A Tool to Assess Nutrition and Physical Intervention for School-Aged Children

A Thesis Submitted to the College of

Graduate Studies and Research

in Partial Fulfilment of the Requirements

for the Degree of Masters of Science

in the Division of Nutrition and Dietetics

of the College of Pharmacy And Nutrition

University of Saskatchewan

Saskatoon

by

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April 2011

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Abstract

Over the last two decades the incidence of overweight and obesity among children and adolescents has reached epidemic proportions in both developed and developing nations. Reducing the incidence of childhood overweight and obesity is of particular importance in countries undergoing social and cultural transitions, such as Trinidad and Tobago, where chronic diseases, such as childhood obesity may have severe social and economic impacts on public health. Although there are a number of studies that have investigated the health and lifestyle behaviours of school aged children, very little information exists about health and lifestyle behaviours of school age children in Trinidad and Tobago. Also, little information exists on the development of questionnaires to address health related issues within this culture and age group. The purpose of this study was to describe the development and pre-test of a knowledge, attitude, belief and practice (KABP) questionnaire to assess healthy lifestyle outcomes of school aged children in Trinidad and Tobago. Three data sources were used for the design and pre-testing of the questionnaire: content analysis of the literature, interview of key stakeholders, and onsite observations. An in-depth review of the literature was conducted for insights about questionnaire development. Interviews (individual and focus groups) were conducted of key stakeholder groups (school staff, the national school feeding program and curriculum officers) and children to determine current policies and practices, beliefs, barriers, and attitudes towards promoting health lifestyles (nutrition and fitness) in Trinidad and Tobago's elementary schools. Site observations provided insight into the school food environment, class room practices, and food services offered at school. Observations were recorded using field notes and interviews were tape recorded and transcribed verbatim. Interview data from each participant was analyzed separately for dominant themes and recurring topics. The interviews were then compiled to establish the main issues which the questionnaire needed to address. The KABP questionnaire addressed general knowledge about healthy eating and activity, screen time, physical activity, snack and food choices, and self efficacy. The KABP questionnaire consisted of question items that were developed to fit the issues unique to Trinidad and Tobago, and items from previously validated questionnaires which were modified to fit the context of Trinidad and Tobago. The questionnaire was then pre-tested with a sample group of the target population. Pre-testing was done one-on one, in small groups and in the classroom setting. Based on pre-test results the questionnaire was then modified to form version 1.0 of the KABP questionnaire. Version 1.0 of the KABP

questionnaire consisted of 30 questions divided into four categories. This culturally sensitive age appropriate questionnaire was the foundation of the KABP questionnaire which was used to collect baseline, midpoint and endpoint data of the larger project.

Acknowledgements

I would like to thank my Supervisor Dr. Carol Henry. Your continued support, time and guidance through my research journey have allowed me to grow not only as a researcher but as an individual. I would also like to thank the members of my Advisory Committee: Dr. Dan Ramdath (University of the West Indies), Dr. Susan Whiting (University of Saskatchewan), Dr. Brenda Kalyn (University of Saskatchewan), Dr. Louise Humbert (University of Saskatchewan), Dr. Tanya Verrall (Health Quality Council) and Sharon Mangroo (Trinidad and Tobago Ministry of Education). Your advice and expertise were invaluable and have greatly improved my work. To my research assistant Kimlyn Cheong, I could not have completed this project without your assistance and commitment, thank you.

I would like to thank *Association of Universities and Colleges of Canada (*AUCC) Canada Corp/ University fund, The Patient-Centered Interprofessional Team Experiences (P Cite) project, The Pan American Health Foundation (PAHF), and the College of Graduate Studies and research for providing financial support for this project.

I would also like to thank all my family and friends for their endless support. To my wonderful office mates, your continued encouragement and friendship has made this process not only a great learning experience but an enjoyable one.

Dedication

I would like to dedicate this to my mother, Lorraine Delsol-Mitchell, my father, Lennox Mitchell and my brother, Christopher Mitchell. You have always believed in me more than I have believed in myself and for that I will be eternally grateful. Thank you for supporting my academic pursuits and for always encouraging me to achieve my goals.

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List of Abbreviations

CAR- Community based action research

CATCH- Child and Adolescent Trial for Cardiovascular Health

CFNI- Caribbean Food and Nutrition Institute

FFQ- Food Frequency Questionnaire

HBQ- Health Behaviour Questionnaire

HFLE-Health and Family Life Education

KABP- knowledge, attitude, belief, and practice

KFC- Kentucky Fried Chicken

NSDSL-National School Dietary Services Limited

PAR- participatory action research

PE- Physical Education

SEA – Secondary Entrance Assessment

SES- Social Economic Status

SPAN- School Physical Activity and Nutrition Project

SSB- Sugar sweetened beverages

UWI- University of the West Indies

WHO- World Health Organization

Chapter 1: Introduction

1.1 Introduction

The prevalence of overweight and obesity among children and adolescents is a significant public health concern, as it is reaching epidemic proportions (Strauss and Pollack, 2001; Fox and Trautman, 2009). Over the last two decades the incidence of overweight and obesity among children and adolescents has substantially increased in both developed and developing nations (Cole, Bellizzi, Flegal and Dietz, 2000; Wang, Montiero and Popkin, 2002; Ogden, Carrol, Curtin, McDowell, Talbot, Flegal, 2006). Increases in childhood obesity can be seen on each continent (Ebbelling, Pawalk and Ludwig, 2002). Of the four countries examined by Ebbelling and colleagues (2002), obesity rates in China increased by one fifth, doubled in the United States and tripled in Brazil. Within Canada the combined overweight/obesity rate has risen from 15% in 1978/79 to 26% in 2004 (Statistics Canada, 2006). This is of particular concern as habits developed in childhood are maintained throughout adult life (Whitaker, 1997; Magarey, Daniels, Boulton and Cockington, 2003). Sustained obesity in adulthood carries with it a myriad of heath issues which includes, but not limited to, hypertension, dyslipidemia, glucose intolerance, cardiovascular disease, gout, certain cancers and elevated blood pressure (Morgan, Tanofsky-Kraff, Wilfey and Yanovski, 2002). The negative effects of overweight and obesity are not only felt during adulthood; overweight and obese children are 25% more likely to be teased about their weight and often suffer from decreased levels of self-esteem and increased levels of sadness (Stratuss, 2000; Neumark-Sztainer, Falkner and Story, 2002). Overweight and obese children are also more likely to be described as stupid, ugly, lazy, and dirty, than their non-obese peers and this can lead to an undesirable body image and poor self-esteem (Strauss, 2000; Neumark-Szainer, 2002). The health status of school-aged children is of particular importance

since it contributes to the successful development of a nation. (Engle, Black, Behrman, de Mello, Gertler, Kapiriri et al., 2007).

Obesity, much like many other chronic diseases, is a multi-factorial issue. Contributing factors include genetics, diet and lifestyle, as well as cultural, social and economic factors. Since childhood obesity is a multifaceted issue, tackling this problem requires a multi-factorial approach. Research in reducing rates of childhood obesity have most often taken two forms, treatment aimed to reduce obesity in obese children, and interventions aimed to prevent obesity (Caballero, Clay, Davis, Ethelbah, Holy Rock, Lohman et al., 1998; Gortmaker, Cheung, and Paterson, 1999). Studies have predominantly focused on increasing physical activity, decreasing consumption of high fat foods, decreasing screen time with the main objective of increasing energy expenditure and/or reducing energy intake (Gortmaker, 1999; Ebbeling, 2002; Golan and Crow, 2004).

Most of the studies found in the literature have focused on the health and lifestyle behaviours of school-aged children in Europe and North America. Very limited information exists in the literature about the health and health behaviours of children in the Caribbean, specifically Trinidad and Tobago. Historically, research on the nutritional status of children in the Caribbean, has centered on undernutrition in disadvantaged sections of the population. Studies from the Caribbean have assessed food consumption patterns of school age children, but none have included the development of monitoring and assessment tools for lifestyle behaviour modifications into their research model (Jackson, Samms-Vaugan, Ashley, 2002; Gulliford, Mahabir, Rocke, 2002; Wall-Bassett, Gerrard and Kunkel, 2010).

Results from monitoring and evaluation of educational programming can demonstrate the effectiveness of school programming and/or the need for them to be implemented. A number of types of outcome assessment tools have been used to measure school intervention outcomes. The knowledge, attitude, beliefs and practice (KABP) form of assessment, was chosen for this project. The KABP framework is defined by the WHO as representative study of a specific population to collect information on what is known, believed and done in relation to a particular topic (WHO, 2008). For the purpose of this project the constructs of knowledge, attitude, belief and practice were defined as:

> Knowledge- the sum or range of what has been perceived, discovered or learned. With regards to food and nutrition, knowledge can be grouped into: why-to knowledge and how-to knowledge. Why-to knowledge is important in the motivational phase of dietary change. How-to knowledge includes information on basic facts about food and nutrition. It is information for those who want to and are ready to make change
>
> Attitude- favourable or unfavourable judgments about a given behaviour, such as "Participating in physical activity is enjoyable/unenjoyable; would be easy/hard"
>
> Belief- An expectation that as specific behaviour will lead to certain outcomes. Perceived benefit of health related behaviour for example "eating the recommended daily amount of fruits and vegetables will reduce my risk of chronic disease"
>
> Practice- the process of putting knowledge, attitudes and developed skills into action
>
> Definitions from (Contento, 2007).

Currently little evidence of effective processes exists with regards to developing a KABP questionnaire for assessing a health promotion and lifestyle behaviour intervention. Describing the process used in the development of a KABP questionnaire will help to fill the gap and

contribute to an understanding of the importance of the KABP questionnaire in assessing changes in knowledge, attitudes, beliefs and practice regarding healthy lifestyle behaviours.

