

**What's in the Lunchbox: Stigma or Exploitation?
Understanding Teenage Food Choices in an Urban South African High School**

By

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ABSTRACT

Grounding itself within a critical paradigm in the context of global food trends amongst teens, this study seeks to understand the many factors influencing contemporary teenage food choices in a South African High school. The Aim is to find a means of engaging teenage learners in making food choices that could reduce the risk of diabetes later in life. A methodology of participatory action research (PAR) was employed at two levels: Level One (L1), which involved the whole school, was conducted by twelve learners who volunteered to be co-researchers in the study. Data were collected by these co-researchers who interviewed the rest of the learners in the school on a daily basis on their food choices, and took photographs of the contents of their lunchboxes. Level Two (L2) involved six focus group meetings between me and the co-researchers. Data were collected by means of filming and recording the five weekly sessions with the focus group. The transcripts from the recordings were repeatedly scanned to identify themes relating to influences on teenage food choices. Using a trilogy of theories (identity theory, dependency theory and culture industry theory), a model was developed to show how multinational corporations (MNCs) influence teenage food choices. The findings highlight the influence of globalisation on the contemporary food choices of these teenagers. They suggest that in their search for identity and autonomy, teenagers are manipulated by multinational food corporations and the media into making food choices that could lead to the onset of diabetes and other dietary related diseases. In addition, the findings indicate that teenage food choices cannot be directly influenced by parents or teachers, but can be influenced by their peers.

Keywords: food choices, diabetes, multinational corporations, teenage identity, participatory action research

DECLARATION

This Dissertation is prepared in fulfilment of the requirement of the Master of Education degree at the School of Science, Mathematics and Technology Education, Faculty of Education, Edgewood campus, University of KwaZulu-Natal, Durban South Africa. I declare that this dissertation is my own work and all primary and secondary sources have been appropriately acknowledged. This dissertation has, in part, been previously presented and published in a number of conferences and academic journals. All attempts have been made to reference these published sections where appropriate. This dissertation has not been submitted to any other institution as part of an academic qualification.

Funding for this research was supplied by Project SUSTAIN, a joint project which aimed at generating knowledge and research methodologies that explored and promoted development of and access to socially responsible Science, Mathematics and Technology Education in Southern Africa. Southern African universities driving the project were the University of Pretoria and the University of KwaZulu-Natal in South Africa, the Chancellor's College in Malawi, and the University of Zambia. The Northern universities involved were the University of Life Science, the University of Bergen and the University of Oslo in Norway.

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DEDICATION

This dissertation is dedicated to my mother, Máirín Mhic Chormaic,
who was diagnosed with type 2 diabetes in 2006.

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When I embarked upon this research, I had no idea that I was beginning a journey that was going to involve many, many years of work. At times, I felt that I was truly floundering, as my research developed into what seemed to be a 'never ending story'. It is only due to the help and support of friends, family and colleagues that I forged on, finally bringing my research on the complex topic of teenage food choices to conclusion.

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ABBREVIATIONS

AR	Action Research
BMI	Body Mass Index
CAPS	Curriculum Assessment and Policy Statement
CHD	Coronary Heart Disease
CHO	Carbohydrate
CS	Consumer Studies
DOE	Department of Education
GI	Glycaemic Index
IDF	International Diabetes Federation
KZN	KwaZulu-Natal
L1	Level One
L2	Level Two
MNC	Multinational Corporation/Company
PAR	Participatory Action Research
RDP	Rural Development Programme
SA	South Africa
SMT	Senior Management Team
UKZN	University of KwaZulu-Natal
WB	Wristband

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CHAPTER 1. DIABETES TSUNAMI IS HERE

“The diabetes tsunami is here: and we in South Africa are in trouble.”

Distiller (2014)

These are the words of Dr. L. Distiller, founder of the Centre for Diabetes and Endocrinology in Johannesburg, South Africa (Ottermann, 2014; Distiller, 2014). These words relate to the fact that diabetes in South Africa is on the increase, and has been since 1994 (Cameron, 2003; Hunter, 2004). The end of Apartheid gave birth to an era where doors were opened and opportunities for development and economic growth for both South Africans and foreign investors abounded. As sanctions gave way to trade agreements between South Africa and western nations, multinational corporations (MNCs) moved in to seduce new target markets in this virgin political and economic climate. Amongst these were fast food and soft drink giants such as McDonalds, KFC and Coca-Cola, who lured young South Africans away from traditional foods towards food choices that result in dietary related diseases such as diabetes; and now, as Dr. Distiller says, we in South Africa are in trouble.

1.1 Background

The link between poor food choices and the onset of dietary-related diseases such as diabetes is well established (Davis, 1991; Warwick, McIlveen & Strugnell, 1999; Napier 2001), and is included in the Matric (Grade 12) syllabus for Consumer Studies (CS) in the Curriculum Assessment and Policy Statement (CAPS) document developed by the South African Department of Education (DOE, 2010). However, it is one thing to be knowledgeable about healthy food choices, but quite another to actively *make* healthier choices when faced with the options available. Coupled with this is the fact that teenagers seek autonomy when making their own choices (Erikson, 1959) and therefore may reject advice given by parents or teachers on selecting healthier foods. This study seeks to understand the complex influences on teenage food choices in a co-educational, westernised high school in Durban, South Africa. In so doing, I endeavour to find a way in which I, as a Consumer Studies teacher in this school, can engage students in making healthier food choices which may prevent the onset of type 2 diabetes later in life.

Although I developed an interest in food at a very young age, I did not come from a family that was particularly health conscious. My mother was a good cook, and the food we ate in our Irish, middle class home was both tasty and wholesome. Yet, as a teenager, when it came to making my own food choices away from home, I would inevitably choose fast foods such as burgers and chips. My preference for foods high in fat and carbohydrates continued through my student years, and only came to a halt on June 3rd, 1984, when I made a conscious decision that I would eat a greater variety of foods. Becoming a mother in 1987 made me realise that I was now not only responsible for my own health and well-being, but also for the health and well being of my children. Hence, I focussed on engaging them to make healthy food choices from their early years.

In 2001, I started teaching Home Economics and Technology Education in an urban high school in Durban, South Africa. I ensured that I packed healthy, sustainable lunches for my school-going children, and I assumed that most of the learners in my school would be eating similar, nutritious food. However, when my Grade eight learners conducted a basic class survey on the daily eating habits of their peers, this was not what transpired. Many of the learners, it seemed, were coming to school without breakfast, and purchasing items at the tuck-shop for lunch. The foods they purchased were high in macro-nutrients such as carbohydrate, fat and protein, low in micro-nutrients such as vitamins and minerals, and also low in fibre content. In short, the eating habits of many learners in this school did not appear to be very healthy.

As a teacher, I act in *loco parentis* and therefore feel that I have a responsibility for the health and well-being of the learners in my school in the same way as I have for my own children. I also realised that many of my learners may not have been brought up with a sound knowledge of nutrition and the importance of eating healthily. Nevertheless, the phenomenon of food choice is a sensitive issue, and cuts across racial, cultural and socioeconomic boundaries. Many parents, and the learners themselves, may view my attempts at encouraging healthier choices as interfering in their personal lives, and may have perceived that I was stepping beyond my role as a teacher. In addition, I needed the co-operation of the school principal and the staff in supporting my efforts to improve the holistic development of the learners, both inside and outside the classroom.

I also needed to be careful that my efforts did not become a vendetta against the owner of the tuck shop, and hoped that she would work with me to improve the quality

and nutritional value of the food available to the learners. I realised that in order for this research to be accepted as valid by all the stakeholders, it would need to be academically sound. Therefore, in 2007, I enrolled for a Master of Education degree at the University of KwaZulu-Natal.

My initial inquiry led me to explore work done by previous researchers on teenage food choices. This research uncovered the following trends:

- Diets in post-apartheid South Africa have changed from low-fat high fibre traditional food to a high-fat, low-fibre diet characterised by the habitual intake of junk food (Cameron, 2003; Hunter, 2004).
- This trend towards eating junk food is favoured by most youth in developed countries (Liebman, 1998; Lin, Guthrie & Frazao, 2002; Mullie, Clarys, DeRidder, Deriemaeker, Duvigneaud, Hebbelinck, Grivegne, Autier, 2006; Warwick *et al*, 1999).
- Diabetes in sub-Saharan Africa is on the increase (Cameron, 2003; Mbanya & Ramiaya, 2007, Fourie, 2015).
- A paradox exists between the type of food that learners *say* they enjoy when at home with their families, and the type of food they choose to eat when with their friends (Stockmeyer, 2001).
- Indigenous or traditional African food intake should be encouraged, as it reduces the risk of high blood sugar levels that can result in diabetes (Mbhenyane, 1997). However, there is a stigma attached to eating healthy, traditional food, even when it is free (*South Africa-The journey to nutritional health*, 2007).

As is evident, diets in sub-Saharan Africa have changed from low-fat, high fibre traditional diets to high-fat low fibre modern diets (Cameron, 2003; Hunter, 2004). The literature review in chapter two of this dissertation will point to a correlation between this change in dietary habits and the increase in type 2 diabetes in sub-Saharan Africa. Therefore, as I embarked on the empirical research of this thesis, I assumed that teenagers in this urban South African school were following the trends of youth in developed countries. I also pondered on whether any political, social, economical or technological developments in post-apartheid South Africa had been catalysts in this change in the eating habits of our youth. By gaining a deeper understanding of the

influences surrounding teenage food choices, I hoped to find some way in which *I*, through my role as a Consumer Studies educator - and as a member of the senior management team (SMT) - could encourage healthier food choices from the learners in this school. In particular, I wanted to encourage them to eat foods that would sustain them throughout the school day, and prevent rapid spikes in blood sugar levels associated with increasing the risks of developing type 2 diabetes later in life. Although I embarked on the empirical research for this study in 2010, a change in behaviour takes a long time to establish, and I was aware that it would take many years before any intervention I could make in changing teenage food choices might show clear results (Mc Niff, 2002).

1.2 Research questions

As an action research study, the following questions directed the enquiry:

1. How do the current food choices of teenage learners in this high school increase their risk of developing type 2 diabetes?
2. What influences teenage food choices in this South African high school?
3. How can *I* engage the teenage learners in making healthier food choices

1.3 Aim and objectives

The Aim of this study was find ways in which I could engage the teenage learners in this South African high school to make healthier food choices.

The study had the following Objectives:

1. To confirm my assumption that the teenagers in this school were making food choices that could contribute to type 2 diabetes.
2. To identify what influences teenage food choices in this high school.
3. To establish a way in which I could engage these learners in making healthier food choices.

1.4 Research design

When deciding how to generate data, I noted that in most studies on food choices data were collected using quantitative methods. However, I felt that the results of these studies lacked depth when it came to understanding the influences behind teenage food choices. Therefore, I decided to use qualitative methods that would reveal greater depths of knowledge, and that a focus group would be the best way to stimulate discussion about food and food choices amongst the teenagers. In the focus group sessions, I tried to create a relaxed environment where the learners could feel at ease when discussing issues surrounding their own food choices and that of their peers. I wanted to ensure that the focus group sessions were not monotonous, as this might discourage the learners from attending. The conversations that took place during the focus group sessions were recorded, transcribed and analysed using thematic analysis. This study was underpinned with a complex theoretical framework based on influences on teenage food choices from a critical perspective.

1.5 Theoretical framework

As teenage food choices are influenced by many factors, I felt that this research could not be underpinned by one theory alone. I therefore developed a trilogy of theories that I felt best explains the complexity of influences on teenage food choices in South Africa, namely, identity theory (Erikson, 1959), culture industry theory (Fromm, 1955), and dependency theory (Ball-Rokeach and De Fleur, 1976; Irogbe, 2005). Erikson's identity theory (1959) described a crisis of identity that occurs in the early teenage years where teenagers try to replace their childhood self-image with an image that is socially acceptable to their peers. This links with culture industry theory as described by Fromm (1955); food corporations recognise this crisis of identity, and advertise their products to the teenage market using images that the teenagers identify with.

Many food products that are marketed to teenagers are processed foods with a high concentration of sugar, fat, refined carbohydrate, colourants, flavourings and other additives. Teenagers can become addicted to the taste of these processed foods, choosing them over healthier food options. They also become socially and psychologically

dependent on these products, as these foods are branded and widely advertised as foods that are 'cool', tasty and fun (Gauntlett, 2008; Giddens, 2009). This leads to the inclusion of dependency theory (Ball-Rokeach & De Fleur, 1976; Irogbe 2005) in my framework. Teenagers become socially and psychologically dependant on the images projected by the media to form their own identity (Ball-Rokeach & De Fleur, 1976). Exposure to the media is a consequence of development, and contributes to globalisation of societies and cultures. Advertising through the media creates a market for food produced by MNCs, ensuring that developing countries continue to be influenced and remain dependant on western nations (Irogbe, 2005). The link between the three theories and their application in understanding influences on teenage food choices in this South African high school will be explored and developed in chapter three of this thesis.

1.6 Methodology

As previously mentioned, Erikson (1959) observed that teenagers need autonomy when making choices. In order to incorporate this teenage desire for autonomy, I used a methodology of participatory action research (PAR) so that the learners themselves could be empowered to make the changes necessary to promote their own - and each others' - well being (McNiff, 2002). Action research in general is designed as a tool to reflect on peoples' practices, with the aim of improving that practice or changing the behaviour. It is based on constructivism, and it became popular in the 1970's and 1980's as a tool for teachers to reflect and improve upon their own practice (McNiff, 2002). PAR is a cyclical process, and involves five stages within a cycle, namely Practice, Reflection, Research, Plan and Action. The cycle can be repeated a number of times as the researcher gains a deeper understanding into the nature and depth of the study (McNiff, 2002).

In Hart's ladder of young people's participation (Appendix A), an idea is initiated by an adult, and the young people participate at various levels (Hart, 1992). In this study, I planned to instigate the action research, and involve the learners in the implementation and analysis of the research (Hart, 1992). However, as will be seen from my findings, the teenagers in this study lacked the skills and confidence to drive the research forward initially, and had limited ability when it came to analysing the resultant data. This meant

that I took a more dominant role in the research and analysis than I had anticipated. Nonetheless, the participation and opinions of these learners was vital to my analysis of the data. Furthermore, in the months and years after the action research was established, the idea of introducing healthier food options into the school tuck-shop was adopted by the school RCL, and gained momentum as time went on. In hindsight, I can now see that the implementation of this action research in 2010 was merely the catalyst that inspired the learners to make changes that could benefit the health of the teenagers in this school community (McNiff, 2002).

Data for this research were collected on two levels: In L1, twelve learners from the focus group collected data from their peers at each lunch break. This was done in pairs, using disposable cameras to photograph the contents of the lunchboxes. Care was taken to keep the identity of the participating learners anonymous. Each learner was asked a number of closed questions using an instrument approved by the ethics committee of UKZN. These questions related to what was in that learner's lunchbox, and what had influenced that learner's food choices on each particular day. In L2, the food choices of the members of the focus group themselves was explored to reveal their food choices and influences on these food choices. This data collection will be discussed in more detail in chapter four of this thesis.

Aronson (1994) suggested that identifying common themes that come to the fore while capturing or reviewing data is an effective way of analysing it, particularly when data is collected from a variety of sources (Aronson, 1994, in Watson, 2013: p. 113). Therefore, I chose to apply thematic analysis to give meaning to the data collected from both levels. Film taken during the focus group sessions was played back over and over again and meticulously transcribed. Each sentence from these transcripts was numbered for easy reference. These transcripts were then scanned for possible themes emerging. A system of open coding was initially used to identify possible themes. These themes were then clustered into seven main themes which were examined in order to answer the research questions.

1.7 Thesis structure

The study is presented as follows:

Chapter 1: Introduction. In this, the introductory chapter, I have set the context and the background to my interest in researching the phenomena of teenage food choices. I have established the Aim of this research, and the three critical questions which will guide my data collection. The trilogy of theories which will form my theoretical framework have been identified, and I have outlined why I have chosen PAR as the most appropriate methodology for this research.

Chapter 2: Literature review. This chapter looks at previous research done on teenage food choices in western nations, and then compares this to research done in African countries. Factors influencing teenage food choices that came to the fore in these studies are emphasised, and any gaps are highlighted. Emerging trends in the food choices of teenagers in other countries are identified to provide a backdrop to the current scene in this South African high school.

Chapter 3: Theoretical framework. As teenage food choices are motivated by not only physiological factors, but also by sociological, economic, and psychological factors, a trilogy of theories has been used to underpin this research.

Chapter 4: Methodology. This research proposes that teenagers need to be given the opportunity to participate in any discourse on their food choices. In this chapter, I defend my choice of PAR as the most appropriate methodology for this research, and explain how this was implemented in a six week timeframe of data collection and analysis.

Chapter 5: Presentation, results and analysis of research question one. The current food choices of teenage learners in this high school are identified from data collected, and how these food choices could increase the risk of developing type 2 diabetes is discussed.

Chapter 6: Presentation, results and analysis of research question two. Nine factors that influence teenage food choices in this high school are identified from the empirical data.

Each of these factors is discussed with reference to findings from existent literature, and underpinned with the trilogy of theories that were presented in chapter three.

Chapter 7: Presentation, results and analysis of research question three. This chapter links *my* findings from research question two with the influences identified by the learners themselves. Each of these influences is then examined to understand how they can be applied in this school to motivate teenage learners in making healthier food choices.

Chapter 8: Conclusion. In the final chapter, I review the three critical questions which have guided my inquiry and summarise the main findings of each. I pull together all the themes developed through the analysis of the empirical data and use this knowledge to inform my practice as a teacher and a member of the SMT. Limitations in this study are acknowledged, and the significance of the findings is discussed. In closing, I will describe how, as a result of this research, the teenagers in this high school have become engaged in making healthier food choices.

CHAPTER 2. LITERATURE REVIEW

As it was not possible to review all of the literature relating to food choices in general, I decided to focus on literature relating specifically to studies on teenage food choices. I looked at research studies that were conducted in western societies so that I could gain some knowledge on what researchers in developed countries had uncovered about teenage food choices. Then I looked at the results of similar studies that had been conducted in African countries. Examining this literature gave me some understanding of the factors influencing teenage food choices that had previously come to the fore. I was also able to identify gaps in the literature that my research could address. Furthermore, the results of my research could be compared to the results found in these studies for any similarities and incongruities which might be evident. This literature review sought to uncover the findings of previous researchers in this field, in order to shed light on any trends that seem to be emerging in the phenomenon of teenage food choices.

2.1 Influence of urbanisation and exposure to the media

Between 1976 and 1999, Lin, Guthrie & Frazao used information obtained from food consumption surveys conducted by the United States Department of Agriculture (UDSA), (Lin et al, 2001). These surveys collected detailed information on the diets of American children. The children were categorised into four groups, according to their age and gender. Lin et al noted that teenage boys, in particular, consumed too many foods containing saturated fats, cholesterol and salt, and the diets of teenage girls lacked essential minerals such as iron and calcium. Over-consumption of fat in the diet can lead to obesity, a factor contributing to the onset of diabetes. However, fat, meat and dairy products slow down the digestive process, and therefore if they are eaten with carbohydrates, they can prevent the rapidly high blood sugar levels that result from eating carbohydrates alone. Therefore, it is possible that the inclusion of these foods in the diet could also prevent diabetes.

In 1993, the National Institute of Development Research and Documentation (NIR) of the University of Botswana and the Centre for Development and the

Environment (SUM) of the University of Oslo conducted a survey to try to understand the factors behind poor nutrition amongst children in the Chobe region in Botswana. This research showed that the younger the children were, the more likely they were to be malnourished. This could have been due to the possibility that mothers from poorer regions may have to work to help support the family, therefore having less time to spend nurturing their young children. Babies and children who are breastfed obtain vital nutrients such as protein, phosphorus and calcium from their mother's milk. When they are weaned, these nutrients may be absent from their diets, resulting in poorer nutrition (Gobotswang, 1993). It follows that the older the children in the Chobe district were, the less nutritional deficiencies they had. Therefore, the results of this study indicated that teenagers in the Chobe district in Botswana have a healthier diet, resulting in less nutritional deficiencies, than the teenagers in America. However, it must be mentioned that this study was conducted in a rural African setting, whereas the study done by Lin *et al* was on the diets of children from American urban households.

The teenagers surveyed in the Chobe District in Botswana would not have had as much exposure to modern diets and processed foods as the teenagers surveyed in America had. It is also unlikely that the African teenagers would have been exposed to the mass media and the marketing tactics of MICs. Their values and attitudes towards food would therefore be greatly influenced by their families and culture, resulting in a sustainable diet based on traditional food. The American teenagers, on the other hand, would have grown up in a society where every household had television, magazines and computers. This exposure to media and advertising of 'junk' food could greatly influence their food choices.

In the past twenty years, urban African societies have been increasingly exposed to the media, and through this, the marketing and advertising of food products. African teenagers in urban areas could therefore also be influenced by these marketing tactics. Evidence of this can be seen in a study conducted by Bourne, who conducted research into the dietary intake of an urban African population between the ages of 3 and 64 years (Bourne, 1996). Among the groups studied, he analysed the diets of 119 adolescents between the ages of 15-18 years. He noted an increased intake of fats and animal proteins in those with increased exposure to urbanisation, whereas the intake of carbohydrates, fibre and plant proteins decreased with the exposure to western diets. He

also found that this age group had the highest reports of diets deficient in nutrients such as vitamin A, vitamin C, B-complex, zinc, iron and copper. These findings concur with those of Lin et al in America. This would indicate that teenagers in Africa living in urban areas are following similar eating habits to those in America, resulting in over-nutrition of fats and animal protein and under-nutrition of vitamins, minerals and fibre in the diet.

Bourne also predicted that the current increase in degenerative diseases (such as diabetes) would accelerate with increased urbanisation and improvements in the socio-economic status of the urban African population (Bourne, 1996). In 2003 Professor Cameron of Loughborough University in the UK conducted research on the growth of children in post-apartheid South Africa. In his study, Cameron found that adopting a modern, western type diet has had a *negative* rather than a positive effect on the health of South African children. This negative effect includes increased incidents of stunted growth and obesity in children and youth. His research also linked stunted growth in childhood with obesity and type 2 diabetes in adulthood. A link can therefore be established between an urban lifestyle, exposure to advertising through the media, increased intake of processed food and an increase in lifestyle diseases such as type 2 diabetes in Southern Africa.

2.2 Teenage autonomy

In 1998, the Department of Epidemiology and Community Health in the University of Minnesota undertook a ten year project that was designed to investigate the eating habits of adolescents. 'Eating Among Teens' (Project EAT 1) aimed to find out if teenagers in Minnesota were receiving the required dietary intake (RDI) of nutrients so that more effective nutrition interventions could be developed (Eisenberg, Olson, Neumark-Sztainer, Story & Bearinger, 2004). Between 1998 and 1999 more than 4,700 adolescents completed a survey on their eating habits. Quantitative data from the survey was analysed using various statistical methods. Random selection was then used to collect qualitative data from one hundred and forty one students in focus groups. The project found that most teenagers eat breakfast irregularly, and that many teenagers do not participate in family meals. This was also seen to have an impact on teenage intake of calcium, fruit and vegetables in the diet. They also found that younger teens tended to

eat more family meals than older teenagers. Two of the reasons identified for this were the teenagers' desire for autonomy and their dislike of foods served at family meals. Warwick, McIlveen & Strugnell (1999) studied the food choices of children between the ages of nine and seventeen in Northern Ireland. This study found that teenagers tend to rebel against cultural norms and values in an attempt to establish their own identity, and that this could be a possible factor influencing their food choices.

2.3 Socio-economic status

Warwick et al (1999) also noted that there was a correlation between income and the amount of money spent on junk foods such as fizzy drinks, chips and chocolate. They found that although children from wealthier families had access to a wider variety of foods and more fresh fruit and vegetables, as the income increased, so did the temptation to buy fast foods. Neumark-Sztainer, Larson, Fulkerson, Eisenberg & Story (2010) published a paper on the findings of project EAT. They found a correlation between a higher socio-economic status and the frequency in which families ate meals together, and this in turn was reflected in the type of foods eaten by the adolescents in the study. The adolescents who ate with the family had a higher intake of foods rich in micronutrients, i.e. fruit, vegetables, whole grains, milk and milk products. They also reported that these same adolescents had a lower intake of soft drinks such as Coca-cola (Neumark-Sztainer et al, 2010).

2.4 Stigma

In 2007, The British Council and the South African Agency for Science and Technology Advancement produced a documentary called *South Africa-The journey to nutritional health*. The aim of this documentary was to reveal *why* South Africans eat what they do, and included the opinions of some learners, educators and local residents in both urban and rural areas throughout South Africa. Some of the learners interviewed by The British Council felt that there was a stigma attached to eating the healthier food provided by South Africa's Integrated Nutrition Programme (INP), and referred to the learners who ate this food as 'RDPs', in reference to the Government's Rural

Development Programme. They also said that even though this food was available for all, only those whose parents were not working (therefore very poor) ate this food, and were pitied by the others. Most of the children interviewed bought snacks and 'junk' food from the vendors who came to the school at break time. Hence, even when healthier food options were available free of charge, the children *chose* to buy junk food, as eating the more nutritious lunch offered by the feeding scheme was looked down upon by their peers. Therefore it seems that having enough money to purchase 'junk' food may be seen as an indicator of social status in post-apartheid South Africa.

2.5 Concept clarity

In order to clarify the meanings behind the terminology I have used in this thesis, I will explain what I mean by the concepts of 'teenager', 'food choices', tuck-shop, 'junk food', 'cool', 'development', 'diet' and 'diabetes'. This will assist the reader in understanding my interpretation of these words as used in the text.

a. The 'teenager'

A teenager is an adolescent between the ages of thirteen and nineteen years. The term 'teenager' was used by Abrams in the late 1950's as a specific target market for advertising products (Abrams, 1959). This led to the creation of the 'teenager' as a person with a unique identity with needs that had to be met - an image that was adopted by western society at the time. Many older people from Europe and America who went through the teenage years in the decades before the late '50s say that this concept was unknown to them. To quote my mother-in-law, Leonie Kroone, who spent her adolescence in the 1940's in a small town in The Netherlands, "You were a child until you were twenty-one, then you became an adult. There was no stage in between" (Kroone, 2014). My mother, Máirín Mhic Chormaic, who was an adolescent in Limerick city during the 1950's in Ireland, said, "We were never told that we were supposed to rebel. We wouldn't have dreamed of saying that we didn't eat the food that was placed in front of us", (Mhic Chormaic, 2013). Therefore, it would seem that an identity was created for 13 – 19 year olds in the 1950's which gave adolescents a persona that previously didn't exist.

