It is predicted that climate change will triple the incidence of undernourishment by 2080, as compared to 1990 (Von Braun, 2007).

Godfray et al. (2010) and Foley (2011) explain that the world faces a "*three-fold challenge*" related to food security. Firstly, the world is confronted with the challenge of producing sufficient food for the growing global population (Foley, 2011; Foley et al., 2011). Secondly, as a result of the need for increased production, the environment has suffered (Godfray et al., 2010). Thirdly, existing and increasing agricultural practices have led to the destruction of natural habitats, water pollution, the emission of harmful gases, and the exhaustion of natural water resources (Foley, 2011). This has brought about a necessary increase in awareness around environmentally sustainable practices (Foley et al., 2011). With a current population of approximately one billion individuals that are hungry, there is a global responsibility to ensure that the poor are fed (Foley et al., 2011; Godfray et al., 2010). Fanzo and Pronyk (2011) highlight the importance of clear policies and leadership at governmental levels for successfully addressing the problem of hunger and malnutrition globally.

In the sub-Saharan context, the factors of health, water, sanitation, the environment, and education are the main areas of concern (African Development Bank, 2013). Brew-Hammond (2010) elaborates on the challenges faced by sub-Saharan Africa with regard to energy service provision, and acknowledges the

strong link that exists between available energy and the achievement of the MDGs. Only one quarter of sub-Saharan households have access to electricity, for most of whom the quality of supply is generally poor, meaning that most individuals make use of traditional biomass fuels for cooking purposes. This has many environmental and health-related repercussions (Brew-Hammond, 2010).

High levels of food insecurity exist in sub-Saharan African countries and evidence suggests that there is a close relationship between food insecurity and the prevalence of HIV & AIDS (Lartey, 2008; Weisera et al., 2012). Sub-Saharan Africa has the second highest number of underweight children, with those from resource-constrained settings being affected worst (United Nations, 2012; 2013). Boys are more likely to fall victim to growth stunting than girls (Wamani, Astrøm, Peterson, Tumwine & Tylleskär, 2007), and children affected by stunting are at higher risk for diminished physical and cognitive development (United Nations, 2012). The aforementioned statistics enforce the notion that more attention should be given to nutritional education on the developmental agendas of African countries in particular (United Nations, 2012).

2.3.2 GENERAL CHALLENGES FACED BY RESOURCE-CONSTRAINED COMMUNITIES IN SOUTH AFRICA

South Africa has a deep-rooted history of poverty and resource constraints that can be traced back to early colonialism and apartheid (Aliber, 2003; Coovadia, Jewkes, Barron, Sanders & Mcintyre, 2009). Those affected by poverty or resource constraints are characterised by "*not having the means to afford basic human needs such as clean water, nutrition, health care, education, clothing and shelter*" (Du Toit et al., 2011, p.3). The high unemployment rate in South Africa (Statistics South Africa, 2014) is a major factor contributing to poverty in the country (Aliber, 2003).

Poor or resource-constrained households are often characterised by few income earners and many dependants (Department of Agriculture, 2002). In the South African context, rural households, elderly people, people with disabilities, those living on the streets, female-headed households, AIDS orphans and households living with HIV & AIDS, retrenched farm workers, and cross-border migrants appear to be affected most harshly by poverty (Aliber, 2003). It was reported in 2002 that, at the time, three out of every five children in South Africa lived in poor households (Perret, 2002).

Resource-constrained communities in South Africa are particularly vulnerable to poor nutrition and inadequate sanitation, as well as limited access to health and other services (Kalichman, Simbayi, Jooste, Cherry & Cain, 2005). South African communities, specifically those living in resource-constrained settings, are also more susceptible to HIV & AIDS-related illnesses and to NCDs (Bourne, Lambert & Steyn, 2002; Mayosi et al., 2009).

2.3.2.1 Challenges related to food security in South African resource-constrained communities

The South African Department of Agriculture (DoA) (2002, p.15) defines food security as "*physical, social and emotional access to sufficient, safe and nutritious food by all South Africans at all times to meet their dietary and food preferences for an active and healthy life*". Simply stated, food security thus implies the ability of individuals to obtain adequate food on a daily basis (Du Toit et al., 2011). Within the South African context, multiple stressors have led to the current state of food insecurity (Drimie & Casale, 2009).

At national level, South Africa is considered to be food secure (Department of Agriculture, 2002). However, at household level, 35% of the South African population is vulnerable to food insecurity, with those affected by HIV & AIDS, children, women and the elderly being most susceptible (Kaschula, 2011; Statistics South Africa, as cited by Department of Agriculture, 2002). The high level of vulnerability in terms of household food insecurity continues to exist despite a reduction between 1999 and 2009 of more than half of the individuals that were reported to be food insecure in South Africa (Labadarios et al., 2011).

The poor diet of individuals from lower social economic status (SES) groups has been attributed to the "*low cost of widely available energy-dense but nutrient-poor food*" (Caprio et al., 2008, p.2213). Resource-constrained communities have been found to eat less suitable food, to limit their portion sizes, to skip meals or to skip eating altogether for whole days at a time, as strategies to deal with food insecurity (Oldewage-Theron, Dicks & Napier, 2006). In this regard, a South African study by McGarry and Shackleton (2009) found that South African children's diets are on average 62% poorer than the guidelines set by the Food and Agricultural Organisation (FAO). Possible causal factors contributing to the inferior diet quality for lower SES groups include high food prices, the environment, restricted access to food, low levels of education, and cultural factors (Caprio et al., 2008; Darmon & Drewnowski, 2008).

Research related to food consumption practices among the South African population is limited, as is generally the case in developing countries (Schönfeldt et al., 2010). Thus, in order to address food insecurity, and to achieve the targets as set out in the MDGs (United Nations, 2012), the need exists for continued research and ongoing interventions addressing food and nutrition in South Africa.

2.3.2.2 Specific food and nutrition-related challenges faced by South African resource-constrained communities

According to the DoA (2002), South Africa in particular faces several challenges with regard to food and nutrition. Vorster (2010) supports this notion, identifying various nutrition-related issues faced by South African citizens, in particular those from resource-constrained backgrounds. Firstly, Vorster (2010) indicates that vast differences exist with regard to the nutritional status of different populations in South Africa. Vorster (2010) specifically reports the prevalence of stunting in children and underweight adult men, despite South Africa being classified as "food secure" at national level. Stunting, according to the

definition by Zere and McIntyre (2003), is a manifestation of malnutrition that occurs when a child's height-for-age is more than two standard deviations less than the international reference value, as the result of inadequate feeding over a long period of time; while the description 'underweight' applies when weight-for-age is more than two standard deviations less than the international reference value, as the result of either long- or short-term malnutrition.

A South African study conducted by Zere and McIntyre (2003) indicates a significant link between malnutrition and socio-economic status, with the number of malnutrition cases decreasing with an increase in income levels. Furthermore, malnutrition is particularly prevalent among the urban and rural African population (Zere & McIntyre, 2003). Maternal level of education also seems to affect children's diet quality, with malnutrition being more prevalent among children of mothers who have not completed secondary education (MacFarlane, Crawford, Ball, Savige & Worsley, 2007; Saloojee, De Maayer, Garenne & Kahn, 2007). Other risk factors associated with child malnutrition, as identified by Saloojee et al. (2007), include poor weaning practices, HIV & AIDS, parental death, and birth order. Poverty stands out as a key factor causing malnutrition (Saloojee et al., 2007).

A second challenge presents itself through the simultaneous occurrence of obesity cases and underweight cases in rural South African communities, sometimes even within the same household (Kimani-Murage et al., 2010; Vorster, 2010). More specifically, it has been found that many households are characterised by overweight mothers and underweight or stunted children (Wojcicki, 2014). This interesting phenomenon is unique to middle-income countries such as South Africa and is referred to as a "*double burden of nutritional imbalance*" (Schönfeldt et al., 2010, p. 258; Wojcicki, 2014).

Thirdly, South Africa is among the low- and middle-income countries where obesity is on the rise (Popkin, Adair & Ng, 2011; Vorster, 2010). Urbanisation in South Africa has been linked to an increased intake of animal products and fats, with individuals living in rural areas consuming approximately half the amount of animal proteins that their urban counterparts consume (Vorster, 2002; Vorster, Venter, Wissing & Margetts, 2007). According to Vorster et al's study (2007) carbohydrate consumption tends to decrease as individuals live closer to urban areas, while fruit and vegetable intake is higher. Although the urbanised diet tends to be richer in micronutrients, fat and energy intake may result in increased levels of obesity (Vorster et al., 2007). Bourne et al. (2002) note that obesity and inactivity are modifiable risk factors related to NCDs that require attention.

Hidden hunger, which presents itself in the form of micronutrient deficiencies in individuals who are seemingly well fed, presents a fourth challenge in the South African context (Burchi, Fanzo & Frison, 2011; Vorster, 2010). In general, intake of the majority of micronutrients, in the form of vitamins and minerals, is generally low, and most children and adults do not have sufficient vitamin A, calcium, iron, iodine and zinc sources forming part of their diet (Faber, Jogessar & Benadé, 2001; Faber & Wenhold,

2007; Labadarios et al., 2005). According to the National Food Consumption Survey conducted in 1999 (Labadarios et al., 2005), between 25% and 37% of South African children's iron intake was less than half of the recommended daily amount. Furthermore, one in every three South African children was found to have a minimal vitamin A intake (Labadarios et al., 2005). Faber and Wenhold (2007) highlight the value of home gardens for potentially addressing micronutrient deficiencies.

Finally, as a fifth challenge, a nutrition transition has brought about various health risks in South Africa (Vorster, 2010). Kimani-Murage et al. (2010), Bourne et al. (2002) and Statistics South Africa (2013) note how nutrition transition (where individuals adopt western diets that are high in fat, energy dense, and low in fibre) is increasingly occurring in low- and middle-income countries (including South Africa). This may lead to early stunting and adolescent obesity occurring simultaneously in one community (Kruger, Puoane, Senekal & Van der Merwe, 2007).

2.4 FOOD CONSUMPTION PRACTICES OF SOUTH AFRICAN RESOURCE-CONSTRAINED COMMUNITIES

In this section, I discuss typical food consumption practices of resource-constrained communities in South Africa. I focus on daily food choices, food sources, as well as the manner in which food is produced and prepared. Thereafter, I discuss factors that may influence food consumption practices in the resource-constrained community where I chose to conduct this study.

2.4.1 FOOD CHOICE AND DIETARY PATTERNS

To encourage a healthy diet among South African citizens, the Food-based Dietary Guidelines (FBDG) were formulated and revised as part of the South African Food Guide. These guidelines (Schönfeldt, Hall & Bester, 2013, p.229) firstly propose that a variety of food groups should be enjoyed. They recommend that starchy food should be incorporated in most meals, and suggest that fish, chicken, lean meat or eggs can be eaten daily. A daily intake of plenty of vegetables and fruits, as well as milk, maas (fermented milk) or yogurt, is encouraged; and the importance of eating dry beans, split peas, lentils and soya regularly is highlighted. Individuals are encouraged to use salt sparingly and to eat salty food in moderation. Furthermore, individuals are told to use fat sparingly and to use vegetable oils as opposed to hard (saturated) fats. The guidelines further advise that sugar, and food and drinks that contain sugar, should be consumed sparingly, while drinking plenty of clean, safe water as well as an active lifestyle are promoted.

However, a review of existing studies on the typical diets of South African communities shows that current dietary patterns are not in line with these guidelines. The majority of South Africans living in resource-constrained communities consume a limited variety of food as a result of poverty (Schönfeldt & Gibson, 2009). Resource constraints also appear to affect frequency of meals, with the National Food

Consumption Survey (NFCS) (Labadarios et al., 2005) finding that there were about 10% to 20% of children in Gauteng for whom breakfast was not a regular occurrence at the time. Although the majority of South African children have been found to eat three meals a day, children from high SES backgrounds have been found to be more likely to have breakfast and to bring lunch to school (Labadarios et al., 2005; Temple, Steyn, Myburgh & Nel, 2006). It is also important to keep in mind that access and proximity to safe water affects the water intake of individuals in resource-constrained settings (Love et al., 2001).

Various studies indicate that diet will follow a socio-economic pattern, with families and children from lower SES groups being characterised by less than optimal dietary intakes (Darmon & Drewnowski, 2008; Kruger, Kruger & MacIntyre, 2006; Larson & Story, 2009; MacFarlane et al., 2007). In general, individuals from higher SES groups tend to follow diets consisting of more fruits and vegetables, while lower SES groups are likely to follow diets that contain mainly refined grains, starchy vegetables, added fats, sweets and fatty meats (Darmon & Drenowski, 2008). Furthermore, informal communities situated closer to towns or cities tend to follow westernised dietary patterns, making these community members more susceptible to obesity (Kruger et al., 2006).

Resource-constrained communities in South Africa generally consume monotonous diets comprising limited items (Faber et al., 2001; Schönfeldt et al., 2010). Plant-based, starchy staple foods and little or no fruits, vegetables and meat make up most of the diets of individuals living in resource-constrained settings (Faber, Phungula, Venter, Dhansay & Benade, 2002). Taylor and Jinabhai (2001, p.137) elaborate on the typical diet as being "*a single staple, corn prepared in numerous ways, supplemented by dried beans, negligible amounts of milk and occasionally meat and wild greens*", with the seasonal additions of potatoes and pumpkins. Most of the monthly food budget of households in resource-constrained communities is spent on maize, poultry and brown bread (Martins, 2005). Sugar, tea, whole milk and white bread are also commonly consumed in South African households (Labadarios et al., 2005; Steyn, Nel & Casey, 2003).

It has been found that, in South African resource-constrained communities, up to 47% of money spent on grains is spent on maize products (Martins, 2005). A daily average of 426g and 848g of maize is eaten by children and adults respectively (Steyn et al., 2003). Maize is mostly eaten in the form of stiff porridge, but is also served as soft or crumbly porridge, or mixed with pumpkin (Faber et al., 2001; Kimani-Murage et al., 2010; Oldewage-Theron et al., 2006). Diets that mainly consist of staple cereals or grains are associated with micronutrient deficiencies (St. Clair & Lynch, 2010).

Bread and rice are among the commonly consumed grains within resource-constrained settings (Kruger et al., 2006; Labadarios et al., 2007; Martins, 2005). Steyn et al. (2003) found that, on average, adult South Africans consume approximately 165g of white or brown bread per day. Bread consumption makes a large contribution to salt intake in the diets of South Africans (Charlton et al., 2005). A potential

challenge lies in the fact that increased salt intake from refined food may lead to increased blood pressure and other cardiovascular diseases (Bertram, Steyn, Wentzel-Viljoen, Tollman & Hofman, 2012; Charlton et al., 2005).

In South Africa, resource-constrained communities typically consume protein in the form of chicken, soy beans and sour milk (Faber et al., 2001; Mkhize, Napier & Oldewage-Theron, 2013; Oldewage-Theron et al., 2006; Taylor & Jinabhai, 2001). Approximately 55% of the monthly budget spent on meat in resource-constrained households is spent on poultry, including the heads and feet of chickens (Martins, 2005). An adult typically consumes 111g of chicken meat per day (Martins, 2005; Steyn et al., 2003). Although not as commonly consumed, nearly 80% of the money spent on fish products in resource-constrained settings is spent on tinned fish (Martins, 2005).

Fruit and vegetable consumption is generally poor in South African resource-constrained communities as a result of poor availability, expensiveness and a scarcity of resources to grow them (Kruger et al., 2006; MacIntyre, Kruger, Venter & Vorster, 2002). Faber et al. (2001) found that bananas and oranges are among the most commonly consumed fruits in resource-constrained communities, while Martins (2005) reports that apples make up 30% of families' monthly expenditure on fruit and nuts. Cabbage is eaten frequently (Faber et al., 2001; Oldewage-Theron et al., 2006; Taylor & Jinabhai, 2001), and is generally prepared with onion, tomato and oil (Vorster et al., 2007). This is not ideal, as there are many alternative vegetables that are much richer in vitamins (Taylor & Jinabhai, 2001). Other vegetables often consumed include tomatoes, onions, spinach, potatoes, pumpkins, carrots and beetroot (Green et al., 2004; Mkhize et al., 2013; Oldewage-Theron et al., 2006).

Many individuals from resource-constrained communities also eat indigenous, wild-growing, green leafy vegetables (Faber et al., 2001; Green et al., 2004). Steyn et al. (2003) recorded an average consumption of 182g wild green leaves or spinach in the typical daily diet of South Africans in resource-constrained settings. There are approximately 800 to 1000 different species of these indigenous leafy vegetables growing in sub-Saharan Africa (Fanzo & Pronyk, 2011). Even though these vegetables have many nutritional benefits and are easily obtained, consumption is often still too low, as the eating of indigenous leafy vegetables may be considered to be primitive and indicative of being poor (Orech, Christensen, Larsen & Friis, 2007; Smith & Eyzaquirre, 2007).

The amount of sugar consumed by individuals is generally very high in resource-constrained communities (Vorster et al., 2007). The forms in which sugar is ingested include white sugar, carbonated soft drinks and concentrated squash drinks (Oldewage-Theron et al., 2006). Cookies, cakes and jams are other common sources of sugar (Steyn, Myburgh & Nel, 2003; Temple, Steyn, Fourie & De Villiers, 2011). South African children and adults from resource-constrained settings have been reported to consume approximately 10g and 30g of sugar per day respectively (Faber et al., 2001; Steyn et al., 2003).

Adolescent and school-going children often buy food high in sugar (including chocolates, soft drinks and candy) from school tuck shops, local vendors and other shops close to school (De Villiers et al., 2012; Temple et al. 2006). Individuals' sugar consumption should be monitored, as high intake is associated with, among other things, dental caries and obesity (Steyn et al., 2003).

Although individuals from resource-constrained communities have been found to prefer less salty food, commonly consumed items like bread and junk food bought from vendors and 'spaza' shops[4] typically contain large amounts of salt (Bradshaw & Steyn, 2001). Stimulants, mainly in the form of tea (ceylon and rooibos) and sometimes coffee, are consumed by most individuals in these communities (Mkhize et al., 2013; Oldewage-Theron et al., 2006). A study by Faber et al. (2001) indicates that 71% of children and 86% of their caretakers in resource-constrained communities will drink black tea on a regular basis. More specifically, of the money that average families spend on non-alcoholic beverages in resource-constrained settings, 80% is spent on tea (Martins, 2005).

2.4.2 FOOD PREPARATION PREFERENCES

The manner in which food is processed and prepared affects the nutrient content of the final product, and it is therefore important to consider the manner in which food is prepared within the community (Hotz & Gibson, 2007; Severi et al., 1998). The World Health Organization (WHO) (2006) notes that close to 2 million deaths per year can be attributed to contaminated water and food. In an attempt to address this challenge, WHO has developed five key points to keep in mind when working with and preparing food. These are firstly to keep clean, secondly to separate raw and cooked ingredients, thirdly to cook food thoroughly, fourthly to store food at safe temperatures, and lastly to use safe water and raw materials.

Keeping clean addresses the importance of washing one's hands, pest control, and the sterilisation of equipment and surfaces. Safe water and raw materials focuses on the importance of checking expiry dates and not using canned foods that are swollen or dented (World Health Organization, 2006). Donkor, Kayang, Quaye and Akyeh (2009) mention that knowledge and skills related to these guidelines can be transferred to individuals successfully by means of workshops.

The manner in which South African communities prepare their food appears to be affected by factors such as time limitations, household preferences, habitual or cultural practices, and persistent attitudes (Love et al., 2001). Viljoen (2010) mentions convenience, socio-cultural influences and economic factors as additional factors influencing the manner in which food is prepared. As a result of these, South African communities tend to use fats for cooking, overuse salt and choose refined food (Love et al., 2001).

[4] Local community shops, generally in the form of small, one-room shops that stock basic food, groceries, drinks and beer at higher than average prices (Haese & Van Huylenbroeck, 2005).

Viljoen (2010) looked at local food preparation within a resource-constrained community. Her findings included recipes for commonly prepared meals within the community. Most of the traditional recipes appear to involve boiling food (whether it be meat, vegetables or starch) in water with salt. Sunflower oil is also used for cooking, either for frying or as an addition to recipes (Faber et al., 2001; MacIntyre et al., 2002; Viljoen, 2010). In line with these findings, a study by Spearing et al. (2012) elaborates on typical food preparation practices. From this study, it appears that meat is mostly served in stewed form (prepared with water, salt, tomatoes and onions) and fried form (fried in oil), while starch-based dishes are mainly prepared using water and salt. Vegetable-based meals are either fried (with onion, salt and oil) or stewed (using oil, salt and onions).

A South African study by Charlton et al. (2005) indicates that salt consumption in the form of table salt is higher than the recommended maximum intake of 6g per day for most individuals. Discretionary (added) salt consumption was highest among black participants in their study, and was responsible for up to 46% of their total dietary intake of sodium (Charlton et al., 2005). Furthermore, the common use of oils for frying has been linked to cardiovascular diseases (Spearing et al., 2012). Alternative cooking methods can therefore be viewed as an important strategy for dietary interventions in South African communities.

2.4.3 TRENDS IN OBTAINING FOOD

Ruel et al. (1998) note that individuals tend to obtain food from three main sources, namely local markets, home gardens and through food donations from community support programmes or from other households. In line with this, a study conducted by Kaschula (2011) indicates that community members from a poor South African community, for example, rely mainly on the collection of wild leafy vegetables, borrowing food from neighbours, and buying on credit as the means for obtaining food while experiencing severe resource constraints. With specific reference to food donations, Kaschula (2011) notes that individuals living in extreme resource-constrained settings consume food that they obtain through food donations from other households in the community. Approximately 3% to 8% of these individuals' diets will consist of donated food, mainly in the form of maize products (Kaschula, 2011).

Baiphethi and Jacobs (2009) mention fresh produce markets, informal markets and supermarkets as common places where food is bought. Individuals from resource-constrained communities appear to buy most of their food from supermarkets in the nearest towns or cities, mainly because they provide a greater variety of food at lower costs than local shops and farmers (Haese & Van Huylenbroeck, 2005). In agreement with this, Morapane's study (2012) identified supermarkets and informal markets as most commonly visited by community members from resource-constrained backgrounds. All of the participants in this study bought from supermarkets, and more than 90% of the participants bought from informal markets. Morapane (2012) goes on to mention that affordability as well as easy access appear to be the most important factors contributing to choice of retailer.

However, buying food does not appear to be an effective solution for obtaining food for resource-constrained communities. Martins (2005) found resource-constrained South African families' annual food budget for a family of three to four people to be less than the Minimum Living Level (MLL) budget stipulated for a family of two people. In support of this, Temple and Steyn (2011) state that a healthy diet is unaffordable for most people living in South Africa. Thus, alternative sources of food need to be sought.

One such alternative is a source mentioned by Ruel et al. (1998), namely home gardens. Galhena, Freed and Maredia (2013, p.2) define home gardens as "*a mixed cropping system that encompasses vegetables, fruits, plantation crops, spices, herbs, ornamental and medicinal plants as well as livestock that can serve as a supplementary source of food and income*". Home gardens as a means of food production promote physical activity, provide food security and are a source of vitamin-rich food within communities (Faber et al., 2002; Kortright & Wakefield, 2011). Home gardens have been found to save households approximately R100 per month in food expenditure and, in some cases, as much as R300 per month (Thornton, 2008). Thornton (2008) looked specifically at agricultural or home garden activities in peri-urban and urban areas, and found that culture and tradition (44%), consumption (32%) and selling (16%) were the main reasons for rearing livestock. Chickens, goats, cattle and pigs appear to be the most commonly kept livestock. These animals are either slaughtered or kept for products such as milk and eggs.

To date, home gardening is not widely practised and/or is practised ineffectively in South Africa. It was reported in 2000, for example, that only 11% of the South African population consumed maize produced in home gardens (Hoogeveen & Özler, 2005). The underutilisation of home gardens may be due to a lack of knowledge and skills, time and/or infrastructure (Faber et al., 2002; Kortright & Wakefield, 2011; Musotsi, Sigot & Onyangao, 2008). More specifically, insufficient access to available land, a lack of tools and seeds, limited access to water, the prevalence of pests and diseases, as well as poor soil quality and the issue of cultural acceptance, have been identified in the literature as common barriers to home gardening (Galhena et al., 2013).

2.4.4 FACTORS INFLUENCING THE FOOD CONSUMPTION PRACTICES OF RESOURCE-CONSTRAINED COMMUNITIES

Individuals' food consumption practices need to be viewed and understood within their context, as socio-economic factors, cultural practices and environmental factors will influence what individuals eat (Puoane, Matwa, Bradley & Hughes, 2006). In line with this, Drewnowski and Kawachi (2015) identify the cost of food, socio-economic status and access to food as factors that may impact on the food consumption behaviour of individuals.

A systematic review by Larson and Story (2009) takes an in-depth look at some of these factors. As an environmental factor, parental behaviour, specifically the food parents buy and the ways in which they

eat it, has been found to impact on children' eating behaviour. If parents tend to keep healthy food in the house and model healthy eating practices, children are more likely to eat in a healthy way (Larson & Story, 2009). Because children may eat up to two of their daily meals during school time, Larson and Story (2009) identify the school as another factor influencing food consumption practices. At school, children often consume food provided by school feeding programmes, or food bought in and around the school environment (Larson & Story, 2009).

Access to supermarkets, as well as the availability of healthy food at supermarkets, are other factors influencing food consumption practices (Larson & Story, 2009). Better access to supermarkets and the availability of healthy food are factors associated with healthier food choices. Larson and Story (2009) indicate that frequent consumption of fast food is an aspect of unhealthy eating. Cultural background has also been found to impact on the type of food cooked, the manner in which food is prepared, and when meals are consumed (Larson & Story, 2009).

Socio-economic status is yet another factor influencing food consumption practices in a variety of ways (Larson & Story, 2009). Individuals from lower socio-economic status groups tend to have poorer access to supermarkets and may have diets that are higher in energy-dense food, sugars and junk food, and lower in fruits and vegetables (Larson & Story, 2009). Due to a lack of time to prepare food, individuals from lower socio-economic status groups also tend to buy fast food more frequently (Larson & Story, 2009). Individuals from resource-constrained settings who need to travel long distances to and from work tend to choose high-fat, refined food that is quick and easy to prepare (Bourne et al., 2002). These individuals may also buy food from informal vendors, who sell energy-dense fast-food and snacks at prices that are more affordable and therefore more appealing to resource-constrained individuals (Feeley, Musenge, Pettifor & Norris, 2012; Steyn, Labadarios & Nel, 2011). Oosthuizen, Oldewage-Theron and Napier (2011) highlight the effect of unemployment on consumer behaviour, noting that, despite improved nutritional knowledge, children will typically have little control over their dietary intake, as their parents' food purchases and preparation methods are largely dependent on the cost of food and levels of unemployment in their community.

Individuals from resource-constrained backgrounds may therefore make unhealthy food decisions as a result of poverty, social instability and lack of knowledge (Bourne et al., 2002). Financial constraints are regarded as a barrier to affording and following a healthy diet (Love et al., 2001). Adding to the stressor of poverty, inflation has been identified as a major risk factor that may promote the monotonous nature of diets for individuals from lower income groups (Schönfeldt et al., 2010). Individuals from resource-constrained settings in the South African context have been found to decrease their number of meals, limit portion sizes and skip meals in order to cope with their lack of sufficient resources (Oldewage-Theron et al., 2006).

Altman, Hart and Jacobs (2009) acknowledge the need for consumer education in relation to community members' nutritional intake (or food choices). However, Campbell et al. (2013) note a gap in existing literature regarding suitable focus areas for interventions aimed at parental needs, so as to positively influence their children's dietary patterns. In this regard, Love et al's (2001) study reviewed the South African dietary guidelines and the feasibility thereof in the South African context. As a result of their findings, the authors suggest that nutritional education should consider what is affordable and available for a specific community and keep potential barriers in mind (such as time constraints). They suggest fast and appetising methods to increase legume consumption, alternative cooking methods to decrease fat consumption, and alternative, time-effective forms of physical activity, as topics that can potentially be included in nutritional education.

2.5 NATIONAL RESPONSE TO FOOD- AND HEALTH-RELATED CHALLENGES FACED BY RESOURCE-CONSTRAINED COMMUNITIES IN SOUTH AFRICA

South African citizens, according to Section 27 of the Constitution, have the right of access to adequate food and water (Department of Agriculture, 2002). In an attempt to address chronic poverty and food insecurity in the country, the South African government has employed various strategies and programmes, including school feeding schemes, support grants, and free access to health services for young children as well as pregnant and breastfeeding women (Department of Agriculture, 2002; Labadarios et al., 2007).

The South African social grant system provides monthly allowances, mainly to the elderly, to parents of young children, and to people with disabilities (Aliber, 2003; Labadarios et al., 2011). Close to 11 million children under the age of 18 benefit from social grants in South Africa (Thurman, Kidman & Taylor, 2015). Ardington, Case and Hosegood (2009) note that approximately one third of the South African community benefits from pension social grants, with up to four generations in one household being supported by this income.

In addition to the above-mentioned interventions, the government has also initiated policies specifically designed to address food insecurity (Labadarios et al., 2011). This includes the Reconstruction and Development Programme (RDP) and the Poverty Alleviation Fund, both of which have been employed since 1994 in order to address the state of poverty and food insecurity in the country (Aliber, 2003). In 2000, the Integrated Food Security Strategy (IFSS) was launched in an attempt to integrate existing food security programmes in South Africa (Department of Agriculture, 2002). Together with other national departments, a few priority areas for change were identified as part of the IFSS. Firstly, the DoA aims to improve household food production, trade and distribution. Secondly, the Department of Trade is focused on increasing income and job opportunities. Thirdly, the Department of Health has taken the lead in improving health and food safety. Finally, the Departments of Social Development and Provincial and

Local Government are taking responsibility for enhancing food 'safety nets' and food emergency management systems.

2.5.1 DEPARTMENT OF BASIC EDUCATION'S ROLE IN PROMOTING FOOD SECURITY IN SOUTH AFRICAN SCHOOLS

Informed by legislation, policy and various programmes, as mentioned above, the DoBE has joined forces with the Department of Health (DoH) and the Department of Social Development (DoSD) to implement and build on the provision of health services in South African schools (Department of Basic Education & Department of Health, 2012). Starting with the most disadvantaged learners, the Integrated School Health Policy (ISHP) outlines that each school should be provided with health education and promotion, health-related child assessment and screening, certain on-site health services, and referrals when necessary (Department of Basic Education & Department of Health, 2012). The ISHP furthermore emphasises the active participation of and collaboration between learners, the community, and other stakeholders.

The ISHP (Department of Basic Education & Department of Health, 2012) thus outlines the roles of schools in the implementation of health programmes. Accordingly, a School-based Support Team (SBST), consisting of a Life Orientation teacher, the School Health Team, representatives from the School Governing Body (SGB), as well as Non-Government Organisations (NGOs), staff and learner representatives, is required to work under the leadership of the school principal to ensure that certain tasks are carried out at school level. These tasks include the mobilisation of services, managing liaisons among community stakeholders, ensuring the provision of the various components of the ISHP to all learners, managing data and equipment that pertain to the ISHP, as well as building partnerships with other providers. The SBST is also responsible for managing on-site visits by developing schedules for assessments, obtaining consent and assent, orienting learners, as well as recording and facilitating referrals and formalising referral procedures.

One of the DoBE's supportive initiatives in resource-constrained communities is to provide learners with daily meals at school as part of the National School Nutrition Programme (NSNP) (Department of Education, 2009). The NSNP is aimed at learners in quintiles[5] 1, 2, and 3 schools. Quintiles are determined based on the socio-economic circumstances of a school, and support is aimed at quintiles with the poorest learners (Department of Education, 2009; Western Cape Government, 2013). As part of the programme, more than 8 million learners are provided with one balanced meal per day at school, which contributes to 30% of the learners' daily nutritional requirements (Department of Basic Education 2013; Eberlein, 2013). A typical meal should consist of a protein (such as soya, fish, eggs, milk, sour

[5] According to the Western Cape Government (2013), South African public schools are divided into five quintiles or groups based on the poverty rankings of the schools. Schools in quintile 1 are categorised as the poorest schools, while the least poor schools are known as quintile 5 schools. The main purpose of this ranking is for the allocation of financial resources. Quintiles 1, 2, and 3 schools are no-fee schools.

milk, beans or lentils), a carbohydrate or starch, and one portion of fresh vegetables or fruits per day (Department of Basic Education, 2013). The DoBE provides all schools that are part of the programme with the necessary cooking equipment and utensils, ingredients, and a monthly honorarium to be paid to volunteer food handlers (Department of Education, 2009).

For the NHSP to be implemented, certain roles and responsibilities have been identified (Department of Education, 2009), which create the opportunity for teachers to fulfil their different roles as mentioned above. The school principal, for example, has to act as accounting officer in charge of the programme. The school principal is also responsible for the appointment of a responsible person to coordinate the programme on a daily basis. Furthermore, schools are expected to establish a Nutrition Committee, consisting of the principal, an SGB member, an administrator, a coordinator, a food handler and/or food gardener. The SGB is responsible for monitoring the progress of the NSNP at the school, as well as for identifying unemployed parents from the community who can act as food handlers (Department of Education, 2009).