1.2 Statement of Problem and Purpose of the study

This study is part of a larger project which sought to integrate health promotion (nutrition and physical activity) across primary school curriculum in Trinidad and Tobago, utilizing a teacher-led model of curriculum integration. Specifically, the purpose of this study was to develop and pre-test the KABP questionnaire. Every stage of health promotion intervention is important but when using a questionnaire as an evaluation tool, the development of the questionnaire is one of the most important stages (Gillham, 2000). If the questionnaire design is faulty no amount of analysis and interpretation will provide meaningful answers. A questionnaire is a research tool defined as a collection of formalized set of questions, drawn up with the research problem in mind, used for obtaining information from the respondent to address the research problem. Kumar (2002) stated that there are several steps involved in questionnaire design. These steps can be classified as (i) identifying constructs to be measured (ii) preparing the questionnaire flow (iii) deciding the type of questions (iv) wording and writing the questions (v) pre-testing the questionnaire and (vi) administering the questionnaire (Kumar, 2002). The current study focused on categories one to five (i-v). The larger teacher-led curriculum integration-intervention study was carried out over a one year period, January 2009-December 2009 school year. Development and pre-testing of the initial KABP questionnaire was conducted during May- August 2008.

The objectives of this study were:

1. To describe the process used to design culturally sensitive, age appropriate KABP questionnaire to assess the effect of a teacher–led intervention on integrating health

promotion (nutrition and physical activity) across the curricula for primary school children in Trinidad and Tobago,

and

2. To describe lessons learned and make recommendations for further use of the KABP questionnaire.

1.3 Context of the Study

Three important activities have helped me shape my interest and provided me with the impetus for my undertaking of this project. At the beginning, in January of 2008, I had the pleasure of participating as a student liaison for an interprofessional project on integrating cultural competency into the Pharmacy and Nutrition curriculum. As the student liaison, I had the opportunity to work with the project facilitators and students as well as assist in data collection and analysis. Work on this project allowed me to experience first-hand the need for an understanding of cultural diversity when seeking to address the needs of individuals in various communities. Later in my studies, I received a scholarship through the Students for Development program (AUCC) which allowed me to participate in a three month internship at the University of the West Indies and the opportunity to participate in the larger project, *A teacher-led model for integrating health, nutrition and fitness across the curriculum,* and undertake this current project. In 2006, researchers at the University of Saskatchewan and the University of the West Indies, in partnership with the Trinidad and Tobago Ministry of Education, initiated a knowledge translation research project to promote healthy weight and lifestyle behaviours among school-aged children in Trinidad and Tobago. The research exchange model was built on listening to the voices of the various stakeholder groups, especially the children, and on promoting the establishment and nurturing of relationships amongst those who produce research and those who

are likely to use it. These goals were accomplished through several initiatives including the design and implementation of a knowledge, attitude, belief and practice (KABP) questionnaire. In 2009 I was given the opportunity to travel to Trinidad and to participate in the mid-point KABP data collection process. These activities furthered my understanding of the need for addressing cultural competency in the field of health promotion.

1.4 Significance of the Study

Unhealthy food and activity choices have a substantial negative impact on the development and potential of school-aged children. It has been documented on many occasions that patterns developed during childhood are carried into adult life (Whitaker, 1997; Birch and Davison, 2001; Magarey, 2003). Along with a myriad of other issues, overweight and obesity increases the incidence of adult morbidity and mortality and the cost to the health care system can be crippling (Birmingham, Muller, Palepu, Spinelli and Anis, 1999). Obesity in the early stages of life can greatly influence a child's psychosocial development and negatively affect their quality of life (Janicke, Marciel, Ingerski, Novoa, Lowry and Sallinen, 2007). Given the vast number of negative outcomes associated with childhood obesity, early intervention is essential to address this epidemic.

Trinidad and Tobago is currently classified by the World Bank as a high income country within the developing world and is currently exhibiting some of the same nutritional issues experienced by middle income countries (World Bank, 2009). As seen in other middle income countries undergoing transition, obesity has emerged in Trinidad and Tobago as a significant health problem. Currently Trinidad and Tobago has the highest age-standardized mortality rate in the Americas for both heart disease and diabetes. Type 2 diabetes is now more common within the younger population than Type 1, in Trinidad and Tobago (PAHO, 2000). It has been

suspected that this trend is related to shifts from traditional eating patterns to include foods high in fat and refined carbohydrates and reduced physical activity. This trend is similar to those seen in North America and around the world.

Schools provide the most effective and efficient way to reach the young population at an influential stage when lifelong patterns are being formed (WHO, 1998). The Trinidad and Tobago public school system, which is modeled after the British system, is compulsory from age 6 to 13 and free until the end of high school. Since schooling is free and compulsory during this critical stage, when habits are formed, the Trinidad and Tobago School system provides an optimal setting to administer health education to the population. Health is important to learning and schools are in a key position where they can influence health and learning not only of the students but of the entire community.

Tools and methods developed for evaluating interventions in western cultures may not translate effectively to all cultures. For example, dietary and physical activity behaviors of school-aged children in Trinidad cannot be assumed to be the same as their North American counterparts, given the different social, cultural and environmental factors that are involved in both regions. The correct cultural context is vital to the success of any program and it must be sensitive to the beliefs and characteristics of a particular social, ethnic or age group (Stevens, Story and Right 2003). Children require age-specific and culturally acceptable information, knowledge and training if they are to make healthy food and nutrition and fitness decisions. Studies like the *Pathways* intervention have been developed to be culturally relevant and compatible with the target audience (the American Indian community). The *Pathways* study pointed to the benefits of having a culturally competent intervention and evaluation tool (Stevens, 2003).

With the implementation of health promotion programs comes the need to monitor and evaluate program specific outcomes. Questionnaires are used in a wide range of settings to gather information and are tools which have been utilized as a method of data collection in health promotion programs (Teufel, 1997; Shahar, Fraser, Shai and Vardi, 2003; Rattray, 2007). Questionnaires can offer an objective way of gathering information about the knowledge, beliefs and behaviors of a specific group of individuals (Boynton and Greenhalgh, 2004). As with other divisions of science, rigorous approaches need to be taken in the design and execution of questionnaires (Williams, 2003). Questionnaires are a useful data collection tool as they can yield high quality data, achieve good response rates and provide anonymity (Marshall, 2004)

It is easy constructing questionnaires but developing a questionnaire which yields worthwhile data is difficult (Gillham, 2000). One of the major criticisms of questionnaires is that it assumes that the individual(s) developing the questionnaire have the same assumptions about language, environment and have the same lived experience as the research participant; this is not always the case (Gillham, 2000). Culture must be incorporated into a questionnaire as it can have a very powerful effect on health-related behaviours (Teufel, 1997). Williams (2003), Marshall (2004) and Rattray (2007) noted that in populations where the researcher and the research participants do not share the same culture, or little is known about the population, it is best to use qualitative methods (focus groups, semi-structured interviews) as the first step in identifying constructs to be measured. This critical step in designing the questionnaire allows variations of ideas and opinions to be voiced and allows the researcher to identify the issues which the questionnaire needs to address. Design of a questionnaire is essential to collecting relevant, usable data. Questions must address the issues of the target population, while also addressing the research objectives.

To develop a questionnaire which evaluates the effectiveness of a school health education intervention, specific outcomes need to be measured. KABP style of questionnaire can identify knowledge gaps, cultural beliefs, attitudes, and other health factors which influence behaviours (WHO, 2008). The KABP questionnaire is based on the understanding that if behaviour modifications are to be achieved, factors influencing that behaviour (attitudes, knowledge, beliefs) must be identified. This study focuses on the development of a KABP questionnaire, this type of tool has the ability to identify why people practice certain health behaviours (WHO, 2008). The KABP questionnaire will assess several variables, which include; diet/nutrition, weight related factors, physical activity/inactivity and cultural identity.

Chapter 2: Literature Review

2.1 Introduction

Good nutrition and fitness are considered hallmarks of successful learning and high academic outcomes by school-aged children. They are especially important during periods of rapid physical and mental growth and development. Research on nutrition provides us with an opportunity to ensure children get the nutrients they need to grow and learn. However, there has been a trend in today's environment toward the "crowding out" of valuable nutrients in the diet by foods high in fat and sugar, and low in nutritional value. This is especially critical in developed and developing countries undergoing social and cultural transitions, such as Trinidad and Tobago, where chronic diseases such as obesity have severe social and economic impacts on population health (Kickbusch and Buse, 2001). Improving the diets and physical activity levels of children (boys and girls) has the potential to reduce chronic disease risks and lower future health care costs. This review of the literature will provide a detailed overview of the factors influencing healthy lifestyle behaviours of school aged children, as well as the complexities of designing a culturally competent evaluation tool.

2.2 Economic and Social Determinants of Childhood Overweight and Obesity

Childhood overweight is the end result if an interaction between a normal metabolic/genetic physiology and an obesity-promoting environment. Susceptibility to obesity is controlled in part by a number of genetic factors. Not all adipose tissue is bad, the human body requires a certain amount of adipose tissue for normal body functioning. Energy storage in the form of fat is a necessary adaptation for survival during times of starvation or periodic famine. It is most likely that a combination of "thrifty genes" have been selected during evolution which favours energy storage (Spiegelman and Flier, 2001). The combination of these thrifty genes with certain social and economic factors has led to an obesity-promoting environment.