The iconic film, *Rebel Without a Cause*, featuring James Dean (1955) was an example of this teenage persona that emerged. Although Dean died in a car accident one month before the film was released, his character in this film epitomised the newly formed identity of middleclass, suburban teenagers. Erikson's findings on the formation of teenage identity in 1959 may have further motivated companies to exploit teenagers by providing them with products that emancipated and alienated them from familial and cultural norms and standards. For the purpose of this research, therefore, when I refer to teenagers I will be referring to adolescents between the ages of 13 and 18, who are in a crisis of identity as described by Erikson, and are therefore vulnerable to the marketing tactics of MNCs who seek to use this identity crisis to their advantage.

b. Food choices

One of the consumer rights that learners are taught in Consumer Studies is the right to choose, in other words, the right to be free to select from any number of available options. Lifestyle choices are not only influenced by objective factors such as age, gender, etc., but also by subjective factors such as people's opinions and values (Wedel and Kamakura, 2000, cited in Dagevos *et al*, 2011: 7). Glasser (1998) maintains that in order to be happy, choices have to be based on intrinsic and not extrinsic motivation. However, Consumer Studies teaches that choices are influenced by many factors, both intrinsic and extrinsic, including socio-psychological influences such as culture, religion, family traditions and peer-pressure. While it is true to say that the poor have very limited or no choice when it comes to food options, this is not the case for urbanised teenagers in South Africa. Therefore, when I refer to teenage food choices, I am referring to the choices made by teenagers in a middleclass urban society, such as the teenagers in the school in which I teach.

c. Tuck-shop

'Tuck-shop' is the term used in South Africa for a shop on the school premises that sells snacks, sweets and drinks.

d 'Junk' food

Any reference I make in this thesis to 'junk' food indicates food of low nutrient density. This is frequently processed food which contains a lot of sugar and/or fat, colourants, flavourings and additives. The main nutrients present in this type of food are refined carbohydrates and fat, which, when over-consumed, can lead to dietary related diseases such as obesity, coronary heart disease and diabetes. The term 'junk' food is also associated with food produced by fast food giants such as McDonalds, KFC and Coca-cola. The food sold in these outlets is highly processed and contains a lot of additives and preservatives. This food is targeted at children from a young age by using bright colours, games, free gifts and entertainment to attract their audience. Images are created of happy families, popular teenagers and healthy, active people. The food is cheap, as it is made from ingredients that are mass produced in bulk and processed to a point where the original source is hardly identifiable.

e. 'Cool' food

Teenagers in South Africa refer to anything that they and their peers find interesting and desirable as being 'cool'. Any reference made in this thesis to 'cool' food indicates that this food is favoured by teenagers over traditional food. 'Junk' food is an example of 'cool' food, and is often promoted by sports stars or other famous people that the teenagers admire. In South Africa, carbonated drinks such as Coca-cola and Fanta are also known as 'cool' drinks, which could point to the temperature at which they are served, or their popularity. In order to appear 'cool' themselves, the teenagers need to be seen with 'cool' phones, 'cool music', 'cool' clothes and - as this research will show - 'cool food'.

f. Development

Development is defined in the *Oxford Advanced Learner's Dictionary* as being “a new event or stage that is likely to affect what happens in a continuing situation” (Hornby, 2010: 400). I view development as a process of constant change that brings with it new ideas and trends that impact on the *status quo*. Development is frequently seen in a positive light, as it usually indicates better and improved lifestyles in a society. However, I would like to argue that development in post-apartheid South Africa has had a detrimental impact on the health of South

Africans. Bourne (1996) predicted that exposure to western-type foods would lead to a nutrition transition in urban African communities. As a result of this, degenerative diseases such as diabetes would also increase. Irogbe (2005) claimed that rather than contributing to advancement, development actually accelerates the underdevelopment of poorer nations. Although underdeveloped countries contribute to world trade and the global economy, this involvement is limited to satisfying the needs and increasing the wealth of the richer, dominant economies. He sees MNCs as agents who exploit the people in underdeveloped countries for financial gain, with little regard for the consequences. As financial markets in developed economies mature, their growth rates slow down. Western companies then look to developing economies, such as in Africa, as a potential market (Foroohar, 2011). Hence, recent years have seen an increase in the number of MNCs who market their food products to the South African public (British Council and South African Agency for Science and Technology Advancement, 2007). The MNCs' increased profits end up benefitting the parent companies in the developed world, while ignoring the negative effects their products have on the health of the South African public.

g. Diet

When referring to 'diet', I mean the regular food eaten by an individual or a group on a daily basis. A balanced, healthy diet is considered to be one that contains all the six nutrients in the correct proportions. This information is communicated to the consumer in the form of a food pyramid. The foods placed at the base of the pyramid should form the bulk of the diet, and be eaten with every meal. Those at the top of the pyramid should be eaten in small quantities, and include sweets and carbonated beverages which should only be imbibed occasionally. Foods in the food pyramid are grouped as follows (from the base of the pyramid upwards):

1. Bread, cereal, rice and pasta.
2. Vegetables.
3. Fruit.
4. Milk, yoghurt and cheese.
5. Meat, poultry, fish, dry beans, eggs and nuts.

6. Fats, oils and sweets (foods containing a lot of fat, sugar or salt, including junk food).

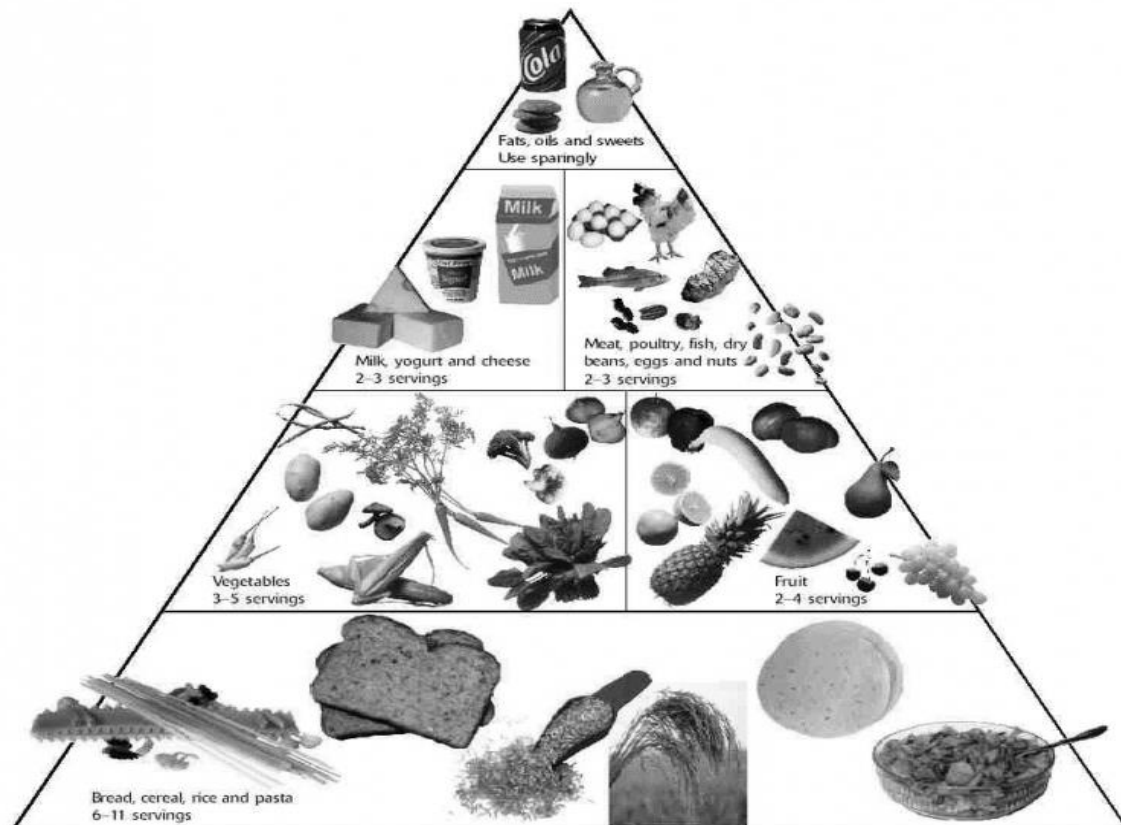


Figure 1.1 The FDA Food Pyramid (2014)

Fad diets surface every now and again that propose to be the solution to healthy eating. For example, the latest diet trend is the 'Banting diet', devised by a doctor circa 1862 for William Banting, a morbidly obese London undertaker (Noakes, Creed, Proudfoot & Grier, 2013: p.21). Well-known scientist and nutritionist Professor Tim Noakes has investigated the advantages of eating a low CHO, high fat diet as a solution to obesity and diabetes. Noakes's suggested diet has taken middle-class South Africa by storm, as he challenges the traditional food pyramid accepted by the World Health Organisation and the NDF of South Africa (Noakes, 2013). Noakes *et al* claim that the increase in diabetes in South Africa – and indeed the world – is a direct result of the promotion of 'low-fat' and 'fat free' products to the consumer since the late 1970's. He also states that the promotion of a high CHO, low-fat diet was done by multinationals that provide the refined sugars and starches that are included in most processed foods. Noakes argues that the amount of CHO present in most people's diets is causing insulin intolerance

and leading to the development of type 2 diabetes. He suggests that instead of ingesting CHO, the body's energy needs should be met by including more fat in the diet. Although I agree with his theory that the diets of most consumers in the developed world contain a disproportionate amount of refined CHO and sugar, I would be hesitant to promote this as a healthy diet. The amount of saturated fat in the Banting diet proposed by Noakes's *et al* could contribute to other dietary related diseases such as coronary heart disease. Therefore, more research needs to be done on the long term effects of the Banting diet before its efficacy can be approved.

h. Diabetes

Although I am concerned with all aspects of healthy eating, I am particularly interested in engaging learners with making food choices that will prevent the onset of diabetes mellitus. My mother was diagnosed with this disease in 2006, and I have personally witnessed the debilitating effects it has had on her quality of life over the past nine years. Commonly known as type 2 diabetes, diabetes mellitus used to present itself in ageing adults, particularly older obese women (such as my mother). However, in recent years, the prevalence of type 2 diabetes developing in children, adolescents and young adults has notably increased.

Diabetes is classified into three main types: type 1, type 2 and gestational diabetes. In order for the reader to understand the differences between these three types of diabetes, I will briefly explain the characteristics of each.

Type 1 diabetes. This type of diabetes occurs in 10% to 15% of diabetics. It occurs when the pancreas does not produce any insulin. This is largely due to the immune system attacking the beta cells in the pancreas; however, why this happens is not yet known. Its onset occurs early in life, sometimes from infancy and early childhood, but can occur in anyone under the age of thirty. Its onset is also sudden and dramatic, and type 1 diabetics need to inject themselves with insulin to survive.

Type 2 diabetes. This occurs in 85% to 90% of diabetics. It develops when the pancreas does not produce enough insulin, or the insulin that it produces does

not function properly. This results in malabsorption of glucose into the receptor cells in the muscles. The glucose then builds up in the blood, raising blood sugar levels. The reason for this malfunction in either the pancreas or the insulin itself is unknown. Historically it occurs in adults over the age of forty years; hence it is also referred to as adult onset diabetes. Unlike type 1 diabetes, its onset is gradual, and often goes undetected. For this reason, many people are unaware that they have it. This is what poses the real danger, as lack of treatment can damage fine blood vessels in the extremities such as the fingers and toes. This causes lack of blood and oxygen to these and other organs, resulting in gangrene, amputation, impotence, blindness, cardiac failure, heart attack and kidney damage. In the early stages of the disease type 2 diabetics can usually control their blood sugar levels with diet and exercise. However, the condition progressively gets worse, and the sufferer will need insulin in the form of tablets to reduce high blood sugar levels. Eventually, as less and less insulin is produced by the pancreas, all type 2 diabetics will need to administer insulin in the form of injections in order to survive.

Gestational diabetes. This form of diabetes only occurs during pregnancy.

Although it is a temporary condition that disappears after the birth of the baby, it can indicate a predisposition for the mother or the baby to developing diabetes later in life. This factor was not investigated in this study.

i. Impaired glucose tolerance (IGT)

According to the IDF (2014), impaired glucose tolerance (IGT) is diagnosed when blood sugar levels are higher than normal, but not so high for a positive diagnosis of diabetes. IGT is often referred to as pre-diabetes, but is actually an indicator of the early stages of type 2 diabetes.

j. The glycaemic index

The glycaemic index (GI) is a measurement of the rate that carbohydrates are digested and enter the blood stream as glucose. The faster food is digested the higher the score on the glycaemic index, rating it as a high GI food. Food that releases energy slowly into the blood stream is therefore rated as low GI, which means that it has a low score on the glycaemic index.

2.6 Risk factors of diabetes in adolescents

It is generally accepted that being overweight increases the risk of developing diabetes. However, it needs to be noted that this is merely a risk factor and does not exclude people of normal body mass index (BMI) or people who are thin from developing the disease. Other risk factors include gender (more females than males develop diabetes), race (Indian and those of Indian descent are at greater risk), genetics (having a family history of diabetes increases the risks), age (over 35 years), stress and having other dietary and lifestyle related diseases such as high blood pressure and high cholesterol. Considering that my learners do not fall into the high-risk age category, the reader could be forgiven if at this point he/she was to wonder why I felt that they may be at risk of developing this disease. Research has shown that there is a link between the type of food eaten by adolescents and their health later in life.

In 2003, Professor Cameron found that modern food trends have had a negative effect on the health of South African children (Cameron, 2003). His research also linked the food choices of the youth with the development of obesity and type 2 diabetes in *adulthood*. Furthermore, a recent article published online by Diabetes SA, stated that adolescents are very susceptible to developing type 2 diabetes, as the increase in hormone levels during puberty inhibit the production of insulin (Ord, 2014). Ord also reported that when type 2 diabetes in adolescence presents itself, it is more aggressive than it is in adults. In addition to the increase in the number of people with diabetes in South Africa, Diabetes SA has stated that the number of children and adolescents who develop type 2 diabetes is also on the increase (Diabetes SA, 2015). This is largely due to changes in diet and lifestyle habits over the past twenty to twenty-five years.

Children and teenagers are less active today due to spending many hours on the Internet and playing computer games. Combined with this is the augmented dependence on processed and 'junk' foods that are high in kilojoules, leading to a greater number of teenagers who are overweight or obese. In the school in which I teach, fewer learners are taking part in sports and other physical activities after school and at weekends. Most of the learners have a computer in their home, and possibly all have a television. This lack of physical activity can increase the risk of obesity. All of these factors compound to create a greater risk of developing type 2 diabetes in westernised societies.

2.7 Conclusion

Previous research conducted on teenage food choices indicates that teenagers living in urban societies are exposed to a diet which is lacking in micro-nutrients such as vitamins and minerals and laden with macro-nutrients such as protein, fat and refined carbohydrates. This in turn makes them prone to the onset of dietary related diseases such as type 2 diabetes. Bourne (1996) identified a change in the diets of urban adolescents which has resulted in an increase in type 2 diabetes in Southern Africa. This change in diet corresponds with increased urbanisation and exposure to westernisation through globalisation and the media. The fall of apartheid opened up a new market for food products made by multinational corporations such as McDonalds, KFC and Coca-cola. Advertisements for these products offered a new identity to teenagers in South Africa wanting to escape the stigma associated with the poverty of the past. 'Junk' food became a symbol of development and modernisation for these teenagers, who now reject traditional food choices in favour of processed food, thereby increasing the risk of developing type 2 diabetes in adulthood.

CHAPTER 3. THEORETICAL FRAMEWORK

In this chapter, I will develop an argument to support my claim that teenagers are manipulated by MNCs into making unhealthy food choices. These MNCs use the identity crisis experienced by teenagers (Erikson, 1959) to develop a new identity that they can relate to. The MNCs identify problems (real or perceived) experienced by the teenagers and then advertise their products as offering solutions to those problems. The teenagers then become physically, socially and psychologically dependant on those same products so that they can align themselves with an identity that make them 'cool' and popular with their peers. In order to clarify this, I have developed a model incorporating a trilogy of theories that I believe are instrumental in influencing teenagers' food choices (Figure 3.1). These are identity theory (Erikson, 1959), culture industry theory (Fromm, 1955) and dependency theory (Ball-Rokeach & De Fleur, 1976; Irogbe, 2005).

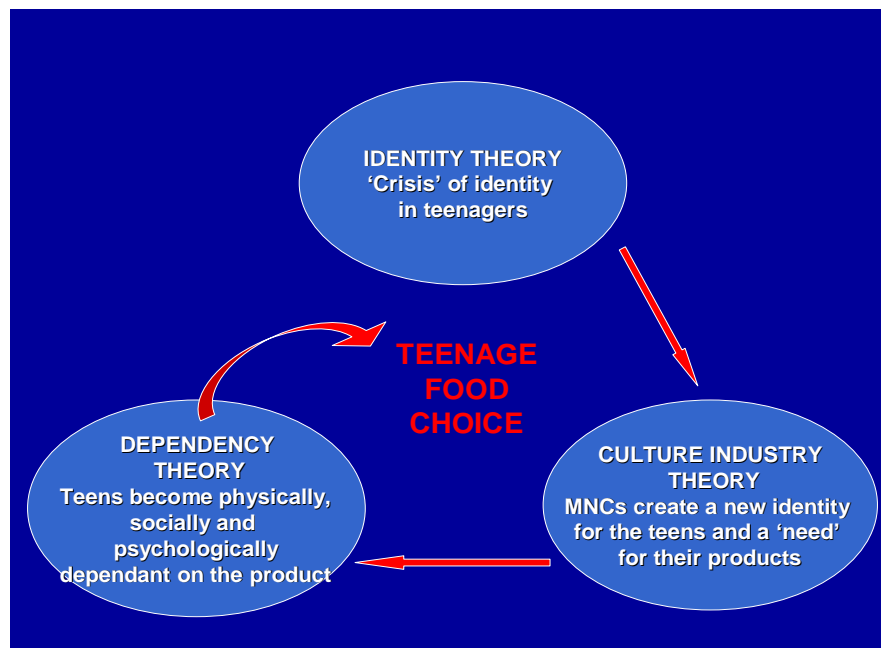


Figure 3.1 Using a trilogy of theories to understand how MNCs influence teenage food choice (Kroone & Alant, 2012).

3.1 Identity theory

Since the 1950s, the formation of teenage identity has been studied by theorists trying to understand the personality changes that develop during the teenage years.

Erikson (1959) noted that a crisis of identity occurs in early adolescence when teenagers struggle with converging who they were as a child with who they should become as an adult. Their self-image at this stage is fluid, and very dependent on how they are perceived by their peers. Over the next few years they frequently change their image as they try to find a persona that is truly representative of who they are (Erikson (1959). Marcia (1980) also found that teenagers reached a crisis of identity in their transition from childhood to adulthood. Eventually, he states, the teenager commits to a certain identity that best fits with their values and perceived role in life. It is therefore very obvious that teenagers are at a very vulnerable stage of their development (Kroone & Alant, 2012). MNCs use the media as a tool to reach their target audience. In so doing, they present teenagers with images that they would like to be identified with, therefore presenting them with a product that associates them with this popular image (Gauntlett, 2008). As a result, teenagers frequently become dependent on using these products and brands that project a popular identity amongst their peers (Gauntlett, 2008; Giddens, 2009).

2.7 Culture industry theory

In the 1950's, a group of theorists, including Horkheimer and Fromm, created a discourse based on a critique of western capitalist societies. This group became known as the Frankfurt school, and based their theories on the use of the media as a means of dominating and controlling the population (Kroone & Alant, 2012). If the media is viewed from this perspective, then it is a powerful tool for influencing and controlling consumer behaviour. According to Fromm, manufacturers use the media to create consumer markets for their products. They use psychological methods to create 'needs' within the consumer that the product they are marketing will then satisfy. The aim of advertising is not only to provide information about a specific product, but also to create brand awareness and subsequently brand loyalty to the company that produces that product. In order to do this, the company markets an image that is associated with the brand in a direct attempt to attract a specific target audience to the product. In so doing, the company purposely targets a specific branded product to a specific audience. One would assume, then, that the needs of the target audience (whether psychological, emotional or physical) have been researched and met. As explained in chapter two,

teenagers were first targeted as a separate market for products in the late 1950s (Abrams, 1959). In targeting products specifically to teenagers, an identity was created for thirteen to nineteen year olds that was hard for them to resist. It is evident that the media plays a significant role in creating this dependency amongst teenage consumers.

2.8 Dependency theory

As a developing country, South Africa has opened its doors to MNCs who can invest in this country's economy. These companies bring with them business structures that have proved to be successful in other, mainly westernised, societies. However, in order to be financially successful, they have to increase their profitability. One way of doing this is to expand the base of their target market so that they can increase sales. The growth of a middleclass in developing countries offers the ideal opportunity for the MNCs to increase their market share, and hence, their profitability (Irogbe, 2005; The Millennium Project, 2015). MNCs bring employment opportunities which in turn provide consumers with disposable income that can then be injected back into the economy through the purchase of products (World Bank report, 2001).

Television sets are amongst the more popular appliances that are purchased in newly developed countries; one only has to take a drive past many new low-cost housing structures in South Africa to see the amount of satellite dishes that are mounted on the outside walls. Television stations earn money through advertising products to the consumer. As the aim of advertising is ultimately to sell the product, many advertising strategies are cleverly designed to influence consumer choices through psychological manipulation. Irogbe (2005) refers to the influx of MNCs in developing countries as another form of colonialism (Irogbe 2005, in Kroone & Alant, 2012). He based his opinions on dependency theory, (Ball-Rokeach & De Fleur, 1976), and claims that MNCs accelerate the underdevelopment of poorer nations through exploitation (Irogbe, 2005). Consumers then become physically, psychologically and emotionally dependant on the products that are advertised by MNCs (Kroone & Alant, 2012). As South African teenagers are exposed to western culture they align themselves with the images of 'cool' people they see on television. They adopt this for themselves, and demonstrate their new identity through branded clothing, footwear and 'junk' food. Some of my learners have

gone as far as adopting an American accent when they speak. This is a strong indicator of the psychological influence that advertising has on teenage food choices and the role that MNCs play in the increase in dietary-related diseases such as type 2 diabetes. An increase in these lifestyle related diseases not only impacts on individuals and their families, but also drains the country of its workforce and places a greater burden on the healthcare system. Therefore, rather than contributing to development, MNCs contribute to the underdevelopment of South Africa (Irogbe, 2005).

3.4 Conclusion

As teenage food choice is a complex phenomenon, I realised that this research could not be underpinned by one theory alone. I therefore used a trilogy of theories that interact to influence teenage food choices. Identity theory pinpoints a crisis of identity experienced by teenagers as they establish their own ideas and values independently from those of their parents. Culture industry theory claims that MNCs use this crisis of identity to their advantage and use the media to communicate a new image that these teenagers then adopt. The teenagers become emotionally and socially dependant on the products associated with that image (Dependency theory). This provides them with an identity that is 'cool' and ensures that they are accepted by their peers. Therefore, teenagers are manipulated by the MNCs into buying food products that portray the images of the people they want to be like.

In the following chapter, I will explain how the teenagers' need for autonomy guided my decision to use a methodology of PAR to empower the learners in making food choices that will benefit their own health, and not the wealth of the MNCs.

CHAPTER 4. METHODOLOGY

In this chapter, I will explain what led me to choose a methodology of participatory action research, and how using this methodology could influence teenage food choices (Figure 4.1). I will also explain how I planned to incorporate the data collection on two levels in the empirical research.

4.1 Study location

A former 'model C' school was chosen as the location of the study. This is the term used for a school that is funded by and under the control of the State, but with a degree of fee subsidy by the parents. This school was chosen because it is co-educational and is a good representation of South African cultural, racial and economic diversity. It has a large catchment area, and is situated close to a vibrant developing town. As I teach at the school, it was also convenient for purposes of collecting data. This is an English medium school, which facilitated communication with the teenagers in the school, as I am not proficient in isiZulu, the mother tongue in this geographic area.

4.2 Study design

As this study focuses on understanding the influences on teenagers' food choices, I felt that qualitative research methods would yield richer data than quantitative methods. Food choice is largely influenced by values and attitudes, which are not measurable phenomena. The personal experiences and opinions of the learners add a greater depth to understanding the complexity of influences on teenage food choice, which could not be captured with numerical data. As this research is underpinned by Erikson's identity theory (Erikson, 1959), I felt that it was important to acknowledge and harness the teenagers' desire for autonomy. Therefore, I decided that a methodology of Participatory Action Research (PAR) was the most appropriate methodology to use. Action research (in general), is based on critical theory, and aims at revealing social exploitation so that participants can be made aware of the need to make the changes necessary for their own, and each others' well-being (Maree, 2007; McNiff, 2002). In PAR, a research study is

initiated by the researcher, (in this case me), and the participants are involved in the implementation and analysis of the study (Hart, 1992). I hoped that by educating the teenagers in this school on diabetes risks, the GI index and making healthier food choices, they would be empowered to become critical of the foods currently marketed to them. As a result, they could become instrumental in bringing about a positive change in their own food choices and the food choices of their peers (McNiff, 2002; Kroone & Alant, 2012). I also hoped to raise awareness of how MNCs exploit the vulnerability of teenagers by targeting them as consumers for unhealthy food products. I hoped that this action research could lead to the development of an emancipatory pedagogy for teenage education on food choices in this, and perhaps other, South African schools (Wood, 2009).

When choosing a suitable methodology, I also had to consider the role played by discipline in South African schools. Most schools in South Africa follow strict codes of conduct, including regulations on hair styles and uniforms. Food choice is one area that, until now, has not been controlled and regulated by school management and teachers. Any attempt to do so could be met with firm opposition from the learners themselves (Warwick *et al*, 1999), which could result in a boycott of healthier food choices altogether. One has also to consider the rebellious nature of teenagers (Warwick *et al*, 1999); if schools forbade learners to eat 'junk' food this might merely add to its appeal as a symbol of their youth and identity. Furthermore, my role as Grade Controller and a member of the SMT could form a barrier between me and the learners. However, this barrier would not exist if the interviews were conducted by their peers. For that reason, I felt that any investigation on food choices in the school had to be done with the learners themselves as active participants. This involvement follows Hart's (1992) ladder of student participation in research, which states that young people are more co-operative and responsive to changes made on their behalf if they are involved in the collection and analysis of data. Figure 4.1 indicated how I envisioned PAR influencing teenage food choices:

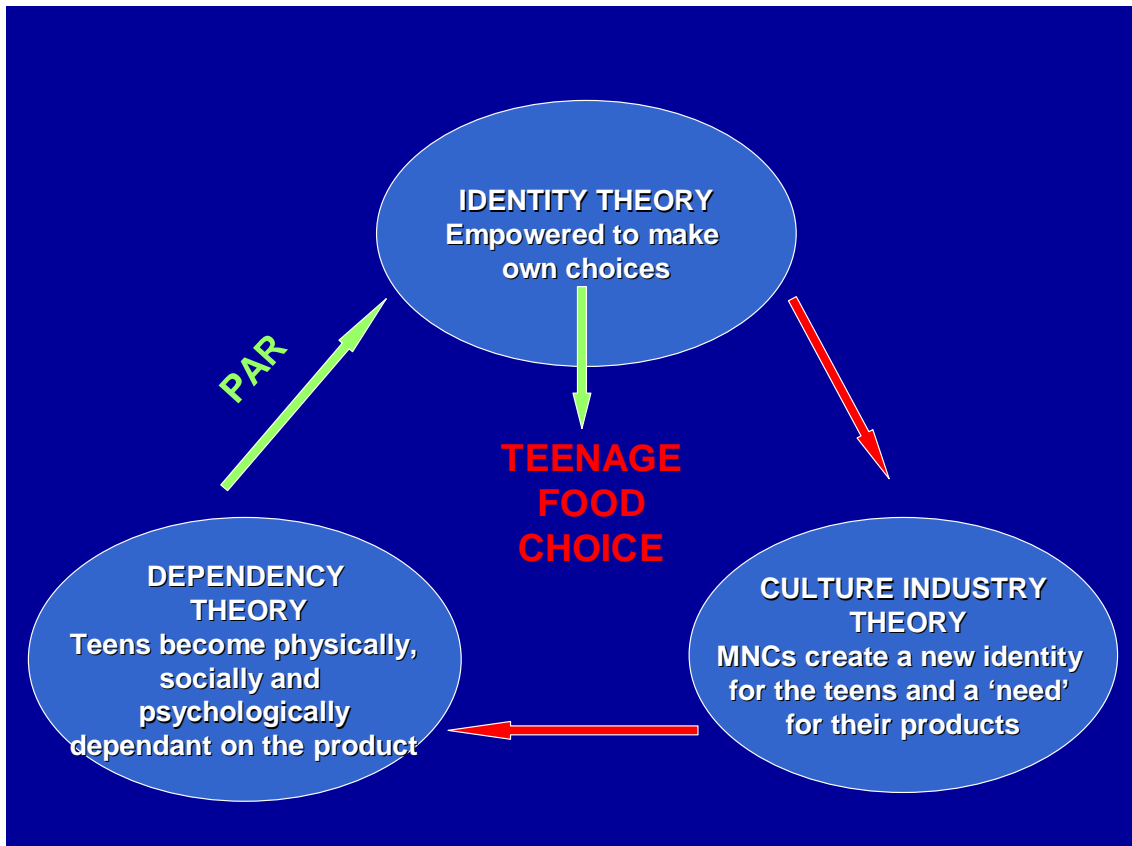


Figure 4.1 How PAR can empower teenagers to make their own food choices

(Kroone & Alant, 2012)

4.3 Introducing the research

In order to create an awareness and understanding of diabetes, I invited Jenny Russell from Diabetes SA to address this topic at a school assembly. Learners interested in being involved in the research were then invited to collect application forms from their registrars. These forms included a detailed explanation of the research along with consent forms for both the parents and the learners to sign (Appendix B). Fifty-nine consent forms were filled in and returned to me. Of these, thirty-two learners participated in this study.

4.4 Generating data

As previously mentioned, two parallel sets of data were collected so that they could be compared in the analysis (McTaggart, 1999). L1 involved collecting data on the food choices of learners from the whole school. L2 involved collecting data on the food choices of the participants in the focus group. As the methods that I used were experimental, comparing the data from both levels in the analysis and discussion could add validity to my research should similar findings emerge from both (McTaggart, 1999).

4.4.1 Selection of participants for L1

As each of the application/consent forms was handed in to me, I allocated a number to that form. This number then became the identity number of that participant, and was embroidered by machine on a wristband which was to be worn for the week of the data collection. The teenagers were required to come to me personally to return the forms and collect the wristbands.

Of the fifty-nine teenagers who submitted the application forms, twelve did not return to collect the wristbands. A further fifteen collected the wristbands, but did not take part in the questionnaire/interviews (Table 4.1). There is a possibility that the twelve who did not collect the wristbands did not get the message that they were to collect them from my office; furthermore, there is the possibility that they might have felt too intimidated by my role as Grade Controller to come to my office to collect them. Reluctance to come to the kitchen instead of mingling with their friends on the field could also have been a contributing factor to the lack of participation at this level. Nevertheless, the teenagers who did collect the wristbands were very pleased to get them, as they are not usually allowed to wear wristbands at school. The wristbands were therefore considered to be 'cool'.