Teachers' involvement beyond their core roles as educators and as responsible members of the community has been found to contribute positively toward the implementation of the NSNP in schools (Department of Basic Education, 2010). Assistance can take place in the form of supervision at mealtimes, checking that learners wash their hands, and recording information related to the NSNP. Learner attendance is subsequently positively affected by the NSNP (Eberlein, 2013).

The NSNP encourages a culture of vegetable gardens at schools, which can provide fresh produce for daily meals, seeds for home vegetable gardens, leftover meals for needy families, and opportunities to learn practically in Mathematics, Life Orientation, Natural Science, and Economic and Management Sciences (Department of Basic Education 2010). School gardens are viewed as effective resources for teaching learners valuable life skills, as well as for improving their ability to identify fruits and vegetables, and for increasing their willingness to eat vegetables (Morgan et al., 2010; Somerset & Markwell, 2009). Although vegetable gardens are well utilised by some schools in South Africa (mainly as a supplement to the NSNP), most schools do not yet have vegetable gardens due to reasons such as space shortages, time constraints and unsuitable school grounds (De Villiers et al., 2012).

Despite the NSNP's value, the programme has not been implemented optimally in all schools across South Africa. Challenges affecting the successful implementation of the NSNP may include inadequate training of food handlers and coordinators, too few food handlers, lack of equipment and finances, and poor teacher participation (Eberlein, 2013).

2.5.2 COMMUNITY-BASED HEALTH AND NUTRITION-RELATED INITIATIVES

Girard, Self, McAuliffe and Olude (2012), as well as Masset, Haddad, Cornelius and Isaza-Castro (2012) conducted systematic reviews on the outcomes of community-based, non-governmental projects focused on agricultural (home garden) interventions. They included 36 and 23 studies respectively in their reviews. Although the reviews did not yield exact and precise conclusions, the community-based projects indicated predominantly positive outcomes with regard to mothers' and children's diets and nutritional status. Diets generally improved in terms of variety as well as the amount of macronutrients consumed. Among other improvements, increased fruit and vegetable consumption as well as improved intake of micronutrients such as iron, protein and vitamin A were reported as positive outcomes of the projects.

In the South African context, Faber et al. (2011) report on a community-based project focused on improving the nutritional status of community members – the Ndukazi project – which achieved great success in improving mothers' knowledge and children's health. The intervention included maternal education, practical food preparation demonstrations and the distribution of samples of food, as well as the showcasing of vegetable gardens. Mothers' knowledge on vitamin A-rich food as well as the symptoms and effects of vitamin A deficiencies improved as a result of the initiative (mothers in the test group achieved scores of 80%, whilst mothers in the control group achieved scores of less than 30%, when their knowledge on these topics was tested). Another outcome was that of improved vitamin A intake by children and consequently a decrease in vitamin A deficiency (from 58% to 34%). Community members continued with the gardening project after withdrawal of the research team, indicating that initiatives of this kind can be sustained. It has furthermore been found that nutrition-focused interventions are more successful in promoting fruit consumption than vegetable consumption (Evans, Christian, Cleghorn, Greenwood & Cade, 2012).

2.5.3 SCHOOL-BASED HEALTH AND NUTRITION-RELATED INITIATIVES AND THE SUPPORTIVE ROLE OF TEACHERS

Schools and the curriculum can be viewed as affordable and effective sources for transferring knowledge and improving attitudes regarding health and nutrition (Du Plessis, Koornhof, Daniels, Sowden & Adams, 2014; Gortmaker et al., 1999; Love et al., 2001). Various authors (Cortina et al., 2008; Prelip et al., 2011) highlight the potential role of teachers and the school in promoting children's health and development, especially in developing countries.

As briefly noted in Chapter 1, Steyn et al. (2009) conducted a systematic review to identify the factors that contribute to the success of school-based interventions. The review highlights the importance of including a nutrition-based curriculum that will be taught by trained teachers, as well as a physical activity component as part of best-practice outcomes in schools. Du Plessis et al. (2014, p.48) describe the current school curriculum as an "*acceptable*" medium to incorporate health-promoting content.

Furthermore, Steyn et al. (2009) emphasise that best practice interventions are characterised by sound theoretical underpinnings. Steyn et al. (2009) also note that a school food service can ensure the successful implementation of a school-based intervention.

A review of existing literature provides examples of successful school-based interventions focusing on topics such as dietary intake, the promotion of physical activity and family involvement in endorsing healthy behaviour (Draper et al., 2010; Van Lippevelde, Verloigne, De Bourdeaudhuij & Brug, 2012; Pérez-Rodrigo & Aranceta, 2001; Steyn et al., 2009). The inclusion of an educational component in nutritional interventions has been shown to bring about positive behavioural change with regard to healthy habits (Faber et al., 2002; Ruel & Levin, 2000). Learning about the advantages of increased physical activity, as well as the ways in which physical activity can be incorporated in everyday life, can be conveyed to children and reinforced by means of activities such as role play and journaling, thereby leading to increased physical activity (Spiegel & Foulk, 2006). The topic of positive self-esteem and body image can also add to a curriculum focused on positive nutrition and health outcomes (Pérez-Rodrigo & Aranceta, 2001).

Pérez-Rodrigo and Aranceta (2001) mention knowledge and skills on the preparation, storage and preservation of food as a vital part of nutritional interventions. Furthermore, Watts, Piñero, Alter and Lancaster (2012) note that different school subjects, such as Mathematics, can be used as effective platforms to convey nutrition-related knowledge to learners, as long as teachers are provided with an appropriate curriculum.

Evans et al. (2012) found that multi-component school-based interventions (which involve both learners and parents) are more effective than single-component interventions (such as the free or subsidised distribution of food at schools) in bringing about changes in eating behaviour. Parents can be involved successfully in school-based interventions by means of, for example, take-home materials such as sample snack-packs and tips for preparing healthy food at home, as well as family events at school, such as cooking demonstrations involving the whole family (Caballero et al., 2003). Brown and Summerbell's systematic review (2009) furthermore reveals that school-based health interventions (specifically those that address physical activity) are generally more successful among younger learners (approximately 9 years old or younger).

School-based health-related interventions such as Pathways (Caballero et al., 2003), which focused on reducing obesity, have successfully utilised teachers as facilitators and supporters of the interventions. Teachers can effectively influence learners' nutritional and physical behaviour through classroom-based education related to nutrition and physical activity (Prelip et al., 2006). In addition to this assertion, Steyn et al. (2015) note from their study, as well as from another South African study, that interventions may not have a significant impact if the implementation of strategies is mainly the responsibility of teachers.

In their study, teachers identified factors such as a lack of time, poor facilities and lack of parental involvement as possible reasons that a teacher-led component may not be implemented successfully (Steyn et al., 2015).

Steyn et al. (2015) refer to a study by Jemmott et al. (2011), indicating that trained community members serving as facilitators of interventions brought about increased fruit and vegetable consumption, as well as increased physical activity, among Grade 6 learners. This is in line with the findings of Caballero et al. (2003), who state that, with proper training and a culturally appropriate curriculum, teachers can effect significant changes in learners' health, knowledge and behaviour. Teacher workshops have been identified as an effective tool to educate teachers regarding the manner in which nutrition and health can be addressed in the school curriculum (Donkor et al., 2009; Manios, Moschandreas, Hatzis & Kafatos, 1999; Spiegel & Foulk, 2006). To this end, Spiegel and Foulk (2006) identify additional teacher resources as a tool to promote the incorporation of health and nutrition in the school curriculum. Developing new school policies and adapting existing policies related to health may also bring about positive change with regard to nutrition and physical activity in the school setting (Naidoo & Coopoo, 2012).

In 2000, the DoBE identified seven roles that are included in competent teaching. These roles were retained as part of the new Curriculum and Assessment Policy Statements (CAPS) (Department of Higher Education and Training, 2015), namely the roles of learning mediator; interpreter and designer of learning programmes and materials; leader, administrator and manager; scholar, researcher and lifelong learner; community member, citizen and pastoral caretaker; assessor; and learning area/subject/discipline/phase specialist.

For this particular study, teachers seemed able to fulfil their role as community members, citizens and pastoral caretakers by speaking on behalf of the community, expressing their perceptions of the behaviour and needs of the community in which they teach. Furthermore, as specialists in their subjects, they provided insight as to how the current curriculum may be utilised to facilitate nutritional and health-related practices. As participants in this and in follow-up studies, teachers were able to form part of the research process, thus allowing them to fill the roles of scholars, researchers and lifelong-learners. Follow-up studies within the greater Win-LIFE project will involve teachers in their capacity as facilitators and assessors of learning programmes and materials, as well as mediators of learning, as they will present and assess nutritional and health-related lessons in order to facilitate change.

2.5.4 FOOD AND HEALTH-RELATED TOPICS INCLUDED IN THE CURRENT SCHOOL CURRICULUM

The National Curriculum Statement for South African Schools is a policy for teaching and learning, and outlines the current South African school curriculum (Department of Basic Education 2011a). As part of the National Curriculum Statement, the CAPS are included for each of the approved subjects, each of which comprehensively stipulates the aims, teaching plan and assessment for each subject in the

Foundation, Intermediate, Senior, and Further Education and Training Phases (Department of Basic Education, 2011a). According to the CAPS documents, the Intermediate Phase (Grades 4-6) comprises six subjects, namely Home Language, First Additional Language, Mathematics, Natural Science and Technology, Social Sciences, and Life Skills (Department of Basic Education, 2011a). The Life Skills subject is subdivided into Creative Arts, Physical Education and Personal and Social Well-being.

At present, the Life Skills CAPS document allows for various forms of physical activity for all grades that fall within the Intermediate Phase (Department of Basic Education 2011a). De Villiers et al. (2012) however, note that the current situation in many South African schools is that, although part of the formal school curriculum, physical activities do not necessarily take place as a result of limited equipment and facilities.

Food- and nutrition-related topics are covered within the Life Skills subject in Grade 4 ("Dietary Habits of Children"), Grade 5 ("Healthy Eating for Children") and Grade 6 ("Food Hygiene") (Department of Basic Education 2011a). The Grade 4 topics focus on the impact of children's dietary habits on dental and oral hygiene. In Grade 5, the South African Food-based Dietary Guidelines, as well as the dietary needs of learners and factors affecting learners' food intake, are covered. The content studied in Grade 6 involves safe and harmful ingredients, food preparation and storage, as well as food-borne diseases (Department of Basic Education, 2011a).

The subjects of Natural Sciences and Technology touch on these issues in Grade 4 and Grade 5 ("Food Chains") as well as Grade 6 ("Nutrients in Food"; "Nutrition"; and "Food Processing") (Department of Basic Education, 2011c). Under the heading "Food Chains", Grade 5 learners are introduced to the importance of nutrition, as well as plants as a primary source of food for all organisms. The flow of energy through food chains is also covered. In Grade 6, learners learn about the functions of each nutrient group, as well as the food types that contain different nutrients, under the topic "Nutrients in Food". The nutrient content of natural versus processed food is also discussed. Learners in Grade 6 are exposed to the meaning of a balanced diet under the topic of "Nutrition". The four food groups, the importance of water and fibre in one's diet, as well as diseases related to diet are covered. The topic of "Food Processing" encompasses the need for food processing, as well as different methods for processing food.

In Grade 4 Social Science, learners are taught about "Food and Farming in South Africa" (Department of Basic Education, 2011d). Under this topic, learners learn about the classification of food, obtaining food, types and methods of farming, as well as processed and unprocessed food. English as a First Additional Language incorporates food and nutrition by requiring that learners listen to, read, and write procedural texts such as recipes (Department of Basic Education, 2011b).

2.6 CONCEPTUAL FRAMEWORK OF THE STUDY

In this section, I explain Bronfenbrenner's Bioecological Model of Human Development (Bronfenbrenner, 2005), as well as the Food Decision Framework (Gillespie & Smith, 2008). I then integrate these two theories in order to present the conceptual framework that informed this study.

2.6.1 BRONFENBRENNER'S BIOECOLOGICAL MODEL OF HUMAN DEVELOPMENT

Bronfenbrenner's Bioecological Model of Human Development evolved over many decades, with the latest revision being characterised by the 'Person-Process-Context-Time' model (Bronfenbrenner, 2005; Tudge et al., 2009). For the purpose of this study, I have focused on the 'Context' dimension of the model (Tudge et al., 2009). This dimension implies that individual community members find themselves positioned within four interrelated systems (Tudge et al., 2009).

Forrest, Elman and Shen Miller (2008) as well as Pallan, Parry and Adab (2012) summarise the systems that were initially identified by Bronfenbrenner. Firstly, each individual is positioned within various microsystems, which include all the roles, relationships and patterns in the individual's direct environment, and with which he or she interacts. These play an important role in shaping the individual's development. Secondly, the mesosystem involves the interrelationships among the different microsystems such as the home and the school. Thirdly, the exosystem refers to a system that influences an individual, but to which the individual is not directly connected, such as the influence of a parent's workplace on a learner, or the influence of a learner's school on a parent. Lastly, the macrosystem refers to the dominant culture, values, beliefs and economic structures of the society within which individuals function.

Ndiaye et al. (2013) highlight the potential roles of the different systems in which individuals find themselves in terms of their nutritional decision-making processes. At the micro-level, individual body mass and characteristics such as genetics play an important role in food-related decisions. Parent-child communication in the form of family rituals (for example shared mealtimes, as well as attitudes toward exercise and healthy food), rules (for example who helps with chores) and family decision making (who makes the decisions about food consumption and for whom these decisions are made) also play an important role regarding food-related decisions within a family. Family and parental styles influence learners' food consumption and decision making at the micro- and exo-levels, namely in the form of parental modelling as well as parents' available time for preparing meals. At the macro-level, community and societal factors such as school lunch programmes, accessibility of shops and food, and socio-economic status, will all have an influence on the food-related decisions of families and learners.

Pallan et al's study (2012) highlights various contextual factors that may influence the nutritional and physical behaviour of a community. At the micro-level, food preferences and self-esteem are factors that may influence nutrition and physical activity, as well as parents' inactive lifestyles, parents' food choices

for their children and their nutritional and physical behaviour, all of which serve as examples for their children to emulate. At the meso-level, the school may influence nutrition-related choices and physical activity through messages about what is healthy and unhealthy, as well as the manner in which the school promotes physical activity. At the macro-level, convenient access to healthy food, the cost of healthy food, available space, as well as the influence of the media, are all factors influencing the decisions of community members. Finally, the dominant culture may influence dietary choices and physical fitness in the form of traditional eating practices, parental influence, and beliefs about physical activity.

Larson and Story (2009) note that socio-economic status, on the macro-level, may influence food choices. Furthermore, the school (as a microsystem and as part of the mesosystem) acts as a major influential setting regarding nutritional choices and behaviour, in connection with school feeding programmes, as well as "competitive food" sold at and around the school that does not form part of official feeding schemes. Food choice is strongly influenced by the available retail options, as well as the availability of fast-food options. Furthermore, socio-economic status may impact on availability of healthy food, as well as the ability to purchase such food. Availability of time and resources for food preparation may also be factors.

The DoA describes the current state of food security in South Africa using the Context dimension of Bronfenbrenner's Bioecological Model. Firstly, insufficient food production at household level, together with a reliance on purchased food items, underpin food insecurity at the household level (the microsystem) (Department of Agriculture, 2002). As a result, educational and physical development at individual levels may be stunted by insufficient nutrition. Households, as a result, have to cope with huge medical or even funeral expenses. High unemployment rates result in reduced buying power (the macrosystem) (Department of Agriculture, 2002). Furthermore, the greater community may, as a result of food insecurity, have to deal with social issues such as crime and the cost of additional law enforcement (mesosystems) (Department of Agriculture, 2002). On the macro-level, outside investments may be lacking due to the effects of food insecurity (Department of Agriculture, 2002). This, in turn, will again negatively impact the microsystem, as the value of the South African rand is dependent on investments and a weakened currency can lead to an increase in food costs.

2.6.2 THE FOOD DECISION-MAKING FRAMEWORK

For my conceptual framework, I also relied on the principles of the Food Decision-making Framework (FDF) (Gillespie & Smith, 2008). This framework proposes that the food decision-making process will be catalysed by issues related to a certain food event, after which community members will identify and assess alternatives. After evaluating the alternatives, community members will make a decision, which is then implemented (Gillespie & Johnson-Askew, 2009).

Food decision making is a complex process influenced by many factors (Larson & Story, 2009; Rothman, Gillespie & Johnson-Askew, 2009), which include past experiences with food, religion, and geographical context (Gillespie & Johnson-Askew, 2009). Furthermore, family food-related decisions are typically influenced by individual members' decision-making systems. In addition, community systems will determine the food that is "*practically available*" to community members (Gillespie & Johnson-Askew, 2009, p.33).

The FDF therefore proposes that individuals' decisions about food and their nutrition-related behaviour, as explained above, is a result of the historical and continuous interaction with food, as well as the food system within which individuals find themselves (Gillespie & Smith, 2008). Food-related decisions are based, among other things, on values, as well as the context of the community, culture, and maternal knowledge of nutrition (Campbell et al., 2013). Food and nutrition-related choices are also affected by the socio-economic status of individuals (Mkhize et al., 2013). However, it is highlighted that, even in the context of poverty, individuals make food-related decisions in a "*conscious and deliberate way*" (Gillespie & Smith, 2008, p.340).

The FDF acknowledges the reciprocal relationship between individuals' and families' food-related decisions and their nutritional environment, with health and well-being identified as outputs (Gillespie & Smith, 2008). It can therefore be said that food decision making is influenced by the community food system, which, in turn, will influence health and well-being. The opposite can also be true, where health and well-being influence food decision making, which will in turn influence community food systems. For example, families affected by illness such as HIV & AIDS are likely to change their eating habits and make different decisions in terms of food choice. Similarly, participants in a food system can bring about changes in their environment, which, in turn, can lead to the environment changing the participants (Shaffer, as cited by Gillespie & Smith, 2008).

2.6.3 INTEGRATING THE BIOECOLOGICAL MODEL OF HUMAN DEVELOPMENT AND THE FDF INTO A CONCEPTUAL FRAMEWORK

Gillespie and Smith (2008) note that functional cognitive processes and specific information about food are necessary for appropriate nutritional decisions to be made. Bioecological thinking allows for the recognition of "*interactions between health and the layers of the ecosystem, community, and family*" (Gillespie & Smith, 2008, p.332). My integrated conceptual framework (Figure 2.1) postulates that changes or interventions at different levels of the community members' environment will bring about changes in their functional cognitive processes, and vice versa.

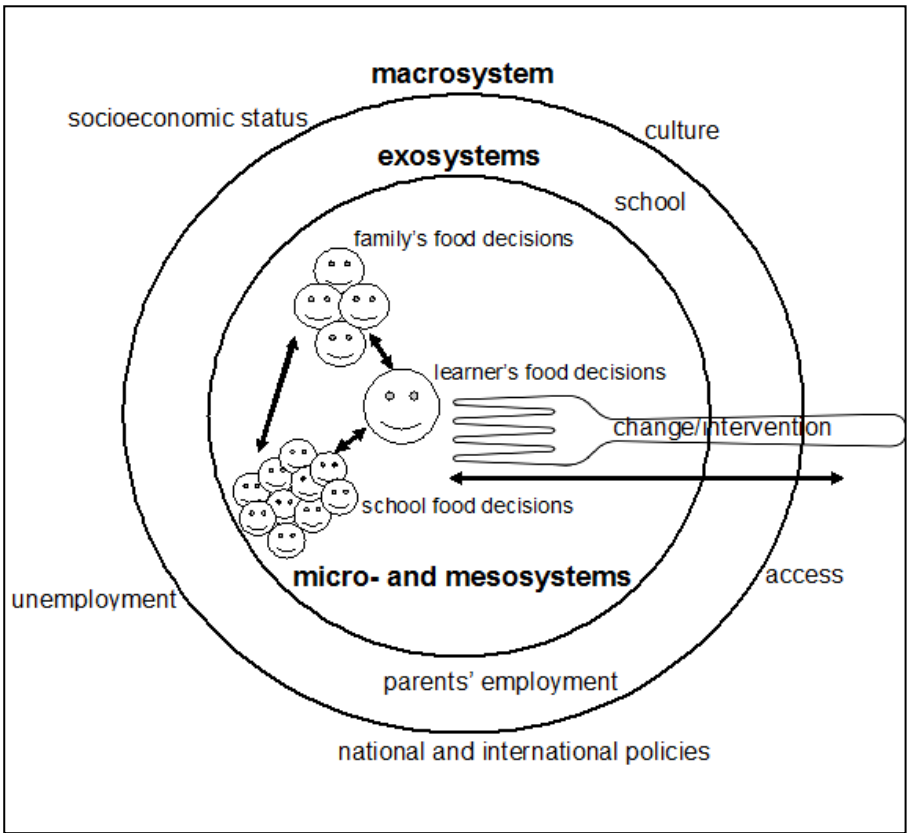


Figure 2.1: Visual representation of the conceptual framework of the study

The visual representation of the conceptual framework of this study is titled 'The Bioecological Food Plate'. This framework captures the various factors and ways in which decisions pertaining to food (or food consumption practices) are influenced by and influence factors within the individual's environment. Members of a resource-constrained community cannot be viewed in isolation; rather they must be viewed within a 'system of systems', each with the potential to impact on the others in a reciprocal manner (Pallan et al., 2012). Therefore, an intervention or event at one level within this community may potentially influence another system in the community, with the impact still evident long after the intervention or event has occurred, as the community develops over time.

By using PRA-based workshops to access the current perceptions of the teachers at this school, in terms of the food consumption practices and nutrition-related needs of the community, teachers may be made aware of the manner in which they view and consequently treat learners and community members based on their existing ideas about their community. This insight may lead to altered behaviour toward learners with regard to food decision making, implying that the learners' microsystem changes, which could affect learners' decisions and practices and, in turn, affect parents' and other community members' decisions and practices pertaining to food.

Teachers can also be utilised as a tool for change within the community; however, before teachers can be equipped with the necessary knowledge and skills to effect change, a better understanding of the

context within which the specific community makes food-related decisions is required. PRA-based workshops served as an initiating event in this respect, allowing for the generation of information regarding this community, which informed the later nutritional and physical activity intervention.

The intervention will potentially bring about change within the microsystems, namely the school and the learners' households, by imparting knowledge and skills to learners. This can provide the learners with alternatives related to their food decisions and practices (Gillespie & Johnson-Askew, 2009), which they may, in turn, transfer to their parents and other community members. As change takes place from within the different microsystems, the change will hopefully "*ripple*" across the various systems and thus eventually influence the whole community (Boemmel & Briscoe, 2001, p.1). The changed community can then effect positive change on further microsystems within the community (thus on meso-level), the different exosystems that are indirectly related to the community, and the greater macrosystems that impact on this community.

2.7 CONCLUSION

As background to this study, I conducted a literature review so as to better understand the current state of affairs and the nutritional challenges faced on global, sub-Saharan and South African levels, focusing on resource-constrained communities. I delved into the South African situation with regard to food consumption and dietary patterns and described current efforts to address the challenge of food insecurity. Lastly, I provided a description and visual representation of the conceptual framework guiding both the study and my interpretation of the findings.

In Chapter 3, I discuss the research process in a comprehensive manner. I present the paradigmatic perspectives, research design and methodological strategies I have employed. I also describe the quality criteria and ethical guidelines on which I relied during the study.

---oOo---

Chapter 3
Research Methodology

3.1 INTRODUCTION

In the previous chapter I presented the conceptual framework of the study, derived from an exploration of literature relevant to the focus of the study. I situated the current study within existing literature on the progress towards the achievement of the MDGs, the needs and behaviour of resource-constrained communities, as well as the role of education in addressing these needs in South Africa. In this manner I attempted to provide the necessary background for interpreting the participating teachers' perceptions of the food consumption practices and nutrition-related needs of the resource-constrained community in which they teach.

In Chapter 3, I elaborate on the research methodology and strategies I introduced in Chapter 1. I justify my choices of interpretivism as epistemological paradigm, and qualitative research as methodological paradigm. Thereafter I describe the selected research design (Participatory Action Research); the selection of the research site (convenience sampling) and participants (purposive sampling); data generation and documentation strategies (PRA-based workshops, observation, visual techniques, audio recordings and verbatim transcriptions of recordings, field notes [see Appendix G], and a reflective journal [see Appendix H], as well as the process of data analysis and interpretation. I outline the quality criteria of the study and conclude the chapter with an explanation of the ethical considerations to which I adhered. Table 3.1 provides an overview of the research methodology of the study.

Table 3.1: Outline of the research methodology

PARADIGMATIC ASSUMPTIONS	
Epistemological paradigm	Interpretivism
Methodological paradigm	Qualitative research
Research design	Participatory Action Research (PAR)
CASE STUDY	
Selection of case	Convenience sampling
Selection of participants	Purposive sampling
DATA GENERATION	
Data generation techniques	**Data documentation techniques**
PRA-based workshops	• Visual data (group posters and photographs) • Audio recordings and verbatim transcriptions
Observations	• Field notes

	• Visual data (photographs)
Reflection	• Reflective journal
DATA ANALYSIS AND INTERPRETATION	
Inductive thematic analysis and interpretation	
QUALITY CRITERIA OF THE STUDY	
Credibility, transferability, dependability, confirmability and authenticity	
ETHICAL CONSIDERATIONS	
Autonomy, privacy and no harm; interdependence and reciprocity; respect, democracy and non-discrimination	

3.2 PARADIGMATIC PERSPECTIVES

In this section I discuss the epistemological and methodological approaches I relied upon during this study. According to Taylor and Medina (2013) the paradigmatic perspective of a study firstly entails the researcher's view of reality and the nature thereof; secondly a related view on the type of knowledge generated, as well as the standards used to validate it (epistemology); and thirdly the approach employed to generate the knowledge (methodology).

3.2.1 EPISTEMOLOGICAL PARADIGM: INTERPRETIVISM

For the purpose of this study I was informed by an interpretivist epistemology, which allowed me to gain a deep understanding of the teacher participants' experiences and perceptions related to the community in which they teach (Wagner, Kawulich & Garner, 2012). My decision to utilise an interpretivist paradigm can be related to the purpose of this study, as I focused on teachers' perceptions of the food consumption practices and nutrition-related needs of a selected community. Informed by this epistemological approach, I acknowledge that reality presents itself through people's actions and thoughts, and that a description of reality can therefore be obtained from an existing external source (Chesebro & Borisoff, 2007; Wagner et al., 2012).

Interpretivism aims to clarify lived experiences and the manner in which lived experiences inform behaviour and understanding (Radnor, 2001). Relying on this approach, I respected that individuals' actions and language can only be truly appreciated in their natural contexts (Williams, 2000). Following an interpretivist approach, I was able to ask questions that were "*open-ended*" and "*non-directional*" (Wagner et al., 2012, p.56), and, as a result, to obtain rich detail about the teacher participants' perceptions of the community's food consumption practices and nutrition-related needs (Jackson, Drummond & Camara, 2007).

An interpretivist paradigm furthermore allowed for data generation to take place in a flexible manner (Silverman, 2013). During analysis of the data, I aimed to clarify the manner in which interpretations are formed and how meaning is given through lived experiences, and secondly how this meaning can inform behaviour and understanding (Radnor, 2001). As an interpretivist researcher, I was engaged in interpretation throughout the research process (Radnor, 2001). In this regard, I acknowledge that my interaction with the participants contributed to emerging knowledge (Chesebro & Borisoff, 2007).

The methods employed under the umbrella of interpretivist research are often time-consuming (Walsham, 2006). I addressed this potential challenge by utilising group activities, following a participatory approach. Furthermore, I needed to keep in mind that the interpretivist approach can lead to potentially subjective interpretation, and that my own values and biases may have affected the manner in which I interpreted the data (Wagner et al., 2012). Through the use of reflection, I was able to remain aware of the possibility of subjectivity and its potential effects (Jackson et al., 2007; Taylor & Medina, 2013). The small-scale nature of this study could potentially also compromise the generalisability of the findings of the study (Chesebro & Borisoff, 2007). Even though the purpose of interpretivist research is not generalisation (Nieuwenhuis, 2007a; Ruben & Babbie, 2014), it is my hope that future studies may be able to utilise this particular study to employ some form of "*moderatum generalisation...where aspects of [one sample] can be seen to be instances of a broader recognisable set of features*" (Williams, 2000, p.215). Also, throughout this study, I did not aim to describe a single truth and reality or provide objective interpretations, but rather to illuminate in-depth descriptions of a selected phenomenon.

3.2.2 METHODOLOGICAL PARADIGM: QUALITATIVE RESEARCH

Following a qualitative approach enabled me to obtain a rich, detailed understanding of the community (Farquhar, Parker, Schulz & Israel, 2006). I was able to adjust to the different research situations as a result of the flexibility of qualitative research (Houser, 2009). I required limited resources to conduct the research and, keeping in mind the aims of the greater research project, I was able to engage directly with the opinions and perspectives of community members, thus making it possible for follow-up projects to be tailored to the needs of the community (Farquhar et al., 2006; Houser, 2009). Qualitative research enabled me to work directly with the participants during the data generation phase, and, to a certain extent, during the analysis phase. This made it possible for me to work with the participants in a non-threatening way, by focusing the attention away from traditional power relationships that often exist between researchers and participants (Creswell, 2013).

Following a qualitative approach to research, I had to prepare myself for a potentially lengthy research process and the possibility that the data generation and analysis could possibly take longer than in the case of quantitative studies (Creswell, 2013).

As mentioned, other potential challenges that I had to account for throughout the research process included limitations in generalising the results, the potential for subjectivity when interpreting data, and lack of consistency in data generation (Houser, 2009). Potential bias or subjectivity was reduced by member checking, while inconsistency was limited by means of debriefing sessions with my supervisor and co-supervisor throughout the research process (Jackson et al., 2007). Through the use of reflection, I was also able to address possible subjectivity and biases (Clarke & Braun, 2013).

3.3 RESEARCH METHODOLOGY AND STRATEGIES

In this section I discuss the research process I followed in terms of the selected research design, the selection of participants, and the data generation and documentation strategies on which I relied.

3.3.1 RESEARCH DESIGN: PARTICIPATORY REFLECTION AND ACTION

For the purpose of this study, I relied on the principles of Participatory Reflection and Action (PRA) as a specific form of Participatory Action Research (PAR) (Ebersöhn et al., 2007; Ferreira & Ebersöhn, 2012). Participatory Reflection and Action was previously known as Participatory Rural Appraisal (Chambers, 2002b, 2012). This approach assumes that information is shared and owned by residents within a community, and has been widely utilised in studies pertaining to health and food security (Chambers, 1994, 2008a), thus qualifying it as a suitable design for this study. As this study formed the base for an intervention in the same community, it set in motion the process of "*reflection, followed by action, in turn leading to reflection*" (Ebersöhn et al., 2007, p.136).

Through the use of PRA, I viewed the participants as experts, possessing embedded knowledge regarding the community (Ferreira & Ebersöhn, 2012). PRA made it possible for participants to "*share, enhance and analyze their knowledge of life and conditions, to plan and to act*" (Chambers, 1994, p.1437), specifically in terms of the food consumption practices and nutrition-related needs of the resource-constrained community. PRA also created the opportunity for participants to engage in analysis and reflection, potentially raising their awareness of the current situation and potential challenges or limitations in their community (Ferreira & Ebersöhn, 2012). By utilising PRA principles, I was able to conduct research in a manner that was inexpensive and included innovative, concrete, visual and creative methods, such as the participants' creation of posters in small groups, which kept them interested and supported continued positive relations between the participants and the research team (Ebersöhn et al., 2007; Ferreira, 2006).

In terms of potential challenges related to PRA, I had to allow for a mind shift from more traditional ways of doing research (Cornwall & Pratt, 2010) to an interactive way of collecting data, where I fulfilled the role as *facilitator* of the process as opposed to the *teacher* in the research relationship (Chambers, 2008, p.306). While conducting the research, I had to be careful not to rush or interrupt participants.

Furthermore, I needed to be flexible, making changes to the process where and when needed (Chambers, 2002a). I had to prepare myself literally to "*hand over*" the process of research to the participants, by allowing the participants to work in groups and to present the information to others, as opposed to taking charge of the process at all times (Chambers, 2002a, p.3).

3.3.2 SELECTION OF RESEARCH SITES AND PARTICIPANTS

I conveniently selected three primary schools within a resource-constrained community near Bronkhorstspruit (Gauteng) (Patton, 2002), as the schools have formed part of the broader project since 2011. The research site was thus easily and conveniently available (Palinkas et al., 2013; Petty et al., 2012). This method of selection is cost and time effective (Suri, 2008); however its rigour is sometimes questioned (Marshall, 1996). In an attempt to enhance the rigour, I also utilised purposive sampling when selecting the participants.

Photograph 3.1 and 3.2 provide visuals of the schools. All three schools kept very neat gardens and it was evident that attempts had been made to grow vegetables in the form of school vegetable gardens. The schools therefore displayed potential for future interventions and projects involving vegetable gardening (see Chapter 2).