Historically, a fat child has been interpreted as a sign of health and prosperity. However, in the past twenty years there has been a great shift from underweight to overweight and obese in both the developing and the developed world (Wang, 2002). Although these rates are of considerable importance, it is critical to break down this age group to determine where exactly obesity is occurring. Data from an older North American cohort (4-12 years) showed that between 1986 and 1998 overweight and obesity increased steadily among white, black and Hispanic children (Strauss, 2001). The relative weight of overweight children also increased from 1986-1998 indicating that the prevalence as well as severity of obesity was increasing. The National Health and Nutrition Examination Survey (NHANES) data collected from 1999-2002, among US children, indicates that these trends have continued. Among US children, age 6 through 19 in 2002, 31.5% were at risk for overweight and 16.5% were overweight, which is an increase from 1999 statistics, which were 29.9% and 15.0 % respectively (Hedley, Ogden, Johnson, Carroll, Curtin and Flegal, 2004).

Research from the Caribbean shows similar trends in increased overweight and obesity. Data from Barbados concluded that prevalence of overweight for youth aged 11-16 was 15% for boys and 17% for girls with obesity at 7% for boys and 12 % for girls (Gaskin, Broome, Alert and Fraser, 2007). Data from Jamaica showed similar statics reporting that 19% of Jamaican children aged 11-12 are obese (Jackson, 2002). Results from recent self-reported data from Trinidad and Tobago showed overweight and obesity rates at 10% and 6% respectively in children aged 6-11 (Batson, 2001; Ramdath unpublished). This continued increase in childhood obesity is likely to be the convergence of many biologic, economic and social factors. The cause of obesity is multi-factorial. Diet and physical activity have been identified as contributing factors.

2.2.1 Physical Activity Environment

Physical activity has been broadly defined as any bodily movement produced by the skeletal muscles that results in energy expenditure (Puayu, Adolph,Vohra and Butte, 2002), and is the most variable component of day-to-day energy expenditure (Goran, Reynolds and Lindquist, 1999). It is known that physical activity levels required for health in adults are not the same as those required for health in children. In the USA (Corbin and Pangrazi, 2004; US Department of Agriculture, 2005), United Kingdom (Department of Health, 2004) and Australia (Australian Government, 2005) physical activity guidelines recommend that children and youth engage in a minimum of 60 minutes of moderate intensity (i.e., physical movements that make you breathe hard and require effort at least that of brisk walking) physical activity each day (Bar-Or and Rowland, 2004). In Canada, for health benefits, physical activity guidelines recommend that children accumulate at least 60 minutes of moderate-to vigorous-intensity activity daily. These activities should include vigorous activity at least three days per week and activities that strengthen muscle and bone at least three days per week. (Canadian Society for Exercise Physiology, 2011)

In the Caribbean there has been increased attention for the inclusion of physical activity in schools. In a 15-point Declaration, Heads of Government of the Caribbean Community (CARICOM) mandated the promotion of policies and actions aimed at increasing physical activity in entire populations of CARICOM Member States as vehicles for improving health overall. In this context, the Heads of Government affirmed their commitment to increasing adequate public facilities such as parks and other recreational spaces to encourage physical activity by the widest cross-section of Caribbean citizens (CARICOM, 2008).

It has become quite apparent that the environment in which we live is gradually changing to one which requires less and less daily physical activity, and thus promotes a sedentary lifestyle (Goran, Reynolds, Lindquist 1999). Many studies suggest that reduced physical activity is an important contributor in the development and maintenance of childhood obesity (Goran, 1999; Trost, Kerr, Ward, Pate 2001; Page, Cooper, Stamatikis, Foster, Crowne, Sabin, Shield, 2005). A study which compared physical activity patterns in obese and non-obese students (mean age 11. 4 ±0.6) found that obese children exhibited significantly lower daily participation level in both moderate and vigorous physical activities (Trost, 2001). The results from Page et al. (2005) supported these findings. Using accelerometers, Page et al. (2005) observed that obese boys and girls (mean age 10.5 ± 0.8 y) were significantly less active than non-obese boys and girls on both schooldays and weekends. The largest difference was seen in obese girls who were 20% less active than their non-obese counterparts on weekdays and 36% less active on weekends. Differences in pattern, volume and intensity of physical activity have been noted between obese and non-obese children. Measurement of physical activity using accelerometry revealed that physical activity is negatively related to whole body fat, subcutaneous fat and visceral adipose tissue (Saelens, Seeley, van Shciack, Donnelly, O'Brien, 2007). This study indicated that increased physical activity is associated with lower fat accumulation.

Psychosocial differences have also been identified between obese and non-obese children. Compared to their non-obese counterparts, obese children have reported significantly lower levels of physical activity self-efficacy (Trost, 2005). This indicates that obese youth do not believe that they are capable of performing the physical activities in which their non-obese counterparts participate in. When looking at barriers and benefits to physical activity, normal weight individuals generally perceived fewer barriers to physical activity than obese individuals

(Deforche, Bourdeaudhui, and Tanghe, 2006). Barriers such as insecurity about physical appearance, not being good at the activity, not liking the activity, and physical complaints were more likely to prevent obese individuals from being physically active. When the advantages of physical exercise were examined there was no significant difference between obese and non-obese individuals, indicating that obese children are aware of the benefits to physical activity but the barriers have a stronger effect on their actions. Reduced physical activity in itself is something to be concerned with, but when that is paired with increased time spent in sedentary activity it intensifies the obesity epidemic.

As indicated earlier, the causes of overweight are complex. Recent studies have started to focus on the role of the built environment in perpetuating weight gain (Timperio, Salmon, Telford and Crawford, 2005; Scott, Cohen, Evenson, Catellier, Ashwood, and Overton, 2007; Dunton, Kaplan, Wolch, Jerrett and Reynolds, 2009). The 2005 study conducted by Timperio et al. was among the first to examine how perceptions of neighbourhood environments correlate to overweight and obesity in children. Using two questionnaires, one developed for the parents and a second for the students, this research study revealed that parental perception of heavy traffic and the child's perception that their parent's believed there was heavy traffic in local streets was associated with overweight and obesity. Children were 40% more likely to be obese if parents believed that there was heavy traffic in their local streets. Scott et al. also examined how environment affects weight status (2007). While assessing the accessibility and suitability of schools as weekend recreational sites for adolescent girls, Scott et al. revealed that girls with no schools within a half-mile radius of their home were 10% less physically active on the weekends. Results further suggested that each locked school yard within a mile radius was associated with a 3% increase in BMI (2007). Modification of environmental factors to ones which promote

physical activity may be one aspect of alleviating the growing incidence of overweight and obesity. Living in a safe place that supports physical activity and play may be an important factor in the prevention of childhood obesity.

2.2.2 Screen Time

One of the most sedentary behaviours contributing to childhood obesity is screen time, which includes television viewing, video watching, non-homework related internet activity and video gaming. This behaviour is also one of the most modifiable causes of obesity in children. According to NHANES data approximately half of US children aged 8-16 watch more than 2 hours of television each day (Crespo, Smith, Troiano, Bartlett, Macera, Andersen, 2001). It has been widely reported that the prevalence of obesity increases as the hours of screen time increased (Gortmaker, Must, Sobol, Peterson, Colditz, Graham et al. 1996; Crespo, 2001; Tremblay, Willms 2003). Gortmaker et al. examined the relationship between hours of television viewing and the prevalence of overweight in 1996. The results from this study revealed that the odds of being overweight were 4.6 times greater for youth watching five or more hours per day of television compared to those watching zero to two hours per day (Gortmaker, 1996). These results were mimicked by a Canadian study conducted in 2003. Using data from a nationally representative survey combined with reported data from parents, results from this study indicated that watching TV more than 3 hours/day was a risk factor for obesity (Tremblay, 2003). These studies provide evidence for supporting the link between physical inactivity, as a result of screen time, and obesity in North American children.

In developing countries, such as those located in the Latin American region, screen time has also been related to the increase in prevalence of overweight status in children (Hernandez, Gortmaker, Colditz, Peterson, Laird Parra-Cabera, 1999; Gomez, Parra, Lobelo, Samper,

Moreno, Jacoby, Lucumi et al., 2007). For example, in 1999 the association between TV program viewing and other forms of video viewing and their association with obesity was documented in Mexican children (Hernandez, 1999). This study used a self-administered questionnaire during school hours and outcome measures of height, weight and triceps skin fold thickness. Results indicated a significant odds ratio for obesity by time dedicated to TV program viewing. When compared with children who watched less than 1 hour/day of television programs, children who watched more than 3.1hours/day had 1.87 greater odds of being obese (Hernandez, 1999). The results for a more recent study with Colombian children support the results of Hernandez in 1999. Gomez et al. (2007) conducted a cross sectional investigation which included weight and height measure as well as parental reports of television viewing to examine the association between television viewing and weight status in Colombian children. Results from this study found that children classified as excessive TV viewers (2-3.9 hours/day or >4 hours/ day) were more likely to be overweight than those who watched less than 2 hours/day (Gomez, 2007). The positive association between excessive TV viewing and the presence of overweight is not just isolated to North America. These trends must be considered when conducting research within the developing world.

With regards to the role of television and its contribution to the obesity epidemic, there have been three main mechanisms proposed. First, increased television viewing and screen time has been associated with the reduction in energy expenditure. Secondly, increased dietary intake from eating during viewing or form the effects of food advertising. The third mechanism proposed is reduced resting metabolic rate during viewing (Robinson, 2001). Advertising during children's programming has been of particular concern. Kotz et al. (1994) examined 52 hrs of child commercials shown in the Saturday morning time slot. Of these commercials, 56% were

food advertisements and 43% of those food advertisements were for products classified as fats, oils and sweets (Kotz and Story, 1994). These food ads aimed at children are unhealthy stimuli which influences dietary choices made, especially while watching television. Conversely, removal of this unhealthy stimulus has shown promising effects on reducing the obesity epidemic (Robinson, 2001; Tremblay, 2003). Decreasing TV, video and video game use has been shown to decrease the amount of high fat foods consumed and in turn decrease BMI (Robinson, 1999).