In order to maintain the anonymity of the participants in L1, each learner was given a code which related to the number on the wristband. For example, the participant who had the wristband with the number 59 on it was referred to as WB 59. This code was then used to reference any of the data collected. If this learner participated in the

interviews on the first day of the data collection at L1, this was referenced as WB 59, L1, Day 1, and so on.

Table 4.1 Summary of those who returned the participation/consent forms.

Learners who:	No. on wristband	Total
Did not collect wristband	2; 8; 19; 20; 24; 25; 26; 33; 34; 36; 44; 48	12
Collected wristband, but did not participate	5; 9; 15; 16; 17; 22; 32; 35; 38; 40; 41; 45; 50; 52; 54;	15
Participated	1; 3; 4; 6; 7; 10; 11; 12; 13; 14; 18; 21; 23; 27; 28; 29; 30; 31; 37; 39; 42; 43; 46; 47; 49; 51; 53; 55; 56; 57; 58; 59	32
Total:		59

4.4.2 Collection of data at L1 (Whole school level)

In L1, the twelve members of the focus group acted as co-researchers to collect data on the food choices of their peers. This data was collected via daily interviews held at breaks. Originally when planning the collection of data at this level, I had hoped that the co-researchers could mingle amongst the learners on the field during break. However, this became difficult to do as the ethics committee at UKZN only permitted photographs and interviews with the learners who had accepted the invitation to partake in the research by returning the application/consent forms. In a school of over 1000 learners, it would have been very difficult for the co-researchers to locate the willing participants amongst those who were not involved. Therefore, the co-researchers and I decided that it would be easier to collect the data if the participants met at a fixed location each day. We decided to use the Consumer Studies kitchen during breaks, as it is located in a central position in the school, and is next door to the school tuck-shop.

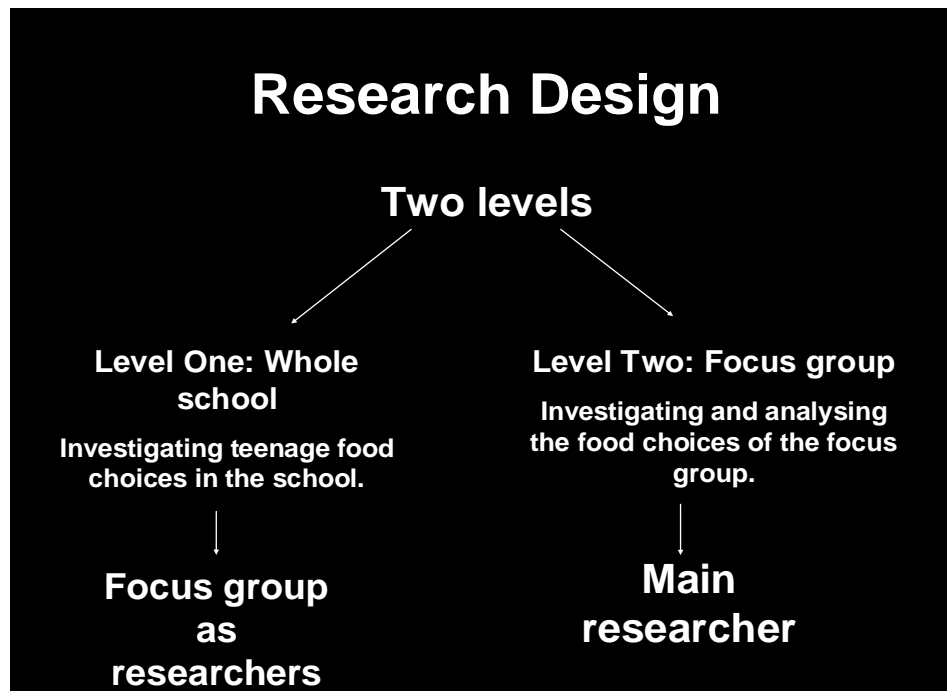


Figure 4.2 Research Design (Kroone & Alant, 2012)

The interviews in L1 were based on a simple questionnaire (Appendix C) which had been approved by the UKZN ethics committee. Disposable cameras were given to the focus group members so that they could photograph the lunches of their peers. These photographs could then be used to validate the information on the questionnaire.

As using learners to collect data could have ethical implications, permission for this was first sought and granted by the research ethics committee at UKZN. The co-researchers were only permitted to ask questions from the questionnaire that had been submitted and passed by the ethics committee prior to embarking on the research (Appendix D). Before beginning, the focus group were trained on the importance of research ethics. They interviewed their peers on a daily basis using the approved questionnaire as the instrument. They also used the disposable cameras to take photographs of the contents of the participants' lunchboxes.

4.4.2 Selection of participants for L2

In choosing the participants for L2, I purposely selected learners from the application/consent forms in order to get a mixed group of learners to give me a broader perspective on influences on teenage food choices in the school. I chose twelve learners to form the focus group, six aged between 13 and 15 years (juniors), and six between 16 and 18 years (seniors). The focus group met once a week after school for six weeks. The

duration of each meeting was for two hours. The times and days of the meetings were arranged on a weekly basis and varied according to the extra-curricular involvement of the learners in the group. At each meeting I investigated the learners' attitudes towards different foods, including cultural, low GI and junk food options.

The learners were filmed while making food choices, and then they reflected on the reasons for those choices (Whitehead, 2008). Questions that arose from the reflection helped to guide me towards the focus for the next meeting. Filming the focus group sessions ensured that I did not lose any of the students' facial expressions or comments as they sampled the various foods. Using film also allowed me to focus on the practical task of preparing the food and answering the learners' questions, giving me time for more thorough reflection later.

4.4.3 Collection of data at L2 (Focus group level).

Data collection at L2 ran simultaneously with the data collection at L1. L2 aimed at investigating and analysing the food choices of the focus group members themselves. The purpose was not only to identify the impact of their food choices on their risk of contracting type 2 diabetes, but also to understand the factors that influence their food choices. With this knowledge, I hoped to identify some way in which I could engage them in making healthier food choices. In L2, the reactions of the learners and their comments on the food that they were given were captured on video recordings taken during five focus group sessions of two hours each. The cameraman was unavailable for the sixth focus group session, so data from this session was collected from field notes only. I had attempted to create a blog as another means of data collection, but this did not prove to be successful as it transpired that most of the learners involved did not have regular access to the internet. The videos were viewed repeatedly and then transcribed to capture not only the conversations that took place, but also the expressions of the learners as they reacted to different foods. I also used a voice recorder as a back-up, so that where there were any gaps in the videos, or where the sound quality, of the video recording was poor, the voice recordings were used to clarify what was said.

I also observed the learners and took some field notes, but found the video recordings to be invaluable since they could be played back over and over to minimise

any error that could occur in the interpretation of what was said. Using the film also allowed me to leave the room from time to time so that the learners were free to discuss the food without feeling in any way intimidated by my presence. The learners took this opportunity to speak individually in front of the camera about the reasons for their food choices. This was initiated by them; I only discovered it when I watched the video later. This was empirical evidence of the teenagers' desire for autonomy coming to the fore, and formed an important contribution to the research itself (McTaggart, 1999). I have established that teenagers associate 'junk' foods with youth, fun and a symbol of their identity and autonomy; therefore I tried to introduce an element of fun into the sessions, so that healthy food would also be associated with having a good time. As these teenagers have been raised in a post modernist society and have been conditioned to expect change in the *status quo*, I varied the methods that I used to collect data from week to week.

Once the participants in L2 had eaten, there was an informal group discussion on food, food choices, and factors influencing food choices. The reason for this was not only to collect data for analysis, but also to help them form an understanding of the relationship between their food choices and diabetes.

4.5 Details of focus group meetings

Each focus group meeting was planned with a specific purpose in mind. As previously mentioned, the methods used to generate data varied from week to week in order to avoid the monotony of repetition and keep the participants interested. The resultant data collected from this approach was rich and thick, albeit time consuming to analyse. The purpose of each of the focus group meetings can be seen in Table 4.2:

Table 4.2 Summary of focus group meetings

Week	Title	Purpose
1	<i>What's in the lunchbox?</i>	To explore learners' reactions to different foods.
2	<i>Healthy food choice?</i>	To understand learner perceptions of healthy foods.
3	<i>Competing with the tuck-shop</i>	To observe whether the learners will choose healthy foods over junk foods at the tuck-shop.
4	<i>The glycaemic index.</i>	To introduce the learners to the concept of the glycaemic index, and to observe the impact this knowledge has on their food choices.
5	<i>Choosing 'cool' food</i>	To understand social factors behind the learners' food choices.
6	<i>'Junk' food: the healthy alternative</i>	To explore learners' reactions to 'healthier' junk food.

4.5.1 Focus Group 1: What's in the lunchbox?

The learners were invited to choose a lunchbox from a selection on the table. Each learner was asked to describe how he/she felt about the 'mystery' lunch in their chosen box. Once everyone had a chance to speak, the learners opened the boxes to see what was inside. Some of the boxes contained 'junk' food such as chips, pies and sweets, others contained low GI food such as baby potato salad, and some contained traditional food such as samp and beans or amadumbe (an indigenous tuber similar to a potato). If any of the learners wanted to swop or share their lunches they could do so. Once they had finished eating, the learners were invited to select from a range of drinks. They then explained the reasons for their choice, and were asked to comment on the ingredients on the label of the drinks they chose. They were asked to take the lunchbox home, and bring it back in the next session filled with what they thought would be a healthy lunch. They were each given R15 to purchase the lunch, so that no-one was disadvantaged due to their socioeconomic status.

4.5.2 Focus Group 2: Healthy food choice?

The learners were invited to open their lunchboxes and show/explain what they brought. They were then invited to eat/ share the lunches. The learners were divided into pairs and each pair was given a disposable camera and copy of an interview guide for

their research into the food choices of their peers at L1. Research ethics regarding using the cameras and conducting the interviews was stressed.

4.5.3 Focus Group 3: Competing with the tuck-shop

Most of the food sold in this school tuck-shop could be classified as 'junk' food. However, for this meeting I prepared a number of fresh salad rolls and I arranged with the owner of the tuck-shop that they would be on offer that day. The rolls had a variety of fillings that were low GI, and would release energy slowly into the blood stream, therefore preventing the rapid rise in blood sugar levels associated with diabetes. The focus group were once again given R15 each and were filmed making their purchases from the tuck shop.

Eight learners from the focus group turned up for the session on this day. The low GI rolls were placed on the front counter of the shop. Only two learners out of the eight chose the fresh low GI rolls over other food from the tuck shop. The others bought pies, Doritos (corn chips), coke or other carbonated drinks and sweets. After they had made their purchases, we returned to my classroom where some of the learners volunteered to speak in front of the camera about the reasons for their choices.

At this meeting the focus group were also introduced to a blog that had been set up for the research. The purpose of the blog was to allow them the opportunity to post photos and comments of their food choices during the coming week. This then could also be analysed according to the theoretical framework. The learners were also introduced to the concept of the GI index, and how refined carbohydrates and sugar raise the blood sugar levels. They were asked to reflect on this over the coming week.

4.5.4 Focus Group 4: The glycaemic index

This meeting began in the school library where the learners had access to the internet. They were asked to search for information on diabetes and the glycaemic index. Then they returned to the classroom where they were presented with two tables. There was a selection of rolls, muffins, cool drinks and desserts on each table. However, one table had foods that were low GI and the other table only had foods that were high GI index. Learners could choose food from either one table or the other, but not from both. After the lunch, there was another discussion about their choice of low or high GI

foods. Then I initiated a discussion on the marketing/packaging of food. The learners were encouraged to give their perceptions of the influence of MNCs on teenage food choice.

4.5.5 Focus Group 5: Choosing 'cool' foods

The learners were allowed to choose whatever they wanted to eat for this session. They asked for pizza. Then they were divided into pairs to discuss the lists of GI foods they had downloaded from the internet on the previous week. They were then asked to select food from the list of low GI foods that they thought could be sold at the tuck shop. These lists were collected as part of the data.

4.5.6 Focus Group 6: Junk food - The healthy alternative

At this meeting, the learners were invited to eat hamburgers, and were not told until they had finished that the hamburgers were low fat, low cholesterol and low GI.

4.6 Transcribing

All in all, I found the transcribing of the video recordings to be the most tedious part of conducting this research (Matheson, 2007). I was warned by many that I had a monumental task ahead of me, yet I was ill prepared for the enormity of work that had to be done. Before I began the empirical data collection, I purchased a digital voice recorder that included software that could convert sound to text (Dragon Naturally Speaking). I used this to record the conversations that I had with the focus group, running it simultaneously with the video camera. Initially I had hoped that I could convert the voices of the learners directly into text using the software provided. However, this is only possible to do if each voice is pre-programmed into the voice recorder, so that it is recognised by the software. This would have involved many more hours of preparation and I was anxious to begin the focus group interviews and start collecting data. Furthermore, a digital voice recorder is best used in structured interviews, where a question is posed and an answer is given in direct response. The focus group in this study was encouraged to freely converse, making it very difficult to differentiate between voices at times. Eventually, I used the voice recorder as a back-up

if the sound on the video was unclear at any point, or at times when the video was not available.

I was advised to hire someone to assist with transcribing the data. This did not prove to be very helpful. The first person that I hired took possession of the recordings for a month, but did not make any attempt to transcribe them. I hired a second person to transcribe who I paid per hour, but I soon realised that the pace of transcription was very slow, and I would have to spend a disproportionate amount of money to get this task done. Thirdly, I hired my daughter, who was an audiology student at the time, which I thought may be an advantage when deciphering some of the muffled audio content. I offered her a lump sum to complete all the transcriptions, which she achieved in under a week. However, when I checked the transcripts against the video recordings I noticed that she had eliminated many background comments that I considered to be important in assimilating the learners' opinions. I eventually decided to tackle the transcripts myself so that I could include these off-handed comments. Doing my own transcribing also allowed me to view the context in which comments were made, and the facial expressions of the participants, which in some cases added a depth to the meaning of their words.

I found this process so tiresome that I was only able to transcribe a small section of the video at a time before fatigue set in. The fact that I was teaching full-time and held a position on the senior management team meant that I had little time once preparation and marking was done in the evening to focus on transcribing the data. As I am also in charge of catering in the school most Saturdays and many afternoons and evenings were spent preparing food for sports events and functions. There were long periods where I did not work on the data at all: I had practically given up as I couldn't see an end in sight. When I finally completed the transcripts, I was advised that each sentence needed to be numbered for easy reference. As my computer literacy is somewhat limited, I lost and jumbled some of the data in the process, meaning that I had to return to the videos to check that the transcriptions were accurate. At one point my laptop was stolen from my classroom, resulting in some of the audio transcripts being lost. All in all, these transcriptions took me four years to complete. There was, however, a silver lining: by the time I came to analysing the data, I knew most of the conversations by heart, and could easily locate a reference in the transcribed data when needed. I have not included

the transcripts in the appendices of this thesis, as they are too large, but they are available to view on request.

4.7 Analysis

I used a form of thematic analysis to identify themes in both L1 and L2 of the research. Initially, I scanned the transcripts for any words that were repeated frequently. Then I used a method of open coding to allow as many themes as possible to come to the fore. I then grouped similar themes together under seven main themes and rescanned, checked and counter-checked the transcripts to see if the context of the dialogue corresponded with the findings.

4.8 Ethical considerations

Permission to conduct the research was sought and granted by the ethics committee at Edgewood Campus, School of Education, UKZN, and the Department of Education. The Principal, as the gatekeeper to the school, also granted permission. As most of the learners were minors, the application forms also included a consent clause for both the learners and their parents to sign. Each learner received a wristband which was individually embroidered with the number that was recorded on the learner's application form. These numbers were used as a means of identification during the data collection and analysis to ensure that the identity of the learners remained anonymous. These methods were approved by the Ethics Committee of the University of KwaZulu-Natal before the empirical research commenced. In L1, the numbered wristbands were placed beside the lunchboxes instead of photographing the learners themselves. This protected individuals from any embarrassment when the lunchboxes were analysed. It also prevented judgments on food based on racial or gender bias.

The participants in L2 requested that I use their own names rather than code names in the videos, as they wanted their identities known. Nevertheless, I used aliases in this thesis to protect their identity and to comply with the code of ethics used for research in UKZN. I had also intended to edit their faces from the video, but once again, they

decided that they wanted to speak openly to the camera as they didn't mind being identified on the film, but left the choice of speaking directly to the camera entirely up to them. They were also told that they were under no obligation to continue with the research if they did not wish to, and that they could withdraw at any time (Maree, 2007). Two of the participants withdrew from the focus group in the duration of the study, but were replaced by two others who asked to participate.

4.9 Conclusion

This research took place in a co-educational school in an urban area Durban, which has a wide catchment area. The learners in this school come from a variety of cultures and socio-economic backgrounds. As teenagers go through a crisis of identity in their search for autonomy (Erikson, 1959), I decided on a methodology of PAR so that they could be involved in seeking solutions to the problem of teenage food choice.

This research was conducted on two levels, so that the results could be compared for validity. At the first level (L1), data was collected by twelve learners who were co-researchers in this study. These same learners formed a focus group who met with me once a week for six weeks to generate data to answer the research questions. At this level, (L2), the teenagers' attitudes to different foods were explored and filmed for later analysis. These videos were viewed over and over again, and meticulously transcribed. The transcripts were then scanned for common themes that emerged, using a method of thematic analysis (Aronson, 1994).

In following chapter, I will answer the first research question by presenting and analysing the findings from both L1 and L2 of this study.

CHAPTER 5. RESEARCH QUESTION ONE

How do the Food Choices of Teenagers in This High School Increase Their Risk of Developing Type 2 Diabetes?

As this research was conducted at two levels, the results of each level will be presented and discussed separately, and then compared for any trends, patterns or connections that may have emerged. Firstly, I will describe the characteristics of the participants at L1, and how these relate to their risks of developing type 2 diabetes. This data was obtained from the participation/consent forms (Appendix B). I will then present what these teenagers had in their lunchboxes over the seven days of data collection at this level, and discuss the impact that these choices could have on their blood sugar levels. This data was obtained from the questionnaires filled in by the co-researchers during the daily interviews (Appendix C).

5.1 Characteristics of Participants in L1

Of the fifty-nine teenagers who participated in L1, thirty-one of these were juniors (13- 15yrs) and twenty-eight were seniors (16-18yrs). Forty-six of those who took part in the voluntary interviews were female and thirteen were male. This imbalance could be due to the fact that female teenagers are more concerned with health issues than male teenagers (Schreiner, 2006). This lack of participation could be typical of senior teenage boys; however, I did not seek to find out the reasons for this.

There was good representation from each of the cultural groups in the school, and included participants from Zulu, Afrikaans, Indian and English backgrounds, with some mentioning influences from other cultures such as German. It must be noted that culture has a major impact on food choices, as traditional meals and eating habits are passed down from generation to generation. This information was kept in mind when analysing the influences on teenage food choices in the second research question. Some of the learners confused 'culture' with 'race', and classified themselves as either black, white, Indian or mixed-race. This indicates that the divisions put in place in South African society during the apartheid era are still in place. I purposely did not want to segregate

the learners according to race, as this should have no bearing on their food choices. However, it does bear mention that in South Africa the people most at risk of developing type 2 diabetes are those of Indian descent (Diabetes SA, 2014). As about 6% of learners from this school are Indian, these learners would therefore have an increased risk of developing type 2 diabetes later in life.

Although the teenagers were not asked to specify their religion, when asked for their culture, six stated that they were Christian and one Hindu. Religion and culture are closely linked in some societies, and religion can have some bearing on food choices as many religious practices observe periods of fast and abstain from certain foods, and this could impact on food choices on particular days. Thus, I included references to religious practices under the discussion on the influence of culture on food choices in the second research question.

The residential areas recorded in the data confirmed that all of these teenagers were from areas that have access to electricity and television; therefore, it can be assumed that the teenagers in this school are exposed to advertising via the media. Most of the teenagers who took part were from middle class regions, classed as Urban by the eThekweni Municipality (Durban region). This would indicate that these learners are also exposed to an urban lifestyle, which has been identified as increasing the risk of developing type 2 diabetes (Bourne, 1996).

The interests and hobbies of the teenagers were enumerated according to how often an activity was mentioned in the application forms (Appendix E). These activities were then divided into sedentary, moderately active and very active. On the whole, the teenagers in this school appear to lead an active lifestyle. This is relevant in the prevention of the onset of type 2 diabetes, as physical activity reduces blood sugar levels, and therefore can be a preventative measure for developing insulin resistance. The most popular sedentary activities were reading, music, socialising, singing and artwork. Watching television was rated surprisingly low on the list.

It must be noted that the application form did not record activities performed at the same time, for example listening to music while reading or drawing, or singing along while listening to music. The results also didn't clarify which activities take place while

at the same time as socialising, or 'hanging out' (slang used by the teenagers for getting together with friends). Under the list of moderately active activities many of the teenagers listed cooking or baking as an interest or hobby. This might have been due to the fact that I teach Consumer Studies in a school where the practical module focuses on cooking. The teenagers may have listed cooking and baking in the hope that this would ensure their selection for the research.

Soccer, dancing, hockey and swimming were listed amongst the more active pastimes. However, it was unclear whether this participation was merely as a spectator of the sport mentioned, or as a player. Of these activities, soccer was the listed as the most popular. The fact that this empirical research took part in May 2010 just before South Africa hosted the World Cup could have increased the interest in this sport. May is also a winter sport season in SA, when girls' hockey and rugby are the main sports played. Soccer is only traditionally played in the third term (late July to late September). Second to soccer, hockey was listed as the most popular sport. The teenagers did not specify whether dancing took place as part of formal lessons, socialising or merely listening to music. The type of dancing was also not recorded.

I asked the teenagers for information on any food allergies and intolerances that they might have so that I could avoid these foods when preparing the lunches in L2. Food allergies normally trigger a reaction from the immune system and generally indicate an allergy to the protein present in a specific food. Most allergic reactions occur as a result of eating fish, shellfish, milk, milk products, meat, meat products, nuts and wheat. In the application/consent form, a few of the learners listed allergic reactions to protein foods such as seafood, eggs, wheat and coconut, which are common food allergens. Any foods other than these that were listed could indicate food intolerance rather than an allergy if they did not contain protein. It is also possible that some of the teenagers said that they were allergic to a certain food if they merely disliked the appearance, texture or taste of that food.

Twenty-four out of the fifty-nine learners who returned the application/consent forms had at least one member of the family with diabetes. This may not necessarily reflect on the levels of diabetes in the school community as a whole, as many of the teenagers wishing to take part in the study may have been motivated by the fact that

diabetes is prevalent in their family. What is of some concern is the fact that nineteen of the teenagers' parents or other close relatives of their parents' generation had already developed diabetes, as opposed to eleven of their grandparents' generation. Five of the teenagers indicated that a family member in their own generation had been diagnosed as insulin intolerant, pre-diabetic or diabetic. These findings could indicate an increase in diabetes in Sub-Saharan Africa as predicted by Bourne (1996). As having a close family member with diabetes greatly increases the risk of developing type 2 diabetes later in life (IDF, 2014), this finding is significant. It is also interesting to note that of the thirty-five family members with diabetes, twenty-five were female. This is in line with statistics from the International Diabetes Federation (IDF, 2014), which states that females have a greater chance of developing diabetes than males.

In summary, the application/consent forms were returned by a range of learners from the school. More females than males responded and participated in L1. There was representation from a variety of SA cultures, with the greatest representation from the SA English culture and secondly from the Zulu culture. Most of the participants were from middle class urban areas. Interests and hobbies varied from sedentary activities to sports and dancing. Approximately half of the participants had a close family member with diabetes.

5.2 What's in the Lunchbox? Results of L1

The number of times that a particular food was included in any lunchbox in L1 was recorded over a seven day period (Appendix F). Data was captured via a questionnaire which had previously been approved by the research ethics committee at UKZN (Appendix C). A total of ninety-nine interviews were conducted by the co-researchers at L1 over seven days. The information given by the participants was analysed manually to assess the contents of the lunchboxes. Of the ninety-nine lunches, one lunchbox was empty (WB 3, L1, Day 1), eight had bought food from the tuck-shop and ninety had brought lunch from home. This information indicates that the majority of learners in this school bring their own lunches from home.

As previously mentioned in chapter four, the co-researchers were also given disposable cameras to photograph the lunchboxes. However, the quality of the photographs was so poor, that most had to be discarded, as the contents of the lunchboxes were too difficult to see. The co-researchers had also failed to follow the instructions correctly, and had included some of the participants' hands in the photographs.

The foods that were presented in the lunchboxes were classed into six food groups, based on the American Food and Drug Administration's (FDA) food pyramid (See Figure 1.1).

Bread, cereal, rice and pasta. Foods that the participants brought from this group were pastry (from pies or pizza), white bread/rolls, brown bread/rolls, whole wheat bread/rolls, rye or low G.I. bread, potatoes, pasta, rice or maize, white crackers and whole-wheat crackers or muesli. Pancakes were classified as pastry, and if the type of bread was not specified it was assumed to be white. Potato chips (crisps) and muffins were not included under this group but under the fats and oils group because of their high fat/sugar content. The most popular foods consumed from this group were white bread and rolls, with forty-seven of the lunchboxes containing these. This was followed by fifteen lunchboxes containing pastry in the form of pies, pizza or pancakes. Thirteen of the lunchboxes contained brown bread or rolls, and nine whole-wheat bread or rolls. Two lunchboxes contained white rice or maize, and two contained white crackers. Low GI bread, potatoes, pasta and muesli presented in only one lunchbox each.

Vegetables. Seventeen of the lunchboxes contained some kind of vegetable. Of these, ten contained lettuce and three contained tomato, as additional ingredients in sandwiches. Onion, carrot, cucumber and curried vegetables featured once each.

Fruit. Fruit was included quite frequently in the lunchboxes, with the most popular fruit being apples in twenty-seven lunchboxes and naartjies/mandarin oranges in twenty-one. This was followed by navel oranges in ten boxes, dried fruit in six and bananas in five. Three lunchboxes contained pears and one contained grapes. It must be noted that apples can be bought very cheaply in 1.5kg packs, and as this research was conducted during the winter months in SA, citrus fruits are in season

and therefore also inexpensive.

Milk, cheese and yoghurt. Milk products in the form of hard cheese such as cheddar were chosen by twenty-one of the learners. Two lunchboxes contained yoghurt and one contained cheese spread.

Meat, poultry, dry beans, eggs and nuts. Foods from this group in the lunchboxes included hot dogs (processed pork or bacon sausages), chicken, ham, beef, fish, eggs, polony (processed meat roll), peanut butter, nuts and beans (Appendix F). Patties in hamburgers mince and dried beef (biltong) were classed as beef. The meat consumed in pies was included under chicken or beef as appropriate. The most popular food from this group was ham, followed by beef, chicken, hot dogs, polony and peanut butter. Eggs and beans were only consumed twice in the five day period.

Fats, oils, sweets and 'junk' food. This included any food items that contained high quantities of fat, salt, or sugar. The foods recorded included corn chips, sweets, biscuits, cake, muffins and cereal bars. These foods are all medium to high GI, depending on the ingredients and the sugar content. Potato chips (crisps) and chocolate are low GI, due to their high fat content. The most popular snacks included in the lunchboxes were biscuits, followed by cereal bars, muffins and potato chips. These were followed by corn chips, sweets, chocolate, and cake.

Drinks. Drinks are not a separate food group, but are categorised under different food groups depending on their nutritional content. For example, milk, milkshakes and Yogisips fall under the milk, cheese and yoghurt group and were already discussed under this. Pure, unsweetened fruit juice such as Liquifruit falls under the fruit group. Concentrated syrups that need to be diluted fall under the fats, oils and sweets group, as do sweetened and carbonated drinks. I have placed drinks under a separate heading as the findings regarding the intake of drinks in general were significant to their general health and to the risks of developing type 2 diabetes. It was notable that very few of the learners in L1 brought anything to drink with them. Drinks were only brought nine times over the five days of the data collection. Of these six were plain water, one was flavoured water, and two were

diluted orange squash.

5.3 Characteristics of Participants in L2

Four junior boys and two junior girls participated in L2 of the data collection. The senior participants were all female. Of the girls, three were from the Zulu culture, one was from a Swazi culture, two were from an English/South African culture, one from Afrikaans, and two from Indian/Arab cultures. All of the boys who participated were from an English/South African background. All of these learners lived in urban areas. Five of the learners were involved in sports activities in the school, three in cultural activities such as drama or choir and four in social activities such as going to clubs or socialising with friends. Of the twelve selected, seven had close family members suffering from diabetes 1 or 2.