Photograph 3.1
One of the schools' well-kept garden

Photograph 3.2
A school vegetable garden

By means of purposive sampling (Palinkas et al., 2013; Patton, 2002) participating teachers from the three primary schools within the resource-constrained community were selected. Purposive sampling can be described as a qualitative sampling method that enables researchers to purposefully select participants who could enhance the understanding of the central phenomenon of a study (Creswell, 2013) because they possess the "*best knowledge*" of the research topic (Elo et al., 2014, p.4). Purposive sampling allowed for the selection of the "*most productive*" (Marshall, 1996, p.523) participants who could provide rich information (Morrow, 2005; Palinkas et al., 2013; Patton, 2002). The selection criteria (Nieuwenhuis, 2007b; Palinkas et al., 2013) that I applied were as follows:

- Participants were Intermediate Phase (Grade 4-6) teachers from three selected primary schools in the Bronkhorstspruit area (Gauteng).

- The teachers were able to communicate in English.
- The teachers were willing to participate and provided informed consent.

Purposive sampling implies certain challenges and potential limitations. As the selection of the participants was based on the indicated criteria, I may have left out other groups of individuals that could potentially have provided information about the phenomenon under discussion (Palinkas et al., 2013). However, it was not the aim of this study to obtain generalisable results, but rather to answer the research question sufficiently (Marshall, 1996) by gaining an in-depth understanding of the specific social phenomenon from the participants' points of view (Patton, 2002). If the researcher does not provide details related to the sampling process, the use of purposive sampling can affect the manner in which the trustworthiness of a study is moderated (Elo et al., 2014). To counter this, I provide thorough descriptions of the sampling criteria, the manner in which participants were selected, and the final sample of participants. Table 3.2 provides background information on the participants at the various sites.

Table 3.2: Summary of participants

SCHOOL A (Female = 5; Male = 7)		SCHOOL B (Female = 11; Male = 4)		SCHOOL C (Female = 13; Male = 5)	
Participants	**Subjects and Grades taught**	**Participants**	**Subjects and Grades taught**	**Participants**	**Subjects and Grades taught**
Participant A1	English, Life Skills, Social Science (Grade 4); Arts and Culture (Grade 7)	Participant B1	English (Grade 4); Economic and Management Science (Grade 7)	Participant C1	English, Natural Science, Technology (Grade 4)
Participant A2	English (Grade 5); Mathematics (Grade 6)	Participant B2	English (Grade 5); Social Science (Grade 6)	Participant C2	Sepedi (Grades 4-7)
Participant A3	English, Life Skills (Grade 6)	Participant B3	Mathematics, Social Science (Grade 7)	Participant C3	Mathematics (Grade 5); Natural Science (Grades 6-7)
Participant A4	English, Social Science (Grade 6); Social Science, Technology (Grade 7)	Participant B4	English (Grade 6)	Participant C4	Natural Science (Grades 4-6); Technology (Grade 7)
Participant A5	Mathematics (Grade 5); IsiZulu, Natural Science (Grade 7)	Participant B5	Natural Science, Technology, IsiZulu (Grade 5)	Participant C5	IsiZulu, Natural Science, Social Science, Technology (Grade 4); English, Life Skills (Grade 6)
Participant A6	IsiZulu, Mathematics, Natural Science (Grade 7)	Participant B6	Mathematics (Grade 5); Natural Science, Technology (Grade 6)	Participant C6	IsiZulu, Life Skills (Grade 4)
Participant A7	IsiZulu, Life Skills, Natural Science, Technology (Grade 4)	Participant B7	IsiZulu, Social Science (Grades 4-5)	Participant C7	IsiZulu (Grade 4); IsiZulu, Technology (Grade 7)

Participant A8	Social Science (Grade 6); Economic and Management Science, IsiZulu, Life Skills (Grade 7)	Participant B8	Life Skills (Grade 4)	Participant C8	Mathematics (Grade 6)
Participant A9	Mathematics, Natural Science (Grade 7)	Participant B9	English, Natural Science (Grade 7)	Participant C9	IsiZulu (Grade 6)
Participant A10	IsiZulu, Mathematics (Grade 4)	Participant B10	Mathematics, Sepedi (Grade 4)	Participant C10	Economic and Management Science (Grade 7)
Participant A11	Mathematics, Natural Science, Technology (Grade 4); Mathematics (Grade 5); IsiZulu (Grade 7)	Participant B11	IsiZulu (Grade 6); Arts and Culture, IsiZulu (Grade 7)	Participant C11	Life Skills (Grades 5 and 7)
Participant A12	IsiZulu (Grade 4); Social Science (Grade 7)	Participant B12	Mathematics (Grade 6); Sepedi (Grade 7)	Participant C12	Mathematics (Grade 4)
		Participant B14	Life Skills, Sepedi (Grade 5); Arts and Culture (Grade 7)	Participant C14	Natural Science, Technology (Grade 5)
		Participant B15	Technology (Grade 7)	Participant C15	Life Skills (Grade 4); Social Science (Grades 5 and 7)
				Participant C16	Mathematics (Grades 5 and 7)
				Participant C17	IsiZulu (Grade 5)
				Participant C18	Mathematics (Grade 4)

3.4 DATA GENERATION AND DOCUMENTATION

Since the purpose of the study was to provide an in-depth exploration and description of teachers' perceptions of food consumption practices and nutrition-related needs of the resource-constrained community in which they teach, I relied on multiple data generation techniques, in an attempt to enhance the rigour of the current study (Terre Blanche & Durrheim, 2002).

3.4.1 PRA-BASED WORKSHOPS WITH TEACHERS

As the primary data-generating tool, I co-facilitated[6] three PRA-based workshops in February 2013: one at each of the three schools involved in the study. These workshops, for the purpose of this study, entailed a "*do-it-yourself*" group-based activity in which all participants were actively engaged (Ebersöhn et al., 2007, p.136; Ferreira & Ebersöhn, 2012).

Teacher participants were asked to work in groups and discuss questions[7] posed to them on posters with visual prompts [refer to Appendix D]. In this way, participants' knowledge, perceptions and insights regarding the food consumption practices and nutrition-related needs of the resource-constrained community could be visually captured on the posters [see Appendix D]. After each question was discussed in the different groups, I facilitated a discussion with the participants, during which they were requested to present their small groups' discussions to the larger group. Throughout, I made use of prompts and guiding questions when teachers seemed not to understand a question or if it appeared as if they *"got stuck"* (Ferreira & Ebersöhn, 2012, p.90).

I recorded presentations with audio-recorders and the content of the recordings, as well as the visual posters, were transcribed for the purpose of analysis (Halcomb & Davidson, 2006). Participants, with the aid of visual posters, worked in "*buzzing-clusters*" (Chambers, 2002a, p.92) to brainstorm the food consumption practices and nutrition-related needs of the resource-constrained community.

After our initial PRA-based workshop (first field visit, February 2013), I analysed the data in order to identify emerging themes (Clarke & Braun, 2013). During a second field visit (August and September 2013), I did member checking by means of a second PRA-based workshop in an attempt to enhance the rigour of the study (Creswell, 2013; McMillan & Schumacher, 2014). During this session the aim was to confirm or adjust my interpretation of the participants' initial responses (McMillan & Schumacher, 2014).

[6] As part of a research team, I conducted data generation with my supervisors.
[7] Questions: **1.** What do parents and children of this community typically eat or consume every day? **2.** Where do they get the food from? **3.** What guidance/skills/information do parents need in terms of food production, food choice and preparing food? **4.** What kind of information do you think can be included in the different subjects for Grade 4 to 6 children, with the aim to transfer knowledge to their communities?

Upon presenting the initial themes I identified, participants indicated general consensus. I recorded the few additional points they raised in the form of field notes.

As with all data generation techniques, PRA-based workshops imply advantages and potential limitations that I needed to keep in mind throughout the course of the study. PRA-based activities are fun and relaxed due to their informal nature, and draw on participants' thought processes in a creative manner (Chambers, 2012; Cornwall & Pratt, 2010). I was able to make use of interactive and visual methods, which assisted me in keeping participants interested and engaged, and reversed the power relationships in the research process (Chambers, 2008a). From their feedback, participants clearly enjoyed the workshops. At the same time, rich data were generated during the activities.

The use of PRA-based workshops, however, allows for fast and efficient generation of data, and is thus a time-effective tool, whilst allowing for a positive rapport between the participants and the researcher (Cornwall & Pratt, 2010). This positive rapport contributed to a "*sense of common purpose and relationship*" with the participants (Chambers, 2012, p.82), which could benefit future initiatives in the broader research project. The data generated by participants were "*alterable*", allowing participants to compare information throughout the data generation process, with them in turn being empowered by their position as owners of the data (Chambers, 2008a). Activities were conducted in small groups, which resulted in participants feeling less intimidated, and being more willing to become actively involved in the process.

Criticism of PRA-based research includes concerns regarding the quality of the data that can be generated during these types of workshops (Cornwall & Pratt, 2010). In this study, I co-facilitated the workshops with experienced researchers (my supervisors) who are skilled in this type of data generation. Although I co-facilitated the workshops in a flexible manner, the workshops were planned and prepared for well in advance in order to ensure that they were conducted in a meaningful way, thereby contributing to the broader research project and the existing body of knowledge (Chambers, 2012). Whilst conducting the PRA-based workshops, the way in which I facilitated and observed the process was continuously guided by detailed quality criteria (discussed later in this chapter) in an attempt to ensure the rigour of the workshops and also to enhance the quality of the process and the data generated (Chambers, 2008a).

3.4.2 OBSERVATION

Observation can be described as a means of collecting information through the use of one's senses (Nieuwenhuis, 2007b). This data generation technique allows the researcher to capture and provide information related to the context and process of the research (Mulhall, 2003). Observation allowed me to obtain an idea as to how the participants approached and experienced the questions they were asked (Wagner et al., 2012). I fulfilled the role of participating observer (Nieuwenhuis, 2007b) as I identified

myself, from the onset, as a researcher; at the same time I interacted with participants and was actively involved in the data generation process (Ruben & Babbie, 2014).

Observation allowed me to experience the events of the data generation first-hand through recording of the behavioural patterns of the participants (McLure, 2002; Nieuwenhuis, 2007b). I was also able, by recording observations in the form of field notes, to provide detailed descriptions of the conditions that characterised the research settings (Wagner et al., 2012).

Based on the "observer as participant" role that I filled, trustworthiness may have been threatened by my own subjectivity and biases (Jackson et al., 2007; Wagner et al., 2012). However, by being a reflexive researcher (Creswell, 2013), I was able to guard against this by regularly reflecting on my background, status, gender and race, and the possible influence thereof on the data generation process. Furthermore, I was not always able to observe the research proceedings in great detail (Wagner et al., 2012), as I was actively involved as facilitator of the workshops. Being accompanied by co-researchers throughout the process, I was however able to discuss and verify my observations in order to ensure that I did not miss critical information.

3.4.3 FIELD NOTES AND REFLECTIVE JOURNAL

Field notes can be described as notes taken during the research process in order to record information related to the context and background of the events that take place during the research (Tessier, 2012). Field notes allow a researcher to keep a record of observations and are taken during or shortly after any data generation session (Farquhar et al., 2006; Wagner et al., 2012). By means of field notes, I could record details pertaining to the setting, which individuals were present, the order of activities, as well as any other information that struck me as interesting or significant to the situation and the study (Farquhar et al., 2006; Nieuwenhuis, 2007b; Wolfinger, 2002). Through the use of field notes, I was able to keep track of ideas that may have been lost over time if not recorded (Tessier, 2012).

Field notes are often "*incomplete or biased*" (Tessier, 2012, p.449). I therefore needed to guard against being influenced by my implicit knowledge while taking notes (Wolfinger, 2002). I did this by remaining aware of my own underlying knowledge and assumptions at all times, and reflecting on the notes I made during debriefing sessions with co-researchers (Wolfinger, 2002). Furthermore, it was important to bear in mind that field notes cannot be "*replayed*" (Tessier, 2012, p.449), and that I therefore needed to write detailed and clear notes in order not to lose any important information.

A reflective journal allowed me to practise reflexivity as researcher (Morrow, 2005; Ortlipp, 2008; Spiegel & Foulk, 2006). Reflective writing entails a written or verbal account of events over time, allowing for the subjective account of a researcher's experiences and emerging biases (James et al., 2008; Morrow, 2005). Reflective writing can also take the form of notes and memos to oneself (Watt, 2007). The use of

a reflective journal enabled me to make known my own thoughts and experiences of the research process, and allowed for a transparent research process (Ortlipp, 2008). Writing in a reflective journal can however be challenging in terms of time constraints; therefore I needed to set aside a specific time for writing in my reflective journal throughout the study (Janesick, 1999).

3.4.4 AUDIO-VISUAL DATA DOCUMENTATION

Audio recordings of the group presentations, together with the group posters that were created, were transcribed in order to capture spoken and written information that was generated (Bless, Higson Smith & Sithole, 2013; Chambers, 2007; Nieuwenhuis, 2007b; Tessier, 2012). Audio recordings enabled me to verify participant responses at later stages (Halcomb & Davidson, 2006). Furthermore, audio recordings, created in digital format, are easy to store (Tessier, 2012).

During audio recordings, background noise can potentially interfere with the quality of the recordings, thus making the process of transcription more difficult (Bless et al., 2013). However, through the use of field notes, as well as visual posters documenting group responses, data could be triangulated, ensuring that no data were lost (Kamimura et al., 2013; Tessier, 2012).

Transcriptions of the visual posters and verbatim transcriptions of the audio recordings therefore assisted me in creating an audit trail (Halcomb & Davidson, 2006), thereby enhancing the credibility of the study (McMillan & Schumacher, 2014). I was also able to use hard copies of the transcriptions, which were easy to work with (Wagner et al., 2012). As the process of transcribing is time-consuming, and the quality of verbatim transcriptions is subject to various factors, including human error (Bless et al., 2013; Halcomb & Davidson, 2006), I made use of an experienced professional to transcribe the recordings.

Apart from the visual posters that the participants created, I also used photographs to capture data generation sessions and data that were obtained (Ebersöhn et al., 2007). For this study, the purpose of photographs was twofold. Firstly, I used photographs to assist in the recall of research activities and other details related to the study that might not have been captured in field notes (Patton, 2002). Secondly, photographs acted as an aid in my descriptions of the research setting and specific events that took place (Clark & Zimmer, 2001; Patton, 2002). In order to protect the anonymity of participants, photographs were only used if written permission was given (Clark & Zimmer, 2001) [see Appendix C]. However, as a PRA-researcher, I did not assume that participants wanted to remain anonymous, and therefore involved participants in decisions related to the use of photographs (Ferreira & Ebersöhn, 2012). Participants had the option to have their faces and names published or not, and written consent was obtained if they chose the first option.

3.5 DATA ANALYSIS AND INTERPRETATION

The purpose of qualitative data analysis and interpretation is firstly to describe and understand participants' experiences and the way in which they construct meaning; secondly to describe the diversity and variety of participants' experiences; thirdly to strengthen participants' voices; and fourthly to study individuals in their natural contexts (Bless et al., 2013). When conducting qualitative data analysis, it is important to make sure that one allows for the voices of the participants to be heard, and guard against finding what one "*expect(s) to find*" (Ezzy, 2002, p.xiii).

I conducted inductive thematic analysis to identify, analyse and interpret patterns from the data (Clarke & Braun, 2013; Lynass, Pykhtina & Cooper, 2012). As such, I aimed to identify multiple possible realities from the data I obtained (Maree & van der Westhuizen, 2007). The use of inductive thematic analysis enabled me to obtain an in-depth understanding of how teachers perceive the food consumption practices and nutrition-related needs of the resource-constrained community in which they teach (Wagner et al., 2012). As inductive thematic analysis implies a flexible approach, it is useful to analyse qualitative data (Braun & Clarke, 2006; Buetow, 2010; Guest, MacQueen & Namey, 2012; Kamimura et al. 2013).

In completing the process of analysis, I firstly *familiarised* myself with the data by reading and re-reading the data several times and by taking note of initial annotations (Clarke & Braun, 2013; Wagner et al., 2012). This allowed me to get a broad overview of what the data entailed (Bless et al., 2013). Using my own judgement, I took note of "*patterned*" responses (Braun & Clarke, 2006, p.10), based on the question as to whether or not the data captured significant information related to the research questions (Braun & Clarke, 2006).

Secondly, I manually generated *initial or preliminary themes* by condensing the data and organising information into meaningful groups, based on the formulated research questions (Bless et al., 2013; Braun & Clarke, 2006; Clarke & Braun, 2013; Joffe & Yardley, 2004). Next, I identified *themes and sub-themes* by grouping codes together, based on shared potential underlying meanings (Braun & Clarke, 2006). I reviewed the themes by checking whether or not any themes linked with one another, could be subdivided, or had been mistakenly identified. I named and defined the identified themes, and then wrote up the information (Clarke & Braun, 2013). The use of debriefing (Onwuegbuzie, Leech & Collins, 2010) by means of informal discussions with fellow research-team members assisted me in limiting the possibility of bias or subjectivity that may otherwise have influenced my analysis and interpretations. I also discussed the various steps of analysis as I employed them with my supervisors, who assisted with finalisation of the themes and sub-themes.

3.6 QUALITY CRITERIA

Parallel to the measures of validity, reliability and objectivity used in quantitative research, Lincoln and Guba (2007) present trustworthiness as a measure of the rigour of qualitative research (Thomas & Magilvy, 2011). Lincoln and Guba (2007) identify five criteria for evaluating the soundness of qualitative research, namely credibility, transferability, dependability, confirmability and authenticity.

3.6.1 CREDIBILITY

Where quantitative researchers are typically concerned with the internal validity of research findings, qualitative researchers work towards findings that are credible (Lincoln & Guba, 2007). Credibility in qualitative research is associated with the truth-value of a study (Thomas & Magilvy, 2011), indicating that conclusions are supported by raw data and implying the confidence of researchers in the truth of their findings.

Through the use of member checking, I was able to return to the participants in order to establish whether or not they regarded the results of the study as accurate (Thomas & Magilvy, 2011; Wagner et al., 2012; Yilmaz, 2013). Data were generated from different teachers at three different schools, which allowed me to look for similarities within and between the participating schools (Thomas & Magilvy, 2011). Data were also triangulated through the use of different data generation methods such as field notes, visual data and verbatim transcriptions (Lincoln & Guba, 2007; Richter & Jooste, 2013; Yilmaz, 2013). Finally, credibility was strengthened through the use of the participants' exact words from transcriptions, in reporting the results in Chapter 4 (Thomas & Magilvy, 2011).

3.6.2 TRANSFERABILITY

The transferability of a study indicates the degree to which the findings can be transferred to other settings (Yilmaz, 2013). Transferability can thus be compared with the external validity of quantitative studies (Lincoln & Guba, 2007). In utilising an interpretivist paradigm, the purpose of this study was to gain an understanding of teachers' perceptions of a trend within a specific resource-constrained community, and not to generalise the findings I obtained (Crowe, O'Malley & Gordon, 2001; Williamson, 2000). This is in line with an underlying principle of PRA, namely that different communities each possess unique characteristics, resources and challenges, and that findings can therefore not be generalised to other communities (Ferreira, 2006).

However, transferability in qualitative research implies that findings can be transferred to other specified contexts or participants, against the background of a detailed description of the contexts and research (Huberman & Miles, 2002; Lincoln & Guba, 2007). I therefore include in-depth, thick descriptions of the unique setting, participants, and the context within which this research took place (Richter & Jooste, 2013;

Wagner et al., 2012). In addition, I include visual data to introduce the context to the reader [Appendix E], who can then decide to what extent the findings of this study may apply to a similar context.

3.6.3 DEPENDABILITY

Dependability of findings is comparable with reliability and consistency in quantitative research (Lincoln & Guba, 2007). Consistency in qualitative research is a challenge, in the sense that human behaviour is not static; continuously changing and adapting to new circumstances. It is consequently important to find out whether the results of a study are consistent with the generated data (Huberman & Miles, 2002).

The thoughts and decisions that will guide a dependable study should be easy to follow by another researcher. This can be achieved by providing a clear audit trail of the proceedings of the study (Thomas & Magilvy, 2011; Wagner et al., 2012). I was guided by a clearly-defined purpose and research questions, ensuring that the research took place in a dependable manner (Thomas & Magilvy, 2011; Yilmaz, 2013). Furthermore, I provide detailed descriptions of the procedures used in the selection of participants, data generation and data analysis in this study (Thomas & Magilvy, 2011). Finally, the analysis of the data and the progress of my work was continuously audited by, and conducted in close cooperation with, my supervisor and co-supervisor, supporting the dependability of the study (Richter & Jooste, 2013; Yilmaz, 2013).

3.6.4 CONFIRMABILITY

Confirmability can be compared to objectivity in quantitative research and occurs once dependability and transferability of a study have been achieved (Lincoln & Guba, 2007; Thomas & Magilvy, 2011). Qualitative research accepts that the researcher in qualitative studies can never be fully objective (Morrow, 2005). Through practising reflexivity, as well as by providing a detailed audit trail, I was able to add to the confirmability of the research findings (Lincoln & Guba, 2007; Richter & Jooste, 2013; Thomas & Magilvy, 2011). My supervisors acted as peer auditors, assisting me in deriving and confirming my results as well as formulating findings in line with the data I obtained (Seale, 1999). Member-checking further confirmed the themes I identified, reflecting the perceptions and voices of the participants. Photographs 3.3 and 3.4 depict member-checking sessions, which were conducted by my co-researcher and me.

Photograph 3.3
Teachers explain their perceptions

Photograph 3.4
My co-researcher briefs participants on the findings of the study

Authenticity refers to the fairness of a study, as well as to the degree to which it displays openness and negotiated meaning (Govaerts & Van der Vleuten, 2013). Authenticity within qualitative research therefore indicates whether or not descriptions and explanations of people, events and places correlate with one another (Seale, 1999). Apart from fairness, authenticity manifests in different forms, namely tactical, educative, catalytic and ontological authenticity (Onwuegbuzie et al., 2010).

I conducted member checking to confirm that the participants agreed with the results I proposed, which enhanced the fairness and, consequently, added to the authenticity of the findings (Onwuegbuzie et al., 2010). My study was conducted in close collaboration with a second study, which looked at the community members' perceptions of their behaviour and needs regarding their food consumption and nutrition-related practices. The member checking for both studies was conducted on the same occasion. By carefully listening to the presentation of the findings of the other study, as well as the participants' responses, I was able to compare the findings of the two studies in an informal manner. Hence, I was able to obtain an idea of the degree to which the participants appeared to be aware of the needs and behaviour of their community.

In addition, participants were also able to hear what was said by the participants of the second study, seemingly making them more aware of the *"constructions and values"* of the community members (Onwuegbuzie et al., 2010, p.708). This enhanced the authenticity of the study on ontological and educative levels (Onwuegbuzie et al., 2010; Schwandt, 2007). Furthermore, the PRA-based workshop set informal discussions in motion and created opportunities for brainstorming, thereby enhancing tactical authenticity (Onwuegbuzie et al., 2010; Schwandt, 2007), as such brainstorming could potentially lead to action by community members in order to improve their situation or any practices they perceived as challenging or limiting.

3.7 ETHICAL CONSIDERATIONS

Throughout the research process, I conducted this study in an ethical manner. I strived to conduct research that was ethical on all levels with regard to the procedural, situational, relational and exiting practices pertaining to the study, as outlined by Tracy (2010).

3.7.1 PROCEDURAL ETHICS

Procedural ethics refer to practices that are deemed universally necessary for research to be conducted in an ethical manner (Tracy, 2010). Thus, informed by the guidelines of the Institutional Ethics Committee of the University of Pretoria (2013) and other authors (Hammersley & Traianou, 2012; Tracy, 2010), I strived to protect participants from harm, and to respect their autonomy and privacy.

I respected participants' autonomy by acknowledging their right and ability to make decisions for themselves (Hammersley & Traianou, 2012), and through recognising participation as voluntary and respecting participants' right to withdraw from the study at any point (Creswell, 2013; Tracy, 2010). Furthermore, I clearly outlined the details and the purpose of this research in verbal and written form to all participants (McMillan & Schumacher, 2014) before data generation commenced. The whereabouts and identities of the research site and participants were treated confidentially throughout the research process (Wagner et al., 2012). I also practised honesty and transparency. Furthermore, I safeguarded all forms of data by keeping data locked away at the University of Pretoria (Tracy, 2010).

3.7.2 SITUATIONAL ETHICS

Situational ethics were ensured by acknowledging my responsibility as a researcher to treat individuals with respect and not to discriminate against anyone in any manner (Creswell, 2013; Hammersley & Traianou, 2012). As this study involved PRA-based workshops, I was, from the outset, informed by values of democracy, co-ownership and the co-construction of knowledge among participants, thereby practising equality (Chambers, 2012; Ferreira & Ebersöhn, 2012).

As a researcher, I constantly reflected on the methods used during the research process to allow for the specific characteristics of this research setting and situation (Tracy, 2010). The nature of PRA-based workshops allowed for the research to take place in a flexible manner. An example of this was the adjustment of questions and examples to match the language level and the level of understanding of the participants. When I noted that participants were tired (specifically during the member-checking sessions), I kept the sessions brief and to the point, thus accommodating participants without compromising the quality of their feedback.

3.7.3 RELATIONAL ETHICS

For research to take place in a relationally ethical manner, Tracy (2010) emphasises the importance of mindfulness and the researcher reflecting on the impact of the research on participants. Research cannot merely be driven by what a researcher can or wishes to gain from the process; rather, it should be based on principles of interdependence and reciprocity (Creswell, 2013; Owen, 2001; Tracy, 2010).

Throughout this study, I respected that individuals' time and knowledge are valuable, and therefore aimed to facilitate some form of reciprocal exchange by giving back to the participants in some way (Hammersley & Traianou, 2012; Wagner et al., 2012). The data generation sessions took place directly after school, and for this reason participants were provided with packed lunches. These lunches demonstrated what a balanced meal should typically look like, tying in with the purpose of the broader research project. The PRA-based workshops, member-checking sessions, as well as potential future projects that could build on these findings, have provided and may continue providing participants with valuable understanding, information and skills regarding their community, thereby enhancing the reciprocal potential of the study (Ferreira & Ebersöhn, 2012; Tracy, 2010).

3.7.4 EXITING ETHICS

In summary, it is important for a researcher to pay close attention to the state in which s/he leaves a research site (Creswell, 2013), as well as the manner in which findings are reported (Tracy, 2010). No exploitation of participants took place, and we took care to not disturb the research site, by organising site visits well in advance during hours that best suited the participants (Creswell, 2013). By clearly stipulating the limitations of this study in Chapter 5, I aim to prevent misunderstanding and wrongful use of the findings (Tracy, 2010).

3.8 MY ROLE AS RESEARCHER

Yilmaz (2013) notes how qualitative research allows researchers to describe their role in the research process. Ferreira and Ebersöhn (2012, p.62) explain that the role of the researcher can be "*non-typical*" when conducting research based on PRA principles. For the first round of field visits, my role was that of co-facilitator of the PRA-based workshops (one at each school) (Chambers, 2002a; Owen, 2001), as well as observer and participant (Ruben & Babbie, 2014), as discussed earlier. As co-facilitator of the PRA-based workshops, I explained and initiated (Ferreira & Ebersöhn, 2012) brainstorming activities in order for groups of participants to discuss the various questions posed to them. As observer, I focused on the process and sequence of events that made up the sessions, as well as the participants' responses. I captured my observations in the form of field notes, which also formed part of my reflections on the sessions.

For the second round of field visits, I fulfilled the role of facilitator of the member-checking process. I discussed my preliminary themes and sub-themes stemming from the PRA-based workshops and noted additional comments and information that the participants wished to add. Throughout the duration of the workshops, I encouraged participants to share and discuss their unique realities with us and with their fellow participants (Ferreira & Ebersöhn, 2012).

During the PRA-based workshops, data analysis and member-checking process, I thus fulfilled the role of "*research instrument*" by being actively involved in the process of data generation and analysis (Creswell, 2013; Nieuwenhuis, 2007b, p.79). In fulfilling these roles from an interpretivist stance and in a participatory manner, I acted as co-constructor of the data (Morrow, 2005; Trondsen & Sandaunet, 2009). Throughout, I was a reflexive researcher, constantly reflecting on my values, assumptions and experiences, and how these may have affected the research process (Clarke & Braun, 2013). As my study forms part of a broader project, I also fulfilled the role of co-researcher within the Win-LIFE project.

3.9 CONCLUSION

In this chapter I discussed the paradigmatic and methodological paradigms that guided this study. I explained the procedures and steps involved in selecting the participants; and in generating, documenting and analysing the data. Furthermore, I described the manner in which I maintained ethical veracity. I explained my role as researcher and elaborated on the criteria that I pursued to ensure that the quality of the research was not compromised.

In Chapter 4 I discuss the themes and sub-themes that I identified during the process of data analysis. I compare these themes with existing literature and conclude the chapter by presenting the findings of the study.

---oOo---

Chapter 4
Results and Findings of the Study

4.1 INTRODUCTION

In Chapter 3, I discussed the research process. I explained the interpretivist epistemology as meta-theoretical paradigm and described Participatory Reflection and Action as research design, as well as the data generation and documentation methods I used. Thereafter I described the data analysis techniques I employed and discussed my role as researcher. I concluded the chapter with a discussion of the quality criteria and ethical considerations that guided the study.

In this chapter I present the results of the study in terms of the themes and sub-themes that emerged following inductive thematic analysis. I include verbatim quotations, photographs, as well as excerpts from my field notes and reflective journal to support the themes and sub-themes under discussion. I then interpret the results of the study against the background of current literature, so as to present the findings of the study.

4.2 RESULTS OF THE STUDY

In the following section, I discuss the themes and sub-themes I identified through inductive thematic analysis. Four main themes, each of which encompasses related sub-themes, are seen to emerge, as summarised in Figure 4.1.

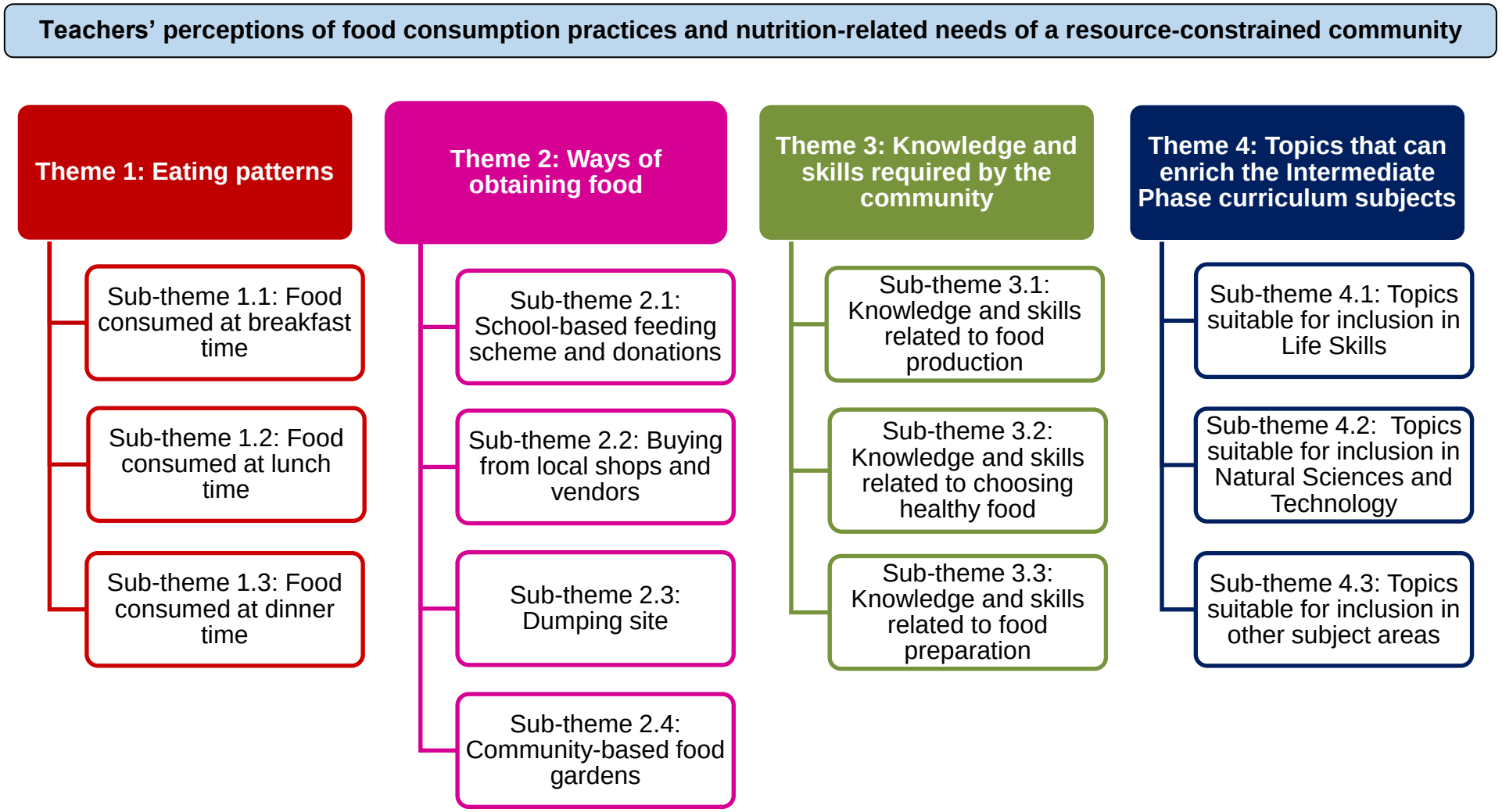


Figure 4.1: Themes and sub-themes of the study

4.2.1 THEME 1: EATING PATTERNS

> "*...I felt that the community's typical daily diet was portrayed as boring and monotonous... community members eat 'everything of chicken' and 'pap[1]... pap... pap'...*" (Reflective journal, 27 February 2013, lines 17-19).