2.2.3 Food Environment

The rising prevalence in childhood overweight not only has been linked to decreased physical activity but also to changes in diet. Healthy eating has been defined as "eating practices and behaviours that are consistent with improving, maintaining and/or enhancing health" (Taylor, Evers, and McKenna, 2005). In Canada, there are evidence-based guidelines for a variety of age and sex groups, similar to those developed for physical activity, to guide food intake (Health Canada, 2007). These guidelines have been developed to meet nutrient recommendations (Dietary Reference Intakes) and to be consistent with evidence linking diet to a reduced risk of chronic diseases. *Canada's Food Guide* for *Healthy Eating* describes the types and amounts of foods that should be eaten in four food groups: 1) vegetables and fruit; 2) milk and alternative products; 3) grains; and 4) meat and alternatives (Health Canada, 2007). *Canada's Food Guide for Healthy Eating* also recommends a certain number of daily servings from each of the four food groups and suggests that the consumption of "other foods" be limited (i.e., food items not identified as belonging to the four food groups, such as sweets, candy, oils, soft drinks and condiments).

Much like the Canadian food guide, the Caribbean food guide was designed to meet nutrient recommendations and promote healthy eating within the Caribbean population. The Caribbean food guide is divided into six food groups which contain commonly eaten foods in the Caribbean. The six food groups are: staples, foods from animals, legumes, vegetable, fruits and fats and oils (CFNI). These food groups were chosen to reflect the traditional characteristics of the Caribbean diets. Traditionally, Caribbean meals are based around cereal or provision and are accompanied by legumes and/or foods from animals. Vegetables and fruit often accompany the meals in raw or cooked form or are used to make juice (CFNI). Stylistically, the Caribbean food guide is composed of pie shaped pieces which make a circle. Just under half of the circle is devoted to the staples. The next largest category is legumes followed by vegetable then fruits, and then foods from animals and lastly fats and oils. Choosing a variety of foods daily, based on the proportions provided by the Caribbean food guide is an important step towards consuming a healthy diet.

Eating habits (food consumption and meal patterns) have been related to childhood obesity (Nicklas, Yang, Baranowski, Zakeri, and Berenson, 2003). Links have been made between increased BMI and soft drink consumption, portion size, diet quality, meal pattern and diet density among others. Snacks are considered to be foods consumed between meals. Snacking is an area of concern when looking at the food environment of school aged children because of the increasing contribution snack items are making to total food intake. Cross, Babicz and Cushman (1994) studied the snacking behaviour of 1800 adults and children. The researchers found that 92% of children in kindergarten to grade six reported snacking at least once a day and individuals in this group were the most likely to snack two to three times daily. Salty/crunchy, baked, dairy, and sweet snacks dominate during snack time over fruits and

vegetables (Cross et al., 1994). The types of food and the quality of snacks consumed are of particular interest because total gram amount of food, particularly from snacks, and total gram consumption of low-quality foods have been positively associated with overweight status in children aged 10 years (Nicklas et al., 2003).

Beverage consumption is an area which is often overlooked when considering total daily caloric intake. Consumption of sugar sweetened beverages (SSB) has also been linked to the steady rise in weight seen in school aged children. Over the past few decades there has been a significant increase in the consumption of SSB particularly in children and adolescents. SSBs are a leading source of added sugars in the diet of children. Between 1977 and 2001 average total energy consumed from SSB increased from 88.27 kcal/day to 197.45 kcal/day (Nielsen and Popkin, 2004). This statistic is particularly significant because research has shown for each additional serving of SSB consumed daily the odds ratio of becoming obese among children increases 1.6 times (Ludwig, Peterson and Gortmaker, 2001). Increased added calories to the diet from SSB and snacks combined with decreased physical activity can be associated to increased trends in BMI. Diet and physical activity have a cumulative effect on childhood weight status.

Within developing countries, street foods are consumed as a regular part of the diet by a majority of people. Street foods consist of a wide variety of drink, snack and meal items, and are retailed by street food vendors. These food items may be produced commercially, made by vendors on site or prepared in a nearby kitchen (Ohiokpehai, 2003). In the developing world street vending provides an important source of income to the vendors and an affordable source of food to a large population of people. Street foods are most often quite inexpensive and in many situations, poorer families rely on them for nourishment. Mwangi, Hartog, Mwadime, Staverens and Foeken (2002), looked at street food in Nairobi, Kenya and whether they were

heterogeneous enough to provide sufficient food group varieties for a healthful diet. Five hundred and eighty street vendors from low-income to working income areas were included in this study. The most common food groups sold were cereals followed by meat, milk, poultry and fish and lastly mixed dishes (commonly consisting of maize and beans). More than half of the vendors sold only foods from one group and most of these products consisted of cereals cooked in fat. The results from this study indicate that street vendors sell food items mostly made from cheaper food groups. If diets consist largely of foods purchased from street vendors, they may not include sufficient variety to provide a nutritious diet.

2.2.3.1 Changing Context of the Food Environment in Middle-and Low Income Countries

Until recently food scarcity limited the energy intake in the poorest of people in developing countries, but now overweight ranks fifth among the top ten causes of disease burden in middle income countries (WHO, 2002). In developing countries, which are becoming urbanized with increasing Gross National Product (GNP), food scarcity is no longer an issue. The availability of low-cost, energy-dense foods such as those from street vendors or fast food restaurants, has made the consumption of high calorie diets increasingly easy (Caballero, 2005). Urbanization has also allowed for the globalization of food markets which has caused drastic changes in the structure of the diet of middle and low-income countries. With the advent of globalized of food markets came the introduction of cheap, low-cost foods into the domestic food supply (Caballero, 2005). Introduction of low-cost, energy dense nutrient-poor foods into the diet can result in decreased nutrient intake while still providing enough calories to gain excess weight (Caballero, 2005). Research has shown that in middle and low-income countries which have recently undergone economic, social and technological transformations, poverty is

associated with a higher risk of obesity than being of higher income in the same country (Monteiro, 2004). Studies have also shown that underweight and obesity can coexist in the same household, reflecting the dual burden of overweight and under nutrition clustering within a single household. This phenomenon has been termed the 'dual burden' (Doak, Adair, Bentley, Monteiro and Poplin, 2005). As countries with low GNP experience economic growth, the populations diet structure shifts. The shifts in diet have been fuelled by lowered prices in edible vegetable fat , as well as an increased proportion of energy from added sugar in the diet, leading to an upward shift in the energy density of the foods consumed (Popkin, 2002). The joint presence of under nutrition and overweight provides a unique issue for health care providers as focusing on increasing nutrient intake for undernourished individuals may negatively affect the obese individuals in the house hold and vice versa. Much of the Caribbean is experiencing the changes in food culture seen in middle income countries.

2.2.4 Family Environment

Research has shown that the genetics which predispose one to overweight and obesity do not work independently. The proper environment must be in place to work with genes to promote patterns of adiposity. It has been well documented that the familial environment has a great influence on the weight status of children (Whitaker, 1997; Birch, 2001; Magarey, 2003). Research has shown that parental weight status greatly influences that of the child. At all age intervals both obese and non-obese children were at greater risk for obesity if at least one parent was obese (Whitaker, 1997). Also the risk of overweight increases further if both parents are overweight/obese than if only one parent was overweight/obese (Magarey, 2003). The age of the child also changes how much parental weight status influences child weight status. Whitaker et al. (1997) found that parental obesity has the greatest effect on child weight status when the child

is less than 10 years of age. Parental eating behaviours directly influence a child's eating behaviours as a result of social modeling and by its influence on the foods available in the household (Birch, 2001). Parents teach by example and if their diets are high in foods that are calorie dense and nutrient empty it is highly likely that the food available in the household will reflect that. In early childhood, when eating patterns are formed, a majority of eating time occurs with the family, and shapes the experiences with food and eating. Familial patterns of obesity can be a result of genes working in concert with an environment which promotes adiposity.

Another family factor which has been linked to increased rates in obesity is the household's annual income. Recent studies have shown that children of poorer families are more likely to be overweight or obese (Nawal Lutfiyya, Garcia, Dankwa, Young, Lipski, 2008; Gordon-Larson, Adair, and Popkin, 2003). Data from the 2003-2004 National Survey of Children's Health, conducted in the United States, revealed that overweight children were more likely to live in households with incomes below 150% of the federal poverty level, despite ethnic background (Nawal Lutfiyya, 2008). It has been proposed that income impacts childhood overweight status in two ways regardless of race of ethnicity. First, those living below the federal poverty level are more likely to live in unsafe neighbourhoods and secondly cost and access to healthy foods is often an issue in low income communities (Nawal Lutfiyya, 2008). Low SES adds to the environmental risk factor for overweight and obesity by limiting access to healthful food choices like fruits and vegetables as a result of limited financial means and/or proximity to markets which supply these types of items.

2.3 Prevention and Intervention- Childhood Overweight and Obesity

Management and prevention of childhood obesity seems to be an effective way of reducing the childhood obesity epidemic. Many of the behaviours associated with overweight

and obesity develop during school years (Carter, 2002). Over the last 20 years, obesity prevention and intervention programs have attempted to alter various behaviours of children which have been linked to childhood obesity. Most interventions carried out with this age group have focused on increasing fruit and vegetable consumption (Perry, Sellersm Johnson, Pederson, Bachman ,Parcel, et.al.1997; Anderson, Porteous, Foster, 2004; Veugelers and Fitzgerald 2005), physical activity (Gortmaker, 1999), knowledge about healthy diets, reducing television viewing hours (Gortmaker, Peterson and Wiecha, 1999-2), increasing moderate and vigorous physical activity (Gortmaker, 1999-2), behaviour modification and decreasing consumption of high fat foods (Nader, Stone, Lytle, Perry, Osgan, Kelder, et al, 1999). Changes in each outcome alone may not be enough to reduce the development and incidence of obesity. Interventions which aim to influence some change in all of these categories may be the most successful in facilitating behavioural change.