5.4 What's in the Lunchbox? Results of L2

In L2, the videos and transcripts were repeatedly analysed to assess the type of foods eaten by the participants. Certain foods were frequently mentioned as being desirable, whereas there was general consensus amongst the participants that certain other foods were not. This gave me an indication of the type of foods regularly chosen by the participants, so that I could evaluate how their food choices could impact on their risk of contracting type 2 diabetes. In order to compare these findings with the findings from L1, I will present these findings under the same six food groups previously referred to (See figure 1.1).

Bread, cereal, rice and pasta group. Generally, the participants in the focus group brought sandwiches made from white bread or rolls to school. In L2, Day 1, when Heidi saw the sandwiches inside Jonathan's lunchbox she exclaimed: "Sandwiches! That's normal!" (Heidi, L2, Day1: p. 11). On the same day, Margaret opened her lunchbox and also said: "Sandwiches....that's pretty much my usual lunch" (Margaret, L2, Day 1: p. 12). Michael agreed when he said, "I think most people bring sandwiches....white bread", (Michael, L2, Day 1: p. 56-57). Thus, it can be assumed that white bread

sandwiches are consumed by most of the learners who bring lunch to school. In L2, Day 2, when the participants brought their own 'healthy' choices to school, Jonathan had brown bread, Rebecca and Malcolm had whole-wheat rolls and Margaret had whole-wheat bread. This would seem to indicate that the participants considered brown bread to be a healthy choice, as they had been asked to choose healthy foods for their lunchboxes on that day. Even so, David brought a white roll, and Cindy, Fran, Leanne and Sandra brought white bread. This could have been because they considered white bread and rolls to be healthy options, or that they disliked brown and whole-wheat bread and rolls. Leanne indicated as much in L2, Day 4, when she said that she chose from the high GI table as she doesn't like whole-wheat rolls (Leanne, L2, Day 4: p. 16).

In L2, Day 1, I included a low GI tortilla wrap filled with chicken, salad and lentils. I thought that this would be a popular choice; however, Cindy was not happy when she opened her lunchbox to find the wrap. She shook her head and said, "Too healthy for me" (Cindy, L2, Day 1: p. 15). She tried to swap with the others, but nobody was interested. She then swapped it for Fran's box when Fran left the room (Cindy, L2, Day 1: pp. 16-17). Fran later swapped it with Heidi, who declared, "I'm very afraid of what this is", but was willing to try it (Heidi, L2, and Day 1: p.34). Cindy later explained why she didn't want the wrap: "The wrap....it has low GI. No thank you!" (Cindy, L2, Day 1: p. 88).

As far as other foods from this group go, Cindy stated that "Black girls love eating....leftovers from last night....steamed bread and curry, or phutu (stiff maize porridge) and cabbage....and they bring it", (Cindy, L2, Day 1: p. 75). Fran also mentioned that she has leftovers, but would prefer to have a sandwich, (Fran, L2, Day 4: p. 36). In L2, Day 1, when Heidi got samp and beans in her lunchbox and decided to exchange her lunchbox with Fran, Fran exclaimed, "You can't give me cold pap!", and grimaces at the thought (Fran, L2, Day 1: p. 9). Despite this Fran and Cindy shared and ate the samp and beans when they were heated (Fran, L2, Day 1: p. 33; Cindy, L2, Day 1: p. 34).

Heidi mentioned that she enjoys eating brown rice (Heidi, L2, Day 1: p. 84). However, none of the participants mentioned that they or others in the school brought rice for lunch on a regular basis. Heidi and Malcolm both mentioned that they enjoy

pasta dishes such as home-made macaroni cheese and lasagne (Heidi & Malcolm, L2, Day 1: pp. 48-49). However, they did not mention if they ever took this to school for lunch. Potatoes, sweet potatoes and other starchy tubers are classified under the bread, grains, rice and pasta group as they contain a high percentage of starch. Heidi mentioned that she loves potatoes, but did not specify if she ever brought them for lunch (Heidi, L2, Day 1: p. 47). In L2, Day 1, I included amadumbe in one of the lunchboxes, as this is a traditional Zulu starchy tuber. Fran opened the lunchbox with the amadumbe, and was visibly unhappy. She exchanged her box for Naomi's box, who looked disgusted at the prospect and pretended to cry (Naomi, L2, Day 1: p. 15). Fran stated that having amadumbe for lunch was "unusual", (Fran, L2, Day 1: p. 14). Therefore, it can be assumed that potatoes and starchy tubers are not generally chosen for lunch in this school.

Vegetables. In L2, Day 1, I ensured that at least one box contained vegetarian food, as Rebecca had written on the application/consent form that she was vegetarian. The lunchbox she initially selected contained raw vegetables (baby sweet corn, carrot sticks, sugar snap peas) and a cottage cheese dip, which should have been a suitable lunch for a vegetarian. I was somewhat surprised to see that she looked disappointed with her lunch (Rebecca, L2, Day 1: p. 23). She then admitted that she is not vegetarian, but chooses vegetarian food if she is not sure if the meat in a dish is Halaal. She exchanged her lunch for the box with the sweets in, which Cindy had. Later, Malcolm swapped his box, which contained grapes and shevda (an Indian snack containing nuts and cereal), for the box with the raw vegetables (Malcolm, L2, Day 1: p. 27). He offered some of the vegetables to others in the group and stated that he liked the cheese part (Malcolm, L2, Day 1: p. 34). The only person who was interested in trying the vegetables was Fran, but even then, she only ate the carrots. When asked about her usual lunches, Heidi said that she and her group of friends always include salad and/or vegetables in their lunchboxes (Heidi, L2, Day 1: p. 70 – 72). Mary said that she loved lettuce and cucumber (Mary, L2, Day 1: pp. 80 - 84), and grew her own vegetables, as she was wary about pesticides used in commercially grown products.

Fruit. Fruit was included in the lunches more frequently than vegetables were. Nevertheless, the participants were particular about the quality and type of fruit eaten. Apples were the most popular choice, followed by naartjies and bananas. In L2, Day 1,

there were positive comments made about the fruit in the lunchboxes, and Fran mentioned that apples were her favourite kind of fruit (Fran, L2, Day 1: p. 17). When Jonathan swapped his box for Fran's, he said it was because he really liked apples and dried mango (Jonathan, L2, Day 1: p. 21). The popularity of this box was evident as it was later chosen by Heidi (Heidi, L2, Day 1: p. 27). Natalie stated that learners in Grade 12 love apples, to the extent that an apple will be stolen if it is left lying around (Natalie, L2, Day 5: p. 19). Fran squealed with delight when she saw that Naomi had a kiwi in her box (Fran, L2, Day 1: p. 26). On the same day, Leanne chose to keep her lunchbox when she saw that it contained fruit salad (Leanne, L2, Day 1: p. 18). Malcolm said that he normally has two pieces of fruit in his lunchbox (Malcolm, L2, Day 1: p. 92), and both he and Heidi said that most of their friends bring at least one piece of fruit for lunch (Malcolm, L2, Day 1: p. 74; Heidi, L2, Day 1: p. 70).

In L2, Day 2, Natalie brought three apples in her lunchbox (Natalie, L2, Day 2: p. 12), Heidi brought raisins, a naartjie and a banana (Heidi, L2, Day 2: p. 17), Malcolm brought an apple and a naartjie (Malcolm, L2, Day 2: p. 19), Cindy brought a naartjie (Cindy, L2, Day 2: p. 23), Sandra brought a few naartjies, (Sandra, L2, Day 2: p. 21), and Margaret brought a naartjie and a bar made from dried peaches (Margaret, L2, Day 2: pp. 19-20). On seeing the dried fruit bar, Malcolm commented that he loves dried peach and dried mango (Malcolm, L2, Day 2: p. 20). I also noted that Heidi ate the dried fruit before anything else on both days. Therefore, it would seem that dried fruit is a popular choice. There was no fruit available for sale in the tuck-shop on Day 3, and nobody spoke about it on that day.

On Day 4, I allowed the participants to choose fruit regardless of whether they had chosen from the low GI or the high GI table. The reason for this was two-fold: firstly, to see if they themselves would choose to include fruit with their lunches, as it had been established in L2 Day 2 that parents usually prepare the lunches for the learners. Secondly, I included fruit to try to lower the impact of the high GI foods that some had chosen, as ethically I did not feel good about supplying them with high GI food. However, the only fruit I included were bananas, oranges and apples, as these were readily available and inexpensive, and typical of what the learners had for their lunches on other days. Malcolm mentioned once again that he loves bananas, and took two (Malcolm, L2, Day 4: p. 8). Fran stated that she doesn't like bananas, and chose an apple

and an orange (Fran, L2, Day 4: P. 12). David selected an orange (David, L2, Day 4: p. 12), Margaret chose an apple (Margaret, l2, Day 4: p. 12), Leanne chose a banana (Leanne, l2, Day 4: p. 13), and Rebecca chose a banana (Rebecca, L2, Day 4, p. 15). This indicates that when given the choice, these teenage learners will include fruit in their lunches. The only fruit that the participants mentioned they would have a problem eating was fresh mango, as it is large and messy to eat (Fran, L2, Day 5: p. 5; Malcolm, l2, Day 5: p. 7).

Milk, yoghurt and cheese. No mention was made of taking milk to school for lunch.

This would be difficult to keep fresh in the warm climate of KZN. Maas - a traditional Zulu soured milk drink- was not mentioned either. Flavoured, sweetened yoghurt seemed to be popular, particularly strawberry flavoured. I included low fat, sweetened yoghurt on the low GI table on Day 4, and it was selected by Rebecca, Margaret and David. Malcolm mentioned that he was fond of cream cheese and cottage cheese (Malcolm, L2, Day 1: p. 28). Cheddar cheese is a popular choice, especially when it's melted. Cheese is relatively expensive in South Africa, and might not be affordable for some to include for lunch on a regular basis. This was confirmed by Leanne when she commented on how it was the "White kids....who had all the sandwiches and expensive things.....with all the cheese and lettuce", whereas her friends had bread and jam sandwiches (Leanne, L2, Day 4: p. 35). Heidi was the only participant who said that she doesn't eat cheese (Heidi, L2, Day 1: p. 31), yet she said that she loves macaroni and cheese, which appears to be a contradiction. She also said that she won't eat cheese as it's from an animal, and she's vegetarian. However, cheese is eaten by most vegetarians, as it doesn't harm the animal in its production. Hence, it is very unusual for a vegetarian to eat chicken and fish, but not eat cheese.

Meat, poultry, fish, dry beans, eggs and nuts. There was a lot of discrepancy between foods that were liked or disliked from this food group. Certain foods were generally disliked, such as eggs, fish, and beans. Other foods from this food group that were disliked were tripe and peanut butter. Heidi already made her food dislikes clear before we even started the focus group interviews on Day 1: "Are there different things in each of the boxes? Watch me get something that I really.... hate... I don't want to eat egg!" (Heidi, L2, Day 1: p. 1). As mentioned above,

Heidi said that she eats chicken and fish, but would not eat any meat from mammals. Fran stated on Day 1 that tripe was the worst thing that could be in the lunchboxes (Fran, L2, Day 1: p. 4). Cindy and Fran favoured red meat such as ham or beef. As previously mentioned, beans were eaten by Cindy and Fran in L2, Day 1, but it was obvious from their expressions that they would have preferred something else. When I asked about eating beans for lunch, I was told by Heidi, “No one eats beans for lunch, Mam!” (Heidi, L2, Day 1: p. 93). This was because they feared the beans may cause flatulence, and this would embarrass them in front of their peers.

Fats, oils, sweets and junk foods. The participants frequently mentioned that they liked sweets, chocolate, cake, biscuits, burgers, hot chips, pizza, hot dogs. Anytime these foods were served or mentioned there were positive reactions from the group. For example, the following exchange took place on Day 1 when Michael opened his lunchbox:

Michael proceeded to open his box. All sigh and say, “Mmmmmm!”, as he lifts up a packet. Michael looks at the others and smiles broadly. “I got biscuits, a roll and.... I think hot dogsyeah!”....Michael looks up and smiles again. More sighs and “Mmmmmm!” sounds from the others. (Michael, L2, Day 1: p. 21).

Generally, the data indicated that the participants favoured food from this group over other food groups. The inclusion of sweets was seen as the norm in the diet rather than an occasional treat. According to Rebecca, “Lots of teenagers nowadays have a sweet tooth for chocolate and stuff like that. That’s why everybody likes sweets” (Rebecca, L2, Day 1: p. 57).

It emerged that many teenagers do not eat breakfast, but purchase sweets from the school tuck shop either before school begins or at first break. Naomi said, “One of my friends, she doesn’t bring lunch to school and she likes to bring money and in the end she ends up surviving on fudge and toffees all day, every single day”, (Naomi, L2, Day 1: pp. 62-63). When savoury food is chosen, it is more likely to be in the form of snacks – such as Doritos or crisps – than a salad roll: “Doritos are much better than a salad roll....I’d prefer chips and a cool drink than a salad roll, you know? It’s....not what I

choose” (Cindy, L2, Day 3: p. 10). When the focus group was asked, “What do teenagers in this high school choose to eat?”, Cindy said, “They eat a lot of junk food, and....the junk food that they have is sold at the tuck-shop, like Doritos, Coke and pies” (Cindy, L2, Day 1, p. 59). Rebecca concurred: “Junk foodit’s all over the place, so we’re so used to itand we’re brought up surrounded by that kind of food, so....we just prefer it more than healthy food” (Rebecca, L2, Day 1: pp. 87-88). This concurs with Lin *et al*’s (2001) finding that the availability of healthy food choices was no guarantee that these might be chosen over less healthy options.

Drinks. Carbonated drinks were in high demand, with Coke being the drink of choice for the majority. On Day 1, the participants were given a choice of cold drinks which included a few cans of Coke, but not enough for everyone. The participants were quick to notice this, and when I invited them to take something to drink, there was a scramble for the Cokes (Heidi, L2, Day 1: 37). Leanne and Heidi both said that they would have taken a Coke if it had been available. Fran was one of the few who manage to get a Coke. When I asked her why she chose it, she said, “I took it because I like it, it’s got a nice taste.... It’s got a nice taste”, (Fran, L2, Day1: p. 39). Cindy also got a Coke, and said she chose it because “Coke is the way....you know? I love it!” The next most popular drink was Coke Zero, taken by Heidi and Jonathan, after which the Aquelle apple flavoured water, was chosen by Mary and Naomi. David and Leanne chose Just Juice, which is carbonated fruit juice. Rebecca and Michael were last to choose. Rebecca said she would have liked the apple water, but there wasn't any left, so she took Oros, a non-carbonated orange squash. That left a choice between Energade and still Mineral water for Michael. He chose the Energade.

5.3 Discussion of Results of Research Question one

The foods chosen by the participants will be discussed with reference to the GI index, and therefore the impact they could have on raising blood sugar levels and increasing the risks of developing type 2 diabetes later in life. It is evident from the data collected at L1 and L2 that the teenagers in this high school choose high GI options from the bread, cereal and grain group. Sandwiches or rolls are usually eaten if food is packed

from home. As previously explained, all CHOs break down to glucose when digested. This glucose is then absorbed into the blood stream, raising blood sugar levels. The more refined this CHO is, the faster it is converted into glucose. White bread, white rolls and pastry are all made from white flour which is highly refined. Brown bread and whole-wheat bread are less refined; nevertheless, they are listed as high GI, as the rate of absorption of glucose into the bloodstream after eating these CHOs is fairly rapid. It is likely that neither parents nor learners are aware that, as far as blood sugar levels are concerned, eating brown or whole-wheat bread is no better than eating white (Glycemic Index Foundation, 2014). However, brown bread is dryer than white bread, and more difficult to chew. Whole-wheat bread contains whole grains, which add bulk to the diet and a feeling of satiety. As a result, learners may eat less CHO when brown or whole-wheat bread is eaten in preference to white bread which is soft and requires little mastication. This in itself would reduce the amount of glucose released into the bloodstream. There is also a higher vitamin and mineral content in whole-wheat bread in comparison to white or brown bread. Therefore, from a nutritional point of view, whole wheat bread *is* a healthier alternative to white bread. Nevertheless, pasta, low GI bread and muesli are preferable CHO choices as the glucose in these is released more slowly into the bloodstream (Glycemic Index Foundation, 2014). However, the inclusion of these low GI foods were only recorded in three of the lunchboxes in L1, and there was no evidence in L2 of these foods being consumed for lunch.

There was no evidence of other grains such as maize or rice being brought to school. Some of the participants mentioned that they bring leftovers, but did not specify if these included grains. Surprisingly, freshly cooked maize meal is high GI, but if it is allowed to get cold, it then becomes low GI (Glycemic Index Foundation, 2014). Although Fran objected to eating cold maize when she got it in the lunchbox in L2, Day 1, this would have been preferable for her blood sugar levels than the foods she chose on other days. Vegetables should be included more frequently in the diet as they are low GI (Glycemic Index Foundation, 2014), are valuable sources of minerals and vitamins, and provide bulk and satiety in the diet. If vegetables are eaten for lunch, it is mostly in the form of lettuce, tomato and cucumber in salads. Most of the participants did not appear to include enough vegetables to fulfil their dietary needs of vitamins, minerals and fibre in the diet.

The relatively high intake of the fruit in the diets of these teenagers is beneficial in preventing type 2 diabetes, as most fruit are listed as low GI (Glycemic Index Foundation, 2014), and are therefore play an important role in lowering blood sugar levels. This is not true for all varieties of fruit; as melon and watermelon score surprisingly high on the GI index and should therefore be avoided.

The inclusion of cheese in the diet is beneficial, as cheese contains no CHO. Cheese is also a concentrated food, and has a high percentage of protein and fat. Therefore, including cheese with bread or crackers will reduce the GI effects of these foods by slowing down digestion. All yoghurts are listed as low GI, whether full cream, low fat, sweetened, plain or fruit, hence the inclusion of yoghurt in the lunchboxes is desirable. Lin *et al* (2006) found that there were not enough calcium rich foods such as cheese or yoghurt included in the diets of girls; therefore, it is pleasing to note that the girls in this high school included yoghurt in their lunchboxes.

Most lunchboxes contained some food rich in protein. Their inclusion in the teenagers' diet is relevant in controlling blood sugar levels, as protein takes longer to digest than carbohydrate, ensuring a slow release of energy. Including protein with carbohydrate in the diet actually has a positive impact on the prevention of type 2 diabetes, as the blood sugar levels rise more slowly, and are maintained over a longer period of time. Teenage learners also need a good intake of iron in the diet, especially females, as they lose iron every month during menstruation. The girls in the focus group from the Zulu culture favoured red meat, a rich source of haem iron, which is more readily absorbed, and are therefore less likely to suffer from anaemia. The girls from the English South African culture favoured white meat such as chicken or fish, or they tended to avoid meat and eat vegetarian salads, making them more prone to anaemia. This would concur with the findings of Lin *et al* (2006), when they found that teenage girls in America do not eat enough iron rich foods in the diet.

However, Lin *et al* (2006) also pointed out that over consumption of animal protein is synonymous with a westernised diet, and can contribute to conditions such as coronary heart disease (CHD), high cholesterol, high blood pressure and obesity. These health conditions are frequently found in patients who have type 2 diabetes. This would indicate that the girls and boys from the Zulu culture may have a higher risk of

developing these conditions due to a higher red meat intake. Cheaper, and healthier, alternatives to meat are peanut butter, eggs and beans. However, as was evidenced from the empirical data, these foods were not favoured by many of the learners in this school.

The greatest risk to these learners developing type 2 diabetes is the inclusion of Doritos, sweets, biscuits and cake. The worrying factor here is that many of the lunchboxes contained these high GI snacks. This indicates that these foods are frequently favoured and chosen by these learners over healthier options. Even though they are classed as junk food, the inclusion of potato chips (crisps) and chocolate in the lunchbox is actually beneficial in reducing the risk of developing type 2 diabetes, as both of these snacks are low GI due to their high fat content. Perhaps if the learners/ parents were better educated on the GI rating of the different snack foods they would choose better options to maintain their blood sugar levels.

It must be noted that at the time this research was conducted, the amendment to the Food Labelling Act, R146, (Steencamp, 2010) had not yet been enforced. Therefore, some of the cereal bars may have had misleading labels such as 'Health Bar', which could have influenced parents or learners to include them in the lunchboxes, as their perception would be that these were healthier food choices.

The fact that most of the participants did not bring anything to drink with them indicates that many of the learners are not sufficiently hydrated during the school day. This could make them lethargic and have difficulty in concentrating, symptoms which could be mistaken for low blood sugar levels. Water is the healthier choice of liquid, alternatively flavoured water should be chosen, as they are both low GI. Orange squash, (Oros or similar) which is a popular low cost drink, is medium GI (Glycemic Index foundation, 2014). The intake of carbonated drinks and energy drinks should be limited to special treats, as they are high GI, thus they contribute to the risk of developing type 2 diabetes.

5.4 Conclusion

The learners generally eat a diet that is high in refined CHO, such as white bread, crackers, corn chips, biscuits, cake, muffins and sweets. However, most eat some form of high fat (butter, margarine or mayonnaise) and some form of protein (meat and meat alternatives) on rolls and sandwiches. The addition of cheese or some form of meat in sandwiches is beneficial in lowering the GI of the carbohydrates, these foods are high in fat and/or protein and are slow to break down in the digestive system, and as a result lower the GI of the bread and rolls if eaten at the same time. This would counteract the fast release of CHO into the bloodstream from the CHO, as both fat and protein slow down digestion.

Not enough vegetables or fibre rich foods are included in their lunchboxes. Fruit is regularly eaten, but not in sufficient quantities to provide all the nutrients their bodies need. Yoghurt is not eaten as frequently as one would expect, given that it is a convenient food to pack and eat, and has the added benefit of reducing the GI levels of CHO. All in all, many of the learners are eating food from only four or five of the required six food groups, and these are not being eaten in the correct proportions. Cakes, sweets, corn chips and biscuits are eaten too frequently, contributing to the high GI intake of food, and insufficient vegetables and milk products are eaten. Therefore, I conclude that many of the learners in this school consume too many high GI foods, and insufficient low GI foods. Furthermore, the high intake of Coke and other carbonated drinks could cause spikes in sugar levels that may result in learners becoming insulin intolerant and developing type 2 diabetes later in life.

CHAPTER 6. RESEARCH QUESTION TWO

What Influences Teenage Food Choices in this South African High School?

As with the first research question, this question will be answered by first presenting the findings from L1, then presenting the findings from L2, and then discussing any similarities and incongruities that emerged between the two levels.

6.1 Influences Identified in L1

In the questionnaire used for the interviews in L1 (Appendix C), the participants were asked to give reasons for the food choices that they had made. Many of the answers given were unclear, for example, some just said “Packed” as the reason for choosing the food on that particular day. This answer neither indicates who packed the lunch, nor why that particular food was chosen. It is also unclear as to whether the brevity of this answer was due to lack of information from the participants or lack of skills by the co-researchers in capturing the data. Unfortunately, my own time constraints and the enormity of the data collection resulted in my inability to process and analyse the results of this questionnaire until long after the research was completed. Hence, I did not have the opportunity to question the co-researchers on the meaning of this answer.

The answers given by the participants on the questionnaires were clustered to form six main influences on their food choices. These were as follows:

- Family influences.
- Options available.
- Sensory perceptions of food.
- Finances.
- Time.
- Knowledge of healthy food choices.

Family influences. In the majority of cases, the lunch was prepared by the participants' mother or other family member, so the food that was packed was not necessarily chosen

by them. Although this does not demonstrate *teenage* food choice, nevertheless, this information is still relevant in answering this research question, as it demonstrates the influence that family, and in particular the mother, has on what teenagers eat. However, many of the participants said that the lunch packed for them was not their favourite food, and this is, perhaps, an indication that they might have chosen something else if they had made the lunch themselves.

Options available. Some of the participants said that they had a limited choice when it came to packing their lunchboxes, as there was no other food option available, (WB 6, L1, Day 6; WB 12, L1, Day 1). A similar reason was given for choosing a pie at the tuck-shop (WB 37, L1, Day 3).

Sensory Perceptions of Food. Some foods were chosen because the taste appealed to the participants (WB 3, L1, Day 2; WB 13, L1, Day 2). Nobody mentioned any other sensory attributes of the food, such as appearance, texture or smell, as being the reasons for their choice.

Finances. A few of the participants did not bring a packed lunch to school, but brought money to buy something from the school tuck-shop. The amount of money given for lunch varied; WB 23 was given R100 to spend on Day 1, whereas WB 53 was given R2 on the same day, and only had enough money to purchase four toffees for lunch.

Time. Several of the participants identified lack of time to prepare the lunch as the reason for the particular choice that they made, and used this to excuse their poor food choices (WB 42, L1, Day 1). It seems that in the morning rush, packing a nutritious lunch is not high on the list of priorities (WB 6, L1, Day 5; WB 14, L1, Day 2). One participant indicated that she had spare time in the morning, so she cooked food to bring to school (WB 21, L1, Day 2). However, the food she prepared (beef patty, fried onions, cheese, brown bread and cheese curls) was very high in saturated fat and was high GI. This would indicate that having time available to prepare healthy food does not necessarily guarantee its choice.

Knowledge of Healthy Food Choices. Some of the participants said they chose certain food because it was healthy. For example, one participant brought a banana, an apple, a

salad with cheese, tomato and cucumber for lunch, and said that she likes eating healthily (WB 6, L1, Day 2). It has to be noted here that although this participant had made a healthier choice, this lunch is lacking in sufficient energy foods and could result in this learner experiencing hypoglycaemia, a condition whereby blood sugar levels become too low, during the school day. This food choice would also indicate a lack of iron in this girl's diet, who was from an English South African culture. Others seemed to think that refined CHO like white bread, or even brown bread, were healthy food choices. For example, in L1, Day 1, WB 10 brought a white roll with butter, cheese & ham, and milk tart. When asked the reason for his choice, he said, "I enjoy it, and the roll is healthy" (WB 10, L1, Day 1). Likewise, WB 57 stated that he chose a brown bread & jam sandwich for lunch because "It's healthy" (WB 57, L1, Day 1), yet this choice has very little nutritional density and the high percentage of CHO would make this a high GI option. This would seem to indicate that although the participants have some knowledge of healthy food choices, there are some misconceptions that need to be addressed through education. The question also arises whether the learners who choose white bread, white crackers, jam and sweets for lunch also perceived these food items to be part of a healthy diet (WB 58, L1, Day 2).

In summary, most school lunches are prepared and chosen by the mother or other family member, which indicates that although teenagers may have some say in what is prepared for their lunch; family has a major influence on teenage food choices. Food choice is limited to whatever options are available the household that morning. This hints at lack of prior planning of school lunches by the parent or care giver. Food is often chosen because it tastes good, and this takes precedence over nutritional considerations. No mention was made of other sensory perceptions such as appearance, texture or smell influencing food choice. If money is available in the household, learners will not necessarily bring food to school, but will purchase from the school tuck-shop. The amount of money given for food at the tuck-shop varies between R2 and R100, which influences what the learners can purchase. Numerous teenagers are in a rush in the morning, and grab whatever is easiest while going out the door to school. They say they have no time to prepare a healthy lunch. This also indicates lack of time planning and setting priorities. It seems that there are some misconceptions regarding knowledge of healthy foods and their benefits, which could result in poor choices being made.

6.2 Influences Identified in L2

The transcripts from L2 were analysed using thematic analysis to identify the influences on the participants' food choices. Each sentence spoken was given a code to help categorise these influences on food choices into common themes. The categories were grouped, regrouped and changed until nine main influences emerged. I then noted that six of these influences were similar to the themes identified in L1, and therefore I used the same terminology to name them.

Family Influences. As was evident from the data collected at L1, family influences on food choices in L2 remained strong, as most of the participants' lunches were prepared by their mother, father or other family member. This became evident on L2, Day 2, when the participants were asked to bring a healthy lunch from home. They were instructed to choose the food themselves, however, in most cases, the food was chosen and packed by their mother or other family member, as was the case with Natalie (L2, Day 2: p. 13), and David (L2, Day 2: p. 15). Others, such as Fran, said they made the lunch themselves, but could not explain what was in the lunch when asked, leading to the assumption that she was lying, and that somebody else had made it (Fran, L2, Day 2: p. 22). Many of the participants also made mention of their parents' desire that they eat healthy foods. Nevertheless, the lunches frequently contained junk food, for example, Natalie's mother packed more than twenty sweets into the lunchbox, Jonathan's mother included a pack of Super C sweets, and Naomi had a cappuccino muffin.

Some dishes were mentioned as particular family traditions or favourites, for example, Heidi said that her mother's macaroni cheese is "the best" (despite saying on Day 1 that she doesn't eat cheese). This was then contested by the others, who started boasting about the culinary skills of their own mother/grandmother. Malcolm said his mother also made delicious macaroni cheese; Naomi said her mom's cottage pie is "the best cottage pie in the world!" A discussion then ensued as to whose family made the best cake (L2, Day 1: p. 49). This would seem to imply that the learners enjoy these home cooked meals. It would also indicate the type of food which may be popular if sold in the tuck-shop.