This theme concerns food items typically consumed by the community for breakfast, lunch and dinner. In identifying the sub-themes, I was guided by specific inclusion and exclusion criteria, as summarised in Table 4.1.

Table 4.1: Inclusion and exclusion criteria for Theme 1

Theme	Inclusion criteria	Exclusion criteria
Sub-theme 1.1: Food consumed at breakfast time	Any reference to food items consumed at breakfast time	Any reference to food items consumed at lunch or dinner time
Sub-theme 1.2: Food consumed at lunch time	Any reference to food items consumed at lunch time	Any reference to food items consumed at breakfast or dinner time
Sub-theme 1.3: Food consumed at dinner time	Any reference to food items consumed at dinner time	Any reference to food items consumed at breakfast or lunch time

4.2.1.1 Sub-theme 1.1: Food consumed at breakfast time

Participants from school A were of the view that carbohydrates (in the form of porridge and bread) were most commonly consumed at breakfast time by this community: "*...in the morning they eat pap almost every day...*" (PRA workshop, school A, P3[8], line 53). Participants from schools B and school C expressed similar views. The participants added that, to their knowledge, stimulants, largely in the form of tea, were also consumed frequently: "*...20% eat the previous night's leftovers...some of them will eat pap and meat, some will eat pap and tea, some of them will eat just bread and tea without butter, and some of them will eat junk, bread/atchar and tea...*" (PRA workshop, school C, P2, lines 645-649); and "*...80% of parents eat tea and bread...*" (PRA workshop, school B, P3, lines 389-790).

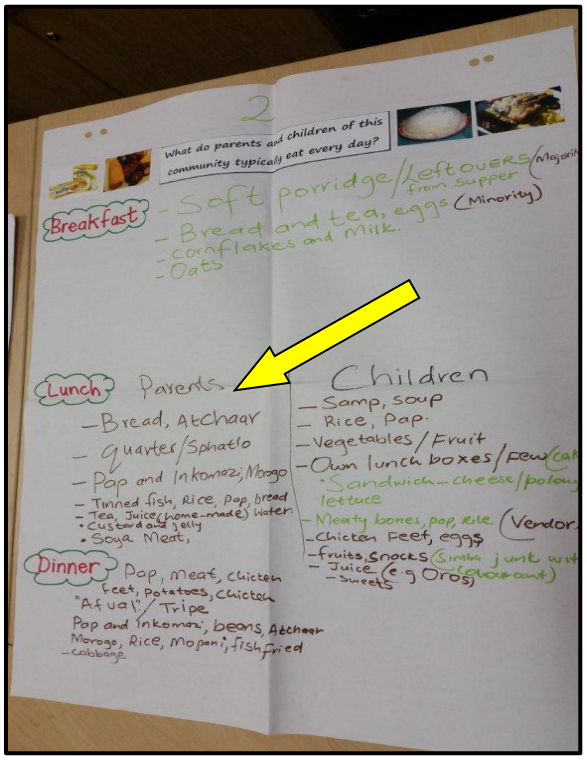
Participants from school B were of the opinion that many community members consumed leftover food for breakfast: "*...the porridge left over or the previous day's stiff pap and they drink black tea with the porridge*

[8]Throughout the rest of the document "P" refers to the participants, distinguished by means of numbers.

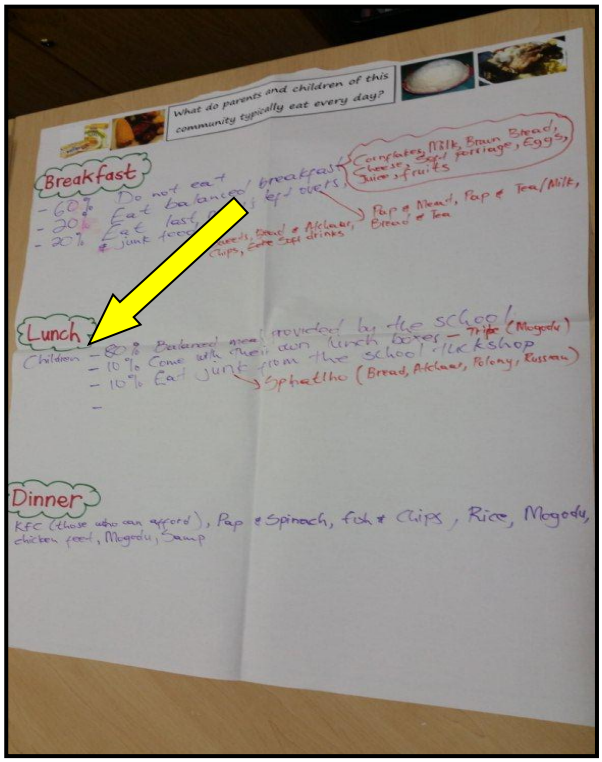
sometimes..." (PRA workshop, school B, P4, lines 419-420). This was supported by responses from school A, where participants mentioned that community members often ate "*...leftovers in the morning. They eat porridge that was cooked yesterday...*" (PRA workshop, school A, P1, lines 11-12).

Participants from school C seemed to be of the opinion that parents and learners consumed different food products at breakfast time: "*...breakfast consisting of buttered bread, or something not buttered, just plain bread and tea. And then for smaller kids they usually give them porridge...*" (PRA workshop, school C, P1, lines 624-626). This notion was supported by participating teachers from school B, who held the view that children mostly ate porridge, while parents had bread for breakfast: "*...20% of parents eat soft porridge and cereal. 80% of parents eat tea and bread, with or without spread... 5% of learners drink tea with stiff pap, 20% of learners eat fat cakes/buns/cakes, 60% of learners drink tea and bread...*" (PRA workshop, school B, P3, lines 389-393).

I reflected on the dietary distinctions between adults and children in my reflective journal: "*...teachers found the need to distinguish between parents and children during the first activity...I wonder if this would have been very different if the children did not eat at the school?...*" (Reflective journal, 27 February 2013, lines 10-12). Photographs 4.1 and 4.2 illustrate how teacher participants distinguished between parents and children when discussing food consumed at breakfast and lunch times.



Photograph 4.1
Distinguishing between parents and children (school A)



Photograph 4.2
Highlighting children (school C)

Participants from school B were of the view that only a few privileged learners enjoyed a healthy breakfast at home, while other learners were dependent on the breakfast provided at school: "*...5% of learners eat cereal, 10% eat soft porridge from home...*" (PRA workshop, school B, P3, lines 390-391); and "*...for breakfast our learners eat soft porridge from the school. 5% of them are able to eat cereal at home...*" (PRA workshop, school B, P4, lines 417-418). Participants from school C reiterated this belief, adding that only a small group of learners was privileged enough to enjoy healthy, balanced breakfasts at home: "*...some may have the cornflakes, milk and fruit and juice, some have bread, brown bread with butter and cheese and the juice. Some of them eat porridge with butter and milk and some have eggs and fruits, and juice for breakfast. But this is a low percentage where they eat a balanced diet...*" (PRA workshop, school C, P2, lines 641-645).

The statements made by participants from school C were repeated by participants from school A, with participants mentioning that many learners did not eat breakfast at all at home: "*...there are some kids that don't eat anything at all early in the morning until they arrive at school...*" (PRA workshop, school A, P3, lines 51-53). Participants from school A shared some of their ideas as to the reasons for learners not eating balanced meals at home. They mentioned unemployment and resource constraints as possible factors: "…*The minority, there are those at least who can afford some of these things, we say bread and tea, eggs, corn flakes and milk, oats...*" (PRA workshop, school A, P2, lines 26-27); and "*...it is a poor community indeed... the reason being that most of the parents in this area are unemployed...*" (PRA workshop, school A, P1, lines 3-4). I captured this notion in my reflective journal: "*...they put quite a bit of emphasis on the fact that this is a poor community...*" (Reflective journal, 27 February 2013, lines 15-16).

4.2.1.2 Sub-theme 1.2: Food consumed at lunch time

According to school B's participants, it appears as if most learners ate lunch at school: "…*Learners are eating at the school, we have a feeding scheme...*" (PRA workshop, school B, P4, lines 420-421). Participants from school C seemed to feel that learners benefited from the school's feeding scheme: "*...80% is being lifted up because of the feeding scheme at the school...*" (PRA workshop, school C, P2, line 650).

Participants from school A elaborated in this regard, explaining what a typical meal from the school's feeding scheme included. They indicated that lunch consisted mainly of maize, samp, bread or beans, served with vegetables in the form of a soup or stew: "*...during lunch, here at school we give them, sometimes bread, samp and beans...*" (PRA workshop, school A, P1, lines 12-13); and "*...samp with soup, with some vegetables, sometimes it will be rice, sometimes it will be pap with some veggies and soup...*" (PRA workshop, school A, P1, lines 36-38). Participants from school B confirmed that the same types of food were provided at their school and added that, to their knowledge, learners also enjoyed tinned fish with some of the meals:

"*...pap and brown bean soup... pap and cabbage or samp with soup... rice and fish (tinned fish)... samp/mealie meal or pap with soup or cabbage or lentils...*" (PRA workshop, school B, P3, lines 404-408).

School B's participants furthermore indicated that learners were provided with a piece of fruit once per week as part of the school feeding scheme: "*...once per week they are provided with a fruit. Banana, apple, pear, orange, etc....*" (PRA workshop, school B, P3, lines 409-410). I commented on this practice in my field notes, as I was astonished at the fact that learners were provided with so little fruit: "…*Only one fruit per week? This does not seem adequate...*" (Field notes: First field visit, 18 February 2013, line 83). According to the teachers, apples, bananas, pears and oranges were the most likely fruits to be included in lunches: "…*Banana, apple, pear, orange, etc....*" (PRA workshop, school B, P3, line 410); and "…*Once a week they get an apple or a banana for their lunch...*" (PRA workshop, school C, P1, lines 630-631).

Based on the participants' responses, it appears as if lunch, when eaten at home, consisted mainly of carbohydrates (in the form of maize or bread) served with different side dishes that sometimes included milk and soured milk: "*...bread and tea as well as porridge and milk, Inkomazi*[9]*...*" (PRA workshop, school A, P1, line 16); and *"...during lunch they get bread... Some they eat pap and Inkomazi and morogo*[10]*...*" (PRA workshop, school A, P2, lines 29-31). Several participants indicated that these side dishes could include tinned fish, atchar or vegetables: "*...some eat tinned fish maybe with rice, pap, bread...*" (PRA workshop, school A, P2, lines 32-33). Others mentioned cabbage, tomatoes and onions as side dishes: "*...any available radish, whether it's cabbage, onion and tomato soup, etc....*" (PRA workshop, school B, P3, lines 396-397). Participants also identified side dishes included with lunch: "*...porridge with African morogo...*" (PRA workshop, school B, P4, lines 422-423).

Participants from schools A and B evidently agreed that locally available junk food, in the form of items such as *sphatlo*, *bunny chow*[11] and *spikos*[12], was also consumed by community members at lunch time. They went on to explain that *sphatlo* is "*...bread, some atchar... cold meat and so on and so on...*" (PRA workshop, school A, P2, lines 29-31); and mentioned that "*...parents and learners eat bunny chow, sphatlo, spikos, baked beans, tinned fish and atchar...*" (PRA workshop, school B, P3, lines 393-394). School C's teachers elaborated on this trend, having perceived that learners spent their pocket money on junk food during break time: "…*The rest don't like the food from the feeding scheme, they go to the tuck shop and buy chips, sphatlo, which has chips, atchar...*" (PRA workshop, school C, P2, lines 653-654).

[9] A popular and widely available brand of sour milk (Viljoen, 2010).
[10] Indigenous green leafy vegetables (Viljoen, 2010).
[11] Fast food commonly sold by street vendors, comprising a quarter loaf of white bread and fried potato chips as the main ingredients (Steyn et al., 2011).
[12] Topping eaten on bread. Consists of atchar, tinned fish, polony and tinned spaghetti (Viljoen, 2010).

According to the participants, a few learners from more affluent families brought their own packed lunches to school. Participants from school A mentioned that "…*There are those learners who bring their own lunch boxes. But even so they are very few...*" (PRA workshop, school A, P2, lines 38-39). School B's teachers provided more specific details in terms of the number of such learners, stating that "…*2% of them they bring their own lunch boxes...*" (PRA workshop, school B, P4, lines 421-422). In the opinion of teachers from school C, these lunch boxes generally contained healthy food items: "…*Most of them have a balanced diet in their lunch boxes...*" (PRA workshop, school C, P2, lines 652-653). This view was confirmed by participants from school A, who identified a variety of items that typically appeared in the lunch boxes of learners, such as "*...sandwiches with cheese, cold meat, lettuce....*" (PRA workshop, school A, P2, lines 39-42).

4.2.1.3 Sub-theme 1.3: Food consumed at dinner time

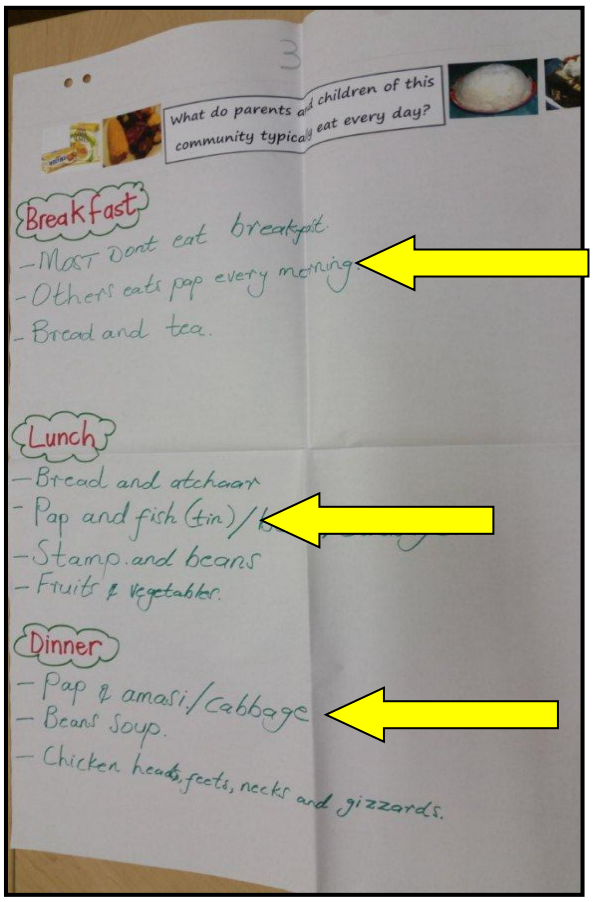
My understanding of the participants' views, as recorded in my field notes, is that carbohydrates (generally in the form of maize) made up the bulk of evening meals. I wrote: "…*Pap....pap...pap...*" (Field notes: First field visit, 19 February 2013, line 61). Participants from school A indicated that, in their view, community members ate maize served with meat such as chicken. Participating teachers reported that "…*During dinner most of them they eat pap, meat, some with chicken...*" (PRA workshop, school A, P2, line 43).

In addition to chicken and chicken offal and soured milk, vegetables such as cabbage and beans appeared to be eaten frequently with pap, as captured in the following contribution: "*...pap and amasi, some cabbage, bean soup, chicken heads and chicken feet, necks and gizzard...*" (PRA workshop, school A, P3, lines 59-61). Teachers' responses, as captured in my field notes, created the impression that chicken was commonly consumed, and that all parts of the chicken were eaten: "*...everything of chicken...*" (Field notes: First field visit, 19 February, line 36). Participants from school B elaborated by listing eggs, jam, green leafy vegetables and Mopane worms as foods they believed to be eaten with pap: "*...70% eat pap and sishebo[13], it may be eggs, vegetable and meat, chicken feet, jam, atchar, morogo, Mopane worms, milk and salt...*" (PRA workshop, school B, P3, lines 400-401). Participants from school C referred to some community members buying junk food for dinner: "*...they may buy junk food because of the limited time...*" (PRA workshop, school C, P2, lines 656-657).

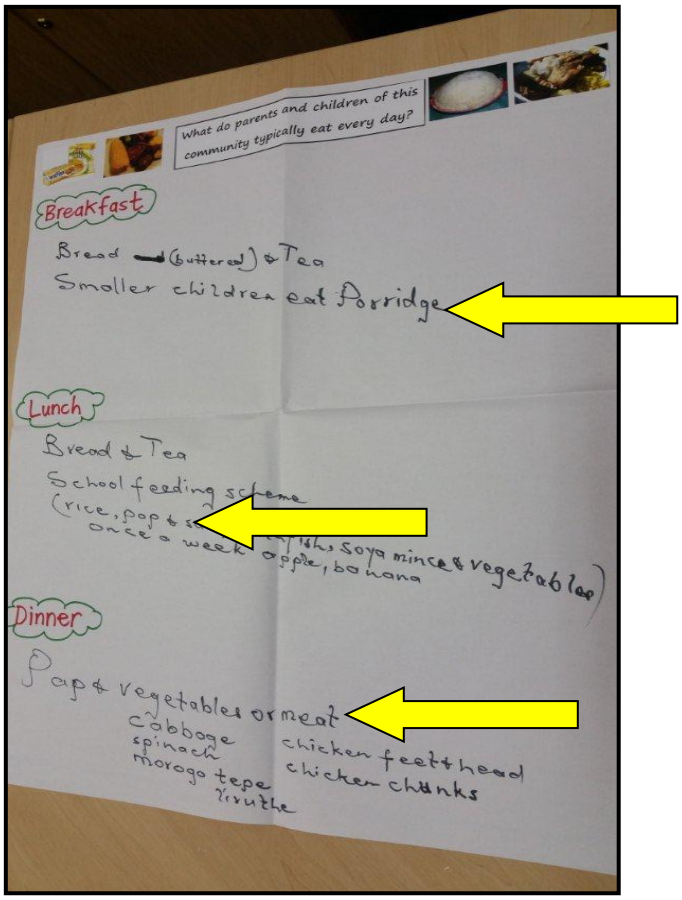
I perceived the food reportedly consumed on a daily basis in this community as being predictable and showing little variety. I reflected on my view in the following way: "…*I felt that the community's typical daily diet was portrayed as boring and monotonous...*" (Reflective journal, 27 February 2013, lines 17-18). Participants' views captured on visual posters (Photographs 4.3 and 4.4) reflect the seemingly monotonous nature of this

[13] Stew/casserole made with meat and vegetables.

community's daily meals, with responses being very similar and with pap or porridge mentioned at every mealtime.



Photograph 4.3:
Monotonous eating patterns (school A)

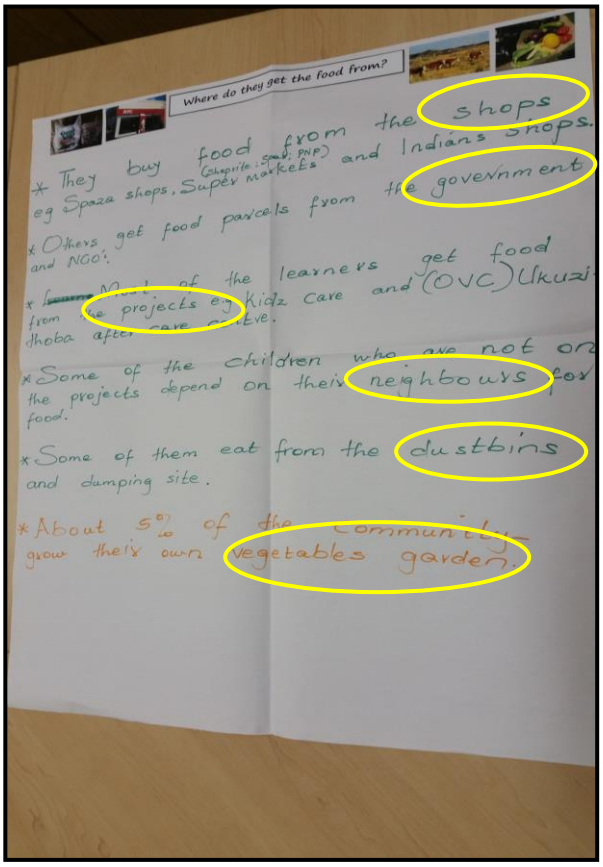


Photograph 4.4:
Monotonous eating patterns (school B)

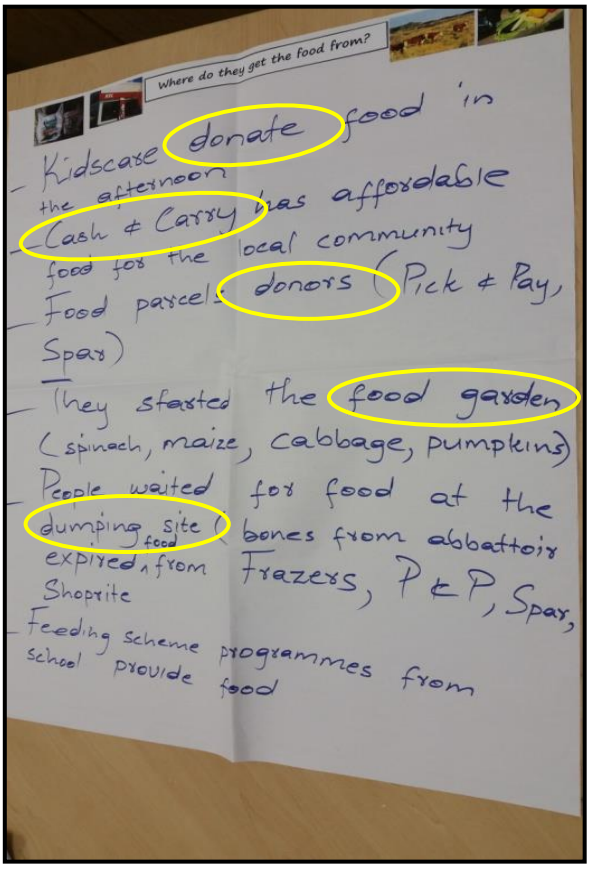
4.2.2 THEME 2: WAYS OF OBTAINING FOOD

> "*...most parents are domestic workers and I feel that they put quite a bit of emphasis on the fact that this is a poor community. I am interested to know how this impacts on their food consumption patterns...*" (Reflective journal, 27 February 2013, lines 14-17).

It emerged from teachers' responses during the PRA workshops that individuals in this community mainly obtained food in four ways, namely by means of donations from organisations, purchases made at local shops and vendors, the local dumping site situated centrally within the community, and local community food gardens. Photographs 4.5 and 4.6 show participants' visual posters, summarising their perceptions regarding where the community members obtained food.



Photograph 4.5:
Where food is obtained (school C)



Photograph 4.6:
Sources of food (school A)

The sub-themes, together with the inclusion and exclusion criteria for information under these themes, are summarised in Table 4.2.

Table 4.2: Inclusion and exclusion criteria for Theme 2

Theme	Inclusion criteria	Exclusion criteria
Sub-theme 2.1: School-based feeding scheme and donations	Any reference to food items obtained from the school's feeding scheme, through donations from individuals, projects or organisations	Any reference to obtaining food from sources other than the school's feeding scheme or donations from individuals, projects or organizations
Sub-theme 2.2: Buying from local shops and vendors	Any reference to food items bought from local shops and vendors	Any reference to obtaining food in ways other than purchasing from local shops or vendors
Sub-theme 2.3: Dumping site	Any reference to forms of food obtained from the local dumping site	Any reference to obtaining food from sources other than the local dumping site

Sub-theme 2.4: Community-based food gardens	Any reference to local community food gardens	Any reference to obtaining food not involving local community food gardens

4.2.2.1 Sub-theme 2.1: School-based feeding scheme and donations

Churches, the South African government, and non-governmental organisations such as Kids Care, were identified by participant teachers from school A as sources of food donations made to the community. Participants commented: "*...our learners after school they go to Kids Care where they donate food...*" (PRA workshop, school A, P4, lines 65-66); and "*...donations from the neighbours, social workers from the Social Welfare Department, NGOs...one church in Pretoria...*" (PRA workshop, school A, P6, lines 114-116). Participants from school B expressed similar views, stating: "*...parcels that are provided for by the government and the NGOs...*" (PRA workshop, school B, P4, lines 693-694).

Teacher participants from all three schools were of the opinion that most learners benefited from the school's feeding schemes: "*...here at school we have a feeding scheme, we feed them...*" (PRA workshop, school C, P8, line 151); "*...most of the learners eat... this mostly at the school...*" (PRA workshop, school A, P3, lines 56-57); and "…*Learners are eating at the school, we have a feeding scheme...*" (PRA workshop, school B, P4, lines 420-421).

From their responses, it appears that participants were of the view that some community members also benefited from donations made by local supermarkets: "*...Pick 'n Pay and Spar. Those people they used to donate food parcels...*" (PRA workshop, school A, P4, lines 70-71). In addition, participants from the different schools seemed to be under the impression that individual people provided another food resource for community members. These individuals included teachers and neighbours, as reported: "*...as teachers, we do buy food, we do give learners food from our homes...*" (PRA workshop, school A, P6, line 120); and "*...the neighbours do provide food for them...*" (PRA workshop, school C, P4, line 698).

Employers were identified by school A's teachers as yet another source of food donations made to community members. They stated that: "*...they get their food from the leftovers from their employers...*" (PRA workshop, school A, P6, lines 135-136). Participants from school B elaborated on this idea, sharing the view that domestic workers in particular benefited from this type of donation. They explained: "…*Some get their food from their employers, mainly domestic workers...*" (PRA workshop, school B, P2, lines 382-383). In summarising the participants' views, I wrote in my field notes: "*...food obtained from shops, vegetable gardens (sell vegetables); care-giving centre 'Kids Care'...*" (Field notes: First field visit, 26 February 2013, lines 7-8).

4.2.2.2 Sub-theme 2.2: Buying from local shops and vendors

Teachers shared the belief that poverty strongly influenced the dietary decisions of community members, stating that "*...because most of the parents here work as domestic workers – you know what they earn... buying food is problematic for them...*" (PRA workshop, school B, P5, lines 439-441). It was further mentioned that "...*most of them buy the food that is cheap, the reduced food, R5 with a red label that is what they can afford... economically they are not in a good position...*" (PRA workshop, school B, P5, lines 443-447), indicating that community members' food-buying decisions were determined mainly by the affordability of the food items.

Participants from school B were of the view that the community members primarily bought food from local shopping centres: "*...the majority of the people from this community get their food from the shops around town...*" (PRA workshop, school B, P1, lines 351-352). Participants from school C supported this view, and identified local spaza shops and chain stores as shops that were often supported: "*...they get their food from the tuck shops, the supermarkets, Cash & Carry, shops like Shoprite, Spar, Pick 'n Pay, and then some they get the food from the hawkers...*" (PRA workshop, school C, P3, lines 681-683). Participants from school A added that they believed that community members' choice of supplier depended mainly on affordability: "*...Cash & Carry has affordable food for the local community. So it means everything is cheap there. Every person is running to that supermarket so that they can get something...*" (PRA workshop, school A, P4, lines 67-69); and that they "…*buy when there are specials...*" (PRA workshop, school A, P8, line 144). I similarly noted that the cost of items seemingly affected where community members chose to buy their food, stating: "…*People buy from Cash & Carry, for example, because it is cheap...*" (Field notes: First field visit, 19 February 2013, line 39).

In addition to retail shops, participants from all three schools indicated that local vendors were yet another form of food supplier for members of the community. Participants reported that "*...they go to those mamas who are selling, the vendors...*" (PRA workshop, school B, P10, lines 539-540); and "*...some they get the food from the hawkers...*" (PRA workshop, school C, P3, lines 682-683).

4.2.2.3 Sub-theme 2.3: Dumping site

Hunger appears to be a common occurrence in the community, with participating teachers reporting that many community members tended to skip some meals as a result of limited resources. Participants from school A mentioned that "*...there are some kids that don't eat anything at all...*" (PRA workshop, school A, P3, lines 51-52). Participating teachers from school B supported this view, stating that, in their experience, some learners went to bed having not eaten at all: "*...go to sleep on an empty stomach...*" (PRA workshop, school B, P3, line 458). The views of participants from school C were similar: "*...some learners who do not eat at all...*" (PRA workshop, school C, P2, lines 639-640).

Social difficulties that, in the views of the participants, were affecting the community, include the lack of education and the prevalence of child-headed households. Participants from school B seemed to feel that the lack of sufficient education may have caused community members to make poor food choices. They explained this belief in the following way: "*...there are some of the people who are working and who are educated, but the majority of this place they are not... that large percentage that is not educated usually buy junk food not proper food...*" (PRA workshop, school B, P5, lines 445-449). In support and further elaboration, participants from school A estimated that there were *"...more than 100 child headed households…"* in their community (PRA workshop, school A, P7, line 139).

According to the participants from school C, some community members have had to scavenge for food due to sever resource constraints, saying that they "*...eat from the garbage cans and the dumping site...they go there to look for food...*" (PRA workshop, school C, P4, lines 699-701). Thus, the local dumping site was viewed by the participants as another source for food, specifically among community members in dire financial need. Participants from school B indicated similar views: "*...others get food from the dumping site...*" (PRA workshop, school B, P3, line 425). In support of this assertion, participants from school A described this phenomenon from their point of view, mentioning that some community members collected and consumed expired food from the dumping site: "*…In the dumping area, up there they wait for the expired food there and use them as their food...*" (PRA workshop, school A, P8, lines 149-150).

Teachers from school C appeared to believe that people not benefiting from local projects were the ones who were forced to turn to the dumping site as a last resort. Participants explained that "*...some eat from the garbage cans and the dumping site, they will go there that's where they get food from because they are not cared for in the project, so they go there to look for food...*" (PRA workshop, school C, P4, lines 699-701). In this regard, in my field notes I recorded my concerns in terms of the quality of food obtained from sources such as the dumping site: "…*Expired food and dumping site – quality of these food sources?...*" (Field notes: First field visit, 19 February 2013, line 43).

4.2.2.4 Sub-theme 2.4: Community-based food gardens

Participants from all three schools mentioned community-based food gardens as another source of food for the community. Participants from school B explained that some community members cultivated food in their gardens, saying that they "*...grow their own food in their backyards...*" (PRA workshop, school B, P2, lines 381-382). School A's participants provided greater detail, saying that green leafy vegetables, cabbage and maize were among the produce grown in local vegetable gardens. They explained: "*...we've got older people who started food gardening where they plant spinach, maize, cabbage and other vegetables...*" (PRA workshop, school A, P4, lines 80-82). Teachers from school C added that tomatoes, onions, beetroot and carrots were also grown in some vegetable gardens: "*...they have vegetables in their gardens like spinach, tomatoes, onions, carrots, cabbage and beetroot...*" (PRA workshop, school C, P3, lines 674-676).

Teachers from school B mentioned vegetable gardens that were located on the school premises. Participants were of the view that such food gardens supported the community and provided some relief to those affected by poverty. Participant teachers mentioned that "*...we have a vegetable garden whereby we contribute to the feeding scheme of the school, even the community comes and buy from our school food garden...*" (PRA workshop, school B, P1, lines 359-361). I noted the potential value of school-based vegetable gardens in my field notes, mentioning that these gardens support local community members who are in need: "*...school food gardens appear to be benefiting the community, supporting orphans and the needy...*" (Field notes: First field visit, 19 February 2013, lines 41-42).

4.2.3 THEME 3: KNOWLEDGE AND SKILLS REQUIRED BY THE COMMUNITY

> "*...the teachers feel that the parents' knowledge is very poor...*" (Reflective journal, 27 February 2013, line 20).

Theme 3 covers the specific forms of guidance and the skills that participants believed to be important for community members. The inclusion and exclusion criteria I identified when categorising the data under this theme are provided in Table 4.3.

Table 4.3: Inclusion and exclusion criteria for Theme 3

Theme	Inclusion criteria	Exclusion criteria
Sub-theme 3.1: Knowledge and skills related to food production	Any reference to community members' knowledge and skills on	Any reference to community members' choice and preparation of food

	food production, as well as factors influencing food production	
Sub-theme 3.2: Knowledge and skills related to choosing healthy food	Any reference to community members' choice of food, as well as factors influencing food choice	Any reference to community members' production and preparation of food
Sub-theme 3.3: Knowledge and skills related to food preparation	Any reference to community members' habits with regard to preparing food, as well as factors influencing food preparation	Any reference to community members' methods for producing and choosing food

4.2.3.1 Sub-theme 3.1: Knowledge and skills related to food production

As stated in my field notes, the teacher participants felt that members of the community lacked basic knowledge and skills related to food production: "...*parents' knowledge is poor*..." (Field notes: First field visit, 19 February 2013, line 51). Participants from school A stated that, in their view, a definite need existed for community members to gain insight and skills pertaining to food-related issues. They said: "*...we identified that information is needed on food production, food choice and food preparation...*" (PRA workshop, school A, P10, lines 191-193). This notion was supported by the views of teachers from school B: "*...community members need workshops and training...*" (PRA workshop, school B, P6, lines 461-462).