Interventions have also used various vectors to facilitate change in childhood such as the school, whole family environment, parents only, children only and after school programs with children. Although all of these vectors provide some level of change, a few of them are more realistic than others. Programs which have shown the most success are ones that are sustainable, cost effective, integrated and involve the community. Interventions to manage and prevent childhood obesity could provide a multitude of immediate and long term benefits which may include health and social benefits, enhancement of adult health, and lower disease risk factors in childhood that may lead to lower chronic disease risk factors in adults (Baranowski, Davis and Reesnicow, 2000).

2.4 School programs as an impetus for change

Schools have long been used as an efficient way of reaching a large population. The school has been used as a vehicle of prevention to educate children about various public health concerns such as smoking, drug and alcohol abuse, drunk driving and safe sex. The school is often used to reach the young population because children and adolescents generally attend school five days a week, for approximately six hours each day, for the majority of the calendar year. With relation to promoting healthy lifestyle and the magnitude of childhood overweight, school interventions are at the forefront since they can reach large proportions of the population which include students, families, school personnel, and community members (WHO, 1998; Sharma, 2006). The school environment plays a critical role in improving nutrition and physical activity patterns of children because of their mass reach and their exposure to food and physical activity opportunities while on site. Studies have shown that school nutrition and physical activity programs can increase knowledge and positive attitudes towards healthy eating and physical activity (O'Dea, 2003; St-Onge, Keller and Heymsfield, 2003). These institutions also have the power to greatly influence the lives of students at a critical age when lifelong eating and activity patterns are being formed and provide a safe area for students to engage in new health practices (Franks, Kedler, Dino, Horn, Gortmaker, Wiecha et al., 2007; WHO, 1998). The Trinidad and Tobago public school system, which is modeled after the British system, is compulsory from age 5 to 13 and free until the end of high school. Since schooling is free and compulsory during this critical stage the Trinidad and Tobago School system provides an optimal setting to provide health education to the population.

To achieve the desired outcomes, nutrition education programs need to be integrated into the school curriculum (Gortmaker, 1999; Perez-Rodrigo and Aranceta, 2001). They also need to

focus on the development of new behaviours. Many school based studies have focused solely on the development of nutrition knowledge but it has been shown that an increase in nutrition knowledge is not enough to create behavioural change (Barnett and Johnson 1996; Anderson, 2004). Interventions that have focused solely on providing nutrition information which aimed to improve food selection showed little to no success (Anderson, 2004). Although nutrition knowledge greatly increased over the study period, food selection did not change. This indicates that there are other factors at play which influence behaviour change, and poor nutrition cannot be solely attributed to lack of knowledge. Efforts directed at changing individual health behaviours must recognize that individual behaviours are reinforced or hindered by environmental factors such as school staff (e.g. teachers) the school environment (school meals, cafeteria, and facilities), family (parents/guardians) and community-at-large (Willows, 2005).

Over the years school based interventions to promote healthy eating and active living have taken on many forms with the main objective of behavioural change. Given that time is of great importance within the school system, some school interventions have chosen to take the interdisciplinary curriculum approach with their intervention (Gortmaker, 1999; Gortmaker 1999-2). These studies integrate information on healthy eating and active living into the classroom materials of core subjects such as language arts, math, and science. The *Team Nutrition* pilot project was a multifaceted nutrition education program which had two key components. The first aspect included the training of teachers to provide an overview of the *Team Nutrition* and an introduction of some basic nutrition information. The second included nutrition education delivered through school, home, media and community and a two semester pilot (Levine, Olander and Lefebvre, 2002). The process of evaluation of this project included both qualitative and quantitative measures. The use of qualitative methods, to collect data from

stakeholders, allowed the researchers to give rich descriptions of the participants' experiences (Levine, 2002). Interviews with stakeholders, combined with surveys of teachers and parents, provided a comprehensive picture of how the implementation unfolded. The success of this study stressed the importance of providing a support system to reduce the burden of the front line personnel (Levine, 2002).

A second study which used an interdisciplinary approach to promote healthful behaviours in elementary school children was the Child and Adolescent Trial for Cardiovascular Health (CATCH) study. CATCH was one of the nationally (USA) occurring nutrition interventions which focused on promoting healthful behaviour in elementary school children to reduce risk factors for heart disease. This program used the school as a vehicle to reduce fat and salt intake, increase physical activity and prevent the onset of smoking (Webber, Osganian, Luepker, Feidman, Stone, Elder, et al., 1995). The CATCH program was a community-based program which involved classroom and physical education teachers, school food service personnel, students and their families. The teachers in classroom used prepared, age-appropriate curriculum to teach about healthy eating and physical activity (Franks, 2007). The students were given the opportunity to practice new skills which were designed to improve their physical activity and eating behaviours. Results from a 24 hour food record-assisted recall combined with information on school-specific recipes and face-to-face interview revealed that the CATCH intervention significantly increased moderate to vigorous physical activity within physical education classes and the intervention group also significantly decreased their daily % intake from fat (Lytle, Stone, Nichman, Perry, Montgomery, Nicklas et al., 1996). Also, at three year follow up, students who were part of the intervention in 5^{th} grade reported significantly more daily activity in 8^{th} grade than those who were not part of the intervention. Scores for healthy

food choice and knowledge were also significantly higher among the intervention group. Although a potential limitation of this study is the reliance on self-reported data, the CATCH study provides evidence for the potential of intervention effects to be long lasting. One of the main and most important lessons learned from the CATCH program is that the effective training of an interdisciplinary team is critical to a program's success (Franks, 2007).

2.4.1 Evaluation of School Programs

The evaluation of school health promoting frameworks is critical to assess its influence on the health related outcomes. The measurement of relevant outcomes is one of the most difficult tasks when assessing the effectiveness of a health promoting school framework. One of the key parts of the evaluation is monitoring the study outcomes (Perez-Rodrigo, 2001). Results from outcome evaluations can demonstrate the effectiveness of school programs and/or the need for them to be implemented. When looking specifically at school nutrition interventions, evaluation of program specific outcomes has taken on many different forms. Food frequency questionnaires, 24hour recalls, behavioural observation, and nutrition knowledge questionnaires are just of a few of the types of tools used to measure the effectiveness of a nutrition intervention.

The food frequency questionnaire (FFQ) is one of the most common tools for outcome evaluation of nutrition programs. This type of questionnaire was developed as an alternative to diet history (Brown, 2006). Their low cost and ease of use made them very popular but these two attributes also act as limitations. Because of their ease of use, answers can be quite subjective and lack precision. Also, if the participant is not 100% honest the FFQ will be missing data and therefore not fully accurate (Brown, 2006). To decrease this limitation, the FFQ must be balanced with other measurement tools. Outcome evaluations from the CATCH and the SPAN both incorporated the FFQ into their outcomes assessments.

Questionnaires have been developed to address psychosocial constructs such as knowledge, self-efficacy, and perceived support for food-related behaviours. During the first phase of CATCH, the HBQ was developed to measure these psychosocial constructs (Parcel, Edmunson, Perry, Feldman, O'Hara-Tompkins, Nader et al., 1995). Since the CATCH study was focused on decreasing behavioural risk factors for cardiovascular disease among children, self-efficacy items in the HBQ were written on common food choices that if selected, could potentially lower sodium and fat intake among this age group. The HBQ also included self-reported dietary behaviour related to fat and sodium intake. Evaluating self-efficacy is a critical point in HBQ as assessing the belief in one's ability to perform a certain task, is a pivotal construct in understanding and modifying human behaviour (Parcel, 1995).

Nutrition knowledge questionnaires are another method used to assess the outcomes of nutrition programs. Many nutrition programs have been centred on education with the underlying thought that education provides the tools necessary to make changes in behaviour (Parmenter and Wardle, 1998). Knowledge about nutrition and healthy food choices can be one of the key factors which influence individuals to adopt a healthy lifestyle. Research has shown that students who receive instruction in nutrition do increase their nutritional knowledge but this increase in knowledge does not always transfer over to food choices (Anderson, Stanberry and Blackwell, 2001). This indicates that nutritional knowledge is not enough to stimulate behavioural change on its own (Anderson 2001; Gracey, Stanley and Burke, 1996). Therefore, outcome evaluations solely looking at changes in nutrition knowledge as a measure of changing behaviour may be greatly overestimating the success of the intervention. This is not to say that measuring nutrition knowledge is not needed. In order for an individual to assess the quality of their own diet,

sufficient knowledge about healthful practices is needed. For this reason, a section on knowledge about healthful practices was included in the KABP questionnaire.

In many cases, questionnaires used in the school settings are used to evaluate the effectiveness of an intervention. With regards to the School Physical Activity and Nutrition (SPAN) survey this was not the case. The SPAN survey was introduced as a monitoring system in Texas (USA), which objectively measured height and weight of children in elementary schools (Sasser, 2005). The SPAN questionnaire was developed to assess demographic information, nutrition behaviours, attitudes and knowledge, and physical activity behaviours as well as recording students' height and weight (Hoelscher, Day, Lee, Frankowski, Kelder, Ward et al, 2004). When grouped by age and gender, results from this study found that obesity rates were highest among Hispanic boys and African American girls. Overall study results revealed that children in the state of Texas are more overweight than the national average (Hoelscher, 2004). The success of this study to monitor obesity rates at the state level indicated that state-wide obesity surveillance systems are a feasible option within the school setting (Hoelscher, 2004).