Rebecca referred to choosing Halaal food and eating vegetarian food during holy days. This is evidence of food preferences and habits passed down through family beliefs and practices. There was also an expectation that certain foods were associated with certain cultures. There was much discussion on Day 1, when Fran got amadumbe (a starchy tuber) in her lunchbox. She had this to say about it: “I actually did NOT expect amadumbe....I was expecting more....from a white teacher....because amadumbe is something I would go and get from my Gran” (Fran, L2, Day 1: p. 89). This would indicate that some of the food choices of the youth are not the same as those of older generations, who still choose traditional food over modern food. Fran also indicated that the culture at the school was different to her Zulu culture, and therefore different foods were eaten at school than the foods that would be eaten at home (Fran, L2, Day1: p. 90). When speaking of her reaction to seeing the traditional Zulu food in the lunchbox, Fran said:

It's because I did not expect it; I really did not expect it. I expected the....sweet coated peanuts and.....everything else, except samp- which is low GI food- I expected that except for the amadumbe. It's because it's ['junk' food] is more of the school. You know....when I'm at school it....it's more like....such a diverse place of people that I kind of....not forget, I don't forget my culture wherever I go, but....I kind of just....just a little bit....block it out....you know? (Fran, L2, Day 1: p. 90).

Options available. I found that the food options available to the participants greatly influenced their food choices. In L2, Day 1, those learners who had the option to swop their lunchboxes for something else did so. Initially, Malcolm was happy with the contents of his lunchbox, but later chose to swop it when he saw what the others had. Naomi was very vocal about not getting her first choice of drink, as there was little option left when she went to choose.

On Day 3, when choosing food from the tuck-shop, some of the learners said that they chose pies, chips and cold drinks as they thought they had no healthier options. However, on Day 4, when I asked them to choose between the high GI and low GI options, Fran, Leanne, Cindy and Malcolm chose from the high GI table. Cindy said she chose this food because “the pies are just too good” (Cindy, L2, Day 4: p. 14). Leanne said that she chose the high GI food as that's what she usually eats (Leanne, L2, Day 4: p. 16). Fran declined to give a reason, and Malcolm said that the high GI option looked better than the low GI option (Malcolm, L2, Day 4: p. 15). Margaret, Rebecca and David

all said that even though they were tempted by the high GI option, they made the healthier choice after learning about the effects of high GI foods (Margaret, L2, Day 4: p. 16; Rebecca, L2, Day 4: p. 15; David, L2, Day 4: p. 16). This is significant, as it means that these three learners made the healthier choice as a direct result of learning about the GI index and how blood sugar is affected by different foods.

Sensory perceptions of food. The appearance, the smell and the taste of the food available tended to impact on the acceptability of that particular food to the participants. The colour of food influenced its choice, for example, Fran was suspicious of the “brown stuff” (lentils) in the chicken wrap (Fran, L2, Day 1: p. 17), and because of this she rejected the chicken wrap. Although Malcolm said that he loved lentils (Malcolm, L2, Day 1: p. 21), he stated later that the colour of the wrap put him off (Malcolm, L2, Day 1: p. 34). The odour or smell of the food also played a role, and participants could be seen sniffing food before eating it (L2, Day 1: p. 3). Naomi, in particular, tried to smell the food through the lunchboxes before opening them. She correctly identified a sweet smell from the lunchbox she chose, and tried to prevent the others from taking it away by pretending that it “smelt horrible” (Naomi, L2, Day 1: p. 10). The participants also mentioned that the smell emitted from the pies on Day 4 influenced their choice (L2, Day 4: p. 20). The smell of certain foods also impacted negatively on food choice, especially in the case of eggs, fish or peanut butter. Even if the participants enjoyed eating these particular foods, the negative reactions from others embarrassed them and as a result they would not take those foods to school again. Cindy told this story of her experience with bringing boiled eggs for lunch:

I sit down, now I take out my lunch.... and everyone just turns around and goes, “Who just farted? Is it your food? It is! It stinks! Get out of the classroom!”(Cindy, L2, Day 1: p. 92).

This reaction from her peers humiliated her to the extent that she avoided bringing eggs to school for again. This is unfortunate, as eggs are not only a source of high biological protein, but also supply iron, which I have pointed out, is necessary to include in the diet of menstruating females.

The taste of food, as expected, also played an important role in food choice. The participants were keen to eat foods that they were familiar with and knew tasted good,

but weren't afraid to try new flavours of food and drinks with brand names that they trusted. This was evident in Day 1, when some of the focus group ended up with drinks that they had not had before. Malcolm had a bottle of Vitamin water, and stated that he liked the flavour. When I asked him if he had tasted it before, he said, "No, not this flavour, but I've had...three other flavours" (Malcolm, L2, Day 1: p. 37). As previously mentioned, the participants preferred the taste of sweet and highly processed or junk food to healthier options. Chocolate flavour was a firm favourite, as were strawberry, orange and lemon. 'Sour' sweets were popular, and were bought from the school tuck-shop. For many, the taste of the food was the greatest influence when making food choices, and the appearance, smell and taste of certain foods was too appealing to resist, despite knowing that those food choices may be harmful in the long run (Fran, L2, Day 4: p. 12; Margaret, Malcolm and Leanne, L2, Day 4: p. 20).

Finances. As expected, the amount of money available in the household impacts on food choices. The greater the disposable income, the greater the variety of food that is available to choose from. Many learners are given spending money to purchase food from the tuck-shop instead of bringing a packed lunch to school, as this is more convenient. The amount of money varies, but sometimes it can be as much as R100 a day. Cindy said that that one of her friends also brings this amount of money to school every single day: "A girl....she brings a hundred rand a day and buys whatever she wants from the tuck-shop....but she doesn't miss pies and Cokes.....she doesn't miss them". Fran agreed, and said that some of her friends seemed to have "too much money". Leanne said, "I'm part of it too ma'am. We....I....usually don't bring lunch to school, we bring tuck money, and we buy chips, Doritos.....every day.....ten rand, sometimes twenty" (Cindy, Fran, and Leanne, L2, Day 1: pp. 59-63). It also seems that quantity is more important than quality, as Fran said that she would never waste ten rand on "one little hot dog" when she can buy thirty sweets for the same amount (Fran, L2, Day 1, p. 65). Malcolm concurred with this on Day 4 when he stated, "We would rather go for something that's cheap and we can get more of" (Malcolm, L2, Day 4: p. 27).

Leanne said that another reason parents give money for the tuck-shop was because they just don't worry about their kids or what their kids eat. Malcolm agreed with this view (Leanne and Malcolm, L2, Day 4: p. 31). Perhaps it is possible that parents think that these learners are getting a full meal at school rather than junk food. However, even

if these teenagers wanted to make healthier food choices, there were no healthier options available to purchase at school (Natalie, L2, Day 3: p. 24). Rebecca stated that some parents don't know how to prepare healthy lunches, or they just don't have the time (Rebecca, L2, Day 4: p. 31). On L2, Day 3, when I provided a selection of salad rolls which could be purchased by the participants, some of them said that they would have bought the salad rolls if they were cheaper:

I would recommend the tuck shop should sell these 'cause they're really good, I tasted them....I tasted them.....they're really good.....and they're actually healthy, I think people would buy them, just cut down the price, cut down the price a little bit (Fran, L2, Day 3: p. 16).

Fran indicated later that she would be prepared to pay ten rand for the roll, which was the same as the price of a pie. Purchasing the roll would use up all of the fifteen rand that I gave them, leaving no money for sweets, chips or drinks (Malcolm, L2, Day 4: pp. 27–28). Both Fran and Leanne felt that they wouldn't be prepared to pay for the type of food that they could make at home “for free”, and that would just take ten minutes of their time to prepare at home (Fran, L2, Day 1: p. 65). Heidi made a similar comment earlier when she stated that she didn't want to choose bottled water to drink, as she could get this from the tap (Heidi, L2, Day 1: p. 36). When given fifteen rand to purchase from the tuck-shop on Day 3, Fran chose to spend her money on Doritos and a Coke, yet she said that the others should have bought a salad roll, as they hadn't bought anything to drink (Fran, L2, Day 3: p. 9).

Time. The issue of insufficient time available for food preparation and consumption surfaced frequently during the focus group interviews. This concurred with findings at L1, where participants mentioned that they chose food that was easy and quick to prepare, as there was “no time”. The participants in the focus group claimed that their homework and activities took up so much of their time at home that there was no time to prepare lunch before going to bed (Heidi, L2, Day 1: p. 71). Even though Fran stated that it would just take her ten minutes to prepare a hot dog, a few minutes later she said that she didn't have time to prepare lunch, as she had homework (Fran, L2, Day 1: p. 66). Leanne stated in L2, Day 4 that she felt that time was only an excuse: the real reason for eating junk food was that most teenagers preferred it to healthier options (Leanne, L2, Day 4: p. 30).

Knowledge of healthy food choices. There was evidence that the participants lacked some knowledge of what healthy foods and unhealthy foods are. Fran remembered what I had taught her in a previous lesson - that all food is healthy if taken in the correct proportions - but did not appear to apply that information when making her own food choices. For example, in L2, Day 2, the participants were asked to bring a healthy packed lunch to the focus group meeting: it was apparent from the contents of the lunchboxes in L2, Day 2 that some learners thought white bread was a healthy food choice. Others, such as Malcolm, chose energy drinks and beverages with a high sugar concentration because they thought that these were healthy. These learners were under the impression that they *had* made healthy food choices, yet the much of the food and drinks that they chose was high in sugar and refined CHO. This could indicate a high GI intake, which can lead to insulin resistance and type 2 diabetes.

The participants initially lacked knowledge on diabetes and on the GI index, which could have explained their poor food choices at the beginning of the research. Nevertheless, even when I had explained both concepts to them, and they themselves had researched these topics in the library, some consciously choose foods that were high GI. Both Malcolm and Cindy said they chose the high GI food because it was a treat, and that they normally have healthy food. This may have been true for Malcolm, who previously attested to bringing healthy lunches to school, but there was no evidence of Cindy making healthier choices previously. Although Cindy had chosen high GI food, when speaking in front of the camera, she indicated that she understood how important it is to eat healthily: “The fact is that diabetes is killing a lot of people out there.... so guys - South Africa actually- school children....eat healthy and look after yourselves” (Cindy, L2, Day 3: pp. 9-10).

In the same conversation, Cindy stated that her mother is diabetic and she watches her mother inject herself with insulin every day. Yet, the knowledge about healthy food choices and her experience of diabetes in her family was not enough to motivate her to choose healthier food options herself. Cindy said of her choice: “Ma’am, I’m really, really, really sorry, I know you’ve taught us a lot about low GI, but the pies are just too good” (Cindy, L2, Day 4: p 14). Leanne said, “Ma’am I’m sorry, I feel so bad for what I did, but” (sighs and points to high GI foods), “This is food, this is *real* food” (She then points to low GI foods), “and this is also real food, but I’m sorry, I can't do that”. It

would seem, then, that some of the teenagers in this school understand the importance of making healthy food choices, but do not apply this when making these choices for themselves.

On a positive note, three of the focus group members who were present on Day 4 made healthy food choices precisely because of what they had learnt about the risks of diabetes and the role played by low GI foods in preventing it. Margaret said:

I was in between both tables, I really didn't know what to choose, 'cause the lemon meringue pie looked really nice; but I chose the healthy table because I don't want to be thinking that I made the wrong decision by choosing the unhealthy table and getting diabetes one day, so I chose the healthy table (Margaret, L2, Day 4: p 16).

Rebecca was very hesitant and self conscious when making her choice, as she was the first to choose, and kept asking if somebody else could choose at the same time (Rebecca, L2, Day 4: p. 4). She eventually chose from the low GI table, and had this to say of her choice:

I chose from the healthy table, 'cause I remember researching five minutes ago that rice cakes are high GI, and they are on the fat table. So.....I didn't want to really get hungry in an hour's time, or let my blood pressure go up like we learnt a few days ago, so I chose the healthy table (Rebecca, L2, Day 1: p. 15).

I assume that Rebecca meant blood sugar levels, and not blood pressure, as I find that even my senior Matric students sometimes get mixed up between the two. This data shows that although not all of the learners heeded the advice to make healthy food choices, some did: therefore, if more exposure was given to the benefits of healthier choices and the risks of diabetes, more learners might decide to choose the healthier options available.

6.3 Comparison of findings from L1 AND L2

At this point of my analysis I would like to draw together any similarities and incongruities in the findings of L1 and L2. In order to maintain consistency, I have used the same influences that were identified in both levels as headings for the comparison.

Family influences. Both L1 and L2 revealed that lunch is usually made by the mother, father or other close family member. This would indicate that the mother in the family has the greatest influence on teenage food choice. The learners accepted whatever was packed by their mother, even if it wasn't what they really liked. However, many lunchboxes on both levels contained a lot of refined CHO such as sweets, biscuits and muffins on a regular basis. This could be problematic, as these foods not only contribute to raise blood sugar levels, but also contribute to tooth decay and obesity. It is probable that mothers include these items to please their teenage children, or as a means to communicate their affection towards an otherwise distant teenager. Having a lunchbox that was carefully prepared and packed by a mother was seen as being desirable by the learners in L2. The learners in L2 also said that their parents wanted them to eat healthily. However, although the intention of the mother is for the teenager's well being, the frequent inclusion of this type of food can lead to ill health in the long term.

The participants in the focus group boasted about the taste of their own mothers' cooking, and mentioned family favourites such as macaroni cheese and cottage pie. This would indicate that these learners do enjoy eating family meals. However, it was noted by Eisenberg *et al* (2004) that teenagers participate in fewer family meals than younger children, either because they are establishing their independence or because they dislike the food served at these meals. This research would seem to indicate that the teenagers in this high school enjoy these home cooked meals. However, the majority of these learners did not bring leftovers from the family meal for lunch. This could be because this type of food, which is best eaten hot, cannot be heated at school and so would have to be eaten cold. This was indicated by Fran on Day 1 when she objected to eating "cold pap" and cold amadumbe (Fran, L2, Day 1: p. 9). It could also support the findings of Stockmeyer (2001), who found that a paradox exists between the type of food that learners *say* they enjoy when at home with their families, and the type of food they choose to eat when with their friends.

The influence of culture on teenage food choices was more evident in L2 than in L1. Fran clearly identified different foods with different cultures and places, and did not identify the Zulu culture with this school. As this school was a 'whites only' school under the Apartheid government in an English speaking part of Kwazulu-natal, the dominant

culture in this school has always been English South African. Although the school is now racially integrated, more than half of the learners are still from an English South African background, as is the headmaster. Therefore, this culture still prevails in the school. Although Fran found it difficult to explain this, she had correctly identified that the dominant culture in the school is not Zulu. This data indicates that Fran, and others, have been exposed to globalisation through the school, and as a result she has changed from eating traditional foods associated with her Zulu culture to eating 'junk' food associated with the westernised English culture which dominates this school. This could exemplify the "Nutrition Transition" taking place in South Africa identified by Cameron, (2003).

Options available. In L1, the participants said that their food choices were dictated by the options - or lack thereof – at home and in the school tuck-shop. This also came to the fore in L2. The participants were content to eat what they were given by their mother, even though it may not have been what they would have chosen for themselves if they had made their own lunches. However, in L2, Day 1 it emerged that when the teenagers were given the option, they would exchange their food for something that they preferred. In L2, Day 3, the learners had the option to purchase a healthy low GI roll from the tuck-shop, but they chose to purchase pies, chips, sweets and cold drinks instead. In L2, Day 4, when the learners could choose between foods that were low GI or foods that were high GI, most of them chose from the high GI table. This would indicate that when teenagers have a choice, most will select high GI 'junk' food over healthier options.

Sensory perceptions of food. The participants in both L1 and L2 said that the taste of the food was an important factor in influencing their food choices. The focus group conversations in L2 revealed that the smell of the food also plays a major role in influencing food choice (Web MD, 2015). Smell and taste are closely linked, as the olfactory organs in the nose detect aromas that contribute to the flavour of food. Many flavours are volatile, particularly when food is heated, thus the aromas emitted from foods can be sensed from a distance. A pleasant aroma, such as the smell of the pies in L2, Day 4, can influence one to choose that food over other options. As mentioned by one of the participants, "If food smells good, then it will also taste good". A fondness for sweet foods emerged in both levels, and sweet foods were eaten at least once a day. It also emerged in L2 that some learners eat sweets all day at school. At the time of this

research, sweets were available for sale at the tuck-shop from early morning to late afternoon without restriction.

Finances. In both L1 and L2 some learners brought money to purchase food from the tuck-shop instead of bringing lunch from home. One of the participants in L1 brought R100 to spend at the tuck-shop, which concurred with what the focus group members said in our conversations. I was taken aback by this, as R100 a day adds up to R2000 a month, which was greater than the minimum wage in South Africa at that time. Furthermore, most of the learners who regularly brought money instead of a packed lunch to school were from the Zulu culture, and would have been previously disadvantaged in South Africa. This corresponded with the findings of Warwick *et al* (1999), who found that as the socio-economic status of families increased, so did their temptation to buy 'junk' food instead of fresh food such as fruit and vegetables. This could be due to the fact that both parents work full-time in most urban families in Durban, leaving less time for preparing fresh foods. Once more, this is an example of socialisation of the family through globalisation.

There was also a perception by the participants in L2 that healthier choices are more expensive than 'junk' foods. This may be the case when comparing the mass of the foods: however, it is the nutritional density of the food that needs to be assessed when evaluating value for money. Quantity seemed to be valued more than quality by the teenagers, as was indicated by Fran when she said that she would rather buy thirty sweets than one hot dog.

Time. The issue of not having enough time to prepare lunch surfaced frequently in both L1 and L2. However, in this study I did not collect data relating to what time the participants went to sleep, or what activities took up so much of their time. Further research could reveal whether they are getting too little sleep, and therefore can't get up easily in the morning. It could also reveal what teenagers are spending their free time doing in the evenings, and if they could be assisted in prioritising their activities so that time is made available for preparing a healthier lunch.

Knowledge of healthy food choices. Misconceptions in identifying healthy food choices evident in both levels of data collection point to a lack of knowledge on the part of the

teenagers themselves and their mother/family member who prepared the lunch. Much has been written about choosing healthy foods in recent years, and advice given by one celebrity chef or dietician may be in complete contrast to that of another.

In conclusion, as the data collection in L1 was quite rushed due to the lack of time at break, there was less depth in these answers than the answers given in L2. This would have impacted on the richness of the data collected at L1, and therefore the findings in this level may not have been conclusive. Nevertheless, the answers given by the participants in L1 seem to agree with the findings in L2, thereby adding validity to the novel methods of data collection used in L2 of this study.

6.4 Additional Influences Found at L2

The depth of the investigation that took place in L2 uncovered deeper layers of influences on teenage food choices than L1. The data revealed sociological and psychological influences that can be rooted in the trilogy of theories that I identified as being central to influencing teenage food choices in this, and perhaps other SA high schools. These influences were identified as follows:

- Marketing tactics of food corporations
- Teenage identity
- Peer pressure

Marketing tactics of food corporations. The data indicated that the way food is presented and marketed to teenagers influences their food choices. This includes how food is packaged, advertised, promoted and sold to teenagers.

Packaging. The colour of the packaging was frequently used to identify the flavour of food such as corn chips; when Fran asked for Doritos at the tuck-shop, she specified that she wanted 'blue' Doritos, meaning that she wanted the flavour which came in the blue packet (Fran, L2, Day 3: p.5). Packaging is designed to attract the target market of the product, and junk food is usually packaged in red or other brightly coloured containers. Teenagers are attracted to bright colours, which symbolise excitement and action. In L2, Day 1, the lunchboxes which were the

brightest colours were chosen first, and the duller colour was left until last. Jonathan said that he chose Coke Zero to drink because the shiny can used to package it attracted him to it (Jonathan, L2, Day 1: p. 40). Malcolm also stated that the unusual shape of the Vitamin Water bottle attracted him to this drink. Marketers often use distinctive colours and unusual shapes to package beverages so that they can be easily identified and distinguished from rival products.

Advertising. Advertising in the media appears to play a significant role in influencing teenage food choices. Malcolm stated: "I think the broadcast media influences what we eat....even in the movies you see it....and in magazines", (Malcolm, L2, Day 4: pp. 43-44). Rebecca made the following point about junk food: "We're so surrounded by it on the TV and everybody has it, it's so easy to get....compared to healthy food". Advertising informs teenagers about the food options available, thereby influencing their food choices. Lack of advertising of healthy foods can therefore be said to play a role in preventing teenagers from making healthier food choices, as they are unaware of the healthier options available to them. This was particularly evident on Day 2 of the focus group sessions, when I placed healthier choices in the school tuck-shop that the participants could purchase. The healthier options were kept at the back, and many of the participants did not see them. Malcolm stated, "When I went to the tuck shop I never....I never saw any of the healthy roll thingies" (Malcolm, L2, Day 3: p. 19). Margaret did notice them, and specifically asked about them, but was told by the owner of the tuck-shop that they were not for sale (Margaret, L2, Day 3: p. 3). This resulted in some confusion, as explained by Naomi:

We were told no, they're not selling them....when they....realised that we are part of the program....they put them out for us so.... we were....not too sure what was going on with them (Naomi, L2, Day 3: p.20).

The fact that they were not promoted by the owner of the tuck-shop would have limited their ability to make healthier food choices, as the only other food available for purchase was 'junk' food. When I inquired about healthier options like salad rolls being available at the tuck-shop, the owner said that these could be per-ordered in the morning and made freshly, and she pointed to a sign that indicated this. On Day 3, Natalie, who helped in the tuck-shop regularly, said that she wasn't

aware of this option, and had not noticed the sign (Natalie, L2, Day 3: p. 23). The owner of the tuck-shop claimed that if she prepared fresh food the learners wouldn't eat it and it would be wasted. She said that she had tried selling fruit and yoghurt and that the learners weren't interested. The learners, on the other hand, claimed that there are no healthy food choices in the tuck shop. This data shows that teenagers *do* like yoghurt and fruit, but these options are not available in the tuck-shop. Natalie stated that when any learners requested a healthier option, the only choice available to them was a cheese and spinach pie, which was not to their liking. She said, "It's all unhealthy. We don't have a choice....it's only unhealthy food that's available to us....the healthiest thing is cheese and spinach pie....Eewww! That's disgusting!" (Naomi, L2, Day 3: pp. 24-25).

Brand names. Certain brand names were repeated by the participants numerous times. Mary stated that "Cool foods have a brand name. A brand name like Aero and Coke" (Mary, L2, Day 1: p. 81). The brand names which appeared most often in this data were Coke, Fanta, Aero, KFC, Mc. Donald's and Doritos. Of these, Coke was mentioned the most. When interviewed about her choice of drink on Day 1, Cindy said, "I've also got Coke, I chose this because....Coke is the way, you know....I love it!" (Cindy, L2, Day 1: p. 39). Jonathan said that one person he knows buys up to six Cokes in one day (Jonathan, L2, Day 1: p. 58). Cindy agreed, and said that one of her friends buys at least three Cokes a day (Cindy, L2, Day 1: p. 59). In fact, the participants themselves identified that they may be addicted to Coke, as was indicated by Fran when she said, "Ma'am, how long does it take to break a habit? Because whenever I have money I buy a Coke" (Fran, L2, Day 3: p. 43).

Teenage identity. Teenage identity can be difficult to analyse, particularly as they themselves tend to be unsure of who or what they align themselves with. Factors such as gender, self-image, being seen as 'cool' and laziness are all aspects of teenage identity that came to the fore in this research as factors influencing teenage food choices.

Gender. The girls mentioned issues like watching their weight as influencing their food choices (Heidi, L2, Day 2: p. 26). They were also concerned with whether or

not they looked attractive while eating, and this had quite a bearing on the foods that they chose to eat. Any food that was messy to eat was automatically excluded: "Have you noticed how whenever you eat a mango it gets stuck in your teeth, or it dribbles down your face....or on your hands?" (Fran, L2, Day 5: p. 5). The girls were also conscious of not looking like they were "pigging out", or "stuffing their face" while eating (Natalie, L2, Day 5: p. 4). Natalie explained:

You have to be conscious what people think while you're eating, so if you're being a pig and scoffing all this down, you mustn't be able to look too much like a pig, like if you're scoffing down chips (crisps) it doesn't look too much like a pig (Natalie, L2, Day 5: p. 5).

Hence, this would imply that girls prefer eating finger foods or foods that can be popped into the mouth without making them look unattractive.

Laziness. The participants themselves identified that they are lazy when it comes to preparing lunch. Michael was the first to admit that he would rather sleep in than get up to make lunch. "It's bad", he said, "I can't even make any lunch....I'm too lazy. I'd rather sleep in and buy at the tuck-shop" (Michael, L2, Day 1: p. 54). Natalie said that most teenagers suffer from a disease called "laziness" (Natalie, L2, Day 3: p. 26), and if lunch wasn't prepared by parents, teenagers would rather go without than make it themselves. This finding surprised me, as I had assumed that teenagers were responsible enough to make their own lunches for school. I also found it interesting that the participants didn't consider the consequences of going to school without lunch. Experiencing hunger during one school day was not enough motivation to make an effort to pack a lunchbox for the next.

Self-image. The fluidity of the participants' self-image was evident throughout the study. For example, Heidi stated that she has two different groups of friends, and she likes to change her friends when she gets bored with them. One of these groups always had Coke, pies, chips and sweets, and the other group ate healthy food such as fruit, yoghurt, nuts and salad. Interestingly, she said, "With that group you will have healthy food....with the other group you will have the unhealthy food" (Heidi, L2, Day 1: pp. 70-71). This would indicate that she was still unsure of which group she identified with (Erikson, 1959), and wanted to keep her options

open.

Initially, Malcolm portrayed himself as being very health conscious when it came to food choices (L2, Day 1: p. 43), and spoke repeatedly about how much he loved healthy food. By Day 4, he had become an advocate of choosing junk food over healthy options. By doing this he aligned himself with the more outgoing, rebellious participants rather than the quieter participants who made the healthier choices. Once again, this would confirm Erikson's theory that teenagers 'try on' a number of identities before deciding which one they are most comfortable with (Erikson, 1959).

Malcolm identified how advertising and the media use beautiful, young, healthy people to create an ideal image that teenagers aspire to achieve. As he was looking through magazines, he noticed how perfect Scarlet O'Hara looked in an advertisement. He then began to analyse advertisements for 'junk' food that use pictures of beautiful people to attract teenagers to their products:

I think the broadcast media influences like, what we eat, 'cause you see an advert for KFC crushers....and it looks so good....and the people who are busy drinking them look so good. I mean.... there's the perfect woman who's busy....drinking a KFC crusher, they must be good for you. Even in the movies, you see it, they'll be drinking a Coke, and they seem perfectly fine....they're wealthy, they've got blonde hair and they're blue-eyed andthere we go! (Malcolm, L2, Day 4: p. 44).

These are very powerful images for an impressionable teenager who is looking for an image to identify with in order to appear 'cool' to his/her peers.

Being 'cool'. It was clear that certain foods were chosen because of the image portrayed when eating that particular food. Most teenagers want to be accepted by their peers, and in order to be accepted they need to be 'cool'. Food is chosen according to how 'cool' it is considered to be seen eating that food. Rebecca said, "Cool food is really anything that looks, smells and tastes really good, that's all, but like most of.... the time it just happens to be 'junk' food" (Rebecca, L2, Day 1: p. 86). Mary concurred: "Like Coke and everything, if you're seen having that then it's cool". Therefore, teenagers may choose 'junk' food to be accepted by

their peers. Some of the teenagers associated processed or 'junk' foods with school and stated that buying from the school tuck shop was seen as a status symbol and made them popular with peers. The following comments were made by Naomi:

There's things that we call 'cool' food and if you don't eat a certain thing, then in a way people don't, em....accept you into their groups, and they think that healthy foods are not exactly the ideal food for everything.... it's also judgment in a way, 'cause if you don't eat a certain thing that means you don't have a certain amount of money or your family can't afford it (Naomi, L2, Day 3: p.14).

Peer Pressure. Peer pressure is well documented as influencing teenage choices, and food choices are no exception. In this study, the participants chose food that made them popular with their peers, and avoided foods that their peers didn't approve of. It was also evident that food is used in power struggles within the social structures of the school.

Socialising. The learners at this school have very short breaks of between 20-25 minutes, twice a day. During these breaks many meetings are held for the various activities that they are involved in. The data indicated that as time during breaks was short, socialising took priority over eating. Therefore, foods are chosen that are convenient to eat while conversing. As teenagers are accepted or rejected into social groups according to their food choices, they are under tremendous pressure from peers to purchase 'junk' food in order to fit in.