Teachers from school C suggested that people who are knowledgeable in relevant fields could potentially convey such information to community members, saying: "*They need a professional somebody to teach them...*" (PRA workshop, school C, P7, line 732). The participants appeared to believe that they themselves were suitable candidates for this task. Teachers from school A appeared to feel not only obliged, but willing and able to assist community members in terms of the necessary guidance and training stating: "*…We as teachers we need to guide them...*" (PRA workshop, school A, P10, line 191). Teacher participants from school B shared this view. They indicated this to be their responsibility: "*...inform them about the food choice and whereby we provide them guidance on nutrition...*" (PRA workshop, school B, P10, lines 530-531).

With regard to the type of guidance required by the community, participants from school A stated that community members needed specific guidance pertaining to food production: "*...training is needed to produce food...*" (PRA workshop, school A, P9, lines 175-176). Participants identified several potential positive outcomes of training community members, such as the acquisition of entrepreneurial skills, as well as possible financial gain once community members started to apply their newly acquired knowledge and skills. This view is captured in the following extract: "*...empowering them... will give them some source of income...*" (PRA workshop, school A, P10, lines 212-213).

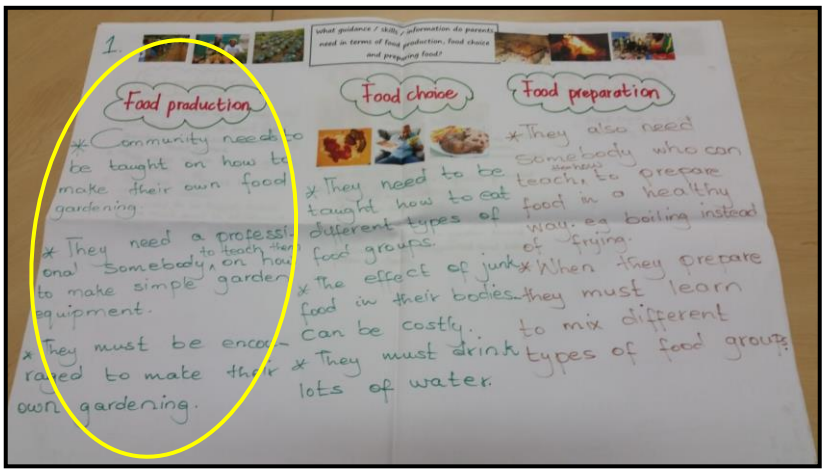
Teachers from all three schools seemed to share the view that the community requires a great deal of education and training related to vegetable gardening. Participants from school A mentioned ideal planting conditions and different soil types as an area of education that parents could benefit from, stating that they "*…need to identify the soil types...*" (PRA workshop, school A, P10, line 194); and "*...plants need conducive environment to grow...*" (PRA workshop, school A, P10, line 205). Participants from school C highlighted the need for community members to learn about seasonal plants: "*...also need to be taught* about crops that grow in different seasons..." (PRA workshop, school C, P6, lines 720-721).

The correct use of fertilisers and pesticides, as well as the use of irrigation, were also viewed as lessons that could equip community members to undertake successful vegetable gardening. Participants reported a need for "*…guidance on soil fertilisation and irrigation...*" (PRA workshop, school B, P6, line 464); and that "*…they must also avoid using chemicals like fertilisers. They must rather use organic material...*" (PRA workshop, school B, P7, lines 480-481); and further that "*…you can use herbs instead of using the pesticides...*" (PRA workshop, school B, P7, lines 482-483). Participants also seemed to believe that a knowledge of herbs may prove to be beneficial to community members on additional levels, as captured in the following contribution: "*…From the plant that they grow in their gardens at home...can also serve as medicine for them, the herbs...*" (PRA workshop, school A, P10, lines 218-219).

Besides vegetable gardening, participants from school B apparently held the view that the community members would benefit from knowledge and skills related to livestock farming. They mentioned: "*...farming skills and knowledge on farming to produce subsistence farming...*" (PRA workshop, school B, P10, lines 520-521). Participants from schools A and C supported this view, and suggested the following forms of farming suitable for inclusion when training the community: "*…Chicken farming, pig farming and cattle farming...*" (PRA workshop, school A, P10, line 209); and that they "*…must be more involved in farming chickens, eggs, milk, etc...*" (PRA workshop, school C, P5, lines 709-710).

Participants from the different schools believed that shortages of land, resources and equipment, and a lack of knowledge regarding available resources, contributed to the community members' inability to take initiative with regard to subsistence farming. Participants from school A were of the view that water tanks and general gardening tools as resources could assist community members, stating: "…*Jojo tanks will be needed, also equipment such as forks, spades...*" (PRA workshop, school A, P9, lines 178-179). Teachers from school B supported this idea, adding vegetable seeds as a resource that could benefit the community members, who could "*…be given starter packs, for example they should provide people with seeds and planting utensils...*" (PRA workshop, school B, P8, lines 498-499). I captured my perception of these participants' apparent concern around the issue of land scarcity in my field notes as follows: "…*What does it help to have all the information and no land?...*" (Field notes: Second field visit, 28 August 2013, line 168).

However, participants also indicated that community members would need to make better use of the land, resources and existing projects available to them. In this regard, participants from school B shared their view that community members had to learn to use, and not waste, local resources: "*...community must learn to make use of whatever they have at their disposal instead of wasting it...*" (PRA workshop, school B, P7, lines 474-475). School A's participants held a similar view, suggesting that community members be taught to save rainwater. They said that community members "…*need to be encouraged to use the tanks at their homes to get rain water...*" (PRA workshop, school A, P10, lines 201-202). Photograph 4.8 shows the visual poster created by one of the groups, presenting the perceived knowledge and skills required by community members with regard to food production.



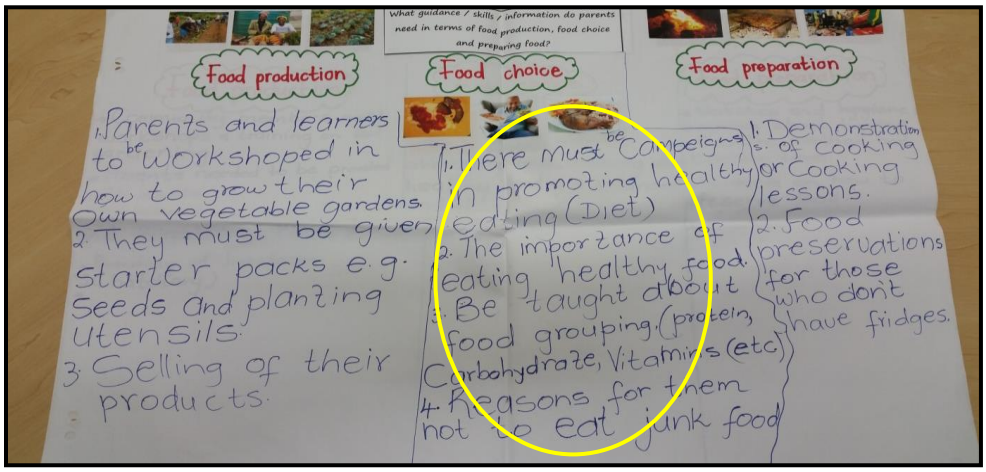
Photograph 4.7:
Food production knowledge and skills required by community members (school C)

4.2.3.2 Sub-theme 3.2: Knowledge and skills related to choosing healthy food

With regard to food choices, the participants appeared to be particularly focused on the importance of imparting knowledge required for a healthy, balanced diet. Participants from school A shared their perception that parents could benefit from learning about different food groups: "*...food that has various vitamins, proteins, fats and carbohydrates...*" (PRA workshop, school A, P9, line 182). Participants from school B supported this view, suggesting the use of workshops to aid community members' understanding of healthy, balanced meals, as well as of preserving foods: "*…Here it means that at the workshop the food pyramid should be drawn in order to indicate to the people attending so that they can understand how to group the food...*" (PRA workshop, school B, P8, lines 504-506). Teachers from school C stated that, as part of a balanced diet, parents should be encouraged to stay away from so-called junk food, electing rather to serve healthy alternatives: "*...no junk food should be served to children, give* more of the nutritional foods, e.g. fruits and vegetables..." (PRA workshop, school C, P5, lines 711-712).

As a possible tool for choosing healthy, balanced meals, participants from school B suggested that an example menu could be helpful for guiding community members. They explained: "...*when they prepare their food they need to look at the prescribed menu*..." (PRA workshop, school B, P10, lines 535-536). In support of this, participants from school A said: "*...it is very important to have a menu list so that we don't eat the same thing always...*" (PRA workshop, school A, P9, lines 183-184). As another method for encouraging parents to prepare healthy meals, participants from school B viewed practical demonstrations as important: "*...there must be a demonstration of cooking or cooking lessons...*" (PRA workshop, school B, P8, lines 509-510).

Teacher participants from all three schools seemingly believed that community members could benefit from learning about the importance of drinking enough water as part of a healthy, balanced diet. Several comments were made in this regard, for example: "*...the importance of drinking water...*" (PRA workshop, school B, P10, line 542); "*…Drink more water...*" (PRA workshop, school C, P5, line 712); and "*...encourage them to drink lots of water...*" (PRA workshop, school A, P10, line 229). Photograph 4.8 captures the poster of one of the groups, indicating the perceived knowledge and skills required by community members with regard to food choice.



Photograph 4.8:
Knowledge and skills required by community members with regard to food choice (school A)

4.2.3.3 Sub-theme 3.3: Knowledge and skills related to food preparation

During the PRA workshops, teachers from school C expressed the belief that a definite need existed at that time for community members to receive training in food preparation. One of the participants said: "*…When it comes to food preparation they...need somebody who can teach them how to prepare food in a healthy way...*" (PRA workshop, school C, P7, lines 737-739). In support of this, participants from school B mentioned

hygiene and food handling as specific topics that could be covered during training: "*…In food preparation they also need to be workshopped and trained about hygiene, how to handle food...*" (PRA workshop, school B, P6, lines 467-468). Participants from school A similarly shared their perception that guidance with regard to hygienic practices during food preparation could benefit community members, stating: "*...you have to rinse the food before use...*" (PRA workshop, school A, P10, lines 234-235).

According to the teacher participants from both schools A and B, community members did not take note of food labels. As a possible solution, they suggested that community members needed to receive guidance on reading labels for expiry dates and the ingredients in food, saying: "*…Whenever they buy or whenever they get the food we need to check on expiry date... We must also check on the preservatives... the colourant is very much dangerous...*" (PRA workshop, school A, P10, lines 242-246); and "*...we must teach them to check the expiry dates...*" (PRA workshop, school B, P10, lines 533-534).

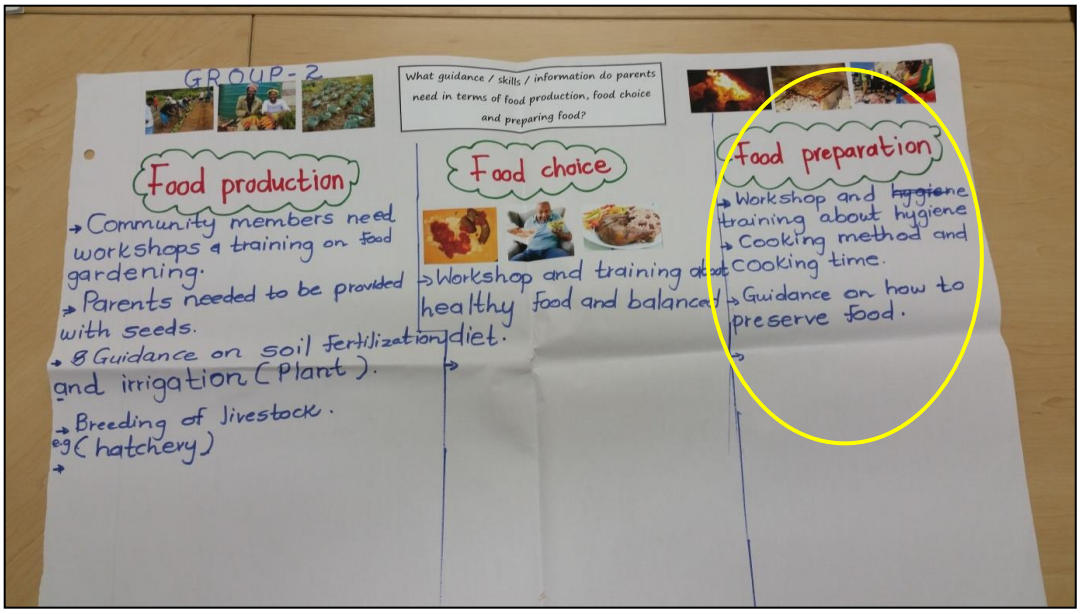
The use of salt and spices during cooking was raised as yet another area of concern for the participating teachers. Participants from school A mentioned: "*...there's lots of spices...*" (PRA workshop, school A, P1, line 249), while participants from school C proposed that community members should "*…avoid more spicy food and too much salt...*" (PRA workshop, school C, P5, lines 714-715). Participants from school A believed that the overuse of spices could be related to cultural practices: "…*You know in our culture if we prepare food without spices they are not tasty ...*" (PRA workshop, school A, P10, line 248).

The participants furthermore perceived cooking methods as an important skill that was lacking in their community. Teachers from both schools A and C believed that community members mainly made use of boiling and frying as preparation methods. The following extracts from the data attest to this belief: "*...because most people like frying all the time, so they should actually know the importance of boiling and also when you boil you mustn't over boil...*" (PRA workshop, school C, P8, lines 761-763); and "*…They must not just only boil, boil or fry, fry only throughout...*" (PRA workshop, school A, P9, lines 185-187). As an alternative, participants from school A held the shared opinion that steaming, grilling and baking are viable healthier alternatives that could be conveyed to community members: "*…Steaming is encouraged, grilling and baking...*" (PRA workshop, school A, P10, lines 231-232). Participants from school B shared this view, mentioning that community members could be encouraged not to overcook their food and to consider alternative methods such as steaming: "…*Overcooking must be avoided, they must steam their food properly...*" (PRA workshop, school B, P7, lines 491-492).

Participants also stated that food storage and preservation were skills from which community members could benefit. Participants from school A commented: "…The *storage where food is kept should be cool and clean...*" (PRA workshop, school A, P10, line 237). Elaborating on this, participants from school C suggested

that community members: "*...learn to preserve dry food more, like dry spinach and dry biltong...*" (PRA workshop, school C, P5, lines 710). Participants from school B supported the idea that community members could benefit from knowledge of food storage and preservation. They mentioned that, in their view, community members could especially benefit when facing the challenge of limited resources, saying: "*…And then food preservation for those that do not have refrigerators. People should be encouraged to preserve food if they can't afford to buy the necessary apparatus...*" (PRA workshop, school B, P8, lines 510-512).

Further potential benefits of community members being trained were highlighted by the participants. Teachers from school B suggested that community members could be empowered to initiate their own entrepreneurial endeavours once they had obtained the necessary knowledge and skills related to food preparation. They explained: "*...cooking lessons, that will help them to create jobs because if they group themselves as women of this section, they can organise themselves and set up a cooking club or catering club and that will give them money because we will hire them to cook at our weddings and parties...*" (PRA workshop, school B, P9, lines 513-517). I captured similar views to those held by participants from school A in my field notes: "…*Participants suggested cooking clubs/catering for job creation*..." (Field notes: First field visit, 26 February 2013, line 17). In support of this, Photograph 4.9 displays the ideas posed by a group from school A, in terms of the knowledge and skills required by community members for the preparation of food.



Photograph 4.9:
Food preparation knowledge and skills required by community members (school A)

4.2.4 THEME 4: TOPICS THAT CAN ENRICH THE INTERMEDIATE PHASE CURRICULUM SUBJECTS

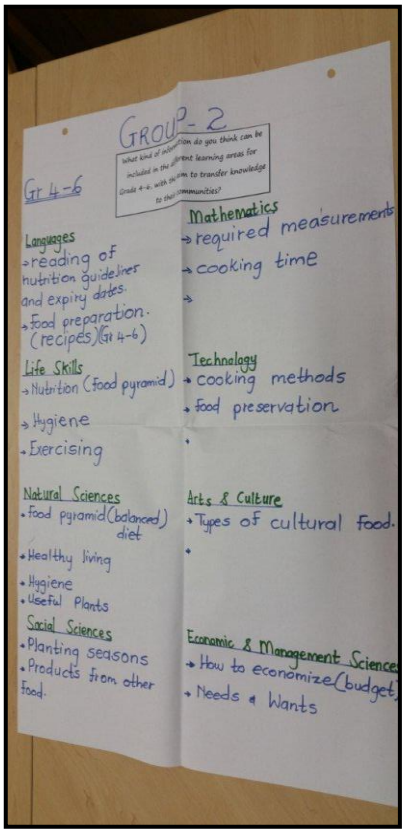
> "…*I think that... the current curriculum may already be, to a degree, accurately addressing topics that teachers feel need to be addressed in this specific community*..." (Reflective journal, 27 February 2013, lines 40 – 42).

Participants were asked to make suggestions as to how the identified requisite knowledge and skills could potentially be included in the current Intermediate Phase school curriculum. Participants provided specific information for the different Intermediate Phase subjects listed in the CAPS document (Department of Basic Education 2011a), namely Mathematics, Natural Sciences, Technology, Life Science, Social Sciences, Languages, Arts and Culture and Economic and Management Sciences. According to the teachers, most of the information could be included in the subjects of Life Skills, Natural Sciences, and Technology. The inclusion and exclusion criteria for each of the sub-themes are provided in Table 4.4.

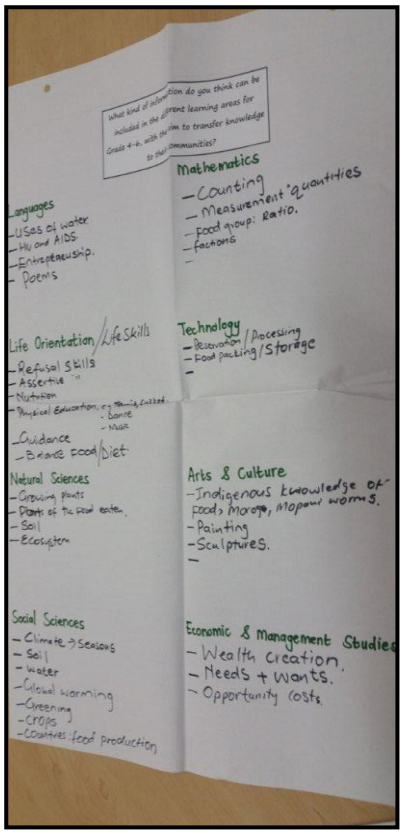
Table 4.4: Inclusion and exclusion criteria for Theme 4

Theme	Inclusion criteria	Exclusion criteria
Sub-theme 4.1: Topics suitable for inclusion in Life Skills	Reference to the manner in which food-related information can be included in the subject of Life Skills	Any reference to the manner in which food-related information can be included in a subject other than Life Skills
Sub-theme 4.2: Topics suitable for inclusion in Natural Sciences and Technology	Reference to the manner in which food-related information can be included in the subjects of Natural Sciences and Technology	Any reference to the manner in which food-related information can be included in subjects other than Natural Sciences and Technology
Sub-theme 4.3: Topics suitable for inclusion in other subjects	Reference to the manner in which food-related information can be included in the remaining subjects, namely Mathematics, Social Sciences, Languages, Arts and Culture and Economic and Management Sciences	Any reference to the manner in which food-related information can be included in subjects other than Life Skills or Natural Sciences and Technology

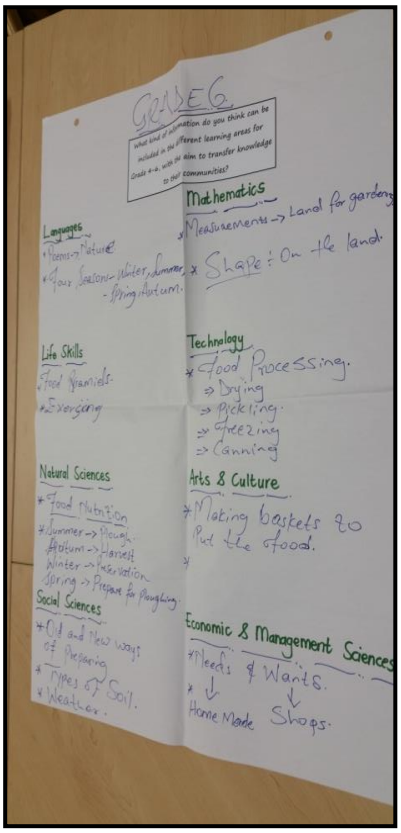
Photographs 4.10, 4.11 and 4.12 provide examples of the posters made by the participants, displaying the teachers' perceptions of how and where topics could potentially be included in the Intermediate Phase curriculum subjects. A description of their views follows in the discussion of the sub-sections related to this theme.



Photograph 4.10:
School A's suggestions



Photograph 4.11:
School B's suggestions



Photograph 4.12:
School C's suggestions

Participating teachers seemed positive about the possibilities for including dietary and nutrition-related topics in the current school curriculum. In the words of the participants from school C: "*...learners will acquire knowledge from the teachers in the classroom and they must be able to communicate the knowledge to their parents and other community members who are not knowledgeable about the things we teach them. Especially about fruit trees and they must communicate the knowledge to the community...*" (PRA workshop, school C, P10, lines 818-822). Teachers appeared to believe that both the learners and the community could benefit from the skills taught in the curriculum. They stated: "*...they will be developing the skills of entrepreneurship and they will be able to spread it to the whole community...*" (PRA workshop, school C, P10, lines 881-882); and "*...they will be able to make good choices, so they will assist others in the community...*" (PRA workshop, school C, P10, lines 825-828).

4.2.4.1 Sub-theme 4.1: Topics suitable for inclusion in Life Skills

Regarding the curriculum for the subject of Life Skills, participating teachers from all three schools agreed that learners should be taught about a balanced diet encompassing various food groups. Contributions included the following: "…*Nutrition is also very important; your balanced diet, they must know it...*" (PRA

workshop, school A, P12, lines 305-306); "*...teach them about different types of food groups...*" (PRA workshop, school C, P8, line 780); and "*...they must know what type of food is suitable for them to eat...*" (PRA workshop, school B, P13, lines 582-583). Participants from schools B and C regarded the food pyramid as a suitable tool to teach learners about a balanced diet, stating: "*...a balanced diet which is the food pyramid...*" (PRA workshop, school B, P12, line 571); and suggesting "…*food pyramid and exercises...*" (PRA workshop, school C, P9, line 794).

Participants furthermore appeared to be of the opinion that lessons on personal care, specifically in the forms of hygiene and physical activity, could be included in the Life Skills curriculum. They stated: "*...hygiene and exercising ...*" (PRA workshop, school B, P13, lines 582-583); "*...also under physical education taught things like tennis, cricket...*" (PRA workshop, school A, P12, lines 306-307); and that teachers "…*must also support them by doing exercises...*" (PRA workshop, school C, P9, line 795). Finally, participants from school A seemed to believe that assertiveness training was key in terms of promoting a healthy lifestyle amongst learners, saying: "…*We thought also that they must be taught how to be assertive*... *They must know how to say no...*" (PRA workshop, school A, P12, lines 302-303).

4.2.4.2 Sub-theme 4.2: Topics suitable for inclusion in Natural Sciences and Technology

Participants from all three schools agreed that farming-related issues could potentially be covered in the subjects of Natural Sciences and Technology, saying: "…*They must have agricultural knowledge...*" (PRA workshop, school C, P10, line 829). They highlighted livestock farming, in particular skills required to breed poultry, and noted that learners "…*need to understand how to breed chickens...*" (PRA workshop, school C, P10, line 839); and further saying that "…*chicken farming can be included in their curriculum...*" (PRA workshop, school A, P11, line 278).

Further responses from the participants indicated vegetable gardening skills as important when discussing farming-related topics with learners. Participating teachers from school C seemed to be of the view that it was important for their learners to acquire knowledge related to various types of plants: "…*In Natural Science we've got different types of plants...*" (PRA workshop, school C, P8, lines 780-781). Participants also noted the apparent importance of including content regarding irrigation and soil types, and "…*teaching about the correct time of irrigation...*" (PRA workshop, school C, P10, lines 842-843). In support of this, participants believed that the different parts of plants should be discussed with learners, stating: "…*Growing of plants, also they must know the parts that are eaten... Also soil, they must know which soil is required for a particular crop...*" (PRA workshop, school A, P12, lines 313-315).

Teachers from the different schools furthermore appeared to be of the view that crop rotation, seasonal plants and seasonal activities pertaining to vegetable crops could be included in the Natural Sciences and Technology subjects. As a possible topic for inclusion they suggested: "*...food rotation and planting seasons...*" (PRA workshop, school B, P12, lines 571-572); and said that "*...the learners should know that we plough in summer and in autumn we harvest, winter we preserve food, spring that's where we start preparing… for ploughing....*" (PRA workshop, school C, P9, lines 797-799). Teachers from school C focused on pest control as another topic for inclusion related to vegetable gardening, and mentioned the importance of "*...protection of crops against pests...*" (PRA workshop, school C, P10, line 848). In line with this, the use of equipment for farming purposes was identified by teachers from school A as important. Participants listed: "…*tractors, generators, spray irrigation...*" (PRA workshop, school A, P11, line 283).

Further responses indicated that the topics of healthy, balanced eating and healthy habits such as hygiene could also be included in the subject of Natural Sciences and Technology. The teachers referred to: "…*Food pyramid, balanced diet, healthy living, hygiene and useful plants...*" (PRA workshop, school B, P14, lines 602-603). In support of this view, participants from school C added: "…*Food nutrition, the four groups, vitamin and minerals, carbohydrates, proteins and so on...*" as potential topics to include (PRA workshop, school C, P9, lines 795-796).

Participants from school C suggested that attention should be paid to the preservation of food. They mentioned: "…*We can process food by drying them, we can process food by pickling, freezing them and canning them for the future...*" (PRA workshop, school C, P9, lines 808-810). In agreement with this view, participants from school A stated: "…*We think the important topic there is this one of preservation, food processing, food packaging and how to store food...*" (PRA workshop, school A, P12, lines 316-317). Finally, in line with the above, participants from school B added cooking as a potential topic: "…*Methods of cooking and how to preserve food...*" (PRA workshop, school B, P14, line 602).

4.2.4.3 Sub-theme 4.3: Topics suitable for inclusion in other subjects

During the discussion of the Mathematics curriculum, the participants from schools A and C were of the view that teaching measurement, specifically related to farming, could benefit learners. They stated: "…*They will learn about measuring in metres and hectares in the land where they are going to plant...*" (PRA workshop, school A, P11, lines 281-282); and "…*When we prepare the garden, we must measure where we are going to do our garden...*" (PRA workshop, school C, P9, lines 804-805). Similarly, with regard to the actual preparation of food, participants from school B also mentioned "…*required measurements and cooking time...*" (PRA workshop, school B, P14, lines 600-601). Teachers from school A added the ratios for consumption of different food groups as another topic for potential inclusion when teaching Mathematics.

They were of the view that learners "…*must know the ratio, for instance the ratio of proteins to carbohydrates and fats...*" (PRA workshop, school A, P12, lines 298-299).

With regard to the subject of Social Sciences, participants from school A appeared to believe that learners could benefit from the inclusion of different types of farming in the curriculum. Furthermore, participants from schools B and C mentioned various farming-related topics such as "*...soil cultivation, irrigation methods and planting seasons...*" (PRA workshop, school B, P12, lines 572-573). They elaborated by saying: "…*They must know a 'slopy' field if the field is 'slopy', when they are planting, making their gardens, they must ensure that the rows are not going like the slope...*" (PRA workshop, school C, P10, lines 856-858).

In terms of the language curricula, participants from all three schools shared the view that healthy food-related practices could be encouraged by teaching learners to read and correctly interpret menus, recipes and food labels. They included: "*...reading of nutrition guidelines and expiry dates, food preparation, that is recipes...*" (PRA workshop, school B, P14, lines 599-600). The teacher participants furthermore seemed to believe that communication skills could be taught in the languages and that this could promote learners' sharing of information with the wider community. One of the participants provided the following detail: "…*We thought that learners must have good communication skills because learners will acquire knowledge from the teachers in the classroom and they must be able to communicate the knowledge to their parents and other community members...*" (PRA workshop, school C, P10, lines 817-820).

For the subject of Arts and Culture, teacher participants from school A perceived indigenous food sources and traditional meals as an important aspect that could be included in the curriculum. They provided the following examples: "*...traditional food, morogo, mxushu, dumpling...*" (PRA workshop, school A, P11, line 284). Participants from school B supported this view and also referred to added benefits, saying: "*...we have to know them because most of them are organic...*" (PRA workshop, school B, P13, lines 590-591).

Teachers from schools B and C also indicated that creative activities could possibly be included in this curriculum to promote vegetable gardening as well as balanced eating habits. They stated: "…*Learners will be able to identify the colours... that… they must have in the meal...*" (PRA workshop, school C, P10, lines 870-872); and "*...creativity in making food beddings...*" (PRA workshop, school B, P12, lines 574-575).

With regard to the subject of Economic and Management Sciences (EMS), participants from school A believed that business-related issues pertaining to food production and entrepreneurial skills could be covered. They explained as follows: "*...four sectors of production, natural resources, capital, entrepreneur and labour...*" (PRA workshop, school A, P11, lines 285-286). Participants from school C agreed and elaborated, mentioning that learners could learn how to cultivate and sell their own vegetables. They stated:

"…*They will learn how to sell products, maybe they tried to plant vegetables and they get plenty of vegetables, they will be able to sell them...*" (PRA workshop, school C, P10, lines 876-878).

Participants from all three schools also shared the suggestion that 'needs and wants' could be included in the EMS curriculum, saying: "*...topics like needs and wants they must know...*" (PRA workshop, school A, P12, line 328). Elaborating on this, participants from school C mentioned the potential value of home gardens in providing healthy and affordable food. They stated: "*...the food that we need mostly comes from the garden, home-made unlike the food that we want, and they are very expensive to buy from the shops...*" (PRA workshop, school C, P8, lines 814-815). Furthermore, participants from school B were of the view that learners could benefit from skills related to saving money, as captured in the following contribution: "*...even saving money they must save money for them to be able to buy food...*" (PRA workshop, school B, P13, lines 593-594).

4.3 FINDINGS OF THE STUDY

In this section I relate the findings of this study to existing literature. In order to do this, I aim to highlight both the similarities and the inconsistencies that are evident in terms of the themes identified in the study and in the literature. I also identify 'silences' in the literature, from which I am then able to formulate a list of suggestions future research.

4.3.1 EATING PATTERNS AND FOOD CONSUMPTION BEHAVIOUR OF THE RESOURCE-CONSTRAINED COMMUNITY

Overall, I found that members of this community followed a diet similar to that described by current literature on South African resource-constrained communities (see Chapter 2, section 2.4.1). Such a diet can best be described as monotonous and containing little variety and limited portions of animal products, fruits and vegetables (Faber, Witten & Drimie, 2011; Schönfeldt et al., 2010). In the sections that follow, I discuss factors affecting the food consumed in this community, and highlight the main food types that form part of the daily diets of community members, according to the responses of the participants. I also discuss the participating teachers' views on the role of the school feeding scheme in supplementing the nutrition of needy learners. I compare my results with existing literature throughout the discussion that follows.

4.3.1.1 Factors affecting food choice

I found that in this community, as has been found to be the case in other resource-constrained communities (Darmon & Drewnowski, 2008; Kruger et al., 2006; Larson & Story, 2009; MacFarlane et al., 2007; Schönfeldt & Gibson, 2009), individuals' diets were greatly limited by poverty and socio-economic status. Food prices were found to be central to all food-related decisions, including which food products to buy and/or consume,

and how regularly these were purchased. As has also been found in several related studies (e.g. Oldewage-Theron et al., 2006; Steyn et al. 2011) my research indicates that it was not unusual for some learners in this community to come to school without having eaten dinner the previous night, or breakfast on the day in question.

New insights that stem from this study in terms of factors affecting the food choices of people in resource-constrained communities include the finding that leftovers were being consumed at mealtimes. Taking the South African context and the specific community into account, where many women at the time of the study were employed as domestic workers in affluent households, the mothers' employers were highlighted as a potential source of food for families in resource-constrained communities. Another possibility relates to the hypothesis that leftovers were commonly consumed in this community due to the high level of poverty and limited resources, resulting in community members not allowing any food go to waste. These possibilities, however, require further investigation.

4.3.1.2 Maize and bread as central part of every meal

In line with existing literature, maize was indicated as the most commonly consumed food at each meal (Faber et al., 2011; Martins, 2005). Furthermore, and also in line with current literature, participating teachers emphasised that maize was served in different forms, for example as either stiff or soft porridge, and in combination with different side dishes, depending on the time of day. This finding supports the work of Taylor and Jinabhai (2001), Kimani-Murage et al. (2010), as well as Oldewage-Theron et al. (2006).