The CATCH, SPAN, the Battle River, and Eat Well and Keep Moving projects are examples of studies which included evaluation tools developed to assess health related outcomes of interventions which focused on healthy eating and active living. Combined, these questionnaires address eight key topic areas to assess the outcomes of the interventions. Dietary intention, usual food choices, dietary knowledge, social support for healthy choices, and dietary self- efficacy were used to address the complexities of healthy eating; while perceived support for physical activity, physical activity self-efficacy, and usual activity choices were used to measure active living. The existence of all these themes in evaluation outcomes suggests that there are many

factors at play with regard to health and healthy lifestyle behaviours. This is where the KABP questionnaire comes in as a method to measure health related outcomes. All of these themes can be categorized under knowledge, attitude, belief or practice.

2.5 KABP Questionnaire- A Monitoring and Evaluation Tool

Over the course of the last few decades questionnaires have been developed to examine the relationship of knowledge, attitudes beliefs and practice (KABP) concerning a wide array of health related issues. Since increases in knowledge about nutrition and physical activity are not enough to change behaviours, in this study a Knowledge, Attitude, Beliefs and Practice (KABP) questionnaire was used to evaluate the health education program (Gracey, 1996).The WHO defines this tool as a survey representative of a specific population to collect information on what is known, believed, and done in relation to a particular topic, and in this study the focus is healthy lifestyle behaviours (WHO, 2008). The KABP questionnaire can be described as a self-reported instrument with program personnel supervising administration. This style of questionnaire is used to identify knowledge gaps, to assess culturally related beliefs and attitudes about a specific topic, and to determine the degree to which the target population participates in high risk or protective behaviours and health factors which influence these choices (WHO, 2008). The majority of studies which used KABPs have occurred outside North America. This style of questionnaire has been utilized outside of North America because in many parts of the world cultural and social norms contribute greatly to people's feelings and actions regarding health behaviours. Beliefs about health and health care are additional determinants of health behaviours which must be considered when trying to modify health related outcomes. The KABP questionnaire is a tool which has been most often used in health promotion and health education. Most commonly, KABP's have been used in research relating to a wide array of health problems

including to tuberculosis, HIV/AIDS, cancer, malaria and sexual health (WHO, 2008; Chan, Khoo, Goh and Lam, 1997; Carter, Park, Moadel, Clear and Morgan, 2002).

Information from these surveys can be used to influence project design, and to establish a baseline for comparisons to succeeding mid and post intervention KABP surveys (WHO, 2008). Using this tool to assess the outcomes of this study helped to addresses the many factors at play with regards to health and healthy lifestyle behaviours. This tool will also help to identify why people practice certain health behaviours. As indicated previously, the questionnaire will be designed taking culture as well as age into consideration in order to be applicable to the context of Trinidad and Tobago schools. The KABP questionnaire assessed several variables, which include; diet/nutrition, weight related factors, physical activity/inactivity and cultural identity.

Although questionnaires are research instruments which allow for the collection of data, they are associated with a number of limitations. These limitations may include: issues with respondent literacy, low response rates and questionnaire relevancy (Gillham, 2000). Other limitations associated with this type of self-reported data include lexical problems, inclusion and exclusion issues, as well as logical problems (Gorber, Tremblay, Moher and Gorber, 2007). Despite these limitations, the nature of this study makes self-reported data the method of choice. Within this study, these limitations were minimized by incorporating the voices of the stakeholders and students in the development of this tool as well as pre-testing on an age representative sample population. Inclusion of the information obtained from the stakeholders insured that the questionnaire is relevant to the target population and written at a level which the target audience can understand. In ensuring respondent anonymity, concerns about what will become of the data may be decreased, allowing respondents to feel comfortable enough to give true responses. Pre-testing allows for the opportunity to ensure the vocabulary and wording used

in this tool is appropriate for the age group being tested. By including information from stakeholders and students in the community we will increase the likelihood that that the tool is culturally sensitive and getting to the issues the research team is trying to address.

2.8 Culture

There is not one generally accepted definition for culture, but there is a general understanding that is shared, learned, passed from generation to generation and provides its members with a guide to the interactions of life (Kreuter and McClure, 2004). A Culture refers to a set of norms, beliefs, values and other conventional values shared by a specific social group such as an ethnic group, class, social organization or discipline (Bryant, Dewalt, Courtney, Schwartz, 2003). Factors such as one's own society, income level, household size, education, gender, age, ethnicity, and personal history determine a person's cultural environment (Cassidy, 1994). Each individual's culture has a great influence on how they perceive the world and the meanings they attach to words and actions, and the values one attaches to concepts such as health and diet (Cassidy, 1994).

2.8.1 Food, Nutrition and Culture

Culture is strongly related to how people eat. Ethnic, social and economic factors have a powerful influence on eating patterns and ultimately determine the role food will play within a society (Kaufman-Kurzrock, 1989). Identity, communication, community and spirituality are four socio-cultural determinants which influence food choice (Gedrich, 2003). Nutrition is linked to identity as it provides individuals with affiliation with a group. Nutrition is linked to communication as it serves as an expression of attitudes or feelings, champagne with celebration for example. Food is linked to community. Almost all cultures include traditions where individuals gather for common meals and share food. Lastly, within many religions nutrition is

closely linked to spirituality. Kosher meal preparation in Judaism, and the use of Halal meat in the Muslim faith are examples of the heavy role religion can play on food choice and nutrition (Gedrich, 2003). Socio-cultural motives lead to the development and maintenance of food rules and habits which are culturally defined. As food and nutrition are so closely related to culture, research surrounding food and nutrition must be designed to be culturally sensitive.

Research has shown that sociodemographic factors, such as race/ethnicity, family income and parents' education (which all play a part in the development of one's culture) greatly influence the development of food and nutrition patterns. A study conducted in 2003 described the role sociodemographic factors played on the dietary intake among adolescents (Xie, Gilliand, Yu-Fen and Rockett, 2003). Subjects in the highest family income group were more likely to meet the daily recommended intake of protein, folate calcium and iron. Conversely added sugar intake was highest in subjects from low-income families (Xie, 2003). Subjects whose parents received higher education had significantly higher intakes of carbohydrates, protein, fibre, folate and significantly higher consumption of fruit and vegetables. Significant differences were also found when stratified by ethnicity. Asians had significantly lower intakes of dairy products than other ethnic groups while Hispanics had significantly lower intakes of vegetables than the other subjects. Added sugar intake was significantly higher in blacks and significantly lower in Asians than other ethnic groups (Xie, 2003). The results of this study point to the distinct role culture plays on the development of food and nutrition patterns.

2.8.1.1 Food Culture of the Caribbean

The issues seen in middle and low-income countries are similar to those occurring in the Caribbean. Increasing rates of overweight and obesity have been documented across the Caribbean (Ragoobirsingh, Morrison, Johnson and Lewis, 2004; Ichinohe, Mita, Saito,

Shinkawa, Nakaji, Coombs et al., 2005; Gaskin 2007). In multi-ethnic Caribbean populations prevalence of overweight and obesity have been documented, ranging from 13-17% for overweight and 7-12% for obesity (Simeon, Rattan, Panchoo, Kugeesingh, Ali, andAbdool, 2003; Gaskin 2007). The relationship between social/lifestyle factors and overweight/obesity has been analyzed in Caribbean populations (Ichinohe, 2005). Ichinohe (2005), found the proportion of obesity to be significantly higher in women (23.9%) than in men (7.6%). Results revealed women who were overweight had completed fewer years of schools, were less likely to be married and had a higher incidence of household poverty. Results also indicated that the majority of overweight and obese individuals found their own weight status to be acceptable. This feeling of acceptance of overweight was also documented in an earlier study carried out in a multi-ethnic Caribbean adolescent population. When given silhouettes to identify the perception of body size, many adolescents associated over weight with poor health, but the majority also associated it with happiness and wealth (Simeon, 2003). Some of the positive attributes coupled with overweight may play a role in increasing the acceptability of overweight within this population. These beliefs could have serious implications when trying to promote healthy lifestyles in the Caribbean as increased weight gain may not be looked on as a negative outcome.

In the Caribbean, nutritional status of school aged children has been a long standing area of concern. As stated earlier, the initial concern in the Caribbean with regards to school aged children was chronic under nutrition and micronutrient deficiencies. Such emphasis was placed on the nutritional needs of this age group because under nutrition has been associated with poor school achievement and low attendance rates in the Caribbean (Powell, Grantham-McGregor, and Elston, 1983)(Simeon, 1998). Because of this government funded school nutrition programs in the Caribbean have most often been focused on programs which provide breakfast, lunch or

both. Studies conducted in Jamaica found that provision of breakfast to Jamaican school children resulted in increased academic performance and encouraged children to attend school more regularly (Powell, 1983). Currently a national school feeding program exists in Trinidad and Tobago and was initially developed to prevent the negative effects of under nutrition and nutrient deficiency on education outcomes of the nation's children. Trinidad and Tobago currently has a free school meals program which covers all government and government assisted school. The meals provided by this program are free of charge or available at minimal or no cost and are supplied daily by various companies hired by the National School Dietary Services Limited (NSDSL). Presently in Trinidad and Tobago, given the rapid economic development in recent years, under nutrition among children is not a wide spread concern. Seeing as there has been a dramatic increase in non-communicable diseases related to overweight, shifting the school feeding programs to have a broader focus on promoting healthy may be more appropriate (Gulliford 2002).