Bribing. Some learners buy food and sweets to gain friends and increase their popularity: "To make friends....she will, like, buy you a pie, or buy you a Coke for R10....she'll just spend money on anybody just to be accepted" (Fran, L2, Day 1: p. 69). Naomi stated that:

Most of the cool people, if the tuck shop is open before school, they're there. It's also status, like "I've got the money", you know? "I've got money today, let's go to the tuck-shop, I'll buy you something too". People are buying friendships with it (Naomi, L2, Day 1: p. 78).

Judging by these comments, those with money can use it to gain popularity, thereby becoming one of the 'cool' people. Hence, food is being used in this

school as a weapon of power: this reflects the bribery and manipulation that is used as a means of gaining power and control in our society.

Bullying. Buying food for others was also used as a means of excluding the ‘uncool’ learners. In Heidi’s words, this is “like a bully tool” (Heidi, L2, Day 1: p. 67). Some learners are also purposely excluded when those with money buy sweets for an entire class. Jonathan, a special needs learner, experienced this bullying first hand:

This....this guy in my class, he brought....he brought like two hundred rand and bought....five classes something, and he looked at me and just walked off (Jonathan, L2, Day 1: p. 68).

Jonathan was visibly upset when talking about this, to the extent that he started to stutter. This bullying can also be more direct: senior learners wait outside the tuck-shop and take food from the juniors as they exit. I captured evidence of this while reviewing the video footage from Day 3: Fran hid behind the tuck-shop while another girl bought on her behalf. This girl passed a Coke and Doritos to Fran, and hastily put the pie she had purchased under her blazer when she noticed the camera (Fran, L2, Day 3: p. 5). Naomi was seen handing something to another girl who was waiting for her outside the tuck-shop. She referred to this when speaking to the camera later that afternoon: “I got sour worms but then that’s a long story, ‘cause somebody decided....to take my sour worms” (Naomi, L2, Day 3: p. 13). Learners who do not bring lunch to school either pressurise others for their lunch or take food from people’s school bags during lesson time. Natalie attested: “What do you do....they don’t ask anymore, they just take it, go to your bag and take it themselves!” (Natalie, L2, Day 5: p. 11). This results in learners having to bring extra lunch to school or bringing nothing at all to avoid being harassed by others (Rebecca, L2, Day 4: p. 30; Nicole, L2, Day 5: p. 10).

Stigma. The participants revealed that there is a stigma attached to eating certain food, especially traditional food or leftovers brought for lunch. Those bringing leftovers are seen as poor, whereas those who can purchase food from the tuck-shop are seen as being rich.

The 'rich' girl in our group says "I can't sit with you guys because you're eating leftovers from last night, I want to go and eat a pie and sit with the cooler people". So it's like she's discriminating against us, and we are separating because of food (Cindy, L2, Day 1: p. 76).

It would appear, then that in order to be accepted by the 'cooler' people, teenagers have to choose 'junk' food from the tuck shop.

6.5 Discussion of additional findings in L2

The three additional influences identified in L2 may be underpinned with the trilogy of theories as explained in chapter 3 of this thesis.

Marketing tactics. According to culture industry theory, multinational corporations use imagery to attract consumers to products (Fromm, 1955). When one looks at the bright colours and pictures of 'cool' teenagers used in advertisements, it would appear that the teenagers are being purposely targeted as consumers of foods containing high amounts of sugar in the diet. Sugary foods are habit forming, so along with the 'cool' images that are used to attract teenagers, the sweet taste of these foods can become addictive (Ball-Rokeach & De Fleur, 1976). The ingestion of sugary foods in the diet causes blood sugar levels to rise rapidly, resulting in a sugar 'high'. However, this is followed by a sugar 'low' within an hour, as insulin is secreted from the pancreas to control these sugar levels. As glucose levels drop again, the body craves more sugary food to raise the blood sugar levels once more (Diabetes SA, 2010; Noakes *et al*, 2013: p. 13). This is evidence of the application of culture industry theory as identified by Fromm (1955).

In a poster which is on the wall of the school tuck-shop, advertising Coca-cola, young people are depicted drinking Coca-cola and laughing. They are good-looking, trendy and happy. The chairs are old-fashioned, and the body language of the young people suggests that they are not too comfortable sitting on them. The girl in the white pants is sitting on the table, with her foot on the chair as if she is pushing it away. This poster could therefore represent rebellion from the norms and values of parents, as teenagers would not be allowed to sit on the table at

school or at home. Coca-Cola is portrayed as vibrant and refreshing, so offers the teenager an image that they would like to identify with. Coca-Cola uses the imagery in the poster to satisfy not only the teenagers' basic physiological need to drink, but also their need to socialise and their longing to be accepted by their peers. This contributes to the popularisation of certain foods and beverages through the media, and confirms the views of Horkheimer and Adorno (1944) that a system of consumer capitalism is developed and controlled by the media (culture industry theory).

Dependency theorists such as Irogbe (2005) believe that MNCs such as Coca-Cola try to ensure a continued market for their products by making their target market dependant on the products. Coca-Cola is thought by many to have an addictive substance that keeps consumers coming back for more (Noakes *et al*, 2013). Coca-Cola, like all food and beverage products, has to be tested and approved by the Food and Drug Administration, and has been passed as safe for human consumption. However, it must be borne in mind that many processed foods consumed on a daily basis contain additives that are potentially harmful are present in quantities that are deemed to be safe. In this study, data seems to indicate that some learners may, in fact, be addicted to Coke. The advertising and marketing of Coca-Cola has therefore had a major impact on teenage choice in this school. The poster on the wall of the tuck-shop is evidence of a direct attempt to attract teenagers as a specific target audience. Therefore, these findings concur with Irogbe's view that teenagers are seduced by the imagery and marketing tactics of MNCs (Irogbe, 2005), and they become socially and psychologically dependant on purchasing products advertised through the media (Ball-Rokeach and DeFleur, 1976).

Teenage identity. The British Council and the South African Agency for Science and Technology Advancement (2007), found that there is a stigma attached to eating traditional food in South Africa. The learners in the focus group testified that this is also the case in this high school. This also confirms what Bourne (1996) says about a nutrition transition taking place in South Africa due to increased urbanisation and exposure to western diets. Eisenberg *et al* (2004) first identified this trend emerging in Minnesota in the USA. It is evident that the same trend has

now been adopted by South African teens.

Peer pressure. As teenagers are accepted or rejected into social groups according to their image, they are under tremendous pressure from peers to purchase 'junk' food to be one of the 'cooler' people. This would concur with the findings of Reisch and Gwozdz (2011), who found that peers have a greater influence on food choice than parents. In effect, this means that even when parents pack nutritious lunches for their teenage children, the latter might choose not to eat it either because it does not fall into the category of 'cool' food that is accepted by their peers. This concurs with the findings of Giddens (2009), who states that teenagers can become dependent on brand names that are popular with their peers. Ball-Rokeach and De Fleur (1976) recognised that this dependency on products increases during times of greater need or social instability. The crisis of identity that teenagers experience (Erikson, 1959) could easily represent a time of social instability in the lives of teenage learners. Thus, their social and psychological dependency on 'junk' food guarantees increased sales and profit for multinational companies.

If this profit is generated at the expense of the future health and well-being of teenagers, then it can only be viewed as exploitation. Recent business reports state that sales in the fast food industry in South Africa are rocketing (Enslin-Payne, 2011). This upward trend in this economic section emphasises the direction that food choices are heading in South Africa. Indeed, Cyril Ramaphosa, who is listed by Forbes as one of South Africa's most successful entrepreneurs, was quick to recognise this economic opportunity: while holding the position of minister for rural development, his Shanduka Group purchased major shares in McDonald's and Coca-cola South Africa. Although Mr. Ramaphosa is to be admired for his entrepreneurial and leadership skills, this economic growth (or development) should not take place at the cost of public health.

6.6 Conclusion

Family, options available, sensory perceptions of food, finances, time and knowledge of healthy food choices were the main influences that emerged from the data at both L1 and L2. In L2, an additional three themes emerged, namely marketing tactics, teenage identity and peer pressure. These findings validate my use of identity theory, culture industry theory and dependency theory to underpin the influences on teenage food choices. In chapter seven, I will explore how I can use this knowledge to engage teenage learners in making healthier food choices.

CHAPTER 7. RESEARCH QUESTION THREE

How can I engage teenage learners in making healthier food choices?

In order to find the answer to this question, I examined the results of research questions one and two and used this knowledge to develop a possible plan of action that might engage teenage learners in making healthier food choices. I also scanned the transcripts from L2 once more for any empirical evidence that would support this plan of action. What emerged was both exciting and disturbing. Exciting in that I feel I may have found an answer to the enigma surrounding teenage food choice, and disturbing as this analysis forced me to examine my own risks of developing diabetes and my inability to be a positive role model for the learners in this school.

In this chapter, I will first highlight the foods that teenagers generally do not like, so that these can be eliminated from the lunchbox. I will then examine the empirical data on the influences on teenage food choices in this school, with the aim of understanding the logical, socio-economic and psychological reasons why these factors are so influential. These existing influences will then be utilised to find ways in which I can engage teenage learners in making healthier food choices. Finally, I will turn the camera on myself, to analyse the role that I, as an Irish, middle aged, conservative teacher, can play in influencing teenage food choices in this South African high school.

7.1 To Eat or Not to Eat?

This research has already shown that there are certain foods that teenagers in this school will *not* eat due to:

- Undesirable sensory characteristics of the food such as appearance, smell, texture and taste e.g. lentils, fish, eggs, peanut butter, whole-wheat bread, spinach and plain (unsweetened) yoghurt.
- Cultural differences, e.g. amadumbe, tripe, samp and beans are traditionally eaten in the Zulu culture, and are not enjoyed by other cultures in the school.
- Religious or personal convictions such as vegetarianism, e.g. meat and milk.

- Difficulty in eating while walking and socialising, e.g. salads.
- Negative image associated with the food, e.g. eating leftovers is not 'cool'.
- Being messy to eat, such as mango which dribbles down the chin, or could cause embarrassment, such as beans that may cause flatulence in class.

These factors need to be taken into account by parents when planning and purchasing food for the lunchbox, as teenagers may be embarrassed, bullied or rejected because of the food they bring to school. Most of these foods are considered to be healthy choices, and their intake is therefore encouraged in a balanced diet. I myself, as a Consumer studies teacher, have been an advocate of these foods, as they are nutrient-rich and low-cost, both important considerations when planning meals on a tight budget. However, one needs to recognise that the teenager's fear of rejection is very real, and once learners have been branded as 'uncool' and therefore unpopular, it is very difficult for them to change the identity they have been labelled with.

Armed with this knowledge, I realised that expecting my learners to heed my advice when I ask them to increase their intake of lentils, beans, fish, eggs, peanut butter, spinach, whole-wheat bread and other healthy foods is unrealistic. The social and psychological attraction of 'junk' food is far too powerful an influence on their current mental health for them to care about the impact eating this type of food could have on their future well-being. Therefore, these specific foods should be removed from the teenagers' diet, as insisting that they should be eaten may cause teenagers to rebel against all healthy foods. Malcolm implicated this in L2, Day 5, when he remarked:

Your parents will teach you to always eat healthy foods, low GI foods and low-fat foods, and the sometimes you just feel like going against it, because you get so sick and tired of your parents saying, "You must eat your veggies, you must eat your spinach, you must eat your carrots", and you just want to go against them (Malcolm, L2, Day 5: p. 8).

Thus, it would seem that instructing teenagers to make healthy food choices is counter-productive, and may even increase the attraction of 'junk' food as an alternative option.

How then, could I achieve the aim of influencing teenage food choice to prevent the onset of type 2 diabetes in this South African high school? This question led me to re-examine the influences that seem to dominate teenage food choices.

7.2 Influences on Teenage Food Choices

In L2, Day 5, I asked the focus group members to identify some of the influences on their food choices. To my surprise, when I analysed the data, I noticed that the themes that emerged were almost the same as the themes that I had identified from the analysis of the previous four days. The influences on teenage food choices that were identified by the focus group were:

- Parents
- Options available
- Quantity
- Cost
- Time
- Media
- Rebellion
- Advertising

Due to the longevity of this study, I only became aware of these themes four years after the data was collected, and I was totally unaware of this correlation when clustering the themes identified from the first four focus group sessions. This adds validity to my findings, as the same conclusions that I came to were also identified by the learners in the focus group. I have aligned the themes together in the following discussion.

Parents (Family influences). The learners felt that parents could have both a positive and a negative influence on teenage food choices. Positive as the “parents buy the food and supply the food and we eat what they give” (Margaret, L2, Day 5: p.8). Negative in the way that they “will want you to eat healthily, but then you’ll go against them” (Malcolm, L2, Day 5: p.6). When I asked them, “Do you think it

would be a positive or a negative influence if teachers were pushing healthy food choices?" Natalie felt quite strongly that this would be a negative influence: "Negative completely! You're already talking about how your parents tell us and then you want to rebel, honestly, if you have a teacher...I mean, really! You know that's worse!" (Natalie, L2, Day 5: p. 18). This could indicate that any direct attempt I make at engaging learners in making healthy food choices would be met with the same rebellious response from them. Therefore, any intervention I made would have to be implemented indirectly so that the learners remained unaware of my involvement.

Options (Options available). This empirical research found that many of the learners will choose 'junk' food over healthier options, if they are given that choice. It follows then, that if we want to discourage learners from choosing 'junk' food, we need to eliminate 'junk' food from the options available to the teenager. This was indicated by Cindy when she stated: "If we didn't have the coke, the muffins and the lemon meringue pie....and if this (healthy) food was sold in the tuck-shop, the people would actually buy it" (Cindy, L2, Day 4: p. 29). As a member of the senior management team in the school, I could influence school policy regarding what can be sold in the tuck-shop. I could also liaise with the tuck-shop owner to remove high GI and junk foods from the tuck-shop and provide healthier choices for the learners. However, Leanne felt that if the tuck-shop only supplied healthy choices, people wouldn't pay for them, and would start bringing sandwiches from home (Leanne, L2, Day 4: p. 29). Even if this were the case, a sandwich is a lot more nutritious than corn chips and sweets, and would not have such a dramatic effect on blood sugar levels. Either way, the aim of getting learners to make healthier food choices would be achieved.

Quantity vs. quality (Sensory perceptions of food). By bearing in mind the food likes and dislikes of teenage learners, I could advise parents and the owner of the tuck-shop on incorporating healthy foods that taste good but do not cause undesirable odours, flatulence or halitosis. The appearance of the food is also vital, as it was noted that the learners judged the taste of the food by the way it looked. The focus group members also indicated that food served at the tuck-shop should be appealing, neatly presented, and convenient to eat (Natalie, L2, Day 5: p. 3)

Dietary needs of both boys and girls differ, so there should be larger portion sizes available for boys. The girls requested food that was dainty, and made them look good while eating (Natalie, L2, Day 5: p. 3).

Cost (Finances). Food prices are ever increasing, as they are influenced by the increasing cost of production and transport. The evidence shows that the learners expect to pay cost price for food sold in the tuck-shop, and consider that the current prices are too high. They expect the same quantity and quality for a reduced price. They fail to recognise that the tuck-shop is an independently run business which needs to make a profit in order to be sustainable. Learning about the stages in the production process and how to calculate cost price, mark-up and profit in Consumer Studies could help them to understand how pricing structures work in the food industry. Perhaps some Consumer Studies students could be given the task of making a short educational film of the costs and processes involved in making one item from the tuck-shop, and share this film on social media.

Healthier food choices are often more expensive than 'junk' food. This is due to the fact that 'junk' food contains a lot of refined carbohydrates and sugar, which are far cheaper than low GI options such as whole-wheat rolls, cheese, meat and vegetables. 'Junk' food also contains a lot of additives such as flavouring agents which make them taste good, and preservatives that keep them fresh for a long time. Fresh foods, on the other hand, rely on the natural flavour of the food itself enhanced with natural seasonings, and must be sold on the day when they are prepared. The cost of wastage has to be considered when pricing these foods in order for their sale to be financially viable. However, the comparatively high selling price of healthier food products means that the learners choose 'junk' foods as they believe that they are better value for money. The weight, density or sustainability of the food is not taken into account. It is the perceived volume and the quantity that appear to be important. Teenagers seem to prefer to get a lot of small items rather than one large item for the same price.

It is not possible for the school to subsidise the food in the tuck-shop. However, there is a fund available to assist those with financial difficulties, and

they are provided with a sustainable lunch every day. Their identity is kept anonymous even to teachers so that they are not stigmatised by their inability to pay.

Time (Time). Unfortunately, the time allowed at break cannot be extended without adding to the length of the school day. This would interfere with sports and other extra-curricular activities that take place after school. I can request that this be discussed at SMT level, but it is unlikely that staff would be in favour of changing the *status quo*. However, I can request that the staff advise learners on the importance of time management at home, and encourage the learners to plan their breakfast and lunch on the previous evening. I can also devise a list of easy, affordable suggestions for the lunchbox, based on a two week cycle to avoid monotony. This could be accompanied with a concise weekly shopping list to assist busy parents with planning and to ensure that the learners have sufficient choices available in the pantry and refrigerator.

Knowledge of healthy food choices (This was not identified by the learners). Many parents and learners are poorly informed about the importance of healthy food choices. In order to address this, they need to be educated about the specific nutritional needs of teenagers and how these needs can be met through healthy food choices.

Informing and educating parents. As a Consumer Studies teacher, I could educate the parents about the importance of healthy eating for their teenage children. This could be done through an online forum that is already in place in the school, called The School Communicator (D6). A weekly advisory column could be included with tips and suggestions for low cost, nutritious lunch ideas that would appeal to the teenagers, including a shopping list to make shopping easier and less time consuming.

Informing and educating learners. A workshop could be organised for Grade 8s during the orientation week in term 1 to give them basic skills on preparing healthy food. This could be run by enthusiastic learners from Grades 11 and 12, so that it comes across as a fun thing to do, rather than a lesson.

A system of stickers could be developed and placed on low GI food in the tuck-shop to assist the learners in making food choices to suit their various nutritional needs. This would ensure that the teenagers still feel that they have a choice, and give them the autonomy they desire.

Rebellion (Teenage Identity). As teenagers rebel against the norms and standards of their parents and teachers, it would be very difficult for me in *locus parentis* to convince them to purchase healthier food choices. Hence, I now understand why my learners do not apply what I have taught them in class when making their own food choices. The social and psychological attraction to 'junk' food at this stage of teenage development is far more powerful in influencing teenage food choice than any warnings I may give about the impact this may have on their future health. Therefore, I alone cannot hope to influence teenage food choice in this school. However, I can be the catalyst that motivates the learners to become agents of change in this school. By educating the learners about how they are being manipulated by MNCs into buying 'junk' foods, they can be empowered to become critical consumers of the foods that they are being persuaded to eat.

Advertising (Marketing Tactics). If I aim to engage teenage learners in choosing healthier foods, I need to use similar tactics as the MNCs do to influence their choices. Generally, the marketing of healthy food choices is not directed at adolescents. This is in stark contrast to the way in which 'junk' food is packaged and advertised. Catchy, up-beat jingles and either dramatic or humorous approaches are used when marketing 'junk' food, whereas slow or 'old fashioned' music and a serious or agony approach is used to market healthier choices. Teenagers will not be attracted to healthy food unless its image changes to reflect the lifestyle and people that teenagers identify themselves with.

Packaging. As emerged in L2, Day, teenagers are attracted to bright, luminous colours. Yet healthy foods are usually packaged in brown paper with neutral colours. Bright, warm colours such as red and yellow are used to package most processed foods, and particularly to package 'junk' food. One only has to think of McDonalds and immediately the large yellow 'M' on a red background comes to

mind. KFC and Coca-cola also use red in their packaging and labelling, as this colour indicates excitement with a promise of danger. Brightly coloured lunchboxes are easily available, and could be purchased by parents for school lunches. Food intended for teenagers needs to be packaged attractively using bright colours that represent fun and excitement.

Advertising. The data showed that healthy options are not promoted sufficiently in the school tuck-shop. Natalie suggested that a letter be sent home with school reports that includes an updated menu and price list each term (Natalie, L2, Day 5: p. 16). She suggested that this would also make parents aware that the amount of money they give to their children may not be enough to purchase a healthy sustainable lunch. Two years ago the D6 communicator was installed in this school as a means of communicating with parents. This would be a good forum to advertise the tuck-shop menu and update the parents on any price increases that occur due to inflation. Natalie also suggested that healthier choices should be more prominently displayed at the point of sale, so that people notice them when they first arrive at the tuck-shop.

Brand names. As brand names are synonymous with quality, healthy foods should be branded to identify them as quality food choices. Branding healthy foods could also be an opportunity to replace the older, conservative image associated with these foods with an image that is trendy and will attract teenage consumers. As teenagers say that 'cool' food has a brand name, branding healthy food would give this type of food a 'cool' image, thereby making it popular with teenage consumers.

Friends (Peer pressure). It was evident from the findings that peer pressure has a major role to play in influencing teenage food choice. I have concluded that this influence can be utilised to provide teenagers with positive role models who become advocates of healthy food choice in the school. For example, the boys on the first rugby team are very conscious about eating a balanced, healthy diet so that they are able to perform at their best when playing this physically challenging sport with an opposing school. Being on the rugby team earns these boys 'super-hero' statuses in the school, and they are looked up to by other boys and girls as

being 'cool'. If the advert portraying young people drinking Coca-cola on the wall of the tuck-shop was replaced by a picture of the rugby team enjoying healthy food products, perhaps teenagers in this school would want to identify with this team by also eating healthy foods.

7.3 Conclusion

Despite my passion for teaching and concern for the health and well-being of my learners, there is little that I, as a middle-aged, conservative teacher, can do to influence teenage food choice in this high school. Nevertheless, when I examine the factors influencing teenage food choices, I can analyse ways in which healthy foods can be marketed and promoted as 'cool' foods, which is the food of choice of these teenage learners. A new, trendy image needs to be created for healthy food that encompasses branding, packaging, advertising and promoting this food as fun and exciting rather than dull and boring. All the stakeholders, including the owner of the school tuck-shop, the school governing body, parents and teachers, need to support my efforts to change the *status quo* for the sake of the health of these learners. The teenagers themselves need to become agents of this change so that they are empowered to make decisions that can affect their own, and each others', well being (McNiff, 2002).

CHAPTER 8: CONCLUSION

In this chapter, I will return to the beginning of my research journey, and summarise the main points found in both the epistemological and empirical data investigated in the study. The significance of this research will be highlighted with reference to suggested policy changes in this high school that could help promote healthier food choices. Limitations evident from this research will be brought to the fore, and recommendations made for further research in this field. In conclusion, I will suggest how the findings of this research can be utilised not only to engage teenage learners in this high school in making healthy food choices, but can also be applied to other schools in South Africa, and in the rest of the world.

8.1 Context

The end of Apartheid in 1994 triggered a new beginning for the majority of people in South Africa. Hope flourished for a better life for all of South Africa's citizens, and the abolishment of sanctions opened a gateway for international trade with the rest of the world. Multinational corporations seized this opportunity to expand their empires and establish franchises throughout this newly established democracy. Consumers from every cultural background were given the freedom to choose, a right denied to many from birth. As employment opportunities improved, many people chose to move to urban areas where there were better living conditions and services such as electricity were available. This exposed them to the marketing tactics of multinational corporations, who advertised their fast food products through media such as television, newspapers and magazines. Consumption of fast foods increased, and as a result, so did dietary related diseases such as type 2 diabetes.

8.2 Literature review

Professor Cameron (2003) observed that a 'nutrition transition' had taken place in South Africa since the end of Apartheid in 1994. He ascribed this change to an increase in the consumption of foods that are high in fat and refined carbohydrates, and low in

dietary fibre, generally associated with processed foods. This change in the eating habits of South Africans was also mentioned in a documentary produced by The British Council and the South African Agency for Science and Technology in 2007. When interviewed, teenage learners said that there was a stigma attached to eating traditional food, as this was an indication of low socio-economic status.

In 1996 Bourne predicted that degenerative diseases (such as type 2 diabetes) would accelerate with increased urbanisation and improvements in the socio-economic status of the urban African population. In 2003 Cameron found that there was a link between this change in diet and the increase of type 2 diabetes in South Africa. Statistics from the IDF (2014) state that although the African region has the lowest prevalence of diabetes, “It is estimated that around 522,600 people in Africa died due to diabetes in 2013” (IDF, 2014: p. 54). Of these, 76% of deaths in Africa due to diabetes were in people below the age of 60. The IDF also predict that if the current trends continue, the number of people in Africa with diabetes will increase by 109.6% by 2035 (IDF, 2014: p. 55). Distiller (2014), described the increase in type 2 diabetes in South Africa as a “diabetes tsunami” that is about to unleash its wrath on the South African population.

8.3 Research Aim

In 2035, the teenage learners in the school in which I teach will be between 33 and 39 years of age. If the current eating trends of South African teenagers continue, it is predicted that at least 12% of the learners in this school will have been diagnosed with type 2 diabetes by 2035 (Based on IDF stats., 2014: p. 55). In real terms, this means that between 120 and 140 teenagers in this school alone will contract this debilitating disease, and as a result could die before the age of 60 (IDF, 2014). In my concern for the welfare of these learners, I embarked on this empirical research with the aim of engaging them in making food choices that could prevent the onset of type 2 diabetes later in life.

8.4 Critical questions

Three research questions were devised that were key to achieving this aim:

1. How do the current food choices of teenage learners in this high school increase their risk of developing type 2 diabetes?
2. What influences teenage food choices in this South African high school?
3. How can *I* engage the teenage learners in making healthier food choices?

The main findings that emerged from the empirical data can be summarised as follows:

RQ 1: How do the current food choices of teenage learners in this high school increase their risk of developing type 2 diabetes?

- The learners in this school frequently eat food that is high in refined CHO, such as white bread, crackers, corn chips, biscuits, cake, muffins and sweets, which are high GI. These foods, along with the high intake of Coca-cola and other high energy drinks could cause spikes in sugar levels that may result in learners becoming insulin intolerant and developing type 2 diabetes.
- Most lunches include foods high in protein and/or fat such as meat, cheese, butter and mayonnaise; this is beneficial in the fight against diabetes, as both fat and protein slow down the digestion of CHO if ingested at the same meal.
- The proportion of vegetables included in the diet falls far short of the recommended 4-6 daily servings. Besides the fact that vegetables are rich in vitamins and minerals essential for growth and development, they contain soluble fibre which promotes a feeling of bulk and satiety, thereby reducing the temptation to overindulge in CHO foods.
- Fruit is regularly eaten, but once again, not in sufficient quantities. The most popular fruits are apples, naartjies, oranges and grapes.
- Yoghurt is not eaten as frequently as one would expect, given that it is a convenient food to pack and eat, and has the added benefit of reducing the GI levels of CHO.

RQ 2: What influences teenage food choices in this South African high school?

- *Family influences:* In most cases, food is purchased and the lunchbox is packed by the mother or other family member. In the instances where the learners themselves were given the task of packing their own lunches, they habitually come to school without lunch or with food that does not contain sufficient nutrients for their needs. Most parents are concerned about the eating habits of their children, and so they endeavour to pack a nutritious lunch for them. However, frequently the choice of CHO included in the lunchboxes is high GI, and could promote insulin resistance long term. All too often the lunchboxes contain biscuits, cake and sweets, foods that should only be consumed on rare occasions.
- *Options available:* This research shows that teenage learners will eat healthier foods if no other option is available, but when given the choice between healthy foods and 'junk' foods most will opt for the latter.
- *Sensory perceptions of food:* These teenagers said that the taste of food was the most important sensory factor when making food choices, and have a preference for sweet foods. The aroma of food cooking also influences choice, as a pleasant aroma is associated with a pleasant taste. Certain foods will not be eaten due to the volatile odours released by those foods or that remain on the breath after eating. The appearance of food contributed to its selection, and these learners emphasised that food must "look neat" and attractive.
- *Finances:* Many teenagers are given money to purchase food from the school tuck-shop on a daily basis. This can vary in amount from R2 to R100 a day. The learners who spent the most amount of money at the tuck-shop were those whose parents were from a previously disadvantaged background. The teenagers are conscious of getting value for money, but perceive that the quantity of the food received is more important than the nutritional quality. They also recognise that 'junk' food is usually cheaper than healthy food, and therefore more affordable.
- *Time:* The teenagers complained that they had little time in the mornings to prepare a healthy lunch, and would rather sleep longer and buy food from the school tuck-shop. They also indicated that extra – mural activities and homework/study took up a lot of time in the afternoons, leaving little time to plan and prepare a healthy lunch for the following day. School lunch breaks are short,

allowing little time to eat foods that are time consuming to chew and swallow, therefore foods are chosen that are quick and easy to eat.