Bread was found to be consumed on a daily basis. This finding correlates with existing research on current trends in South African communities in poverty-stricken areas. In this regard Steyn et al. (2003) and Kruger et al. (2006) put forward that bread is one of the most commonly consumed food types among South African community members, with bread forming part of the staple diet of most children from all backgrounds, including those from low-income groups.

4.3.1.3 Chicken and limited amounts of fish as primary sources of protein

Consistent with the findings of Martins (2005), I found that poultry in the form of chicken was the most commonly consumed meat in the community, with the flesh, heads and feet, and other parts of chickens, being consumed. In line with current literature on the dietary patterns of resource-constrained communities, fish, although not as frequently consumed as certain other forms of protein, was also consumed relatively regularly, mainly in the form of tinned fish. Martins (2005) concurs, in that, of the fish products consumed by individuals from resource-constrained settings, fish is most commonly bought in tinned form.

4.3.1.4 Fruits and vegetables

I found that the community consumed limited amounts of fruit and vegetables. The weekly serving of fruit as part of the school feeding schemes was the only fruit eaten by many learners, indicating inadequate consumption of fruit in the community as a whole. MacIntyre et al. (2002) and Kruger et al. (2006) similarly indicate that resource-constrained communities have tended to eat insufficient portions of fruits and vegetables, due to reasons such as limited availability and prohibitive prices. The fruits that were most commonly consumed by learners in this community were apples, bananas and oranges. This finding supports those documented in existing literature on the diets that have been found to be common in resource-constrained communities (Faber et al., 2001; Martins, 2005).

With regard to vegetables, the participants mentioned the community's frequent enrichment of meals with cabbage, which closely resembles the diets of individuals from other resource-constrained communities, as reported in studies by Oldewage-Theron et al. (2006) as well as Taylor and Jinabhai (2001). In further accordance with existing literature (Faber et al. 2001; Steyn et al., 2003), my study indicates that green leafy vegetables formed part of the daily meals of most individuals in this community during the study.

4.3.1.5 Sugar

The frequency of sugar consumption in this community confirms the work of Oldewage-Theron et al. (2006) as well as Steyn et al. (2003) who report that resource-constrained communities typically consume high levels of sugar. More specifically, my study indicates the consumption of white sugar, as well as home-made juices, by members of this community. This finding aligns with the findings of Oldewage-Theron et al. (2006), who highlight white sugar and squash drinks as the forms of sugar commonly consumed by members of resource-constrained communities.

My study also indicates that some learners chose to buy food from local vendors, which, according to De Villiers et al. (2012), would be likely to contain large amounts of sugar. However, as the research question specifically asked about breakfast, lunch and dinner, no specific enquiry was made about snacks consumed between formal meals. This is possibly the reason that only limited reference was made to the consumption of food containing sugar, and as such this area could be explored further in a follow-up study.

4.3.1.6 Black tea and limited amounts of milk as drinks accompanying meals

The intake of stimulants, mostly in the form of black tea, was found to be high in this community. This finding is consistent with the frequent consumption of tea typically indicated in various other resource-constrained settings, as found by Mkhize et al. (2013), Martins (2005), as well as Faber et al. (2001).

Even though existing literature (Labadarios et al., 2005; Steyn et al., 2003) indicates milk as a commonly consumed product in South African resource-constrained settings, limited reference was made to milk consumption in this community. Apart from serving milk with porridge for breakfast, participants in this study associated the consumption of milk with more privileged learners. In agreement with existing literature (Taylor & Jinabhai, 2001), sour milk was, however, found to be consumed regularly as a source of protein. The apparent discrepancy between the findings of this and other studies concerning the consumption of milk may perhaps be ascribed to the level of poverty in the participating community, such that milk was not considered an affordable product. However, this hypothesis requires further research before it can be confirmed.

4.3.1.7 School feeding schemes as source of support

Situated within a resource-constrained community, the participating schools were all rightfully benefiting from the NSNP, as discussed in Chapter 2, section 2.5.1 (Department of Education 2009). A typical school meal, as described by the teachers, was very similar to the meals prescribed by the NSNP, consisting of a protein-rich food product, a carbohydrate or starch, and one portion of fresh vegetables or fruits per day (Department of Basic Education 2013).

An omission in existing literature that has become evident during the course of this study relates to parents and children eating different meals at lunch time. Although my proposition is that this is because children ate at school as part of a school feeding scheme while parents ate at home or work, follow-up research could compare the food consumed by parents at lunch time to the meals of children who do not receive meals from their schools. By considering teachers' responses, as well as descriptions of typical school feeding scheme meals as a reference for what a typical meal should include, it is my hypothesis that resource constraints can potentially result in learners skipping lunch or having less nutritious meals at lunch time, if they are not provided with lunch at school.

The recipients' opinions regarding the taste and acceptability of food served as part of school feeding schemes did not come up during my review of the literature; however, this is another potential area for further investigation, as I found that some learners chose to buy junk food rather than eat the meals provided at their schools. Furthermore, some learners from more affluent families would bring their own meals to school, leading to questions regarding how social status may have contributed to whether or not learners elected to make use of the school feeding schemes. This enquiry warrants further investigation.

4.3.2 CONSUMER BEHAVIOUR IN THE RESOURCE-CONSTRAINED COMMUNITY

In this section, I explain where the members of the sampled community obtained their food, according to the participants. I also consider factors determining consumer behaviour in the community.

4.3.2.1 Purchasing food from local markets

In agreement with current literature, members of this community mostly frequented the local 'market' to purchase food (Morapane, 2012; Ruel et al., 1998). In this community, the market is represented by supermarkets, local vendors and spaza shops. As has also been reported by Morapane (2012), the decision made by community members to buy from these suppliers was based on affordability and accessibility, which is similar to the trends that are apparent in other resource-constrained communities.

4.3.2.2 Receiving donations

In support of the work of Ruel et al. (1998) and Kaschula (2011), some community members received food in the form of donations. In this community, donations were received from churches, through government projects (including the school feeding schemes) and other charity projects, and from neighbours, as well as the employers of community members. Existing literature does not specifically mention employers as a source of food donations, which probably indicates a context-specific finding, providing new insight into this area of study. The extent to which food donations by employers may affect the consumer behaviour in resource-constrained communities in South Africa could potentially form the focus of follow-up research.

4.3.2.3 Vegetable gardens as a source of food

Apart from a few references to a lack of land and a few community- or school-based vegetable gardens, I did not obtain significant findings on home-based gardens being utilised in this community. Most community members obtained food from bigger communal gardens and not from their own gardens at home, which implies that they were still spending money on buying vegetables instead of growing their own. This finding correlates with existing literature, indicating that few South African individuals practise home gardening (Hoogeveen & Özler, 2005).

A lack of land, equipment and resources were the main reasons mentioned for the lack of vegetable gardens in the community. This finding correlates with current literature on why people in resource-constrained communities do not attempt vegetable gardening at home (Faber et al., 2011; Galhena et al., 2013; Kortright & Wakefield, 2011; Musotsi et al., 2008). The few community members who did make use of home-based vegetable gardens chose to grow the vegetables that have been found to be most commonly eaten by people

in resource-constrained communities, namely tomatoes, onions, beetroot and carrots. This finding confirms the findings of Green et al. (2004), Mkhize et al. (2013) and Oldewage-Theron et al. (2006).

I uncovered no findings on community members keeping livestock as a means of subsistence farming. However, it was mentioned by the participating teachers that community members required knowledge and skills to keep livestock, which probably explains this gap in the findings. It is my belief that, as with vegetable gardening, community members may have lacked the necessary knowledge, skills and resources to keep and maintain livestock, such as chickens. This hypothesis requires further research.

4.3.2.4 Sourcing food from the local dumping site

A new finding stemming from this study relates to dumping sites being regarded as potential food sources by members of resource-constrained communities. Dumping sites are not typically viewed as primary food sources (Ruel et al., 1998), with the existing literature not citing any such examples. As such, this finding provides new insight into possible food sources for individuals who deal with extreme levels of poverty. It is my hypothesis that, as a result of the close proximity of the dumping site to this particular community, and due to the severe resource constraints that existed in the community at the time, individuals may have opted to seek food at the dumping site in this specific community as a desperate measure. More research is required in this regard.

4.3.2.5 Factors affecting consumer behaviour in the community

As has been found to be the case in other resource-constrained communities (Darmon & Drewnowski, 2008; Kruger et al., 2006; Larson & Story, 2009; MacFarlane et al., 2007; Schönfeldt & Gibson, 2009), individual consumer behaviour is largely determined by poverty and socio-economic status. The community involved in this study was characterised by limited resources, widespread unemployment, and many child-headed households (as at the time of the study). In correlation with existing literature, community members were found to buy only the food that was affordable, thereby negatively affecting the quantity and quality of the food that they consumed (Temple et al., 2011).

Situated in a peri-urban context, the reported consumer behaviour in this community aligned with trends identified in existing literature about similar communities, in terms of the increased consumption of fast food (Puoane et al., 2006). According to the literature, school tuck shops and street vendors are common at and around South African schools and, concurring with this, I found that some learners would purchase food items from local vendors while at school (De Villiers et al., 2012). I also found that community members consumed fast food due to time constraints. This finding is supported by other studies explaining why

individuals from resource-constrained settings tend to buy fast food more regularly than other communities (Larson & Story, 2009).

In summary, aligning with existing literature, the eating habits of this community were found to be similar to those of many other communities undergoing a nutrition transition, characterised by increased consumption of fats, fast food and energy-dense food (Vorster, 2010). The question remains as to how this trend can be explained against the background of poverty, influencing community members' decisions regarding the fresh food products they consume, which may be cheaper than fast food but less convenient. This area requires ongoing investigation.

4.3.3 KNOWLEDGE AND SKILLS REQUIRED BY RESOURCE-CONSTRAINED COMMUNITIES FOR FOOD PRODUCTION, CHOICE AND PREPARATION

In this section, I summarise the knowledge and skills identified by teachers as required by members of the community. I compare these findings with the existing literature covered in Chapter 2.

4.3.3.1 Knowledge and skills required with regard to food production

Participating teachers mentioned the need for parent workshops. This correlates with other studies that have indicated workshops and information sessions as effective tools for change (Faber et al., 2011; Spiegel & Foulk, 2006). In this regard I found that teachers viewed the members of the community as specifically lacking the necessary resources, knowledge and skills necessary for producing their own food.

As stated by Galhena et al. (2013), insufficient land, limited access to water and a lack of seeds and equipment have negatively impacted on the community's ability to produce its own food. In line with a study by Ruel et al. (1998), this inability to produce food results in increased expenses, as community members are obliged to buy most of their food instead of producing it cheaply for themselves. Community members might further benefit from vegetable gardens by selling their produce to others. Although not specifically mentioned in existing literature as a possible advantage of vegetable gardening, members of this community bought vegetables grown in bigger communal gardens. Thus, the potential entrepreneurial value of vegetable gardening is highlighted by this study and could be explored further in follow-up research.

On an educational level, various topics that community members would benefit from, if these were to be presented to them during information sessions, were identified. This finding aligns with previous studies, which note the possible positive impact of an educational component in health-related interventions for communities (Faber et al., 2002; Ruel & Levin, 2000). Also correlating with existing literature (Galhena et al.,

2013; Thornton, 2008), community members could benefit from farming with chickens, cattle and pigs, if they were to receive education and training with regard to this type of farming.

4.3.3.2 Knowledge and skills required with regard to food choice

Members of the community lacked knowledge regarding healthy food choices, and generally elected to eat junk food instead. They followed the trend of other resource-constrained communities that tend to consume fast food on a regular basis, choosing more unhealthy food options as part of the so-called nutrition transition (Bourne et al., 2002; Larson & Story, 2009; Vorster, 2010). Members of the community involved in this study were found to be in need of specific guidance with regard to food choices, which could be provided in the form of menus and practical demonstrations. This finding yet again supports existing literature, which notes that food samples and cooking demonstrations could benefit communities in pursuit of healthier diets (Faber et al., 2011).

Furthermore, the need exists for guidance pertaining to the importance of drinking water. This finding is in line with the South African Food-based Guidelines (Vorster, n.d.). It is my hypothesis that, as noted in existing literature, not all members of this community had adequate access to safe drinking water, due to constraints and limitations in the community, as has been suggested by Love et al. (2001).

4.3.3.3 Knowledge and skills required with regard to food preparation

In terms of food preparation, I found that community members could benefit from guidance and training related to the handling of food as well as hygienic practices during food preparation. Community members also required assistance with regard to reading the nutritional labels and expiry-date stamps on the products they consumed. Food storage was identified as another area in which community members required more knowledge. All of these issues are corroborated by the key points identified by the World Health Organisation for preventing contamination of food and water (Donkor et al., 2009; World Health Organization, 2006). I further found that workshops or information sessions may be suitable platforms for transferring such knowledge and skills to community members. This finding is once again supported by existing literature (Donkor et al., 2009).

Furthermore, this study indicates that community members required guidance on the use of condiments (specifically salt). Unhealthy choices or the overuse of spices were linked to community members' cultural practices, which correlates with the findings of Love et al. (2001) and Charlton et al. (2005). These authors indicate that traditional or habitual practices are the main reason for the overuse of salt and other seasonings. As mentioned in section 4.3.3.2, members of this community, as in other communities noted in existing

literature (Caballero et al., 2003; Faber et al., 2011), may potentially benefit from cooking demonstrations as part of community-based health interventions.

In agreement with existing literature on health-promoting interventions (Pérez-Rodrigo & Aranceta, 2001), community members in this study will also benefit from receiving guidance and training relating to food storage and preservation. As with food preparation in other resource-constrained settings, members of this community generally either boiled or fried their food (Spearing et al., 2012; Viljoen, 2010) and may thus benefit from exposure to alternative cooking methods. A further omission in the literature relates to the entrepreneurial potential of cooking lessons, as identified in this study. It is my theory that, as a result of the extreme resource constraints in this community, the participants were more keenly aware of alternative sources of income for community members, desiring to assist them in providing more adequately for themselves and their families. This suggestion can also be explored through further research.

4.3.4 INCORPORATING INFORMATION ON FOOD PRODUCTION, CHOICE AND PREPARATION IN THE INTERMEDIATE PHASE SCHOOL CURRICULUM

In support of current literature as discussed in Chapter 2, specific topics related to health and nutrition were found to be suitable for inclusion in the existing school curriculum. Teachers were positive about the idea of using the school curriculum to teach learners about nutrition and health. Teachers identified several ways in which the current school curriculum can be used to transmit health- and nutrition-related information and skills to learners. They identified general topics that could be included, as is also evident in existing literature on successful interventions (Draper et al., 2010; Van Lippevelde, Verloigne, Bourdeaudhuij & Brug, 2012; Pérez-Rodrigo & Aranceta, 2001; Steyn et al., 2009). These included a healthy diet, and the importance of physical activity and hygiene.

Even though existing literature encourages school policies to facilitate nutritional change (Naidoo & Coopoo, 2012) teachers did not mention any policy-related issues during this study. This silence was most likely due to the nature of the workshop questions, which were very specific, focusing only on topics for inclusion according to the various subjects in the curriculum. In the sections that follow, I discuss the subjects that were identified by teachers as suitable for enrichment by means of interventions.

4.3.4.1 Topics suitable for inclusion in the Life Skills subject

With specific reference to the Life Skills subject offered to Grades 4 to 6 learners in South African schools, a balanced diet, personal care (in the forms of hygiene and physical activity) and assertiveness were viewed

as important topics for enriching the current curriculum. Among others, these topics are covered in the current CAPS Intermediate Phase curriculum document (Department of Basic Education 2011a).

Teachers did not mention food storage and preservation as topics to be discussed, although these are covered in the current Life Skills curriculum (Department of Basic Education 2011a). Even though silent on this subject, teachers did acknowledge these themes, and mentioned them as enrichment ideas for the Natural Sciences and Technology subjects. Food-borne diseases and safe and harmful ingredients were not identified as possible topics for inclusion in the Life Skills, or any other, subjects. My hypothesis is that this omission occurred due to learners typically not being directly involved in food preparation practices at home, and therefore teachers did not regard this as an important topic.

Also not mentioned by teachers was the topic of positive self-esteem, which is mentioned in related literature as a factor that can positively contribute to health and nutrition-related behaviour (Pérez-Rodrigo & Aranceta, 2001). This subject is in line with the current outcomes of the CAPS document for Intermediate Phase Life Skills, which notes the potential value of physical activity as a tool to promote positive self-esteem (Department of Basic Education 2011a). The absence of discussion around positive self-esteem development may be ascribed to the possibility of teachers not viewing this as important, based on cultural norms and beliefs. However, this does require further investigation.

4.3.4.2 Topics suitable for inclusion in the Natural Sciences and Technology subjects

With regard to the Natural Sciences and Technology curricula, farming, vegetable gardening skills, a balanced diet, and the processing, production and preservation of food were identified as important topics to be covered when enriching the existing school curriculum. Although they may not necessarily be covered in detail, each of these topics is already covered either directly or indirectly in the Natural Sciences and Technology curricula (Department of Basic Education 2011c).

As has been highlighted in this study, Pérez-Rodrigo and Aranceta (2001) mention knowledge and skills regarding the preparation, storage and preservation of food as a vital part of any nutritional intervention. The Natural Sciences and Technology curricula (Department of Basic Education 2011c) include food preparation and preservation, but do not address the topic of food storage. The topics of food preparation, preservation and storage are furthermore not covered in detail, nor are they taught in a practical manner. Nonetheless, they are covered to a degree in the Life Skills curriculum. However, this was a major topic that arose during this study, indicating the importance that the teachers attached to learners being informed in this area. The current Intermediate Phase Natural Sciences and Technology school curricula cover animals, plants and soil

types, but do not include lessons or practical content on farming, which was emphasised as important by participants in this study.

Interventions that include practical and educational components have been proven to be successful in terms of improving knowledge, attitudes and practices with regard to food consumption practices as well as nutritional intake (Ruel & Levin, 2000). Therefore, the need to include practical farming skills that has been identified by this study may form a valuable part of future interventions. However, this possibility necessitates further investigation.

4.3.4.3 Topics suitable for inclusion in other subjects

Teachers' suggestions for topics to include in Social Sciences and the languages were in line with information currently included in the CAPS documents. However, the participating teachers elaborated and referred to specific activities that could be utilised to suit the needs of their specific community, such as menu lists and practical information related to farming. Although the current Mathematics and Economic and Management Sciences curricula do not specifically cover nutrition and diet-related topics, it was mentioned that these subjects could be utilised to educated learners practically. Teachers' perceptions that other subjects can be successfully included in such interventions correlated with existing studies, such as those of Watts et al. (2012).

4.4 CONCLUSION

In this chapter, I presented the results of the study in terms of the four main themes and the related sub-themes that emerged. I then contextualised the results against the backdrop of existing literature, highlighting both similarities and inconsistencies between the results I obtained, and those reflected in existing literature.

In Chapter 5, I conclude this study by offering conclusions in terms of the research questions formulated in Chapter 1. In addition, I present the potential value and the limitations of the study, and end off with recommendations for future training, practice and research.

---oOo---

Chapter 5
Conclusions and Recommendations

5.1 INTRODUCTION

In the preceding chapter, I discussed the themes and sub-themes that emerged from the data analysis and presented the results of the study. I then interpreted the results against the background of current literature, as discussed in Chapter 2, thereby foregrounding the findings of my research.

In this final chapter, I provide a brief summary of the preceding chapters. I present the conclusions of this study with specific reference to the research questions that I formulated in Chapter 1. I discuss the possible limitations and contributions of this study, and conclude with recommendations for future training, practice and research.

5.2 OVERVIEW OF THE PREVIOUS CHAPTERS

In **Chapter 1**, I introduced the study and described my rationale for focusing on this topic. I presented the purpose of the study, which was to explore the perceptions of Intermediate Phase teachers regarding the food consumption practices and nutrition-related needs of a resource-constrained community in the Bronkhorstspruit area in Gauteng. I formulated the research questions and working assumptions of the study, after which I clarified the key concepts referred to throughout the paper. I briefly introduced the paradigmatic choices that I had made, as well as the conceptual framework that guided the research. I provided a broad overview of the methodological strategies I employed, and concluded the chapter with a brief discussion of the ethical guidelines and quality criteria to which I aimed to adhere throughout the study.

In **Chapter 2**, I provided a detailed discussion of current literature underlying and pertaining to this study. I commenced with a discussion of progress toward realising the MDGs, focusing on progress in sub-Saharan Africa and South Africa specifically. I relied on current literature for this purpose. Next, I explored the general needs of and challenges faced by resource-constrained communities, after which I emphasised food and nutrition-related practices, needs and challenges of South African resource-constrained communities. I then discussed the potential role that the DoBE and schools can fulfil with regard to the health and food-related practices of resource-constrained communities. Finally, I discussed the conceptual framework that guided this study, which was derived from the FDF (Gillespie & Smith, 2008) and Bronfenbrenner's Bioecological Model of Human Development (Bronfenbrenner, 2005).

In **Chapter 3**, I provided detailed discussions of the epistemological and methodological paradigms I relied on for the purposes of this study. I identified and described interpretivism as the epistemological paradigm and qualitative research as the methodological approach. I then explained how PAR as a research design guided my study, and how I utilised PRA as a specific form of PAR. I provided detailed explanations in terms of how I selected the participants, how I generated the data through PRA-based workshops, observation and reflection, and then analysed the data by means of inductive thematic analysis. I provided detailed accounts of the ethical considerations and quality criteria to which I adhered throughout the study, and I concluded the chapter with a description of my role as the researcher.

In **Chapter 4**, I presented the results of the study, in terms of the four main themes and the related sub-themes that emerged following inductive data analysis. I then discussed the findings of the study against the background and within the context of current literature, indicating similarities, differences and omissions that came to light when comparing the findings I obtained and those captured in the existing body of knowledge. I also identified new insights that were derived from this study.

5.3 CONCLUSIONS

In this section, I draw conclusions based on the study I have completed. I present my conclusions by first addressing the secondary research questions formulated in Chapter 1, and then by attending to the primary research question that guided the study.

5.3.1 SECONDARY RESEARCH QUESTION 1

What are the food consumption practices of families in this community?

In line with current trends indicated by existing literature, this study indicates that the community members of the participating resource-constrained community obtain most of the food they consume from shops and vendors in the community, or in the form of donations from churches, employers, local organisations, government organisations, teachers in the community, and neighbours. Some of the community members source food from the local dumping site, while others (however limited in number) purchase food from larger community-based vegetable garden initiatives. The fact that home-based vegetable gardening or small-scale livestock farming was not commonly practiced at the time of data generation makes one wonder whether community members realise the potential that vegetable gardens hold, specifically in communities faced with extreme levels of poverty.

By synthesising the findings obtained in this study, it becomes clear that community members choose and consume meals that are monotonous in nature and which offer little variety. They also consume a large

amount of refined food. Hence, it can be concluded that the food consumption practices of this community are significantly affected by poverty and the lack of resources, and that this in turn affects the quality and quantity of the food they choose, produce and consume.

Based on the findings I obtained during the research process, I assert that current food consumption practices in this particular community do not comply with national guidelines, which implies that community members will not be able either to achieve or maintain optimal health. Furthermore, I conclude that the current food consumption practices of the community are closely aligned with international trends in terms of the food consumption practices of families in middle-income countries, specifically those who find themselves in resource-constrained settings. It follows that the current food consumption practices can neither be regarded as effective nor as sustainable in terms of longevity and health. It can furthermore be argued that this is partially due to the fact that potential resources and healthy alternatives for food production are not optimally exploited within this community. Against the background of the conceptual framework discussed in Chapter 2, these conclusions imply that policies or guidelines on national level (or the macro-level) have not impacted in any meaningful way on the food consumption practices of the community, and that some form of intervention may be useful. Intervention can serve as a mediating factor to bridge the gap that exists between the macro- and micro-levels in this community.

In spite of the progress that has been made in South Africa toward achieving the MDGs, many of the families from this community can still be said to live in food-insecure environments. Current literature proposes that poor nutrition as a result of food insecurity will also have a negative impact on progress toward achieving other, related MDGs. For example, poor nutrition and unhealthy food consumption practices can impact negatively on learners' abilities to concentrate at school, thus preventing them from benefiting optimally from the education they receive. This, in turn, may lead to their poor academic results, and consequently the levels of illiteracy and unemployment in the community cannot be reduced. In the same way, parents' poor food consumption may, for example, impact on their work performance, thereby hindering their progress and preventing their escape from the stranglehold of poverty. This may result in a 'vicious cycle' of poverty and consequently in poor food consumption practices, 'trapping' community members in their current circumstances indefinitely.

5.3.2 SECONDARY RESEARCH QUESTION 2

Which factors determine food consumption practices for this particular community?

The food consumption practices of the members of this particular community are affected by various factors, with poverty and limited financial resources forming the foundation upon which all their dietary decisions are predicated. The findings indicate that comparative prices largely determine where members of this

community choose to obtain their food, as well as influencing the manner in which they prepare and produce food. Community members have also been seen to explore various possible avenues for obtaining food without paying for it, such as relying on donations, or searching for edible food at the local dumping site. Their food sources and choices are dictated by the levels of poverty that they experience at any particular time.

In addition to financial dire straits, time constraints result in working members of the community displaying unhealthy food consumption behaviour, such as the purchase of fast foods instead of home preparation. In a similar vein, when home preparation does occur, members of the community tend to either boil or fry their food, using excessive salt and thus preparing food that does not support general health. Community members seem to require additional knowledge and skills pertaining to healthier food preparation alternatives. To this end, I suggest that if community members were to gain knowledge in terms of food preparation options and the implications of specific food choices, they would be more likely to consider alternatives fast foods or similar products that do not support health.

Even though certain cooking methods and the use of salt may be related to traditional norms or habitual practices, I posit that the trend towards westernisation, which is visible in this community, may also impact on food choices and food preparation practices. I contemplate the possibility that the tendency to consume fast foods rather than food prepared at home in itself may be linked to the adoption of westernised habits. Hence, the combination of time constraints and western influences explains the high levels of fast food consumption in the community. The findings of this study therefore indicate that members of this community choose their food and food sources according to the criteria of affordability, availability, convenience, western influences, as well as their existing knowledge and skills.

In interpreting these findings against the background of the selected conceptual framework (see Chapter 2), I put forward that the factors affecting food consumption practices in this community are the result of the macrosystems within which the community functions. I therefore conclude that food-related practices in such communities can be regarded as the product of socio-economic status, access to food, social challenges such as unemployment and poverty, heritage, and existing culture, all set against the backdrop of the political climate and agenda of the country in question. I propose that, of these factors, socio-economic status and unemployment, which result in situations where people simply do not have the financial means to make ends meet, are the greatest contributing factors.

Situating this idea in the conceptual framework of the study confirms that socio-economic status will furthermore both directly and indirectly impact on the knowledge and skills of community members, as they cannot afford quality education. I propose that, as a result of their limited resources, knowledge and skills,

such community members may find themselves 'stuck', feeling unable to overcome the challenges they face and the potential negative implications of their current food consumption practices. I can therefore conclude that community members in resource-constrained contexts will benefit from some form of intervention or change, in support of improved food consumption behaviour and nutrition-related practices.

5.3.3 SECONDARY RESEARCH QUESTION 3

What are teachers' views on the guidance, skills, and/or information that parents in this community may benefit from in terms of food consumption practices?

The findings of this study indicate a clear need for some form of education pertaining to community members' food consumption practices. Participating teachers mentioned various practices for which community members lacked the specific knowledge, skills and resources necessary to provide their families with more nutritious meals. Broadly, this included guidance and training with regard to food selection, preparation, preservation and production.

Teachers identified the subjects of healthy eating and a balanced diet as important areas for intervention. The question arises as to whether parents in this community are aware of the national Food-based Dietary Guidelines, as discussed in Chapter 2 (section 2.4.1). I propose that these guidelines should be made available to the members of this community and that this should be done via a medium that is user friendly and in a manner that is easy to understand. Perhaps involving teachers in such an initiative would be helpful.

The findings of the study also indicate that the community's teachers believe their community members are in need of guidance and information regarding food preparation and preservation practices, more specifically in terms of different methods of preparing food, menu ideas supporting a variety of ingredients and cooking methods, hygienic practices, the moderate use of salt, methods for preserving food, and how to decipher/interpret food labels. Based on these needs, I can conclude that members of this community require guidance similar to that which is required by members of other resource-constrained communities, as noted in related studies. Questions come to mind regarding the potential health implications implied by these areas in which members lack knowledge, such as the likelihood of food poisoning due to contamination, and various long-term health risks such as cardiovascular disease. I therefore suggest that guidance within these areas may have the secondary positive outcome of preventing unnecessary medical problems, thereby assisting community members to live longer, healthier lives.

With regard to the production of food, this community's needs align with those of other resource-constrained communities, in terms of the possibilities for vegetable and livestock farming. From this, I can conclude that the resource constraints experienced in this community impact both directly and indirectly on the community's

ability to provide food for its members. In this regard I propose a practical and educational intervention similar to the interventions mentioned in existing literature, specifically with regard to producing food for household/subsistence purposes.

Teachers believe that practical workshops and information sessions could serve as an effective platform for providing the type of guidance described in the paragraphs above. It was further found that teachers themselves may be able to fulfil a facilitating role in these workshops. I therefore conclude that community-based workshops will be an effective tool for conveying information on food consumption practices to parents in this community, and I propose that teachers be trained and involved as facilitators or co-facilitators of such workshops. Furthermore, I posit this strategy as a means of facilitating change at the various micro-levels (in schools and households, involving teachers, learners and parents), by initiating interaction among all stakeholders. I propose that this, in turn, may bring about change not only within the microsystems, but also on the meso-level (e.g. the relationships and interactions between parents and the school may bring about new initiatives for further interventions within the community itself) and potentially the exo-level (e.g. learners' knowledge and their behaviours acquired at school will be modelled at home, which may bring about change in the behaviour of parents) and macro-level (e.g. improved food consumption behaviour may inspire other interventions or even inform future policies related to food and nutrition).

5.3.4 SECONDARY RESEARCH QUESTION 4

What kind of information may potentially be included in the different subjects for Grades 4 to 6, with the aim of transferring knowledge and skills to the community in the Bronkhorstspruit area in terms of food consumption behaviour?

Teachers' responses reflected their experience with the Intermediate Phase curriculum. The findings of this study indicate all learning areas, but specifically Life Skills, Natural Sciences and Technology, as suitable for being enriched with information on consumer behaviour and food-related practices.

Teachers at the participating schools seemed open to and positive about the enrichment of the current curriculum. They identified a few key topics that could potentially be included in the Grades 4 to 6 curricula. These topics were food production, which involves information related to vegetable gardening and livestock farming; healthy food choices, with the focus on a balanced diet; and food preparation, which includes the provision of menus, alternative cooking methods and the reduced use of seasonings such as salt. Hygienic practices with regard to food preparation, as well as the preservation of food, were also considered to be worthwhile topics for inclusion in the current curriculum.

From the suggestions above, it can be seen that many of the topics identified for inclusion already form part of the existing curricula for the different subjects. Other topics suggested for inclusion were similar to the topics identified as areas in which parents needed additional guidance, skills and/or information. Thus, it is my conclusion that the teachers, whether knowingly or unknowingly, link what they teach the learners in their classrooms to the knowledge and skills required by the community as a whole. This suggests that what teachers teach in the classroom should somehow be transferred to the rest of the community. In line with my conceptual framework, ripples or changes in the classroom microsystem will therefore impact on other systems. I propose that changes in the classroom will lead to changes in other microsystems, such as teachers' households and the households of the learners. This may even result in changes to the manner in which parents and learners accept or reject food consumption suggestions originating from within the macrosystem (e.g. traditional cultural practices or western influences related to food consumption). Before accepting or rejecting what the macrosystem encourages, parents and learners in this community will be more likely to compare and test food consumption suggestions, due to their newly acquired knowledge and skills.

Based on these findings and on existing literature, it is therefore my conclusion that this community may benefit in many ways from interventions with learners (enriched curricula) and/or community members (information sessions/workshops). I argue that benefits such as increased knowledge, improved dietary intake and physical activity, as well as improved nutritional status, may be the result of such interventions, and that these interventions can potentially in turn impact on various other systems within this community.

5.3.5 PRIMARY RESEARCH QUESTION

What are the perceptions of Intermediate Phase teachers regarding the food consumption practices and nutrition-related needs of this resource-constrained community?

In an attempt to answer my primary question, I refer to the secondary questions as summarised above. The answers to the secondary research questions were derived from the participating teachers' perceptions regarding their community. As can clearly be seen in the findings, teachers perceived this community as one that is significantly affected by various factors in the different ecosystems (mainly the macrosystem and exosystem), namely poverty, unemployment, westernisation and cultural beliefs and practices. In can furthermore be concluded that teachers perceive the community's current practices and needs as arising due to these factors. It can be said that, based on teachers' perceptions, these factors in the macrosystem and exosystem directly and indirectly perpetuate a lack of resources, limited knowledge and misconceptions about food consumption. This determines what community members eat, as well as where they source their food and how they prepare their meals.