2.8.2 Culturally sensitive research

Each culture is unique with its own innate set of rules and regulations, and cultural sensitivity begins with the recognition that there may be differences between your cultural framework and that of another individual or group. These differences can sometimes be reflected in the ways groups communicate, and can be carried over to how individuals interact with researchers. Cultural sensitivity in research positions the research participants more as clients than subjects, and sees them as individuals who have the power to decide if and how they would like to participate in research (Cassidy 1994).

As a researcher, when working within a culture other than your own, accuracy can become a major issue. Data accuracy within culturally sensitive research involves how well the

researcher knows and understands the research participants, and how much the research participants trust the researcher (Cassidy, 1994). The need for culturally sensitive research instruments was further illuminated by a 2005 study conducted out of Toronto (Paisley, Greenberg, Haines, 2005). The purpose of this study was to determine how culturally relevant a diet assessment tool was to people whose ethno-cultural origin was not British or French. Cantonese-, Mandarin-, Vietnamese- and Portuguese-speaking participants were included in this study. Results revealed that the vast majority of the participants felt that the fruits and vegetables they commonly consumed were not listed on the FFQ. Since the variety of foods in the FFQ was not sufficient for these populations, this tool would not give an accurate assessment of their food intake. Not only was selection an issue, many of the words in the questionnaire had multiple meanings which may alter results. Terms like soup were not easily translated across ethno-cultural groups. Where western soup is quite thick the Cantonese participants noted that Chinese soup is more like a broth with a few vegetables. Participants also agreed that 'a portion' was a North American concept that could not be defined as clearly within their diets. The results from this study highlight the importance of developing culturally relevant dietary assessment tools in order to produce valid relevant data (Paisley, 2005). Increasing data accuracy greatly depends on establishing strong lines of communication between the respondent and the researcher. Ensuring that research tools are culturally sensitive can potentially reduce the risk of miscommunication and increase validity of data (Cassidy, 1994)

2.8.3 Culture in Health Promotion

Within an ever growing multi cultural society and with a rising number of health care professionals working with cultural populations different to their own, culture is having an increasing influence on the field of health promotion. Bryant et al. (2003) have discussed four

ways in which culture is useful to health care professionals. First off, by recognizing the overwhelming influence culture has on human behaviour, health care professionals are less likely to make the common mistake of assuming that people are empty vessels which can be filled with truth (Bryant, 2003). Information must be presented in a way that fits into an individual's cultural framework. Secondly, health care professionals must recognize that much of culture is implicit, and cannot assume that other people's way of life is just like their own. For instance, the western idea of eating three meals a day cannot be applied to all cultures. The third point states that the recognition of intercultural variation by health care professionals will foster a respect for diversity and reduce stereotyping. Lastly, Bryant et al., (2003) stated that cultural awareness encourages health care professionals to be receptive to the beliefs, norms, and customs of other groups. The recognition of culture allows health care professionals to develop the rapport to work effectively across social and cultural boundaries.

One of the major roles of health care professionals is to develop, carry out and maintain health promotion programs. Health promotion programs and materials need to be developed to be culturally appropriate. Kreuter et al., (2004) proposed five main strategies that aim to increase the cultural appropriateness of health promotion programs, which are peripheral, evidential, linguistic, content-involving and socio-cultural strategies. The aim of peripheral strategies is to increase cultural appropriateness by packaging programs and/or materials in ways that are likely to appeal to the target group (Kreuter, 2004). This makes the materials seem familiar and they are more easily accepted. Evidence- based strategies work to increase the level of perceived importance of a health related issues for the target group (Kreuter, 2004). This is done by presenting specific evidence about the impact the health related issue on the target group. Materials that are made for specific health promotion programs, in order to be effective, must be

in the dominant native language. Kreter et al., (2004) considers this to be a linguistic strategy. The third strategy is one which involves members of the community. Constituent-involving strategies are ones which draw directly from the experiences of the members of the target group. Involving members from the target group can also help enhance linguistic strategies. Lastly, socio-cultural strategies place health related issues in the context of cultural values and characteristics of the intended audience (Kreuter, 2004). Together these strategies work to increase the success of health promoting programming.

Much has been written about health promotion and its focus on improving population health, about the importance of community capacity building, and about the need to anchor health promotion programs in the local context (Hawe, and Shiell, 2000; Raphael, 2000). The literature suggests that local capacity needs to be strengthened for change to occur. Capacity building is a practice which is done to improve the likelihood that the intervention/program is maintained once the promoters leave and/or the funding runs out (Labonte and Laverac, 2001). Incorporating the community into program development and implementation empowers the communities to take greater control of the health promoting framework. Using the local community in the development and implementation of the health promoting framework not only empowers the community but provides valuable insight into cultural characteristics that may not be easily observed. The *Team Nutrition* pilot study is an example of a health promoting framework which used capacity building. By incorporating stakeholder interviews into their intervention they obtained a richer descriptor of the context and are more able to develop a culturally sensitive age appropriate intervention (Levine, 2002)

2.8.4 Culturally Sensitive Research Instruments

When it comes to collecting data, gathering mass amounts of data while still being culturally sensitive can be somewhat of a challenge. Two ways have been identified to collect mass quantities of data while still maintaining cultural sensitivity (Cassidy, 1994). The first is that there may be culturally sensitive tools already available and the second is that culturally sensitive tools can be created by combining qualitative and quantitative research methods. There may be an instrument developed which assess the outcomes the researcher is looking for, but if the instrument was developed in a different time, country or cultural context it may not be valid to measure the specific population being studied (Boynton, 2004; Pasley, 2005). In many cases the second option is the most viable given that existing culturally sensitive tools are not always readily available.

When creating a new culturally sensitive research tool it is necessary to combine qualitative and quantitative research methods. Developing a culturally sensitive research tool begins with a qualitative approach, which requires the researcher to listen to their target group and position themselves within the research field (Stevens 1999). Beginning with qualitative methods also allows the researcher to situate themselves in a way in which they are not imposing their values on the research participants. To gather good data researchers must consider themselves as beginners, not as experts. To achieve this standpoint researchers must ask open ended question and then listen to the answers (Teufel, 1997). Culturally sensitive interviewers will treat the interviewee as both the expert and the teacher while avoiding imposing their assumptions or correcting the respondents. Once a sufficient number of open ended interviews have been completed with the target population the foundation of this research has been formed.

Qualitative data analysis is the second step which needs to be taken in order to develop a culturally sensitive research tool. The purpose of this step is to identify any common themes or issues that may have been raised during the interview process. Also, this process helps to identify other possible issues, outside of the specific topic being studied, in which health care professionals could also be of service. Once these issues, themes and gaps have been indentified they can be integrated into a culturally sensitive questionnaire (Cassidy, 1994). One of the beneficial aspects of this type of questionnaire modeling is that, since the information was gathered in an open ended fashion, researchers can avoid imposing their values on the questionnaire content (Cassidy, 1994). Once the questionnaire has been developed, it must be pre-tested on a small sample of the population which is to be studied. The purpose of this pre-test is not only to get the subjects to answer the questions but also critique the questionnaire to make sure that the language, format fit the target audience. The pre-test also makes sure that the tool is clear and easily followed. The questionnaire may then be modified based on the information gained from the pre-test. Once the questionnaire has been pre-tested it can then be used to gain large amounts of data from the target population.

In summary, the primary aim of this study was to describe the process for the design of a KABP questionnaire to assess changes in knowledge, attitudes, beliefs and practice of children's health behaviours. Research has shown that food consumption and physical activity are influenced by a variety of psychological, social, cultural, and environmental factors in addition to biological and developmental factors. Consequently, this study will collect information on various factors related to food consumption and physical activity that will permit examination of changes in knowledge, attitude, beliefs and behaviours of children.

Chapter 3: Methodology

3.1 Introduction

The purpose of this study was to describe the process used to develop a culturally sensitive, age appropriate questionnaire to be used in the larger project. The larger project focused on the integration of a teacher-led intervention for infusing health promotion across primary school curriculum in Trinidad and Tobago. This questionnaire was used as the foundation for the questionnaire used at baseline, mid-point and following the intervention. The data collection took place over a 3-month period (May-August 2008) and was supported by the 'Students for Development Fund'- Association of University and Colleges Canada (AUCC), and the Pan American Health Education Foundation (PAHEF). This study was guided by qualitative research methodology. The following section describes the detailed process of the development of the KABP questionnaire.

3.2 Qualitative Research Methods

Qualitative research methods provide a means for exploring the meaning individuals or groups attribute to social or human problem (Creswell 2009). Qualitative research methods are employed when the goal of the research is to focus on individual meaning and collect data on participants lived experiences (Creswell, 2009). This method of research is exploratory, asks broad questions of its participants and is useful when the researcher does not know immediately the important variables to examine. Initially, qualitative methods were predominantly associated with social science but as these methods focus on the complexities of human behaviour, qualitative methods are quite useful when conducting health related research. Qualitative research can take on many forms but can be identified by its unique characteristics. Firstly, qualitative research tends to occur in the participant's natural setting. Information is gathered by talking directly to people and seeing them interact within their context. Researchers collect

qualitative data on a specific topic area from multiple sources. This could include examining documents, observing behaviour and interviewing participants among other activities. The focus of qualitative research is on the participants understanding, meaning and experience of a problem or issue, not the viewpoint that the researcher brings. Lastly, qualitative research is emergent in its design, meaning that the process of this type of research is fluid and initial research plans cannot always be followed (Creswell, 2009). The goal of qualitative research is to gather rich meaningful data which gives a thick description of a human problem.