- *Knowledge of healthy food choices:* Many parents and learners believe that high GI foods such as white bread are healthy choices. There is also lack of knowledge about which foods should be included in the lunchboxes for sustained concentration and energy during the school day. Lack of skills when preparing food can lead to a lack of variety in the lunchboxes, making it less likely that the learners will be enthusiastic about its contents.
- *Marketing tactics of food corporations:* Bright colourful packaging, posters and advertisements featuring beautiful, young, happy people are used when marketing fast foods and snacks to attract these teenagers. Foods that are tasty, easy to eat and have a 'cool' image combine to target the teenage consumer with the consumption of 'junk' food products. Teenagers identify with certain brand names, such as Coca-cola, and in most cases will choose this drink over others.
- *Teenage identity:* Teenagers are attracted to mass produced, 'junk' food products as these foods offer them an image with which to form a popular identity. 'Junk' food has the image of being 'cool' and is therefore chosen by teenagers as a means of creating a 'cool' identity for themselves. Girls indicated that it was important for them to look good whilst eating, therefore no messy food would be chosen.
- *Peer pressure:* In order to 'fit in' with their peers and to be considered 'cool', teenagers eat foods that their friends find acceptable, which is usually 'junk' food. Certain foods have a stigma attached, for example eating left-overs or traditional foods are frowned upon by the popular learners. Foods that have strong odours or a reputation of causing flatulence (such as beans) are avoided for fear of embarrassment.

RQ 3: How can I engage teenage learners in making healthier food choices?

The learners themselves said that if parents insist that they eat healthy foods, they will rebel against their parents' instruction, even if they usually enjoy these foods. This reflects their desire for autonomy when making food choices, and also supports the theory that in their search for independence, teenagers rebel against cultural norms and values of their parents. In my role as teacher and Grade Controller, I act in *loco parentis* for the teenagers in this school. Therefore, this research suggests that any direct attempt I

make to engage learners in choosing healthy foods would be met with a rebellious response. As a result, in order to succeed in my aim, any intervention would have to be implemented indirectly so that the learners remain unaware of my intention to influence their food choices. However, I can be the catalyst that motivates the learners themselves to become agents of change in this school.

There are a number of ways in which this could be achieved within the various roles I play in this school. In the next section, I will outline how I can apply the understanding of teenage food choices that I gained from this research when engaging teenagers in this school in making healthier food choices.

8.4.1 In my role as a consumer studies teacher

As a consumer studies teacher, I can educate the learners and the parents about the link between diabetes and unhealthy food choices.

Educating learners:

- By educating the learners about how they are being manipulated by MNCs, they can be empowered to become critical consumers of the foods that they are being persuaded to eat.
- Learning about the stages in the production process and how to calculate cost price, mark-up and profit in Consumer Studies could help them to understand how pricing structures work in the food industry.

Educating parents:

- I could educate the parents about the importance of healthy eating for their teenagers. This could be done through an online forum that is already in place in the school, called The School Communicator (D6).
- I could devise a list of easy, affordable suggestions for the lunchbox, based on a two week cycle to avoid monotony. This could be accompanied with a concise weekly shopping list to assist busy parents with planning and to ensure that the learners have sufficient choices available in the pantry and refrigerator.

8.4.2 In my role as a member of the SMT

As a member of the SMT in the school, I am in a good position to initiate dialogue around the problem of teenage food choices in the school, with the aim of introducing a

new school policy regarding what kind of foods can be sold in the tuck-shop. Once this policy has been implemented, I could liaise with the tuck-shop owner to implement the following changes:

Changes to tuck-shop

- Remove high GI and junk foods from the tuck-shop.
- Draw up a new menu and provide healthier choices for the learners.
- Develop a system of stickers that could be placed on low GI, Halaal and vegetarian food in the tuck-shop to assist the learners in making food choices to suit their various nutritional and cultural needs. This would ensure that the teenagers still feel that they have a choice, and give them the autonomy they desire.

Changes to marketing tactics

- Encourage greater emphasis on marketing healthier food choices.
- Food intended for teenagers needs to be packaged attractively using bright colours that represent fun and excitement.
- Replace the advert portraying young people drinking Coca-cola which is on the wall of the tuck-shop with a picture of the rugby team enjoying healthy food products. This would give teenagers a new image that teenagers in this school would want to identify with.

8.4.3 In my role as an action researcher

Action research differs from other types of research in that it does not stop when the data collection and analysis come to an end. As solutions to problems begin to emerge, they are used to inform actions which should mobilise the community towards changing the status quo for their sake of their wellbeing. The action research used in this study involved the participation of the learners in data collection and analysis. These learners can be encouraged to participate in informing and therefore empowering their fellow learners by:

- Running a workshop for Grade 8s in term 1 to give them the basic skills they need to prepare healthy lunches. This could be run by enthusiastic learners from Grades 11 and 12, so that it comes across as a fun thing to do, rather than a lesson.

- Creating a short educational film of the costs and processes involved in making one item from the tuck-shop, and share this film on social media. This will help learners to understand how pricing structure works in the food industry.
- Advocacy on healthier food choices can be promoted by the RCL, so that the teenagers themselves are given autonomy and empowered to make healthy food choices. (Kroone & Alant, 2012).

The feedback from activities such as these can then be used to inform further research and applied practice in engaging teenage learners in making healthier food choices.

8.5 Significance of the Study

This study could have a significant impact on teenage food choices, policy changes, and curriculum development both locally and globally.

Teenage food choices. The findings in this study are important not only for the future well-being of the learners in this high school, but also for the well-being of teenagers in other South African high schools.

Policy changes. This research has since been used to change school policy regarding food that is permitted to be sold in the school tuck-shop. It can also be used to develop a policy document on a national level which controls the type of food allowed to be sold at schools. This policy could include regulations on the advertising and marketing of 'junk' food in schools. This policy document could also include restrictions on promotional items 'donated' to schools, such as signs and fridges advertising Coca-cola.

Curriculum development. Factors influencing teenage food choices in the consumer studies curriculum could be adjusted to include findings from this study. The curriculum for Life Orientation could also be adjusted to include the preparation of healthy lunchboxes, which would ensure that this knowledge is shared not only

with consumer studies students, but with all teenage learners in South Africa.

Economic impact. This research could reduce the number of South Africans who develop type 2 diabetes in the future. This in turn will reduce the associated financial burden that diabetes places on individual people, families and the health care system in South Africa.

Global impact. As teenage food choice is a global issue, some of the knowledge generated about influences on teenage food choices can be applied to teenagers and schools worldwide. The greater the number of teenagers who become empowered to make healthy food choices, the less MNCs will be able to manipulate these choices through the media.

8.6 Limitations of Study

In an attempt to reduce the impact of my direct involvement in the research, I did not oversee or observe the data collection in L1. Recording the contents of the lunchboxes, filling out the questionnaires and photographing the lunchboxes were left to the co-researchers. Hence, it was only when analysing the data that I realised that of the twelve co-researchers that were selected, only seven turned up to record the data and conduct the questionnaires. Although I had explained to the co-researchers the importance of keeping the identity of the participants anonymous, the race and gender of some of the participants was obvious when viewing the photographs later. Furthermore, the co-researchers were unskilled at using the cameras, with the result that many of the photographs taken were not clear and could not be developed or used as part of the data collection.

When I planned the data collection, I envisioned that the blog would be very popular and could evolve into a medium used by both L1 and L2 participants to record their thoughts on food choices. However, I was surprised to find that only two of the learners in the focus group knew how to access the internet, and most of them had not set up a Gmail account. Three of them were banned from using computers by the IT administrator at the school, apparently because they had overdue fines from misbehaving

in the computer room. I settled these fines for them, and I tried to have their accounts re-activated, but to no avail. Access to the internet was also extremely slow, making it impossible to use the blog as a means of conversing in real time about teenage food choices. Therefore, after much thought, I decided to abandon the idea of using a blog as a method of data collection.

Many of the learners who buy food from the tuck shop are senior males, yet this group was not represented in this research. This could affect the outcome of the research, as they may hold views that differ from the opinions of the participants in this study. Some of these senior males had originally returned participation/consent forms, but were part of the group of twelve learners who did not return to collect the wristbands. However, as some of the focus group members socialised with these senior males on a daily basis, they were aware of some of their food choices and included their opinions in the discussions.

There was some misunderstanding as to who could participate in the research. The learners who didn't actually use a 'lunchbox' thought that they were excluded from participating, and those who brought no lunch at school may have been too embarrassed to participate, which would impact on the reliability of the results.

It had been suggested to me that I could have tested the blood sugar levels of the focus group members before and after they had eaten the various types of food, and recorded this information as scientific evidence of the impact the high GI food choices have on their blood sugar levels. I decided against this, as I would not have felt comfortable drawing blood from the learners without a nurse or a clinic sister present to ensure that proper precautions were taken. Perhaps this is a suggestion I could look at in further research to add validity to my findings.

As this research was only conducted at one high school, interpretation of the results may not necessarily apply to other South African high schools. Most of the learners in this school are from middle to high socio-economic background, which is not the norm for most South African schools. Also, most of the learners in this school have been educated in a multi-cultural environment in which western culture predominates.

Therefore the learners in this school may to some extent feel pressurised to conform to western eating habits and practices.

8.7 Changes that have Occurred as a Result of the Study

As a direct result of this research, the following changes have taken place in this high school:

- As Margaret and Malcolm were both members of the RCL, they used this forum to raise issues about unhealthy food choices in the school tuck-shop.
- The RCL did their own survey and investigation, and brought this to the fore in the school Governing body meetings.
- The school Governing body promoted the need for healthier food choices, and this was accepted as one of the strategic planning goals to be met in 2012.
- A committee was set up with all the stakeholders to discuss and changes that could be made. Margaret represented the RCL, and was instrumental in advocating for healthier food choices. Unfortunately, the owner of the tuck-shop resisted the changes suggested.
- A new policy document for a healthier approach to food was drawn up and submitted to the Governing body for approval (Appendix I).
- The owner of the tuck-shop was given 1 year to implement the changes, after which the tuck-shop was put up for tender.
- The new owners took over the tuck-shop in January 2014. I have been assigned by the headmaster to supervise and approve all new additions to the tuck-shop menu (Appendix J).
- Regular follow-up surveys are conducted in the school via the RCL to get learner input and feed-back from the teenagers themselves.
- I have been pleased to observe that many of the learners in the school are now making healthier food choices.

8.8 Further research

Questions will continue to arise as to how teachers can influence teenage food choices. As members of a post-modernist society, teenagers' opinions and values are fluid, and subject to change. Therefore, continuous inquiry into the influences on teenage food choices in this school will be necessary.

This same study could be done in another urban school to see if the results are transferrable, or in a rural school to compare the influences there.

As changing behaviour can often only be observed over a period of time, it would be interesting to do follow-up interviews with the focus group members to find out if they made any significant changes to their own food choices as a result of this research.

Seeing my mother suffer from the effects of diabetes motivated me to try and prevent my learners from developing diabetes in the future. However, I have increased my own risks of developing type 2 diabetes in writing this thesis, as I have added weight gain, inactivity, stress, high blood pressure and midnight snacking to my genetic risks. I could research the impact that a low GI diet has on reducing my risk of diabetes by writing an auto-ethnography as I record my journey back to good health.

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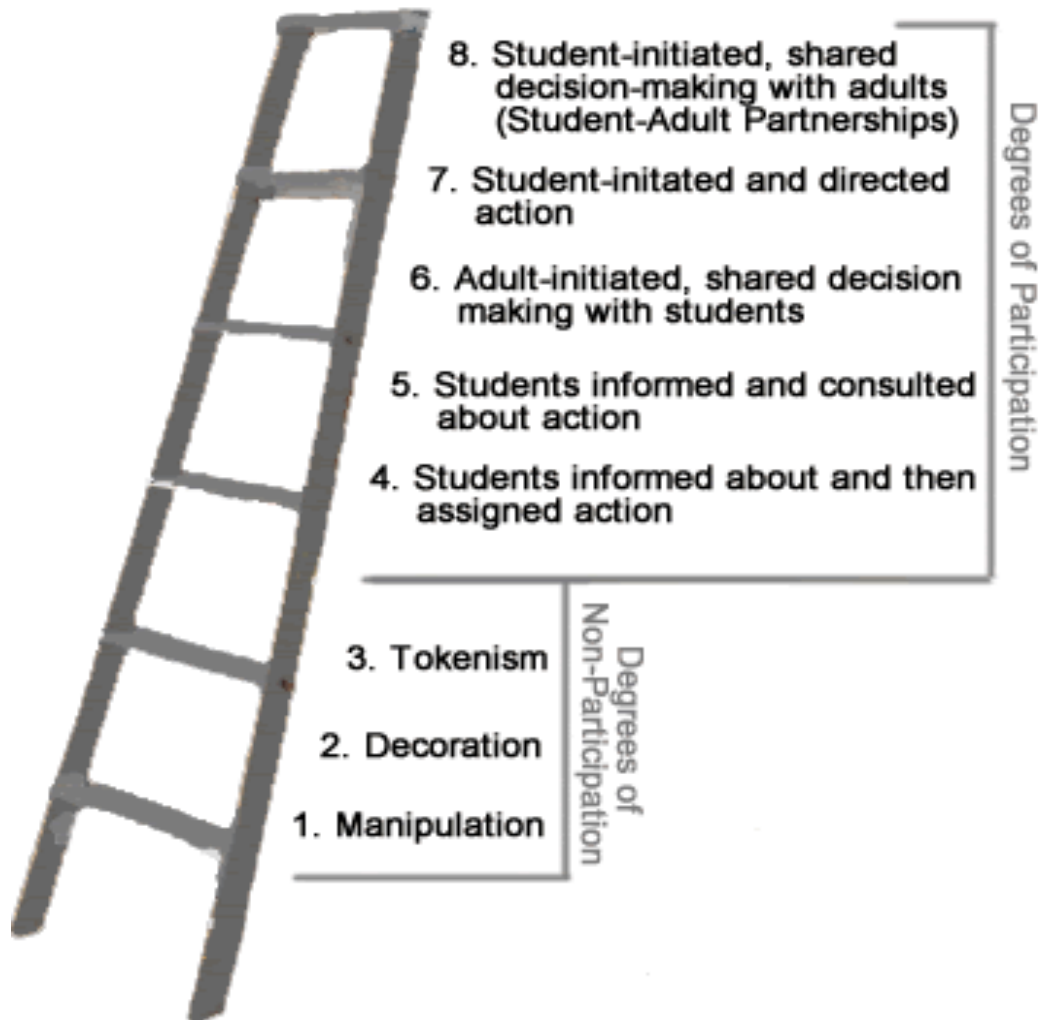
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APPENDIX A: HART'S LADDER OF YOUNG PEOPLE'S PARTICIPATION



APPENDIX B: PARENTAL CONSENT FORM**Parent Information Sheet****What's in the lunchbox: Stigma or exploitation? Understanding influences on teenage food choices in a peri-urban school in Durban, South Africa.**

Dear parents/guardians,

My name is Deirdre Kroone, and I teach Technology to Grade 9 and Consumer Studies to grades 10, 11 and 12 in Hillcrest High school. I am currently undertaking my Masters degree in Technology Education at UKZN, Edgewood campus. As part of my degree, I will be conducting research at Hillcrest High School in Term two, 2010.

I am concerned about the type of food that many of the learners in Hillcrest High School eat, both in the morning before school begins and during breaks. Previous researchers have shown that the incidence of diabetes in South Africa is on the increase, and that this increase is directly linked to the food that we eat.

As we all know, teenagers like to make their own choices, and being able to choose what they eat is important for them. However, many of them choose to eat food that does not provide them with the nutrition that they need for sustainable energy and concentration during the school day. Unfortunately, the effect of this poor nutrition is not only temporary. Eating too many sweets or processed food can lead to permanent dietary related diseases such as type 2 diabetes. Diabetes in turn can lead to blindness, amputation of limbs or even death.

It is out of this concern for the health of the learners that I want to research ways in which we can encourage learners to make healthier food choices. Through this research, I hope to make learners aware of the very real dangers of choosing unhealthy food options. I also hope to find healthier food options that learners enjoy and would sell at the school tuck shop.

What does the research involve?

The research involves collecting information from the learners at two levels.

Level one

Involvement at level one will mean that your child allows his/her lunch to be photographed every day for five days. This level will also require your child to answer a few pre- approved questions about their food choice. Your child will be issued with a wristband that will identify him/her as being part of the project. In order to protect your child's identity, only your child's hand holding the lunch will be photographed. The wristband will be easily removable, so that your child can withdraw from the project at any time. Your child will not be asked to eat anything more than what he/she usually eats for lunch. Your child will not be put in a situation that will cause any embarrassment to him/her.

Level two

Only twelve learners from the school will be selected to take part in level two of the research. These learners will be involved as co-researchers for the eight weeks of the project. They will be given disposable camera to photograph the lunches of the learners involved at level one. They will also have a wristband so that they can easily be identified as part of the research project. These learners will meet with me once a week for two hours after school. The weekday will be negotiated around other commitments.

Each meeting will begin with a lunch. Some weeks the food will be prepared for the learners at school, and other weeks they will be given R15-R20 and asked to purchase food to bring to the following session. Some of the food served will be familiar to your child, and some may not be. No child will be expected to taste or eat any food that he/she does not like.

After the lunch there will be a group session where various aspects relating to food and food choice will be discussed. The learners will record their thoughts, ideas and their experiences with food on a Blog designed for the project. The Blog will be administered by me as the main researcher, and only the twelve learners participating in Level two will be allowed to access it.

The learners involved in Level two will also brainstorm ideas on how to encourage teenagers to make healthy food choices. They will try out a different idea each week, and report the results back to the group on the following week.

All these sessions will be video-recorded for data analysis. The learners involved will view the video footage and may clarify or delete anything that they don't want included in the research. Any learner may pull out of the programme at anytime. The only obligation will be to ensure that any data collected by them is handed over to the research team.

What are the risks involved?

Your child will not be offered anything to eat that is not freshly prepared and safe to eat. The food on offer will be from a variety of South African cultures, and will range from traditional Zulu food such as tripe to modern food such as chips. Your child will not be forced to eat anything that he/she does not want to eat, and will have a choice of foods to choose from.

If your child has an existing food allergy or food intolerance, please specify this in the space provided on the acceptance form. There will be a trained paramedic on hand to assist if necessary.

How will your child benefit?

Although this is an excellent opportunity for your child to develop skills in communication and research, I feel that the main benefit is in the life skills that your child will learn in making healthy food choices. Your child will learn to critically evaluate food according to its nutritional value and the GI index. This will have life-long advantages which will influence your child's health and quality of life in the future. Furthermore, your child will be involved in creating new knowledge which can be used to the benefit of learners in schools throughout South Africa. As the problem of encouraging teenage learners to make healthy food choices is worldwide, the knowledge and data produced in this research may be applied globally.

What will be done with the information that is collected?

The information and data collected for this research will be used by me in a thesis as part of the requirements for my Master's degree in Technology Education. A copy of this thesis will be kept in the library at Edgewood campus. The findings from this research will be presented at national and international conferences. I will also use the findings from the research to write papers and articles which will be published in academic journals and a chapter in an academic book. I hope to also use the findings to present a report to the Department of Education. This report may be used as a catalyst to introduce a policy on the nutritional value of food sold on the school premises to learners. Separate reports will also be made for the school principal and for you and your child.

How will confidentiality be ensured?

In order to ensure that the identity of the learners is not revealed, each learner involved in the project will receive a wristband with a number on it. Only this number will be referred to in the data collection and analysis. Your child's name will also not be used in any articles, reports or books written as a result of this research. However I cannot guarantee that your child's identity will not be known by the co-researchers and by some of the teachers and other learners in the school. I will, however, do all that I can to conceal the identity of your child in the school community and in the public domain.

In order to ensure that your child's identity remains anonymous, all of the research data will be coded and stored in locked boxes in the school strong room. Only I will have access to these boxes. Once the research has been completed, all transcripts, films, tape recordings and photographs will be deleted or destroyed.

Is it compulsory to take part in this research?

Taking part in this research is completely voluntary. Both you and your child are under no obligation to return the application and consent forms. If your child does decide to participate, he/she may change his or her mind at any time and be under no obligation to explain this decision to me or to the co-researchers. Your child will not be prejudiced in any way as a result of his/her decision.

How can your child participate?

Your child may participate in the study by returning the application form and the accompanying consent forms. Please note that there are two consent forms that need to be signed. The first one must be signed by your child, and the second one by yourself as the parent or guardian. All of the learners who apply may be involved in Level one of the research if they wish. Unfortunately, due to time and resource constraints, only twelve of these learners will be selected to participate in Level two of the research. These twelve will be selected on the basis of the information collected in the application forms. Learners will be purposefully selected in order to get a broad representation of the learners in the school. Therefore, I cannot guarantee that your child will be able to take part in Level two of the research.

The first session will be an open meeting where the details of the research will be explained to all of the participants of both Level one and Level two. This will take place at 7.30 am on May 5th. As the parent/ guardian you may come along to this meeting if you have any queries.

If you have any questions that you would like to ask regarding the research, please feel free to contact me or my supervisor. Contact details are as follows: Deirdre Kroone 031-7652924 (H)

APPENDIX C: QUESTIONNAIRE

Level 1 : Questionnaire				
Number	Time	Contents of lunchbox	Favourite food ?	Reasons for choice
1.	10.30	Cheese on white bread	No	Fasting
	10.56	White bread with ham and lettuce	Yes	Packed lunch
2.	Did not attend			
3.	10.30	Nothing	No	No food.
	10.33	Cheese and jam sandwich on wholegrain bread	No	Tasty, nutritious
	10.05	Thai chicken pie, Bonaqua sparkling litchi flavoured water	No	Had money that day
	10.26	Banana, grapes, orange juice (not real /flavoured), chicken polony, Bon blanc cheese on wholegrain bread	No	Packed
	10.28	Cheese and chicken polony on wholegrain bread, grapes, banana, orange juice	No	Packed
4.	10.32	2 slices of white bread with marg and cheese. 2 slices of white bread with ham, cheese, marg and mayo. 1 fruit stick, 1 apple and a bottle of water.	No	Dad made it.
	06.10	2 slices of white bread with floro and ham, cheese, tomato sauce and mayo. 2 slices of white bread with Bovril and cheese. 1 apple, 2 fruit sticks.	No	Dad made it.
	6.20	2 slices of white bread with Floro, 1 banana, 2 Safari fruit sticks, 1 sandwich with ham and mayo, 1 sandwich with peanut butter and jam	No	Dad made it.
	10.25	1 naartjie, 1 Safari fruit stick, 2 slices of white bread with Floro marg, apricot jam and peanut butter	No	Dad made it.
5.	Did not attend			
6.	10.09	White roll with butter, cheese and ham, packet of red onion and poppy seed vita snax, an apple	No	Mom made it.
	09.48	Banana, apple, salad with cheese, tomato and cucumber.	Yes	Like eating healthy
	10.26	2 slices of whole-wheat bread with mayo and cheddar cheese. 3 yoghurt and raisin biscuits.	No	No time to make something else.
	10.33	2 slices of whole wheat bread (Low GI) with butter, Bovril and cheddar cheese. Chocolate flake and a bag on unsalted raisins.	Yes	I enjoy eating Bovril and cheese. Mom made lunch.
	10.57	Chocolate chip muffins	No	I was in a rush and it was already sealed
	10.06	2 slices of whole wheat bread with marg, Bovril and cheddar cheese. Choc chip muffin, lemon and lime cereal bar and a bottle of water	No	No other food this morning
	10.25	1 apple, 2 slices of whole wheat bread with	No	I was in a rush and

		stork marg, cheddar cheese and Bovril. 3 mini Marie biscuits		late for school.
7.	10.30	Hamburger, 2 naartjies, apple	Yes	Packed (?)
	10.38	Cheese roll, naartjie, apple	Yes	Packed lunch (?)
	10.55	Apple, naartjie, brown roll with ham and lettuce	Yes	Packed
	10.35	Hot dog with curried veg, apple, banana	Yes	Packed
	10.35	Hot dog with salad, banana, naartjie, 4 chocolate biscuits	Yes	Packed
8.	Wristband not collected			
9.	Did not attend			
10.	10.21	White roll with butter, cheese and ham, milk tart	Yes	Enjoy it, and the roll is healthy
	10.24	White roll with butter, ham and cheese.	Yes	I enjoy it.
	10.24	2 bread rolls and crisps	No	There were rolls and an open packet of crisps.
11.	10.05	Cold cooked chips, packet of chips, 2 choc-chip muffins, toasted cheese sandwich, breakfast bar.	Yes	Likes variety
12.	10.01	Apple, sandwich with cheese spread, chips	No	Nothing else at home for lunch
13.	10.35	Mini cheddars, peanut butter, white bread	No	Quick and easy, likes peanut butter
		White bread, Bovril, cheddar chips, fruit sticks	Yes	Tasty and easy to make
14.	10.35	Raisin scones	No	Nothing else available
	10.30	Hot dogs, pear, sweetened yoghurt	No	In a rush
15.	Did not attend			
16.	Did not attend			
17.	Did not attend			
18.	10.04	Muesli, rice with chicken and tomato	No	My Mom made it and I like it
19.	Wristband not collected			
20.	Wristband not collected			
21.	10.38	Polony, marg, brown bread	No	Quick and easy/ no time
	10.34	Beef patty, cheese, lettuce, fried onions, on brown bread, cheese curls	No	Was early, could do lots
	13.00	Cheese rolls, pizza	Yes	Given
	10.27	Chocolate; cheese, lettuce and tomato on brown bread	Yes	Love it
	10.29	Fish, chips, brown bread	Yes	Had time to make lunch
22.	Did not attend			
23.	10.50	R 100	-	-
	10.24	Orange wedges, biltong, 4 salty cracks	Yes	Is healthy and tastes good
24.	Wristband not collected			
25.	Wristband not collected			
26.	Wristband not collected			
27.	10.03	Whole wheat roll with ham and tomato, tap	Yes	I enjoy it and it is

		water		healthy
	10.31	4 slices of brown bread with chicken and mayo	No	I didn't have a choice
	10.29	1 apple, 1 naartjie and a bottle of water.	No	Mom gave it to me
28.	10.27	Muffin, orange wedges, jelly tots, cereal bar	Yes	Yummy!
	10.24	1 bag of popcorn, naartjie, mini milk tart, 4 salti cracks	Yes	I enjoy the popcorn and milktart.
	10.33	Marie biscuits, carrots, 2 naartjies, chocolate health bar	Yes	Yummy and filling.
	10.01	Chocolate cereal bar, chilli Fritos, salti cracks and salted peanuts	No	I didn't choose it, mom packed it
29.	10.07	Banana, roll with ham and mayo.	No	Aunt makes lunch
	10.25	Bread with ham and lettuce	Yes	Love ham and thinks this is healthy
30.	10.30	2 ham rolls	Yes	Mom packs it.
	10.45	Apple & cinnamon muffin, chicken sandwiches, 1 naartjie	No	Easy to bring to school.
	10.30	1 orange, apple and cinnamon muffin, chips.	-	Like it.
	10.30	Lasagne, chips, apple, muffin	-	Mom made it.
	10.30	Orange, apple, corn bites	No	Mom made it.
	10.30	2 hotdogs, orange, corn bites	Yes	Mom made it.
31.	10.45	Egg mayo sandwich, oranges, chips.	Yes	Like it.
	10.30	Egg mayo sandwich and apple	Yes	Like it.
	10.30	Pretzels, ham sandwich and a pear	Yes	Like it.
	10.30	Apple, banana bread, chicken sandwich	Yes	Felt like it.
	10.30	Ham and lettuce sandwich, banana bread, apple	Yes	Mom made it
32.	Did not attend			
33.	Wristband not collected			
34.	Wristband not collected			
35.	Did not attend			
36.	Wristband not collected			
37.	10.30	Biltong, apple	Yes	His favourite
	10.39	Cornish pie	No	Best thing at tuck shop
	10.07	Cornish pie	No	Only thing at the tuck shop
	10.55	White bread with ham	No	Packed lunch
	10.28	Ham and lettuce on whole wheat bread	No	Packed
38.	Did not attend			
39.	10.29	Pie	Yes	Had money that day
	10.32	Steak pie	Yes	Had money, loves pies
40.	Did not attend			
41.	Did not attend			
42.	10.35	2 naartjies	No	No time to make a proper lunch
	10.03	Chicken mayo sandwich, potato bake	No	Healthy
43.	10.25	Sandwich with chicken sticks	No	Mom made it.
	10.30	4 slices of bread with peanut butter, 1 naartjie.	No	Made it herself, was quick, didn't know what else to make.
44.	Wristband not collected			

45.	Did not attend			
46.	10.14	6 slices of white bread with marg, samp with beans meat and gravy, many menthol sweets, 7 naartjies.	No	Mother packs it.
	10.54	1 apple, 6 naartjies, 3 hot dog rolls with marg, tomato sauce and bacon sausages.	No	Mom made it.
	10.36	Chicken mayo sandwich, 4 sweets, apple, naartjie.	No	Mom made it
47.	10.25	Brown bread with cheese and polony	No	That's what everyone was having today
	10.29	Brown bread with tuna and mayo	No	Helper made food
	10.27	Brown bread with burger patty and mayo	Yes	I like it
	10.04	Toasted cheese ham and mayo on brown bread	No	No choice—that was what I was given.
48.	Wristband not collected			
49.	10.26	Roll with Vienna, naartjie, almonds, granadilla yoghurt, water.	Yes	Likes viennas and naartjies
	10.27	Chicken and mushroom pie, almonds, apple, chocolate, water.	Yes	Likes pies
	10.36	Yoghurt, tuna sandwich, nuts, water, naartjie	No/some	Dad made it
	10.59	Pancakes, muffins, almonds, apple		
50.	Wristband not collected			
51.	10.30	Soya hotdog, 1 naartjie	Yes	Mom made it.
	10.30	Peanut butter and jam sandwich, 1 naartjie	No	Mom made it.
	10.30	Sandwich with baked beans and soya, yoghurt	Yes	Mom made it.
52.	Did not attend			
53.	10.30	4 toffees	Maybe	Was given 2 rand for lunch
	10.30	Ham sandwich, apple, orange, biscuit.	No	Mom made it.
	10.30	Ham roll, orange , biscuit.	No	Felt like it.
54.				
55.	10.30	Sandwich, Oreos, apple	Yes	Brought sandwich because has soccer after school, Oreos are a Friday treat, apple every day.
	10.30	Sandwich, fruit, chop, muffin	Yes	Sport after school.
56.	10.33	Mini Maries, naartjie, Vienna sandwich	No	Mom made it/ no choice
	10.30	Bran muffin, energy bar, sausage roll, naartjie, chicken polony sandwich with lettuce on brown bread.	Yes	Packed for me.
	10.05	Ham roll, naartjie, muffin (bran)	Yes	It is healthy and filling
57.	10.40	Brown bread and jam	No	Mom made it. It's healthy.
58.	10.55	Beef lasagne, water	Yes	Made it, filling, don't overeat.
	10.32	White bread sandwich with sandwich spread, lettuce and cheese, apple, low fat Nutriday yoghurt, a sparkle sweet.	Yes	It's healthy, tasty and filling.
59.	10.32	Toast with polony	Yes	Don't know.