Closely related to teachers' perceptions that the current food consumption practices of the community are not healthy, a further conclusion can be put forward, namely that teachers are of the view that the community will benefit from additional training and education on various levels pertaining to food consumption practices and nutrition-related needs. I propose that teachers perceive parents as suitable candidates for an intervention focusing on information sharing and skill transfer in the areas that have been identified. I furthermore posit that teachers view parents as partners who would benefit from the provision of equipment and other basic resources required for healthy food production, preparation and storage.

Finally, based on the teachers' optimism regarding the prospects of future interventions, I suggest that the teachers of this community realise that changes within the microsystems of the school and of households will lead to improvements, both internally and in other microsystems (such as other families in the community), thus effecting change on a meso-level. This links with the conceptual framework that guided the study, indicating that an event bringing about change in one system will cause a ripple effect in other systems. As such, I propose that, even though this community is perceived to be negatively affected by factors in their macrosystem, changes in their microsystems may effect positive change and give rise to a healthier community.

5.4 POSSIBLE CONTRIBUTIONS OF THIS STUDY

In this section I discuss the possible avenues through which my study may contribute to the existing body of knowledge. I also identify potential contributions in terms of future research and corrective action within this specific community.

5.4.1 THEORETICAL CONTRIBUTION

This study contributes to the existing and growing body of knowledge on consumer behaviour, food-related decisions, the content of school-based nutritional interventions, and teachers' perceptions of the communities in which they teach. It provides specific insight with regard to the aforementioned topics within a resource-constrained setting in the South African context, which is an area of concern requiring ongoing research. In terms of potential sources of food, the study adds local dumping sites and donations by employers to the repertoire of possibilities, indicating poverty as possible grounds for resorting to these measures. Similarly, in terms of food consumption patterns, the findings highlight the importance for poverty-stricken people in resource-constrained communities to consume all available food, in the form of leftovers of their own previous meals or those of their employers.

The study provides a detailed description of the typical daily diet within a resource-constrained community in South Africa, and the reasons for certain food-related behaviours in such communities, in terms of food choice, food production and food preparation. Furthermore, this study provides insight into the views of teachers, regarding information that could be included in school-based interventions. Finally, the study adds to the knowledge base regarding teachers' perceptions of the food consumption and nutrition-related needs of the learners in their schools and of their communities, which is an area of knowledge that has not been explored extensively to date. Against the background of the conceptual framework of the study, a contribution is made to existing literature on food decision-making practices in resource-constrained communities, and to understanding how families and potentially schools can influence food consumption behaviour within their systems, and vice versa.

5.4.2 PRACTICAL CONTRIBUTION

Although not a specific aim of this study, the workshops that were held may have brought about the teachers' heightened awareness of the current status of their community. Informal discussions with teachers have led me to believe that some teachers were inspired by the workshops to take action in support of parents in the community, so as to better equip them to make healthy and informed decisions when purchasing, producing or consuming food. This intention aligns with the underlying philosophy of action research, namely to set in motion reflection and some form of action, or ideas for action, among participants.

Within the broader research project, the findings of this study informed the development of the Win-LIFE health-promoting intervention[14], which was subsequently implemented in the three participating schools, with Intermediate Phase learners. The findings of the study could also inform follow-up studies within the broader project as well as related community-based interventions in future.

For other professionals involved in community-based interventions or community work, such as psychologists, counsellors and social workers, an enhanced understanding of the consumer behaviour and nutrition-related needs in resource-constrained communities can inform the manner in which they view and approach working with such communities, enabling them to apply their specialised knowledge and skills in a manner that is suitable in the South African context.

[14] This intervention forms part of Mrs. Karien Botha's PhD study entitled "Development and implementation of a school-based health promotion intervention", which aims to explore how interdisciplinary community coalitions, within the framework of Participatory Reflection and Action (PRA), might create a platform for and inform the development and implementation of health promotion interventions.

5.5 CHALLENGES AND POSSIBLE LIMITATIONS OF THE STUDY

In this section, I highlight the challenges I experienced and the limitations I identified for this study. These include challenges related to transferability, teachers as a data generation source, cultural and linguistic differences, positioning this study within the broader research project, and my role as researcher.

5.5.1 TRANSFERABILITY OF THE FINDINGS

Due to the qualitative nature of this study, research was conducted in a specific type of school in a specific type of setting, focused on a specific learning area. This inevitably limited the generalisability and transferability of the findings. However, as mentioned previously, the purpose of this research was to attain a deep understanding of the food consumption practices and nutrition-related needs of this particular community, and not to generalise the findings to other communities. As this study was informed by an interpretivist paradigm, I was fully aware of the lack of generalisablity regarding any findings. Nonetheless, by providing detailed descriptions of research methods and the participants' responses, I aim to enhance the possibility of some form of transferability to related future studies. It is left to the reader to decide on the potential transferability of the findings to other contexts, based on the similarity between such contexts.

5.5.2 TEACHERS AS SOURCES FOR DATA GENERATION

When the participants of this study were identified, the assumption was made that the teachers would be knowledgeable with regard to the behaviour and needs of their particular community. Some of the teachers, however, did not in actual fact live within the community under discussion, which may have affected the results of the study. However, by conducting workshops at three different schools, and through informal debriefing sessions with fellow researchers who interviewed parents from the community, teacher participant responses could be triangulated and compared with those of the parent participants, in order to minimise this potential limitation.

5.5.3 CULTURAL AND LINGUISTIC DIFFERENCES BETWEEN PARTICIPANTS AND THE RESEARCH TEAM

Working with teachers from a different cultural background, and whose first language is different from my own, posed another possible limitation. Teacher responses may thus have been interpreted inaccurately due to language barriers and cultural differences. Again, by means of conducting more than one workshop, teacher responses could be compared in order to search for similar themes. Furthermore, follow-up member-checking sessions with the teachers allowed for the findings to be 'checked' by participants, affording both the researcher and the participants the opportunity to ensure that the understanding of all contributions was accurate.

5.5.4 MAINTAINING FOCUS WITHIN THE BROADER RESEARCH PROJECT

This study, as part of a broader research project, considered a particular area of interest in order to inform related studies and the development of the Win-LIFE intervention. As a result, I often found it hard to focus only on the questions and aims that applied to this study, as I was aware of the broader purpose and scope of the project. I often needed to remind myself that my research was to serve merely a baseline study and that the aim was not directly focused on intervention, but rather on gaining a deeper understanding of the pre-intervention perceptions of teachers regarding the practices prevalent in their community. I was thus challenged to keep my focus and strive for objectivity as a researcher, as this could potentially have been influenced by my knowledge of the broader goals of the project. Implementing reflexivity by means of a reflective journal, as well as conducting debriefing sessions with my supervisors and co-researchers, assisted me in remaining as objective as possible throughout the study. In addition, my constant awareness of this challenge and potential limitation assisted me minimising the potential effects thereof.

5.5.5 ROLE AS RESEARCHER

As this study forms part of my training as an educational psychologist, I had to remain mindful of what my role as a researcher entailed throughout the research process. As a student of educational psychology, I have been trained in various fields, one of which is community-based intervention. I often found myself thinking of ways in which I could work with the community members and teachers to solve problematic situations that I was made aware of during the study. I had a few informal conversations with participants, during which we discussed plans and ideas for interventions, but, as intervention and resolving the community's problems were not the aims of this study, I had to refrain from further pursuit of this goal. To this end, I practised reflexivity and debriefed with my supervisors, which helped me to remain focused on my role in this particular process.

5.6 RECOMMENDATIONS

In this section I provide recommendations for training, practice and future research.

5.6.1 RECOMMENDATIONS FOR FUTURE TRAINING

This study may serve as a background when training students in the relevant professions (e.g. social workers, educational psychologists and counsellors): current training in these professions does include training for community-based interventions, which may be enriched with the findings of this study, due to the context of vulnerability in which the research was undertaken. As such, the study offers insight into the situations in

which many South Africans find themselves, thereby providing locally relevant information to practitioners working in resource-constrained communities.

Teachers' perceptions captured in this study could be incorporated in teacher training programmes, in order to facilitate a better understanding among future teachers, of the conditions in which learners in many South African schools are expected to function on a daily basis. The findings of the study provide valuable information for inclusion in the current school curriculum, in order to support health-promoting food consumption and behaviour among learners, and potentially in their communities as well. To this end, I also recommend that teacher training programmes should include one or more modules wherein students explore methods through which the current curriculum can be adapted and enriched in order to address real-life problems and practical issues pertaining to the communities in which they teach.

The participating teachers were able to identify topics that could be included in the curriculum, with regard to food consumption and nutrition-related behaviour, which could potentially facilitate positive change in the community. Furthermore, teachers were able to identify areas in which community members could gain knowledge and skills, and indicated a willingness to assist during parent information sessions. If teachers-in-training are shown how best to collaborate with and support parents in terms of their needs, relevant to their specific context, they could implement programmes to address the needs of parents in the schools where they teach. Training in PRA methodology may add further value, as this provides a valuable platform to obtain information in community settings, with the possibility of eventually facilitating change.

5.6.2 RECOMMENDATIONS FOR PRACTICE

I recommend that the findings of this study be practically applied in the community where the study was undertaken. Even though the developed Win-LIFE intervention focused on enriching the Grades 4 to 6 Life Skills, Natural Sciences and Technology curricula, I suggest that the findings should be taken a step further, by arranging information sessions or workshops for parents of the community. Such sessions could involve the teachers of the schools, who may participate by presenting guidelines and practical skills in areas such as vegetable gardening, livestock farming, nutritious food choices and healthy food preparation.

The findings of the study should also be conveyed to teachers in this and similar communities, whether in a formal or informal way. In-service training is another possibility, with the purpose of encouraging teachers to incorporate practical information in their lessons, on topics they perceive as relevant and worthwhile for learners and parents in the community.

5.6.3 RECOMMENDATIONS FOR FUTURE RESEARCH

Based on the findings of this study, I suggest the following avenues for possible future studies:

- Follow-up studies focusing on the consumption of fast foods instead of home-cooked meals in resource-constrained communities.
- A case study focusing on milk consumption (or the lack thereof) in resource-constrained communities, and the reasons for consumer behaviour in this regard.
- A participatory study on learners' perceptions of school feeding schemes in terms of the benefits, and their opinions regarding the taste and acceptability of the food served as part of such school feeding schemes.
- A follow-up case study focusing on food donations and the reliance on leftover food in this community, whether these leftovers originate from the households of community members themselves or those of their employers, and how this impacts on the food choices and consumer behaviour of the community.
- A follow-up explanatory study on dumping sites as food sources in resource-constrained communities in South Africa.
- A participatory study on the potential value of livestock farming and home-based vegetable gardens in resource-constrained communities, and the entrepreneurial possibilities of such activities.
- A secondary comparative study to juxtapose the findings of this study with the parallel study that explored parents' perceptions, in order to explore and assess teachers as sources of information pertaining to the communities in which they teach.
- Follow-up case studies to further explore the factors that affect the food choices of individuals from resource-constrained communities.

5.7 CONCLUDING REMARKS

In this study, I aimed to explore and describe teachers' perceptions of the food consumption practices and nutrition-related needs of a resource-constrained community in the Bronkhorstpruit area in Gauteng. The findings of the study highlighted the perception that community members have specific needs with regard to the production, preparation and preservation of food. Food decisions made by community members are affected by various factors, as highlighted by the FDF (Gillespie & Smith, 2008), with economic factors and poverty being most significant.

Teachers' perceptions confirm that the community's food consumption behaviour is not sufficient in terms of food choices or variety, often due to a lack of sufficient resources and limited financial means. Teachers acknowledged the potential value of enriching the current school curriculum as a possible method for communicating nutritional information to learners. Although their ideas were affected by the current school curriculum and not necessarily by their own creativity and ideas, the participating teachers succeeded in identifying several meaningful ways in which the different subject areas can potentially be used to educate and uplift learners, and through them, the community as a whole.

---oOo---

Bibliography

African Development Bank. (2013). *Assessing Progress in Africa toward the Millennium Development Goals. MDG Report 2013. Food Security in Africa: Issues, Challenges and Lessons*.

Aliber, M. (2003). Chronic poverty in South Africa: Incidence, causes and policies. *World Development*, *31*(3), 473–490. doi:10.1016/S0305-750X(02)00219-X

Altman, M., Hart, T. & Jacobs, P. (2009). Household food security status in South Africa. *Agrekon*, *48*(4), 345–361.

Ardington, C., Case, A. & Hosegood, V. (2009). Labor supply responses to large social transfers: Longitudinal evidence from South Africa. *Journal of Applied Economics*, *1*(1), 22–48. doi:10.1257/app.1.1.22.Labor

Baiphethi, M. N. & Jacobs, P. T. (2009). The contribution of subsistence farming to food security in South Africa. *Agrekon*, *48*(4), 459–482. doi:10.1080/03031853.2009 .9523836

Beddington, J., Asaduzzaman, M., Fernandez, A., Clark, M., Guillou, M., Jahn, M., … Wakhungu, J. (2011). *Achieving food security in the face of climate change: Summary for policy makers from the Commission on Sustainable Agriculture and Climate Change.* Retrieved from www.ccafs.cgiar.org/commission

Bertram, M. Y., Steyn, K., Wentzel-Viljoen, E., Tollman, S. & Hofman, K. J. (2012). Reducing the sodium content of high-salt foods: Effect on cardiovascular disease in South Africa. *South African Medical Journal*, *102*(9), 743–745. doi:10.7196/SAMJ.5832

Bless, C., Higson Smith, C. & Sithole, S. L. (2013). *Fundamentals of Social Research Metods. An African Perspective.* (5th ed.). Cape Town: Juta.

Boemmel, B. J. & Briscoe, J. (2001). Web Quest Project: Theory Fact Sheet of Urie Bronfenbrenner. Retrieved from http://0-olms1.cte.jhu.edu.innopac.up.ac.za/olms/ data/resource/3767/Web Quest Project Theory Fact Sheet of Urie Bronfenbrenner .pdf

Bourne, L. T., Lambert, E. V & Steyn, K. (2002). Where does the black population of South Africa stand on the nutrition transition? *Public Health Nutrition*, *5*(1A), 157–62. doi:10.1079/PHN2001288

Bradshaw, D. & Steyn, K. (2001). *Poverty and Chronic Diseases in South Africa*.

Branson, N., Hofmeyr, C. & Lam, D. (2013). *Progress through school and the determinants of school dropout in South Africa* (No. 100). Cape Town.

Braun, V. & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77–101.

Brew-Hammond, A. (2010). Energy access in Africa: Challenges ahead. *Energy Policy*, *38*(5), 2291–2301. doi:10.1016/j.enpol.2009.12.016

Bronfenbrenner, U. (2005). The Bioecological Theory of Human Development. In U. Bronfenbrenner (Ed.), *Making Human Beings Human. Bioecological Perspectives on Human development* (pp. 3–15). Thousand Oaks: SAGE.

Brown, T. & Summerbell, C. (2009). Systematic review of school-based interventions that focus on changing dietary intake and physical activity levels to prevent childhood obesity: An update to the obesity guidance produced by the National Institute for Health and Clinical Excellence. *Obesity Reviews*, *10*(1), 110–141. doi:10.1111/j.1467-789X.2008.00515.x

Bue, M. C. L. (2013). Are there synergies between MDGs? *KFW-Development Research*, (3).

Buetow, S. (2010). Thematic analysis and its reconceptualisation as “saliency analysis”. *Journal of Health Services Research & Policy*, *15*(2), 123–125.

Burchi, F., Fanzo, J. & Frison, E. (2011). The role of food and nutrition system approaches in tackling hidden hunger. *International Journal of Environmental Research and Public Health*, *8*(2), 358–373. doi:10.3390/ijerph8020358

Caballero, B., Clay, T., Davis, S. M., Ethelbah, B., Rock, B. H., Lohman, T., … Stevens, J. (2003). Pathways: a school-based, randomized controlled trial for the prevention of obesity in American Indian schoolchildren. *Americal Journal of Clinical Nutrition*, *78*, 1030–1038.

Campbell, K. J., Abbott, G., Spence, A. C., Crawford, D. A., McNaughton, S. A. & Ball, K. (2013). Home food availability mediates associations between mothers’ nutrition knowledge and child diet. *Appetite*, *71*, 1–6. doi:10.1016/j.appet.2013.07.006

Caprio, S., Daniels, S. R., Drewnowski, A., Kaufman, F. R., Palinkas, L. a, Rosenbloom, A. L. & Schwimmer, J. B. (2008). Influence of race, ethnicity, and culture on childhood obesity: Implications for prevention and treatment. A consensus statement of Shaping America’s Health and the Obesity Society. *Diabetes Care*, *31*(11), 2211–2221. doi:10.2337/dc08-9024

Carlson, J. A. (2010). Avoiding Traps in Member Checking. *The Qualitative Report*, *15*(5), 1102–1113.

Chambers, R. (1994). Participatory Rural Appraisal (PRA): Challenges, potentials and paradigm. *World Development*, *22*(10), 1437–1454.

Chambers, R. (2002a). *Participatory Workshops: A Sourcebook of 21 Sets of Ideas and Activities*. New York: Earthscan.

Chambers, R. (2002b). *Relaxed and Participatory Appraisal: Notes on practical approaches and methods for participants in PRA/PLA-related familiarisation workshops*. Brighton.

Chambers, R. (2007). *From PRA to PLA and pluralism. Practice and theory* (No. 2007-286). Brighton.

Chambers, R. (2008a). PRA, PLA and Pluralism: Practice and theory. In P. Reason & H. Bradbury (Eds.), *The SAGE Handbook of Action Research* (2nd ed., pp. 297–318). London: SAGE.

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

Chambers, R. (2012). Sharing and co-generating Knowledges: Reflections on experiences with PRA 1 and CLTS 2. *IDS Bulletin*, *43*(3), 71–87.

Charlton, K. E., Steyn, K., Levitt, N. S., Zulu, J. V., Jonathan, D., Veldman, F. J. & Nel, J. H. (2005). Diet and blood pressure in South Africa: Intake of foods containing sodium, potassium, calcium, and magnesium in three ethnic groups. *Nutrition*, *21*(1), 39–50. doi:10.1016/j.nut.2004.09.007

Chaskin, R. J. (2001). Building Community Capacity: A Definitional Framework and Case Studies from a Comprehensive Community Initiative. *Urban Affairs Review*, *36*(3), 291–323.

Chesebro, J. W. & Borisoff, D. J. (2007). What Makes Qualitative Research Qualitative? *Qualitative Research Reports in Communication*, *8*(1), 3–14. doi:10.1080/17459430701617846

Clark, L. & Zimmer, L. (2001). What we learned from a photographic component in a study of Latino children's health. *Field Mehtods*, *13*(4), 303–328.

Clarke, V. & Braun, V. (2013). Teaching thematic analysis: Overcoming challenges and developing strategies for effective learning. *The Psychologist*, *26*(2), 120–123.

Coovadia, H., Jewkes, R., Barron, P., Sanders, D. & Mcintyre, D. (2009). The Health and health system of South Africa: historical roots of current public health challenges. *The Lancet*, *374*(9692), 817–834. doi:10.1016/S0140-6736(09)60951-X

Cornwall, A. & Pratt, G. (2010). The use and abuse of participatory rural appraisal: Reflections from practice. *Journal of the Agriculture, Food, and Human Values Society*.

Cortina, M. A., Kahn, K., Fazel, M., Hlungwani, T., Tollman, S., Bhana, A., … Stein, A. (2008). School-based interventions can play a critical role in enhancing children's development and health in the developing world. *Child: Care, Health and Development*, *34*(1), 1–3. doi:10.1111/j.1365-2214.2007.00820.x

Creswell, J. W. (2013). *Qualitative inquiry and research choosing among five approaches* (3rd ed.). Thousand Oaks: SAGE.

Creswell, J. W. & Miller, D. L. (2000). Determining Validity in Qualitative Inquiry. *Theory into Practice*, *39*(3), 124–130.

Crowe, M., O'Malley, J. & Gordon, S. (2001). Meeting the needs of consumers in the community: a working partnership in mental health in New Zealand. *Journal of Advanced Nursing*, *35*(1), 88–96.

Darmon, N. & Drewnowski, A. (2008). Does social class predict diet quality? *The American Journal of Clinical Nutrition*, *87*(5), 1107–1117.

De Villiers, A., Steyn, N. P., Draper, C. E., Fourie, J. M., Barkhuizen, G., Lombard, C. J., … Lambert, E. V. (2012). "HealthKick": Formative assessment of the health environment in low-resource primary schools in the Western Cape Province of South Africa. *BMC Public Health*, *12*, 794–804. doi:10.1186/1471-2458-12-794

Denzin, N. K. & Lincoln, Y. (2005). Introduction: The discipline and practice of qualitative research. In N. . Denzin & Y. S. Lincoln (Eds.), *The SAGE Handbook of Qualitative Research* (3rd ed., pp. 1–42). SAGE.

Department of Agriculture. (2002). *The Integrated Food Security Strategy for South Africa*. Pretoria. Retrieved from http://www.nda.agric.za/doaDev/sideMenu/food Security/policies.pdf

Department of Basic Education. (2010). *The best of the National School Nutrition Programme*.

Department of Basic Education. (2011a). *Curriculum and Assessment Policy Statement. Grade 4-6. Life Skills*.

Department of Basic Education. (2011b). *Curriculum and Assessment Policy Statement. Grades 4-6. English First Additional Language*.

Department of Basic Education. (2011c). *Curriculum and Assessment Policy Statement. Grades 4-6. Natural Sciences and Technology*.

Department of Basic Education. (2011d). *Curriculum and Assessment Policy Statement. Grades 4-6. Social Sciences*. doi:10.1787/9789264030206-4-en

Department of Basic Education. (2013). National School Nutrtition Programme: Questions and Answers. Retrieved from http://0-www.education.gov.za.innopac.up.ac.za/LinkClick.aspx?fileticket=n5bttPdXC04=&tabid=440&mid=1911

Department of Basic Education & Department of Health. (2012). *Integrated School Health Policy*. Retrieved from http://www.education.gov.za/LinkClick.aspx?fileticket =x7XUJxMcfvs=&tabid=870&mid=2453

Department of Education. Norms and Standards for Educators (2000). National Education Policy Act, 1996.

Department of Education. (2009). *National School Nutrition Programme: A Guide for Secondary Schools*. Retrieved from http://0-www.education.gov.za.innopac.up.ac.za/LinkClick.aspx?fileticket=AzMOJpmC/dE=&tabid=131&mid=427

Department of Higher Education and Training. (2010). *Draft Policy on the minimum requirements for teacher education qualifications selected from the Higher Education Qualifications Framework (HEQF)*.

Department of Higher Education and Training. (2015). Revised policy on the minimum requirements for teacher education qualifications. *Government Gazette*. Retrieved from http://www.greengazette.co.za/pages/national-gazette-37230-of-17-january-2014-vol-583_20140117-GGN-37230-003

Donat Castelló, L., Gil-González, D., Alvarez-Dardet Diaz, C. & Hernández-Aguado, I. (2010). The Environmental Millennium Development Goal: progress and barriers to its achievement. *Environmental Science & Policy*, *13*(2), 154–163. doi:10.1016/j.envsci.2009.12.001

Donkor, E. S., Kayang, B. B., Quaye, J. & Akyeh, M. L. (2009). Application of the WHO keys of safer food to improve food handling practices of food vendors in a poor resource community in Ghana. *International Journal of Environmental Research and Public Health*, *6*(11), 2833–2842. doi:10.3390/ijerph6112833

Draper, C. E., De Villiers, A., Lambert, E. V., Fourie, J., Hill, J., Dalais, L., … Steyn, N. P. (2010). HealthKick : A nutrition and physical activity intervention for primary schools in low-income settings. *BMC Public Health*, *10*(398), 1–12.

Drewnowski, A. & Kawachi, I. (2015). Diets and Health: How Food Decisions Are Shaped by Biology, Economics, Geography, and Social Interactions. *Big Data*, *3*(3), 193–197. doi:10.1089/big.2015.0014

Drimie, S. & Casale, M. (2009). Multiple stressors in Southern Africa: The link between HIV/AIDS, food insecurity, poverty and children's vulnerability now and in the future. *AIDS Care*, *21 Suppl 1*(August), 28–33. doi:10.1080/09540120902942931

Du Plessis, L. M., Koornhof, H. E., Daniels, L. C., Sowden, M. & Adams, R. (2014). Health-promoting schools as a service learning platform for teaching health-promotion skills. *African Journal of Health Professions Education* *6*(1), 48–51. doi:10.7196/AJHPE.250

Du Toit, D. C., Lubbe, P. A., Ntushelo, V. & Ramonyai, M. D. (2011). *Food Security*. Retrieved from http://www.nda.agric.za/docs/genreports/foodsecurity.pdf

Eberlein, E. (2013). Bestuur van die Nasionale Skoolvoedingsprogram in hulpbronarm skole in Limpopo – praktyk, suksesse en uitdagings. *Suid-Afrikaanse Tydskrif Vir Natuurwetenskap En Tegnologie*, *32*(1), 1–9. doi:10.4102/satnt.v32i1.778

Ebersöhn, L., Eloff, I. & Ferreira, R. (2007). First steps in action research. In K. Maree (Ed.), *First Steps in Research* (pp. 123–143). Pretoria: van Schaik.

Elo, S., Kaariainen, M., Kanste, O., Polkki, T., Utriainen, K. & Kyngas, H. (2014). Qualitative Content Analysis: A Focus on Trustworthiness. *SAGE Open*, *4*, 1–10. doi:10.1177/2158244014522633

Evans, C. E. L., Christian, M. S., Cleghorn, C. L., Greenwood, D. C. & Cade, J. E. (2012). Systematic review and meta-analysis of school-based interventions to improve daily fruit and vegetable intake in children aged 5 to 12 y. *American Journal of Clinical Nutrition*, *96*(4), 889–901. doi:10.3945/ajcn.111.030270.Am

Ezzy, D. (2002). *Qualitative Analysis: Practice and Innovation*. New York: Routledge.

Faber, M., Jogessar, V. B. & Benadé, A. J. . (2001). Nutritional status and dietary intakes of children aged 2-5 years and their caregivers in a rural South African community. *International Journal of Food Sciences and Nutrition*, *52*(5), 401–411. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/11517732

Faber, M., Phungula, M., Venter, S., Dhansay, M. & Spinnler Benade, A. (2002). Home gardens focusing on the production of yellow and dark green leafy vegetables increase the serum retinol concentrations of 2-5-year-old children in South Africa. *Americal Journal of Clinical Nutrition*, *76*, 1048–1054.

Faber, M. & Wenhold, F. (2007). Nutrition in contemporary South Africa. *Water SA*, *33*(3), 393–400.

Faber, M., Witten, C. & Drimie, S. (2011). Community-based agricultural interventions in the context of food and nutrition security in South Africa. *South African Journal of Clinical Nutrition*, *24*(1), 21–30. Retrieved from http://www.scopus.com/inward/ record.url?eid=2-s2.0-79954491976&partnerID=tZOtx3y1

Fanzo, J. C. & Pronyk, P. M. (2011). A review of global progress toward the Millennium Development Goal 1 Hunger Target. *Food and Nutrition Bulletin*, *32*(2), 144–158.

Farquhar, S. A., Parker, E. A., Schulz, A. J. & Israel, B. A. (2006). Application of qualitative methods in program planning for health promotion interventions. *Health Promotion Practice*, *7*(2), 234–242. doi:10.1177/1524839905278915

Farrokhi, F. & Mahmoudi-Hamidabad, A. (2012). Rethinking Convenience Sampling: Defining Quality Criteria. *Theory and Practice in Language Studies*, *2*(4), 784–792. doi:10.4304/tpls.2.4.784-792

Feeley, A., Musenge, E., Pettifor, J. M. & Norris, S. a. (2012). Changes in dietary habits and eating practices in adolescents living in urban South Africa: The birth to twenty cohort. *Nutrition (Burbank, Los Angeles County, Calif.)*, *28*(7-8), E1–E6. doi:10.1016/j.nut.2011.11.025

Ferreira, R. (2006). *The relationship between coping with HIV & Aids and the asset-based approach.* University of Pretoria.

Ferreira, R. & Ebersöhn, L. (2012). *Partnering for Resilience*. Pretoria: van Schaik.

Financial and Fiscal Commission. (2011). Can South Africa Attain the Millennium Development Goals by 2015? Midrand: Financial and Fiscal Commission. Retrieved from http://www.google.co.za/url?sa=t&rct=j&q=&esrc=s&source=web& cd=6&ved=0CEUQFjAFahUKEwjliPTH-_rGAhXCCNsKHXuaA6U&url=http://www. ffc.co.za/index.php/docman-menu-item/policy-briefs/343-ffc-policy-briefs-09&ei=e_ W1VaXfA8KR7Ab7tl6oCg&usg=AFQjCNElyXFF849CiVRRTPVn

Foley, J. A. (2011). Can we feed the world & sustain the planet? *Scientific American*, *305*(5), 60–5. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/22125864

Foley, J. A., Ramankutty, N., Brauman, K. A., Cassidy, E. S., Gerber, J. S., Johnston, M., … Zaks, D. P. M. (2011). Solutions for a cultivated planet. *Nature*, *478*(7369), 337–42. doi:10.1038/nature10452

Forneris, T., Fries, E., Meyer, A., Buzzard, M., Uguy, S., Ramakrishnan, R., … Danish, S. (2010). Results of a rural school-based peer-led intervention for youth: goals for health. *The Journal of School Health*, *80*(2), 57–65. doi:10.1111/j.1746-1561.2009.00466.x

Forrest, L., Elman, N. S. & Shen Miller, D. S. (2008). Psychology trainees with competence problems: From individual to ecological conceptualizations. *Training and Education in Professional Psychology*, *2*(4), 183–192. doi:10.1037/1931-3918.2.4.183

Fotso, J., Ezeh, A. C., Madise, N. J. & Ciera, J. (2007). Progress towards the child mortality millennium development goal in urban sub-Saharan Africa: the dynamics of population growth, immunization, and access to clean water. *BMC Public Health*, *7*, 218. doi:10.1186/1471-2458-7-218

Galhena, D., Freed, R. & Maredia, K. M. (2013). Home gardens: a promising approach to enhance household food security and wellbeing. *Agriculture & Food Security*, *2*(1), 8. doi:10.1186/2048-7010-2-8

Gelsdorf, K. (2010). Global challenges and their impact on international humanitarian action. *Occasional Policy Briefing Series*.

Gillespie, A. H. & Smith, L. E. (2008). Food Decision-Making Framework: Connecting sustainable food systems to health and well-being. *Journal of Hunger & Environmental Nutrition*, *3*(2-3), 328–346. doi:10.1080/19320240802244363

Gillespie, A. M. H. & Johnson-Askew, W. L. (2009). Changing family food and eating practices: the family food decision-making system. *Annals of Behavioral Medicine*, *38*, 31–36. doi:10.1007/s12160-009-9122-7

Girard, A. W., Self, J. L., McAuliffe, C. & Olude, O. (2012). The effects of household food production strategies on the health and nutrition outcomes of women and young children: A systematic review. *Paediatric and Perinatal Epidemiology*, *26*(SUPPL. 1), 205–222. doi:10.1111/j.1365-3016.2012.01282.x

Godfray, H. C. J., Beddington, J. R., Crute, I. R., Haddad, L., Lawrence, D., Muir, J. F., … Toulmin, C. (2010). Food security: the challenge of feeding 9 billion people. *Sciencexpress*, *327*(5967), 812–8. doi:10.1126/science.1185383

Gortmaker, S. L., Cheung, L. W., Peterson, K. E., Chomitz, G., Cradle, J. H., Dart, H., … Laird, N. (1999). Impact of a school-based interdisciplinary intervention on diet and physical activity among urban

primary school children: eat well and keep moving. *Archives of Pediatrics & Adolescent Medicine*, *153*(9), 975–983. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/10482216

Govaerts, M. & Van der Vleuten, C. P. M. (2013). Validity in work-based assessment: expanding our horizons. *Medical Education 47*(12), 1164–1174. doi:10.1111/medu.12289

Green, C., Botha, P. & Schönfeldt, H. C. (2004). Needs assessment in a rural community on a commercial farm in South Africa. *Tydskrif Vir Gesinsekologie En Verbruikerswetenskappe*, *32*, 46–59.

Guest, G., MacQueen, K. . & Namey, E. . (2012). *Applied Thematic Analysis.* Thousand Oaks: SAGE.

Haese, M. D. Õ. & Huylenbroeck, G. Van. (2005). The rise of supermarkets and changing expenditure patterns of poor rural households case study in the Transkei area, South Africa. *Food Policy*, *30*, 97–113. doi:10.1016/j.foodpol.2005.01.001

Halcomb, E. J. & Davidson, P. M. (2006). Is verbatim transcription of interview data always necessary? *Applied Nursing Research*, *19*(1), 38–42. doi:10.1016/j.apnr.2005.06.001

Hammersley, M. & Traianou, A. (2012). Ethics and Educational Research. *Ethics and Educational Research, British Educational Research Association on-line resource*. Retrieved June 12, 2014, from http://www.bera.ac.uk/resources/ethics-and-educational-research

Hogan, M. C., Foreman, K. J., Naghavi, M., Ahn, S. Y., Wang, M., Makela, S. M., … Foundation, M. G. (2010). Maternal mortality for 181 countries, 1980–2008: a systematic analysis of progress towards Millennium Development Goal 5. *Lancet*, *6736*(10), 1–15. doi:10.1016/S0140-6736(10)60518-1

Hoogeveen, J. G. & Özler, B. (2005). *Not separate, not equal: Poverty and inequality in post-Apartheid South Africa*. *William Davidson Institute*. doi:10.1086/511191

Hotz, C. & Gibson, R. S. (2007). Traditional food-processing and preparation practices to enhance the bioavailability of micronutrients in plant-based diets. *The Journal of Nutrition*, *137*(4), 1097–1100.

Houser, R. (2009). *Counseling and educational research: evaluation and application* (2nd ed.). Los Angeles: SAGE.

Huberman, A. M. & Miles, M. B. (2002). *The qualitative researcher's companion*. Thousand Oaks: SAGE.

Jackson, R. L., Drummond, D. K. & Camara, S. (2007). What Is Qualitative Research? *Qualitative Research Reports in Communication*, *8*(1), 21–28. doi:10.1080/17459430701617879

James, E. A., Milenkiewicz, M. T. & Bucknam, A. (2008). *Participatory action research for educational leadership. Using data-driven decision making to improve schools.* Thousand Oaks: SAGE.

Janesick, V. J. (1999). A journal about journal writing as a qualitative research technique: History, issues, and reflections. *Qualitative Inquiry*, *5*(4), 505–524.

Jemmott, J. B., Jemmott, L. S., O'Leary, A., Ngwane, Z., Icard, L., Bellamy, S., … Makiwane, M. B. (2011). Cognitive-behavioural health-promotion intervention increases fruit and vegetable consumption and physical activity among South African adolescents: a cluster-randomised controlled trial. *Psychology & Health*, *26*(2), 167–185. Retrieved from http://0-www.tandfonline.com.innopac.up.ac.za/doi/full/10.1080/08870446.2011.531573

Joffe, H. & Yardley, L. (2004). *Research Methods for Clinical and Health Psychology*. (D. . Marks & L. Yardley, Eds.). London: SAGE.

Kalichman, S. C., Simbayi, L. C., Jooste, S., Cherry, C. & Cain, D. (2005). Poverty-related stressors and HIV/AIDS transmission risks in two South African communities. *Journal of Urban Health*, *82*(2), 237–249. doi:10.1093/jurban/jti048

Kamimura, A., Schneider, K., Lee, C. ., Crawford, D. & Friese, C. . (2013). Practice environments of nurses in ambulatory oncology settings: A thematic analysis. *Cancer Nursing*, *35*(1), E1–E7. doi:10.1097/NCC.0b013e31820b6efa.Practice

Kaschula, S. (2011). Using people to cope with the hunger: Social networks and food transfers amongst HIV/aids afflicted households in kwazulu-natal, South Africa. *AIDS and Behavior*, *15*(7), 1490–1502. doi:10.1007/s10461-011-0006-z

Kerber, K. J., Lawn, J. E., Johnson, L. F., Mahy, M., Dorrington, R. E., Phillips, H., … Jackson, D. (2013). South African child deaths 1990-2011: have HIV services reversed the trend enough to meet Millennium Development Goal 4? *AIDS (London, England)*, *27*(16), 2637–2648. doi:10.1097/01.aids.0000432987.53271.40

Kimani-murage, E. W., Kahn, K., Pettifor, J. M., Tollman, S. M., Dunger, D. B., Gómez-olivé, X. F. & Norris, S. A. (2010). The prevalence of stunting , overweight and obesity , and metabolic disease risk in rural South African children. *BMC Public Health*, *10*, 158–170.

Kortright, R. & Wakefield, S. (2011). Edible backyards: A qualitative study of household food growing and its contributions to food security. *Agriculture and Human Values*, *28*(1), 39–53. doi:10.1007/s10460-009-9254-1

Kruger, H. S., Puoane, T., Senekal, M. & van der Merwe, M.-T. (2007). Obesity in South Africa: Challenges for government and health professionals. *Public Health Nutrition*, *8*(05), 491–500. doi:10.1079/PHN2005785

Kruger, R., Kruger, H. S. & MacIntyre, U. E. (2006). The determinants of overweight and obesity among 10- to 15- year-old schoolchildren in the North West Province , South Africa – the THUSA BANA (Transition and Health during Urbanisation of South Africans; BANA, children) study. *Public Health Nutrition*, *9*(3), 351–358. doi:10.1079/PHN2005849

Labadarios, D., Mchiza, Z., Steyn, N. P., Gericke, G., Maunder, E., Davids, Y. & Parker, W. (2011). Food security in South Africa: A review of national surveys. *Bulletin of the World Health Organization*, *89*(12), 891–899. doi:10.2471/BLT.11.089243

Labadarios, D., Steyn, N., Maunder, E., MacIntryre, U., Gericke, G., Swart, R., … Nel, J. (2005). The National Food Consumption Survey (NFCS): South Africa, 1999. *Public Health Nutrition*, *8*(5), 533–543. doi:10.1079/PHN2005816

Landsberg, E., Kruger, D. & Swart, E. (2011). *Addressing barriers to learning: A South African perspective*. (E. Landsberg, D. Kruger & E. Swart, Eds.). Pretoria: van Schaik.

Larson, N. & Story, M. (2009). A review of environmental influences on food choices. *Annals of Behavioral Medicine: A Publication of the Society of Behavioral Medicine Publication of the Society of Behavioral Medicine*, *38 Suppl 1*, 56–73. doi:10.1007/s12160-009-9120-9

Lartey, A. (2008). Maternal and child nutrition in Sub-Saharan Africa: challenges and interventions. *The Proceedings of the Nutrition Society*, *67*(1), 105–108. doi:10.1017/S0029665108006083

Lincoln, Y. S. & Guba, E. G. (2007). But Is It Rigorous? Trustworthiness and Authenticity in Naturalistic Evaluation. *New Directions for Evaluation*, *114*, 15–25.

&Love, P., Maunder, E., Green, M., Ross, F., Smale-Lovely, J. & Charlton, K. (2001). South African food-based dietary guidelines: Testing of the preliminary guidelines among women in KwaZulu-Nutal and the Western Cape. *South African Journal of Clinical Nutrition*, *14*(1), 9–19. Retrieved from http://eprints.bournemouth.ac.uk/ 16685/1/licence.txt

Lozano, R., Wang, H., Foreman, K. J., Rajaratnam, J. K., Naghavi, M., Marcus, J. R., … Murray, C. J. L. (2011). Progress towards Millennium Development Goals 4 and 5 on maternal and child mortality: an updated systematic analysis. *Lancet*, *378*(9797), 1139–1165. doi:10.1016/S0140-6736(11)61337-8

Lynass, R., Pykhtina, O. & Cooper, M. (2012). A thematic analysis of young people's experience of counselling in five secondary schools in the UK. *Counselling and Psychotherapy Research*, *11*(1), 53–62. doi:10.1080/14733145.2011.580853

MacFarlane, A., Crawford, D., Ball, K., Savige, G. & Worsley, A. (2007). Adolescent home food environments and socioeconomic position. *Asia Pac J Clin Nutr*, *16*(4), 748–756.

MacIntyre, U. E., Kruger, H. S., Venter, C. S. & Vorster, H. H. (2002). Dietary intakes of an African population in different stages of transition in the North West Province, South Africa: The THUSA study. *Nutrition Research*, *22*(3), 239–256. doi:10.1016/S0271-5317(01)00392-X

Manios, Y., Moschandreas, J., Hatzis, C. & Kafatos, A. (1999). Evaluation of a health and nutrition education program in primary school children of Crete over a three-year period. *Preventive Medicine*, *28*(2), 149–159. doi:10.1006/pmed.1998.0388

Maree, K. & Pietersen, J. (2007). Sampling. In K. Maree (Ed.), *First Steps in Research* (pp. 171–181). Pretoria: van Schaik.

Maree, K. & Van der Westhuizen, C. (2007). Planning a research proposal. In K. Maree (Ed.), *First steps in research* (pp. 23–45). Pretoria: van Schaik.

Mareno, N. (2013). Parental perception of child weight: a concept analysis. *Journal of Advanced Nursing*, *70*(1), 34–45. doi:10.1111/jan.12143

Marshall, C. & Rossman, G. B. (2011). *Designing qualitative research* (5th ed.). Thousand Oaks: SAGE.

Marshall, M. N. (1996). Sampling for qualitative research. *Family Practice*, *13*(6), 522–525. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/9023528

Martins, J. H. (2005). The household food budget of the wealthy and the poor in South Africa. *Journal of Family Ecology and Consumer Sciences*, *33*, 37–45.

Masset, E., Haddad, L., Cornelius, A. & Isaza-Castro, J. (2012). Effectiveness of agricultural interventions that aim to improve nutritional status of children: systematic review. *BMJ*, *344*(January), 1–7. doi:10.1136/bmj.d8222

Mayosi, B. M., Flisher, A. J., Lalloo, U. G., Sitas, F., Tollman, S. M. & Bradshaw, D. (2009). The burden of non-communicable diseases in South Africa. *Lancet*, *374*(9693), 934–947. doi:10.1016/S0140-6736(09)61087-4

McGarry, D. K. & Shackleton, C. M. (2009). Children navigating rural poverty: Rural children's use of wild resources to counteract food insecurity in the Eastern Cape, South Africa. *Journal of Children and Poverty*, *15*(1), 19–37. doi:10.1080/10796120802677594

McLure, R. D. (2002). Common data collection strategies effective in qualitative studies using action research in technical/operational training programs. Retrieved from http://evokedevelopment.com/uploads/blog/commonData.pdf

McMillan, J. & Schumacher, S. (2014). *Research in Education* (7th ed.). London: Pearson.

Melamed, B. C. & Scott, L. (2011). After 2015: Progress and challenges for development. Overseas Development Institute. Retrieved from http://www. odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/7061. pdf

Miller, T. & Bell, L. (2004). Consenting on what? Issues of access, gate-keeping and "informed" consent. Ethics in qualitative research. In M. Mauthner, M. Birch, J. Jessop & T. Miller (Eds.), *Ethics in qualitative research* (pp. 53–69). London: SAGE.

Mkhize, X., Napier, C. & Oldewage-Theron, W. (2013). The nutrition situation of free-living elderly in Umlazi township, South Africa. *Health SA Gesondheid*, *18*(1), 656–663. doi:10.4102/hsag.v18i1.656

Morapane, M. N. (2012). *Functionally illiterate consumers' food purchase behaviour in Botswana*. University of Pretoria.

Morgan, D. L. (1997). *Focus groups as qualitative research* (2nd ed.). California: SAGE.

Morgan, P. J., Warren, J. M., Lubans, D. R., Saunders, K. L., Quick, G. I. & Collins, C. E. (2010). The impact of nutrition education with and without a school garden on knowledge, vegetable intake and preferences and quality of school life among primary-school students. *Public Health Nutrition*, *13*(11), 1931–1940. doi:10.1017/ S1368980010000959

Morrow, S. L. (2005). Quality and trustworthiness in qualitative research in counseling psychology. *Journal of Counseling Psychology*, *52*(2), 250–260. doi:10.1037/0022-0167.52.2.250

Mouton, J. (2001). *How to Succeed in Your Master's & Doctoral Studies. A South African Guide and Resource Book.* Pretoria: van Schaik.

Mulhall, A. (2003). In the field: notes on observation in qualitative research. *Journal of Advanced Nursing*, *41*(3), 306–313. Retrieved from http://www.ncbi.nlm.nih.gov/ pubmed/12581118

Musotsi, A., Sigot, A. & Onyangao, M. (2008). The role of home gardening in household food security in Butere division of Western Kenya. *African Journal of Food, Agriculture, Nutrition and Development*, *8*(4), 451–463.

Naidoo, R. & Coopoo, Y. (2012). The impact of a primary school physical activity intervention in KwaZulu-Natal, South Africa. *African Journal for Physical, Health Education Recreation and Dance*, *18*(1), 75–85.

Ndiaye, K., Silk, K. J., Anderson, J., Horstman, H. K., Carpenter, A., Hurley, A. & Proulx, J. (2013). Using an ecological framework to understand parent-child Ccommunication about nutritional decision-making and behavior. *Journal of Applied Communication Research*, *41*(3), 253–274. doi:10.1080/00909882.2013.792434

Nieuwenhuis, J. (2007a). Introducing qualitative research. In K. Maree (Ed.), *First Steps in Research* (pp. 46–68). Pretoria: van Schaik.

Nieuwenhuis, J. (2007b). Qualitative research designs and data gathering techniques. In K. Maree (Ed.), *First Steps in Research* (pp. 69–97). Pretoria: van Schaik.

Oldewage-Theron, W. H., Dicks, E. G. & Napier, C. E. (2006). Poverty, household food insecurity and nutrition: Coping strategies in an informal settlement in the Vaal Triangle, South Africa. *Public Health*, *120*(9), 795–804.

Oldewage-Theron, W. H. & Egal, A. (2012). Impact of nutrition education on nutrition knowledge of public school educators in South Africa: A pilot study. *Health SA Gesondheid*, *17*(1), 1–8. doi:10.4102/hsag.v17i1.602

Onwuegbuzie, A. J., Leech, N. L. & Collins, K. M. T. (2010). Innovative Data Collection Strategies in Qualitative Research. *The Qualitative Report*, *15*(3), 696–726.

Oosthuizen, D., Oldewage-Theron, W. H. & Napier, C. (2011). The impact of a nutrition programme on the dietary intake patterns of primary school children. *South African Journal of Clinical Nutrition*, *24*(2), 75–81.

Orech, F. O., Christensen, D. L., Larsen, T. & Friis, H. (2007). Mineral content of traditional leafy vegetables from western Kenya. *International Journal of Food Sciences and Nutrition*, *58*(8), 595–602. doi:10.1080/09637480701350288

Ortlipp, M. (2008). Keeping and Using Reflective Journals in the Qualitative Research Process. *The Qualitative Report*, *13*(4), 695–705.

Owen, S. (2001). The practical, methodological and ethical dilemmas of conducting focus groups with vulnerable clients. *Journal of Advanced Nursing*, *36*(5), 652–658. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/11737497

Palinkas, L. A., Horwitz, S. M., Green, C. A., Wisdom, J. P., Duan, N. & Hoagwood, K. (2013). Purposeful sampling for qualitative data collection and analysis in mixed method implementation research. *Administration and Policy in Mental Health and Mental Health Services Research*. doi:10.1007/s10488-013-0528-y

Pallan, M., Parry, J. & Adab, P. (2012). Contextual influences on the development of obesity in children: A case study of UK South Asian communities. *Preventive Medicine*, *54*(3-4), 205–211. doi:10.1016/j.ypmed.2012.01.018

Patton, M. Q. (2002). *Qualitative research & evaluation methods* (3rd ed.). Thousand Oaks: SAGE.

Peltzer, K. (2009). Health systems in Africa: learning from South Africa. *Lancet*, *6736*(09), 957–959. doi:10.1016/S0140-6736(09)61244-7

Pérez-Rodrigo, C. & Aranceta, J. (2001). School-based nutrition education: lessons learned and new perspectives. *Public Health Nutrition*, *4*(1A), 131–139. doi:10.1079/PHN2000108

Perret, S. (2002). *Water policies and smallholding irrigation schemes in South Africa: a history and new institutional challenges* (No. 19). Pretoria. Retrieved from http://ageconsearch.umn.edu/bitstream/18041/1/wp020019.pdf

Petty, N. J., Thomson, O. P. & Stew, G. (2012). Ready for a paradigm shift? Part 2: Introducing qualitative research methodologies and methods. *Manual Therapy*, *17*(5), 378–384. doi:10.1016/j.math.2012.03.004

Popkin, B. M., Adair, L. S. & Ng, S. W. (2011). Global nutrition transition and the pandemic of obesity in developing countries. *Nutrition Reviews*, *70*(1), 3–21. doi:10.1111/j.1753-4887.2011.00456.x

Prelip, M., Slusser, W., Thai, C. L., Kinsler, J. & Erausquin, J. T. (2011). Effects of a school-based nutrition program diffused throughout a large urban community on attitudes, beliefs, and behaviors related to fruit and vegetable consumption. *The Journal of School Health*, *81*(9), 520–529. doi:10.1111/j.1746-1561.2011.00622.x

Puoane, T., Matwa, P., Bradley, H. & Hughes, G. (2006). Socio-cultural factors influencing food consumption patterns in the black African population in an urban township in South Africa. *Human Ecology*, *14*, 89–93.

Radnor, H. A. (2001). *Researching your professional practice: Doing interpretive research*. Buckingham: Open University.

Rajaratnam, J. K., Marcus, J. R., Flaxman, A. D., Wang, H., Levin-Rector, A., Dwyer, L., … Murray, C. J. (2010). Neonatal, postneonatal, childhood, and under-5 mortality for 187 countries, 1970-2010: a systematic analysis of progress towards Millennium Development Goal 4. *Lancet*, *375*(9730), 1988–2008. doi:10.1016/S0140-6736(10)60703-9

Richter, K. & Jooste, K. (2013). The experiences of private somatology therapists on their self-management in a private practice. *Health SA Gesondheid*, *18*(1), 1–9. doi:10.4102/hsag.v18i1.685

Rothman, A. J., Gillespie, A. H. & Johnson-Askew, W. L. (2009). Decision making in eating behavior: Interacting perspectives from the individual, family, and environment: An introduction. *Annals of Behavioral Medicine: A Publication of the Society of Behavioral Medicinea Publication of the Society of Behavioral Medicine*, *38 Suppl 1*, 1–3. doi:10.1007/s12160-009-9128-1

Ruben, A. & Babbie, E. . (2014). *Research Methods for Social Work.* (8th ed.). USA: Brooks/Cole: Cengage.

Ruel, M. T., Garrett, J. L., Morris, S. S., Maxwell, D., Oshaug, A., Engle, P., … Haddad, L. (1998). *Urban Challenges to food and nutrition security: A review of food security, health, and caragiving in the cities*. *FCND Discussion Paper*. Retrieved from http://www.google.com.co/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0CFUQFjAA&url=http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.31.791&rep=rep1&type=pdf&ei=qIYRUM7GCaKt6QGk-oDQAw&usg=AFQjCNHkiLlO8qVCy-7zbz6_4UAtxF09gw&sig2=4K-0dLSohjeVxUBG2o5

Ruel, M. T. & Levin, C. E. (2000). *Assessing the potential for food-based stratefies to reduce vitamin A and iron deficiencies: A review of recent evidence*.

Saloojee, H., De Maayer, T., Garenne, M. L. & Kahn, K. (2007). What's new? Investigating risk factors for severe childhood malnutrition in a high HIV prevalence South African setting. *Scandinavian Journal of Public Health. Supplement*, *69*(Suppl 69), 96–106. doi:10.1080/14034950701356435

Schönfeldt, H. C. & Gibson, N. (2009). Healthy eating guidelines in the South African context. *Journal of Food Composition and Analysis*, *22*, S68–S73. doi:10.1016/j.jfca.2009.01.005

Schönfeldt, H. C., Gibson, N. & Vermeulen, H. (2010). NEWS AND VIEWS: The possible impact of inflation on nutritionally vulnerable households in a developing country using South Africa as a case study. *Nutrition Bulletin*, *35*(3), 254–267. doi:10.1111/j.1467-3010.2010.01837.x

Schönfeldt, H. C., Hall, N. & Bester, M. (2013). Relevance of food-based dietary guidelines to food security: A South African perspective. *Nutrition Bulletin*, *38*, 226–235. doi:10.1111/nbu.12027

Schwandt, T. A. (2007). Judging Interpretations. *New Directions for Evaluation*, *114*, 11–14. doi:10.1002/ev

Seale, C. (1999). *The quality of qualitative research*. London: SAGE.

Severi, S., Bedogni, G., Manzieri, A. M., Poli, M., Gatti, G. & Battistini, N. (1998). Effects of home-based food preparation practices on the micronutrient content of foods. *European Journal of Cancer Prevention*, *7*, 331–335.

Silverman, D. (2013). *Doing Qualitative Research* (4th ed.). London: SAGE.

Smith, F. I. & Eyzaquirre, P. (2007). African leafy vegetables: Their role in the World Health Organization's global fruit and vegetable initiative. *African Journal of Food, Agriculture, Nutrution and Development*, *7*(3), 1684–5374.

Somerset, S. & Markwell, K. (2009). Impact of a school-based food garden on attitudes and identification skills regarding vegetables and fruit: a 12-month intervention trial. *Public Health Nutrition*, *12*(2), 214–221. doi:10.1017/S1368980008003327

Spearing, K., Kolahdooz, F., Lukasewich, M., Mathe, N., Khamis, T. & Sharma, S. (2012). Nutritional composition of commonly consumed composite dishes from rural villages in Empangeni, KwaZulu-Natal, South Africa. *Journal of Human Nutrition and Dietetics*, *26*(3), 222–229. doi:10.1111/jhn.12001

Spiegel, S. A. & Foulk, D. (2006). Diet and Physical Activity Reducing Overweight through a Multidisciplinary School-based Intervention. *Obesity*, *14*(1), 88–96.

St.Clair, S. B. & Lynch, J. P. (2010). The opening of Pandora's Box: climate change impacts on soil fertility and crop nutrition in developing countries. *Plant Soil*, *335*, 101–115. doi:10.1007/s11104-010-0328-z

Statistics South Africa. (2010). *Millennium Development Goals, Country report*. Pretoria. Retrieved from http://www.statssa.gov.za/MDG/MDGR_2010.pdf

Statistics South Africa. (2013). *Millennium Development Goals, Country report*. Pretoria. Retrieved from http://www.statssa.gov.za/wp-content/uploads/2014/02/MDGR_ Report_2013_Final.pdf

Statistics South Africa. (2014). *Quarterly labour force survey*. *Statistical release P0211*. Pretoria.

Stevens, G. A., Finucane, M. M., Paciorek, C. J., Flaxman, S. R., White, R. A., Donner, A. J. & Ezzati, M. (2012). Trends in mild, moderate, and severe stunting and underweight, and progress towards MDG 1 in 141 developing countries: A systematic analysis of population representative data. *Lancet*, *380*(9844), 824–834. doi:10.1016/S0140-6736(12)60647-3

Steyn, N. P., De Villiers, A., Gwebushe, N., Draper, C. E., Hill, J., Waal, M. De, … Lambert, E. V. (2015). Did HealthKick, a randomised controlled trial primary school nutrition intervention improve dietary quality of children in low-income settings in South Africa? *BMC Public Health*, *15*(984), 1–11. doi:10.1186/s12889-015-2282-4

Steyn, N. P., Labadarios, D. & Nel, J. H. (2011). Factors which influence the consumption of street foods and fast foods in South Africa--a national survey. *Nutrition Journal*, *10*, 104. doi:10.1186/1475-2891-10-104

Steyn, N. P., Lambert, E. V., Parker, W., Mchiza, Z. & de Villiers, A. (2009). A review of school nutrition interventions globally as an evidence base for the development of the HealthKick programme in the Western Cape, South Africa. *South African Journal of Clinical Nutrition*, *22*(3), 145–152.

Steyn, N. P., Myburgh, N. G. & Nel, J. H. (2003). Policy and Practice: Evidence to support a food-based dietary guideline on sugar consumption in South Africa. *Bulletin of the World Health Organization*, *81*(8), 599–608.

Steyn, N. P., Nel, J. H. & Casey, A. (2003). Secondary data analyses of dietary surveys undertaken in South Africa to determine usual food consumption of the population. *Public Health Nutrition*, *6*(7), 631–644. doi:10.1079/PHN2003482

Strauss, S. & Ziv, M. (2012). Teaching is a natural cognitive ability for humans. *Mind, Brain, and Education* *6*(4), 186–196.

Stuckler, D., Basu, S. & McKee, M. (2010). Drivers of inequality in Millennium Development Goal progress: a statistical analysis. *PLoS Medicine*, *7*(3), e1000241. doi:10.1371/journal.pmed.1000241

Suri, H. (2008). Purposeful Sampling in Qualitative Research Synthesis. *Qualitative Research Journal*, *11*(2), 63–75.

Taylor, M. & Jinabhai, C. (2001). Working with community health workers to improve nutrition in rural KwaZulu-Natal. *Development Southern Africa*, *18*(2), 125–140. doi:10.1080/037/6835012004186

Taylor, P. C. & Medina, M. N. D. (2013). Educational Research Paradigms: From Positivism to Multiparadigmatic. *The Journal of Meaning-Centered Education*. Retrieved June 3, 2015, from

http://www.meaningcentered.org/journal/volume-01/educational-research-paradigms-from-positivism-to-multiparadigmatic

Temple, N. J. & Steyn, N. P. (2011). The cost of a healthy diet: A South African perspective. *Nutrition*, *27*(5), 505–508. doi:10.1016/j.nut.2010.09.005

Temple, N. J., Steyn, N. P., Fourie, J. & De Villiers, A. (2011). Price and availability of healthy food: A study in rural South Africa. *Nutrition*, *27*(1), 55–58. doi:10.1016/ j.nut.2009.12.004

Temple, N. J., Steyn, N. P., Myburgh, N. G. & Nel, J. H. (2006). Food items consumed by students attending schools in different socioeconomic areas in Cape Town, South Africa. *Nutrition*, *22*(3), 252–258. doi:10.1016/j.nut.2005.07.013

Terre Blanche, M. & Durrheim, K. (2002). Histories of the present: Social science in context. In M. Terreblanche & K. Durrheim (Eds.), *Research in practice. Applied methods for the social sciences.* (pp. 1–16). Cape Town: University of Cape Town Press.

Tessier, S. (2012). From field notes, to transcripts, to tape recordings: Evolution or combination ? *International Journal of Qualitative Methods*, *11*(4), 446–460.

Thomas, E. & Magilvy, J. K. (2011). Qualitative rigor or research validity in qualitative research. *Pediatric Nursing*, *16*, 151–156. doi:10.1111/j.1744-6155.2011.00283.x

Thornton, A. (2008). Beyond the Metropolis: Small Town Case Studies of Urban and Peri-urban Agriculture in South Africa. *Urban Forum*, *19*(3), 243–262. doi:10.1007/s12132-008-9036-7

Thurman, T. R., Kidman, R. & Taylor, T. M. (2015). Bridging the gap: The impact of home visiting programs for orphans and vulnerable children on social grant uptake in South Africa. *Children and Youth Services Review*, *48*, 111–116. doi:10.1016/j.childyouth.2014.12.002

Tomal, D. R. (2010). *Action Research for Educators* (2nd ed.). Maryland: Rowman & Littlefield.

Tracy, S. J. (2010). Qualitative Quality: Eight “Big-Tent” Criteria for Excellent Qualitative Research. *Qualitative Inquiry*, *16*(10), 837–851. doi:10.1177/1077800410383121

Trondsen, M. & Sandaunet, A.-G. (2009). The dual role of the action researcher. *Evaluation and Program Planning*, *32*(1), 13–20. doi:10.1016/j.evalprogplan. 2008.09.005

Tudge, J. R. H., Mokrova, I., Hatfield, B. E. & Karnik, R. B. (2009). Uses and Misuses of Bronfenbrenner's Bioecological Theory of Human Development. *Journal of Family Theory & Review*, *1*(December), 198–210.

United Nations. (2012). *The Millennium Development Goals Report 2012*. New York. Retrieved from http://www.un.org/millenniumgoals/pdf/MDG Report 2012.pdf

United Nations. (2013). *The Millennium Development Goals Report 2013*. New York. Retrieved from http://www.un.org/millenniumgoals/pdf/report-2013/mdg-report-2013 -english.pdf

University of Pretoria. (2013). Code of Ethics for Research. Retrieved from http:// web.up.ac.za/sitefiles/File/7707/AUCC/Code_Ethics_Research (Rt429-99). pdf

Vandemoortele, J. (2012). *Advancing the global development agenda post-2015: Some thoughts, ideas and practical suggestions*. Retrieved from http://www.un.org/ millenniumgoals/pdf/jan_vandemoortele_Aug.pdf

Van Lippevelde, W., Verloigne, M., De Bourdeaudhuij, I., Brug, J., Bjelland, M., Lien, N. & Maes, L. (2012). Does parental involvement make a difference in school-based nutrition and physical activity interventions? A systematic review of randomized controlled trials. *International Journal of Public Health*, *57*(4), 673–678. doi:10.1007/s00038-012-0335-3

Viljoen, A. T. (2010). *The meaning of the food practices of the peoples of Mmotla, near Pretoria, South Africa: A socio-cultural and socio-psychological approach*. University of Pretoria. Retrieved from http://repository.up.ac.za/handle/2263/28514

Von Braun, J. (2007). *The world food situation. New driving forces and required actions.* Retrieved from http://www.ifpri.org/sites/default/files/pubs/pubs/fpr/pr18.pdf

Vorster, H. H. (n.d.). The new South African food-based dietary guidelines in perspective. *The Nutrition Society of South Africa*. Retrieved October 8, 2015, from http://www.nutritionsociety.co.za/index.php/11-useful-information/26-the-new-south-african-food-based-dietary-guidelines-in-perspective

Vorster, H. H. (2002). The emergence of cardiovascular disease during urbanisation of Africans. *Public Health Nutrition*, *5*(1A), 239–243. doi:10.1079/PHN2001299

Vorster, H. H. (2010). The link between poverty and malnutrition: A South African perspective. *Health SA Gesondheid*, *15*(1), 1–6. doi:10.4102/hsag.v15i1.435

Vorster, H. H., Venter, C. S., Wissing, M. P. & Margetts, B. M. (2007). The nutrition and health transition in the North West Province of South Africa: A review of the THUSA (Transition and Health during Urbanisation of South Africans) study. *Public Health Nutrition*, *8*(5), 480–490. doi:10.1079/PHN2005784

Wagner, C., Kawulich, B. B. & Garner, M. (2012). *Doing Social Reserch: A Global Context*. Berkshire: McGraw-Hill.

Wallace, S. (2008). *Oxford Dictionary of Education.* New York: Oxford.

Walsham, G. (2006). Doing interpretive research. *European Journal of Information Systems*, *15*(3), 320–330. doi:10.1057/palgrave.ejis.3000589

Wamani, H., Astrøm, A. N., Peterson, S., Tumwine, J. K. & Tylleskär, T. (2007). Boys are more stunted than girls in sub-Saharan Africa: a meta-analysis of 16 demographic and health surveys. *BMC Pediatrics*, *7*, 17–26. doi:10.1186/1471-2431-7-17

Watt, D. (2007). On becoming a qualitative researcher: The value of reflexivity. *The Qualitative Report*, *12*(1), 82–101.

Watts, S. O., Piñero, D. J., Alter, M. M. & Lancaster, K. J. (2012). An Assessment of Nutrition Education in Selected Counties in New York State Elementary Schools (Kindergarten through Fifth Grade). *Journal of Nutrition Education and Behavior*, *44*(6), 474–480. doi:10.1016/j.jneb.2012.01.010

Weisera, S. D., Tsaib, A. C., Guptac, R., Frongillod, E. A., Kawumae, A., Senkungue, J., Bangsberg, D. R. (2012). Food insecurity is associated with morbidity and patterns of healthcare utilization among HIV-infected individuals in a resource-poor setting. *AIDS*, *26*(1), 67–75. doi:10.1097/QAD.0b013e32834cad37.Food

Western Cape Government. (2013). Background to the national quintile system. *Media release*. Retrieved December 7, 2015, from http://wced.pgwc.gov.za/comms/press /2013/74_14oct.html

Whiting, M. & Sines, D. (2012). Mind maps: Establishing “trustworthiness” in qualitative research. *Nurse Researcher*, *20*(1), 21–27. Retrieved from http://www.ncbi. nlm.nih.gov/pubmed/23061270

Williams, M. (2000). Interpretivism and Generalisation. *Sociology*, *34*(2), 209–224. doi:10.1017/S0038038500000146

Williamson, M. (2000). Interpretivism and generalization. *Sociology*, *34*(2), 209–224.

Wojcicki, J. M. (2014). The double burden household in sub-Saharan Africa: Maternal overweight and obesity and childhood undernutrition from the year 2000: results from World Health Organization Data (WHO) and Demographic Health Surveys (DHS). *BMC Public Health*, *14*(1), 1124. doi:10.1186/1471-2458-14-1124

Wolfinger, N. H. (2002). On writing fieldnotes: collection strategies and background expectancies. *Qualitative Research*, *2*(1), 85–95.

World Health Organization. (2006). *Five keys to safer food manual*.

Yilmaz, K. (2013). Comparison of Quantitative and Qualitative Research Traditions: epistemological, theoretical and methodological differences. *European Journal of Education 48*(2), 311–325.

Zere, E. & Mcintyre, D. (2003). Inequities in under-five child malnutrition in South Africa. *International Journal for Equity in Health*, *2*(7), 1–11.

---ooOoo---

Appendices

---oOo---

Appendix A
Ethical clearance certificate

Appendix B

Permission to conduct research (GDE and school principals)

Appendix C

Letters of informed consent (template)

Appendix D

Visual posters (photographs and transcripts)

Appendix E

Photographs from field visits

Appendix F

Data coding of first field visit transcripts

Appendix G

Field notes (first and second field visits)

Appendix H

Reflective journal (reflections following field visits)