	10.47	Brown bread with chicken mayo	Yes	It's nice.
	10.30	Mayo and fish finger sandwich, apple, orange, pear.	Not really.	Aunt made it.
60.	Not allocated			

APPENDIX D: ETHICAL CLEARANCE

APPENDIX E: ACTIVITIES OF LEARNERS FROM L1

Number	Age	Sex	Culture	Interests/ Hobbies	Food allergy/ intolerance	Diabetes in family	Chosen for Focus group
1.	17	M	Asian	Soccer, cricket, cycling	No	No	No
2.	16	F	Zulu/SA	Baking, cooking, sports, hanging out with friends	No	Yes- gran and aunt	No
3.	14	M	English/ SA/Christian	Hockey, soccer, cricket, computer, chess	Yes- IBS and Asthma, fresh tomatoes, weet-bix	No	No
4.	16	F	Afrikaans	Cooking, sports, Interact	No	Yes- Grandmother, Type 1	Yes
5.	16	F	English/ SA	Music, dogs, socialising , dancing	No	Yes- maternal grandmother died from diabetes related complications	Yes
6.	15	F	European/ SA	Sport, soccer, baking, motorbike /quad bike racing	Yes-fish	No	No
7.	14	M	English/ SA	Reading, baking, cultural activities.	No	No	Yes
8.	16	F	English/ SA	Horse riding, singing, reading, music	No	Yes- maternal grandmother	No
9.	16	F	Zulu	Reading, cooking	No	No	Yes
10.	15	F	English/ SA	Hockey, soccer, gym,	No	No	No

				scrapbook ing			
11.	15	F	English/SA	Singing, dancing, movies, being with friends	Yes- red and green peppers	No	No
12.	16	F	English/SA	Movies, DVD's, watching rugby	Yes- broccoli, butternut, red and green peppers	No	No
13.	14	F	?	Horse riding, running, swimming , hockey	Yes- Asthma gherkins, guavas, Brussels sprouts and cabbage	No	No
14.	14	F	Zulu	Reading, netball, music	No	No	No
15.	17	F	Xhosa	Cooking, baking, socialising with friends, other cultures, nature	Yes-coconut	Yes	No
16.	17	F	English/SA	Dancing, running, socialising	No	Yes- father has type 2	No
17.	18	F	English/SA	Scrap- booking, cooking, socialising , drawing, painting, movies	Yes- eggs Yes- asparagus	No	No
Number	Age	Sex	Culture	Interests/ Hobbies	Food allergy/ intolerance	Diabetes in family/ other	Chosen for Focus group
18.	16	F	English/SA	Hockey, soccer, touch	No Asthma	Yes- aunt and uncle died of diabetes, she	No

				rugby	pump during sport	has been diagnosed with borderline diabetes	
19.	15	F	English/SA	Hockey, netball, soccer, swimming, water polo, indoor hockey, softball, reading, socialising with friends, charities, being involved in school life	Yes-asthmatic chicory and watermelon	Yes-grandmother and aunt	No
20.	17	F	English/SA	“jolling”	Yes-tomatoes	Yes-grandmother	No
21.	14	F	Swati	Netball, music, movies	No	No	No
22.	16	F	European/SA	Swimming, hockey, photography	Yes- wheat	No She is insulin intolerant	No
23.	17	F	Zulu	Music, dancing, cooking, modelling.	No	Yes- mom injects with insulin	Yes
Number	Age	Sex	Culture	Interests/ Hobbies	Food allergy/ intolerance	Diabetes in family/ other	Chosen for Focus group
24.	17	F	Zulu	Writing poetry, singing, soccer	Yes- tinned food and cabbage	Yes-mother	Yes

25.	15	F	Zulu	Hockey, netball, music, reading, dancing	Yes- eggs (migraine)	No	No
26.	15	M	English/ SA	Music, playing guitar and piano, steel drums band, reading, cycling	No	No	No
27.	15	F	English/SA	Hockey, art, music	No	No	No
28.	15	F	English/SA	Scrapbook ing, reading	No	No	No
29.	16	F	Zulu/ SA	TV, reading	Yes- butter or margarine	No	No
30.	13	M	English/ SA	Art, painting, drawing, rock climbing, photography, reading	No	No	Yes
31.	13	M	English/SA	Music, fishing, badminton , checkers	No	No	Yes
32.	17	F	Zulu	Reading, eating	No	No	No
33.	13	F	Scottish/SA	Reading, music, sport	No	No	No
34.	14	F	Zulu	Acting, singing, music, movies, socialising	No	No	No
Number	Age	Sex	Culture	Interests/ Hobbies	Food allergy/ intolerance	Diabetes in family/ other	Chosen for Focus group
35.	15	F	Zulu/SA	Art,	No	Yes-Aunt.	Yes

				Drama, Singing, Fashion design, modelling, Movies, Ice skating, reading, eating ice cream and Oreos		Many in the family are morbidly obese	
36.	13	F	English/ SA	Horse riding, Judo, Ice skating, roller blading, shopping, photograp hy	No	No	No
37.	14	M	English/SA	Karate, fis hing, reptil es	No	No	No
38.	15	M	European/S A	Reading, swimming , tennis, video games	No	No	No
39.	15	F	Zulu/ Christian	Cooking, jokes	No	Yes- cousin, 4 aunts, grandpa	Yes
40.	18	F	European/ SA	Singing, dancing, modelling cooking , shopping	No	No	Yes
41.	15	F	Zulu	Singing, dancing, going out, netball	Yes- butter	Yes-grandpa	No
42.	16	F	?	Swimmin g, fishing, TV, going out with friends	No	Yes-mother has Type 2	No
43.	16	F	Indian/ Christian	Sports, music, dancing, netball,	Yes- Halaal food only, no fish, liver,	Yes-mother is type two	Yes

				soccer, swimming, bicycling, reading, watching TV	kidney		
44.	15	M	Indian/Christian	Socialising with family and friends, sports, hockey, soccer, beach	No	No	No
45.	15	F	Zulu/ SA	Reading, writing poetry and short stories, soccer, acting, dancing, singing	Yes-asthmatic onions	No	No
46.	18	F	Multi/coloured	Dancing, singing, Acting, reading	Yes-shellfish; Brussels' sprouts	Yes-grandfather and uncle	Yes
47.	17	F	Zulu	Netball	No	Yes	No
48.	15	M	German/ SA	Rugby, computer games, sport	No- only environmental allergies	Yes-sister Type 1	Yes
49.	16	M	Indian/Christian	Hockey, music, DJ, games, interaction with people	Yes- doesn't like cooked veg. or new foods	No	No
50.	16	F	English/SA	Music, playing flute in KZNYO, Horse riding, soccer, softball	No	Yes- mother and grandmother have Type 2	No
51.	13	F	Indian/Hindu	Badminton, soccer, tennis,	Yes-vegetarian	No	No

APPENDIX F: FOOD CHOICES FROM L1

Food in Lunchboxes Level One : Protein Foods										
Number on wristband	Hot dog	Chicken	Ham	Beef	Fish	Eggs	Polony	Peanut Butter	Nuts	Beans
1			1							
3		1					2			
4			3					2		
6			1							
7	2		1	1						
10			2							
11										
12										
13								1		
14	1									
18		1								
21				1	1		1			
23				1						
27		1	1							
28									1	
29			2							
30	1	1	1	1						
31		1	2			2				
37			2	3						
39				2						
42		2						1		
43										
46	1	1								1
47			1	1	1		1			
49	1								3	
51	1	1			1			1		1
53			2							
55										
56	1		1				1			
57										
58				1						
59		1			1		1			
TOTAL S	8	10	20	11	4	2	6	5	4	2

- Quantity was not recorded, merely the number of times that food was eaten for lunch over the 5 day period
- Hotdogs included Vienna sausage or bacon sausage
- Beef includes patties in beef burgers and mince in lasagne
- The meat in pies was included
- Biltong was classified as beef

Food in Lunchboxes Level One : Carbohydrates										
Number on wristband	Pastry (from pie or pizza)	White bread or rolls	Brown bread or rolls	Whole wheat bread or rolls	Rye bread or Low GI bread	Potatoes	Pasta	Rice/ Maize (white)	White crackers	Provititas/ Muesli/
1		2								
3		1		4						
4		4								
6		1		3	1					
7		4	1							
10		3								
11		1								
12		1								
13		2								
14		2								
18								1		1
21	1	1	4							
23									1	
27			1	1						
28									1	
29		2								
30		3					1			
31		6								
37	2	1		1						
39	2									
42	1					1				
43	2									
46	3							1		
47			4							
49	3	2								
51		3								
53		2								
55		1								
56		2	1							
57			1							
58	1	1								
59		2	1							
TOTAL	15	47	13	9	1	1	1	2	2	1

- Pancakes were included under pastry
- If the type of bread/ rolls was not specified, it was assumed to be white
- Potato did not include intake of potato chips
- Muffins were not included

Food in Lunchboxes Level One : Fruit									
Number on wristband	Apples	Naartjes	Bananas	Oranges	Grapes	Pears	Orange juice 100%	Apple juice	Dried fruit
1									
3					1				
4	2	1	1						4
6	3		1						1
7	4	4	2						
10									
11									
12	1								
13									1
14						1			
18									
21									
23				1					
27	1	1							
28		2		1					
29				1					
30	3	1		3					
31	3		1	1		1			
37	1								
39									
42		1							
43		1							
46	2	3							
47									
49	2	2							
51		2							
53	1			2					
55	2								
56		3							
57									
58	1								
59	1			1		1			
TOTAL	27	21	5	10	1	3	0	0	6

- 100% fruit juice is counted as fruit

Food in Lunchboxes Level One : Vegetables									
Number on wristband	Lettuce	Tomatoes	Onions	Carrots	Cucumber	Pumpkin	Cabbage	Peppers	Other
1	1								
3									
4									
6		1			1				
7	2								1
10									
11									
12									
13									
14									
18									
21	2	1	1						
23									
27		1		1					
28									
29	1								
30									
31	1								
37	1								
39									
42									
43									
46									
47									
49									
51									
53									
55									
56	1								
57									
58	1								
59									
TOTAL	10	3	1	1	1	0	0	0	1

- Where not specified, 'salad' was counted as lettuce
- 'Other' included curried vegetables

Food in Lunchboxes Level One : Dairy								
Number on wristband	Yoghurt (sweetened)	Yoghurt (natural)	Milk	Mas	Cheese (Hard)	Cottage cheese	Cheese spread	Milkshake/ Dairy drink
1					1			
3					3			
4					2			
6					5			
7					1			
10					2			
11					1			
12							1	
13								
14	1							
18								
21					3			
23								
27								
28								
29								
30								
31								
37								
39								
42								
43								
46								
47					2			
49								
51	1							
53								
55								
56								
57								
58					1			
59								
TOTAL	2	0	0	0	21	0	1	0

- Cheddar cheese was the favoured cheese.
- Where not specified, cheese was assumed to be cheddar.

Food in Lunchboxes Level One : Snack foods										
Number on wristband	Flavoured wheat crackers	Potato chips	Corn chips	Sweets	Chocolate	Popcorn	Biscuits	Cake	Muffins	Cereal bar
1										
3										
4										
6	1				1		2		2	1
7							1	1		
10		1								
11		1							1	1
12		1								
13	1	1								
14										
18										
21			1		1					
23										
27										
28			1			1	1	1	1	2
29										
30		1	2							3
31	1	1								
37										
39										
42										
43										
46				2						
47										
49					1					
51										
53				1			2			
55							1		1	
56							1		1	
57										
58				1						
59										
TOTAL	3	6	4	4	3	1	8	2		

- Potato chips include both crisps and hot chips

WHAT'S IN THE LUNCHBOX? UNDERSTANDING INFLUENCES

Reasons for food choice Level One									
Number on wristband	No time/easy	Had money to spend	Filling	No Food	Fasting/No choice	Packed by Mom/aunt	Packed by Dad	Healthy/Nutritious	Tasty/enjoy it
1					√	√			
3		√		√		√√√			√
4							√√√√	√	
6	√√				√	√√		√	
7						√√√√ √			
10					√			√	√
11									√
12					√				
13	√								√
14	√				√				
18						√			
21	√					√			√√√
23								√	√
27					√	√		√	
28						√			√√√
29						√		√	
30	√					√√√√			√
31						√			√√√√
37					√	√√			√√
39		√√							√√
42	√							√	
43	√					√			
46						√√√			
47					√√	√			√
49							√		√√
51						√√√			
53		√				√			√
55									√√
56									
57									
58			√√					√	
59						√√			√
TOTAL	8	4	2	1	9	33	5	8	27

APPENDIX G: EDITOR'S CERTIFICATE

10 February 2015-02-13

Editing Support

This letter serves to confirm that editing support was provided to Déirdre Kroone, I.D. 6201090714187, on completion of her Master's in Education. This consisted of guidance in the thesis structure, formatting and grammar. However, the final document reflects her uptake of this guidance, and the fact that my capacity is Editor and not Supervisor.

Carrin Martin
Editor
University of KwaZulu-Natal

APPENDIX H: TUCK-SHOP POLICY

Report on Hillcrest High Tuck-shop

Background

This report has been drawn up at the request of Mr. Girvin and the Hillcrest High School Governing Body. This request was made as a result of queries from members of the RCL as to the type of food sold in the school tuckshop. The purpose of this report is to use it as a guide to draw up a new school policy on the school tuckshop. This new policy should address the needs of the learners from the perspectives of health, levels of behaviour and concentration in the classroom. Stakeholders involved in the implementation of this policy are the members of the RCL, members of the school Governing Body, members of the SMT, and Mrs. Pienaar. This report will highlight the main problems with the school tuckshop from the perspective of the learners. The suggestions from the learners will then be put forward and discussed from a nutritional, practical and economical viewpoint. Suggestions will then be made as to food that could be sold in the tuckshop that is nutritious, will sustain concentration and will reduce behavioural problems as a result.

Research

Research has been conducted on food and food choices in the school from four perspectives:

- A whole school survey was conducted by Shark Smart in 2010 and in 2011.
- Research into teenage food choices in the school was conducted by Mrs. Kroone through UKZN in 2010.
- Kayla Burger conducted some basic research into problems associated with the school tuckshop.
- The RCL wrote a report based on information obtained from the above, and from Patrick Holford's New Optimum Nutrition Bible.

As this is a concise document, details of the methodology and population samples etc. of these surveys/reports will not be transcribed here, but are available from Mr. Girvin or Mrs. Kroone for perusal from any interested parties.

The main problems that the learners have with the school tuckshop are:

- Poor quality food
- Overpricing
- Poor hygiene standards
- Lack of variety
- Lack of healthy choices
- Service

Poor quality food

The main complaints here surround the quality of the pies.

- There is concern that the same pies are reheated many times over, which cause them to deteriorate in eating quality and also increases the risk of harmful bacteria developing.
- The pies are sometimes burnt at the base, or are oily and soggy.
- Mould is often visible on the pastry.
- Foreign objects such as hair and clothing tags have been found in the pies.

Overpricing

Learners feel that they are being charged too much for most foods in the tuckshop.

- When compared to local shops, hot dogs, pies, chocolates, chips and cool drinks were all far more expensive in the school tuckshop.
- When learners are faced with the option of buying a toasted sandwich or sweets, they often choose the latter. This is because they perceive this to be better value for money, as a lot of sweets can be bought for the same amount as one sandwich.
- Healthier food choices are often more expensive than unhealthy ones, therefore when given the choice most of the learners will choose the cheaper options.
- Many learners do not bring lunch from home, but are given R15 or R20 to buy from the tuckshop. This is what most parents can afford, but is not enough to buy sustainable food for a teenager for an entire school day.

Poor hygiene standards

There is a perception that personal and food hygiene is not up to acceptable standards in the tuckshop.

- As previously mentioned, food is reheated many times.
- Pies reheated from the freezer are often only lukewarm in the centre.
- Hair is not covered when preparing food.
- Gloves are not worn when handling food.
- Food and money are handled by the same person.
- There is no separate sink for washing hands, which is a requirement by the health department in food preparation venues.
- Towels for drying hands are used over and over, and could be a cause for cross-contamination.

It must also be noted here that these learners trust food that is packaged, as their generation has grown up with all purchases packaged and labelled. Therefore they mistrust food that is home-made and fresh, unless they can be sure that good hygiene habits are followed.

Lack of variety

The learners complain that there is very little variety in the type of food sold in the tuckshop. Only pies or toasted sandwiches are available on a daily basis. Frequently these have run out by 2nd break, leaving the learners with no option but to buy junk food such as sweets and chips if they are hungry.

Lack of healthy choices

- No meals sold.
- No healthier options such as salad rolls.
- No fresh fruit.
- No healthy choices for those focussing on improving fitness for sport.
- No guidance or promotion of healthier choices.

It must be noted that salad rolls are available if ordered in the morning from the tuckshop. However, many of the learners are not aware of this as it is not widely advertised. These rolls are also more expensive than pies or sandwiches, therefore making them a less popular choice.

Service

- Long queues
- No time to eat as a result

Suggestions from learners for food choices

Low GI options

Home-made rather than processed beef patties, made with lean mince

Salad rolls

Chicken curry on brown basmati rice

Chicken wraps

Spaghetti Bolognaise

Subs

Muffins

Hotdogs

Better quality pies

Specials now and again such as pizza slices etc.

Toasted sandwiches are still popular

Sweets and fizzy drinks only at second break and after school

Nutritional considerations

The five food groups

Nutritionally, learners need to eat food from each of the five food groups on a daily basis. The five food groups are: Grain and grain products, Meat and meat alternatives, Milk and milk products, Fruit and vegetables and Fats and oils. Ideally, each meal should contain something from each of the food groups, in the correct proportions.

The dietary guidelines

The SA based dietary guideline recommend that as a nation we need to reduce our intake of animal fat, salt and sugar, and increase our intake of fibre, fruit and vegetables. At present, most of the food sold in the school tuck shop is high in sugar, fat and protein, and low in fibre vitamins and minerals. The suggested items from the learners have reduced fat, reduced sugar and increased fibre and vitamins. Therefore they would be more nutritious. However, some additions/ adjustment would have to be made to increase the mineral and vitamin content of the suggested menu.

Fat content

It is not advisable to eliminate the fat content of food completely, as fat contains fatty acids essential for growth and brain development. Fat also contains fat soluble vitamins A,D,E and K and reduces the rate of digestion, preventing a sharp rise in blood sugar levels and also giving a feeling of satiety. Saturated and trans fats should be kept to a minimum to prevent cholesterol build up, however if the learners are physically active this will not present a problem.

The GI index

If protein, high fibre carbohydrate, dairy and fat are eaten in a meal, digestion takes place slowly and blood sugar levels are stabilized, meaning that the learners will have sustained energy for 3-4 hours. When refined carbohydrate or sugar is eaten digestion takes place rapidly, escalating blood sugar levels within 15 minutes. This causes the learners to be hyperactive and unable to sit still due to high energy levels in the blood. The high sugar levels in turn cause overproduction of insulin from the pancreas. This is followed by very low blood sugar levels within an hour of eating. As a result, learners will be tired, irritable, sleepy and unable to concentrate. They will also experience hunger, and a longing for more refined carbohydrates in an attempt to raise the blood sugar levels rapidly again; and so the cycle continues throughout the day. Long term, this type of diet can lead to type 2 diabetes, which is on the increase worldwide. Therefore, the suggestion by the RCL that low GI foods are sold in the tuckshop could improve learner behaviour and concentration in the classroom.

Practical considerations

- The current food offered in the tuckshop is highly processed and requires little or no preparation. In order to offer healthier choices and a greater variety of food on the menu, greater planning and preparation time will be needed.
- Teenagers tend to be spontaneous and may not want to order ahead of time. The system needs to allow for those learners who want to decide and purchase directly from the tuck shop at break.
- Some thought needs to go into the presentation and packaging of available food as this plays a large role in teenage food choice. Teenagers like bright colours and 'random' slogans. However, packaging needs to be simple, cost effective and recyclable.
- Teenagers also like food that they can eat easily while talking to their friends. Girls like food that is neat and tidy and that they can eat in a ladylike way. Boys like volume and high protein food.
- Fresh fruit would be more acceptable as a fruit salad made daily and sold in a tub.
- Most food that is not sold in a day is still safe to eat on the following day if it is correctly stored. Another suggestion is that this food is given to the social worker on the following morning to provide for those learners who are in need.

Economical considerations

- Processed food is frequently cheaper than fresh food.
- The greater the choice offered to learners, the greater the possible wastage, unless a system of prior ordering during registration is successful.
- The tuck shop should not be run as a private business, but as a service to the learners.
- Any catering for functions can remain part of the private service.
- The purpose of the tuck shop should be to provide for the learners' nutritional needs, and not to generate profit. This will mean that the selling prices of items can be reduced for the learners. Any profit that is made should be given to the Angel fund.
- Food should be priced to cover the running costs and salaries.
- Staff working at the tuckshop should be paid a salary and run the tuckshop according to the new tuckshop policy.
- Learners helping at the tuckshop would then be eligible for service awards. Perhaps this could be incorporated into the catering committee.
- To reduce expenses for the Consumer Studies department, marketable products should be sold to the tuckshop at cost price.
- If Coke and fizzy drinks are eliminated from the tuck shop the fridges supplied by them will have to be replaced by the school.

Suggestions from learners for service

- Grade 8 & 9 could have orders taken with payment from the class captains at morning registration. These could then be collected by the class captain 5 minutes before break, and delivered to the class. This system works well in the primary school, and the learners are accustomed to it.
- Grade 10, 11 and 12 could also submit their orders with payment via the class captain at registration. Grade 10 could then collect their orders and change at the bottom tuckshop, and grade 11 & 12 at the top tuckshop.

Practically, these are both good suggestions, and would alleviate the queue at the tuckshop. The only problems might be in the issuing of change, as this could be time consuming and complicated. One way of overcoming this would be to request that only the exact money is given with the order. The onus would then be on the learners to sort out change before making the order.

Suggested food items

It is important to remember that the food sold in the tuck shop should not only meet the nutritional needs of the learners, but also be socially acceptable. The foods should be marketed from a “cool food” perspective, perhaps using some of the Shark team in posters promoting it. The following foods are low GI, and could be sold:

Wholewheat bread and rolls

Pies

Pita bread (brown)

Provititas

Popcorn (plain)

All meats and fish

All cheese

Eggs

Crumbed chicken breast

Mayonnaise

Salad veg. except beetroot

Onions

Frozen sweetcorn

Corn on the cob

Raw carrots

Cabbage

Mushrooms

Pasta –all types

Baby potatoes

Brown rice

Instant noodles

Sweet potatoes

Snickers bar (high fat)

Nut and seed muesli bar

Sponge cake

Banana bread

Apple or blueberry muffins

Potato chips

Pure fruit juices (no sugar added)

Chocolate

Hummas dip

Peanuts

Dried fruit

Corn chips (Doritos)

Plums

Apples

Oranges

Peaches

Pears

Dried apricots

Grapes

Strawberries

Kiwi

Chocolate milk

Sweetened yoghurt

Custard

Ice cream

Rich tea or digestive (oatmeal) biscuits

APPENDIX I: EXAMPLE OF TUCK SHOP MENU



SPECIALITY MEALS

- HOT DISH OF THE DAY -R25
- PANINI OF THE DAY -R20
- SALAD OF THE DAY -R20
- WRAP OF THE DAY -R20

PRE-ORDERS

OPEN: 7am CLOSE: 9am

COLLECTED AT TOP
TUCKSHOP

TRADITIONAL FARE

- Hotdogs - R9
- Footlong Russians - R20
- Beef Burgers - R20
- Chicken Prego Roll - R20

ALL ITEMS SUBJECT TO AVAILABILITY.
PRICES SUBJECT TO CHANGE
★ ★ ★
smart.snackbars@gmail.com

TOASTED SARMIES

- Cheese - R12
- Cheese, Tomato & Onion - R13
- Cheese & Bacon - R15
- Chicken Mayo - R15

SNACKS

- Popcorn -R8
- Crisps -R6
- Biltong Packs -R15
- Muffins -R7
- Chocolates -R9
- Maynards Packs -R8.50
- Fresh Fruit Packs - R10
- Cheese & Cracker Packs - R18

FOOTLONG SUBS

- Cajun Chicken Mayo - R18
- Bacon Lettuce Tomato - R18
- Cheese & Salad - R18

DRINKS

- ABI Cans -R9.5
- Flavoured Water -R9
- Still Water -R6
- Liquifruit Cans -R12
- Lipton Ice Tea -R12
- Steri Stumpies -R12
- Milo-Ready-To-Drink -R12
- Coffee & Tea -R8
- Hot Chocolate & Milo -R10
- Slushies -R9

ALL SUBS ARE SERVED ON A FOOTLONG SESAME BAGUETTE WITH CRISPY LETTUCE

OPENING TIMES

MONDAY - THURSDAY: 7AM-3:30PM
FRIDAYS: 7AM - 2:30PM
WEEKENDS: AS PER SPORT

APPENDIX J: TURN- IT- IN CERTIFICATE

APPENDIX K: STAGES OF ACTION RESEARCH APPLIED IN DATA COLLECTION

Session	Title	Purpose	Action	Reflection
1	What's in the lunchbox?	To explore learners' reactions to different foods.	Learners were asked to choose a lunchbox then open it to see what is inside.	Focus group discussed attitudes to different foods and reflected on their own reactions.
2	Healthy food choice?	To understand learners' perceptions of healthy foods.	Learners were asked to bring food in the lunchbox that they considered to be healthy.	Focus group examined food labels for additives, fat and sugar. They discussed their views about healthy foods.
3	Competing with the tuck shop.	To find out if the learners will choose healthy foods over junk foods at the school tuck shop.	Learners were given money to spend at the tuck shop and then they had to comment on their choices.	Focus group reflected the reasons for their choices. Influence of the media, advertising and MNCs were also discussed.
4	Glycaemic Index.	To introduce the learners to the concept of the glycaemic index.	Learners researched the GI index. They had to choose between foods that were high GI and foods that were low GI.	Once again, the focus group reflected on the reasons for their choices.
5	Choosing 'cool' foods.	To understand social factors behind the learners' food choices.	Learners made a list of low-GI foods that may be popular choices in the tuck shop.	Focus group made suggestions on a plan of action to introduce the concept of low GI foods to the school.
6	Junk food: the healthy alternative.	To explore the learners' reactions to healthier foods.	Learners ate hamburgers that were low fat, high fibre and low GI.	The group discussed the acceptability of a healthy alternative to junk food.

WHAT'S IN THE LUNCHBOX? UNDERSTANDING INFLUENCES