3.2.1 Action Research

Action research was the method of qualitative inquiry utilized by this study. Action research is qualitative method which is defined as a reflective process of problem solving. Speaking broadly, this process enables people to find effective solutions to problems they face in their everyday lives (Stringer, 2007). In its pure form, action research is social research carried out by professionals as well as members of the community and supports action leading to more than just a beneficial situation for the stakeholders (Greenwood, Levin, 1998).Within action research, the research team and stakeholders work together to define problems and gather relative knowledge which can be used to create action. At the root of this paradigm, action research rests on the belief that all people accumulate, organize, and use complex knowledge in their everyday lives (Greenwood, 1998).

There are three underlying principles upon which action research has been based. These are reciprocity, reflexivity and reflection. One of the main goals of action research is the creation of knowledge. Action researchers are not only interested in research findings but they want to put these findings into practice. Reciprocity is essential to that process (Robertson, 2000). Reflexivity in action research focuses on utilization of the knowledge. In order for this

knowledge to be used fully, it is critical for researchers to understand how their existing beliefs and experiences influence the interpretation of this knowledge (Robertson, 2000). Lastly, reflection-on-reality is needed for action and the utilization of the knowledge. The learning that occurs as a result of action research is twofold: those who participate may become more aware of their role and potential impact they can have within their community and the process can lead to findings that may change practices (Patton, 2002). Action research is a fluid process which requires continuing reflection upon the goals that were set out and the manner in which the knowledge is being used.

The collaborative process of action research has been conceptualized in a number of ways. One of the most common visualizations of action research is the spiral diagram. Kemmis and McTaggart (1988) proposed a spiral diagram which consists of four key cycle phases: plan, act and observe, reflect, revised plan. For the purpose of this project the Action Research routine proposed by Stringer (2007) was used. This routine consists of look, think, act.

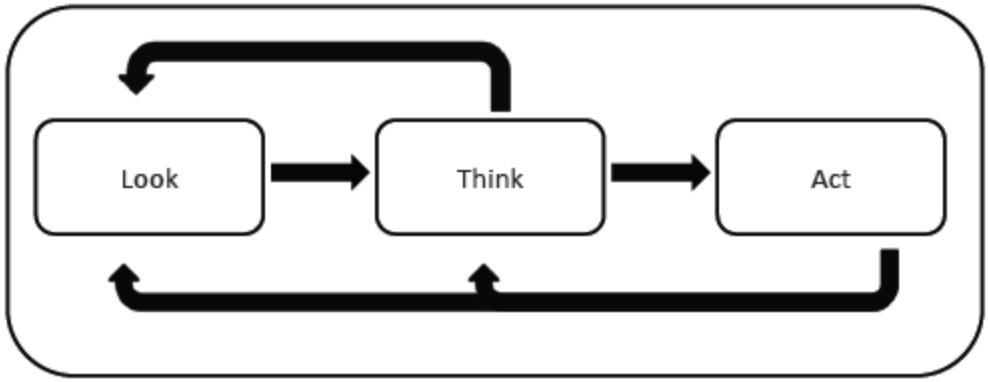

Figure 1- Action research cycle adapted from Stringer (2007)

In the look phase the research team gathers the relevant info to build a picture which describes the situation of concern. During the 'think' phase, the information is explored and analyzed to

determine, ‘what is happening?’ and ‘why are things the way they are?’. The act phase involves implementing, evaluating and reporting (Stringer, 2007). In this process, each step of the routine is used to feed back or forward into the other in a process of continuously recycling (Stringer, 2007). The continuous feedback of this project allows researchers to begin their inquiry in a straightforward manner giving them the chance to build detail into the procedures as the issues become more complex (Stringer, 2007)

Action research can take on a number of forms. The form of action research employed in this research study was community based action research (CAR). CAR is a type of action research where attempts are made to engage subjects as participants in the research process. It is focused on the interests or problems of a group, a community, or an organization (Stringer, 2007). This focus is one of the aspects of action research which this project connects with as the researcher looked at the determining the nutritional related issues of a unique group, the school community. It has been proposed that this process of inquiry has four principal characteristics which are; it is democratic, it is equitable, it is liberating and it is life enhancing (Stringer, 2007). These characteristics are prevalent throughout this project. This project is democratic as the research team elicited and enabled the participation of various groups of stakeholders involved in the development of a health promoting school community. This project is equitable as it acknowledged and valued the worth of the knowledge and information provided by the stakeholders. It was liberating by brining awareness to the health and nutrition issues facing the school community in Trinidad and Tobago. CAR was chosen, because like Participatory Action Research (PAR), it is applied and collaborative research which originates with the researched, but unlike PAR, CAR has a research leader.

Since action research is a collaborative process which thrives on the interest of participants it is quite easy to get carried away with enthusiasm. More than enthusiasm is needed for sound research. Rigor within this research paradigm uses a multitude of system checks in order to guarantee that the research outcomes are trustworthy (Stringer, 2007). The topic of trustworthiness in action research will be addressed in section 3.8 of the methodology section.

3.3 Research Design

3.3.1 Sampling Procedures

Within a qualitative study design one of the first steps is to decide which participants will be included. Unlike quantitative research designs, qualitative and action research studies require a depth of information found in a small number of samples (Patton, 2002). What would be considered "bias" in quantitative research is strength in qualitative sampling. Purposeful sampling is a strategy common in action research, whereby participants are consciously selected based on a particular set of attributes (Stringer, 2007). Patton (2002) states "the logic and power of purposeful sampling lie in selecting information-rich cases for study in depth" (p. 230). The cases which are selected should provide a wealth of information surrounding the issues at the heart of the inquiry.

Two strategies of purposeful sampling were utilized in this study to ensure the selection of information-rich interview cases. The first was maximum variation sampling which aimed to capture and describe central themes that cut across varied perspectives. For this, information was collected from a heterogeneous sample of stakeholders from the school community. The second sampling method that was used was the opportunistic or emergent sampling method. This method involves on-the- spot decisions and allows the researcher to take advantage of interview opportunities that may arise (Patton, 2002). This method added flexibility to the data gathering

process and allowed for the incorporation of stakeholders who were not identified as potential study participants prior to the beginning of the study. This method was used once during the data gathering process.

3.3.2 Study Participants

The study participants included groups of stakeholders from varying segments of the school community and students within the target population. The group of stakeholders included curriculum officers (from health related disciplines), staff from the NSDSL (responsible for running the national school feeding program), and teachers. These groups of stakeholders were chosen to be included in this study because they are directly involved in the development of health related information being distributed in the school system to the students or are in direct contact with the students in the school environment on a daily basis. Students were also included as study participants. Students were included in the interview process to determine the knowledge level of this age group, as well as their views on health related topics to give a general starting point from which the questionnaire could be built from. A total of 32 stakeholders (including 19 students) participated in the interview portion of this study. A different set of students participated in the pre-testing of the questionnaire. A total of 28 students participated in the first questionnaire pre-test.

Assistance was required from community members in order to locate stakeholders to participate in the interview process. The Director of Curriculum Development at the Ministry of Education assisted the researcher in locating curriculum officers for the study. These included curriculum officers from selected departments including Health and Family Life Education (HFLE), Physical Education, Home Economics, and Home Economics- Food and Nutrition. Each participant was interviewed for perspective on the nutrition and physical activity issues

facing children and youth in Trinidad and Tobago. A total of 6 curriculum officers were interviewed for their input. Individual interviews of curriculum officers were conducted at the Rudranath Capildeo Learning Resource centre, Ministry of Education. The Ministry of Education also helped the researcher to make contact with three principals of local elementary schools surrounding UWI. The principals from these schools directed the researcher to teachers available to participate in the interview process. A total of 5 teachers from these three schools participated. Interviews of the teachers were conducted on school grounds, within their classroom or a vacant staff room. All interviews with teachers were conducted within school hours. Contact with staff at the National School Dietary Services Limited (NSDSL) was made through the Executive Director. Four staff members were contacted at the NSDSL, two participated in the interviews. Times and schedule constraints were cited as preventing the remaining two from participating. Interviews with NSDSL staff were conducted within the participant's office. A total of 13 adult stakeholders were interviewed.

Contact with students was made in collaboration with the local research assistants for the larger teacher-led intervention project. The research assistant directed the researcher to a summer camp were school aged children were interviewed. Summer camps were used as the regular school session was on break for summer holidays. Over the course of two visits a total of 19 children ages 7-11 were interviewed for this study.

Prior to the interview, each stakeholder was asked to sign the consent form which explained the purpose of the research, emphasized that participation was voluntary, and ensured confidentiality. Guardian information letters, along with consent forms were distributed to all participants under the age of 18. All participants of this study have submitted signed consent forms. Consent forms and Information letters can be found in Appendix A- D.

3.4 Data Gathering Procedures

Within this study design a number of data gathering procedures were used. In-depth interviews were the main method of data collection. Content analysis of the literature, and site observations were also used to gather information which aided in the development of the questionnaire. These three activities are detailed below.

3.4.1 Interviews

The purpose of using interviews in this study was to illuminate beliefs, attitudes and barriers which may be impacting the health behaviours of children in Trinidad and Tobago schools. For these reasons, interviews were the main data collection tool used to gather information for the development of the KABP questionnaire. A semi-structured interview protocol was used for data collection. The most common method of data collection within action research is in-depth interviews with key stakeholders (Greenwood, 1998; Stringer, 2007). Gillham (2000) suggests that when designing a questionnaire this method of data collection can be used to understand the issues which need to be addressed by the questionnaire. This method of data collection is well suited for studying people's understandings of the meanings in their lived world (Kvale and Brinkman, 2009). Interviews also allow the research participant to legitimize their experiences and can reveal various features of their experiences (Stringer, 2007).

3.4.1.1 The Interview Guide

The semi-structured interview guide developed for this study (Appendix E) consisted of thirteen open ended questions with room for addition and removal of questions according to the course of the interview. Each interview took approximately 30-40 minutes to complete. The interview guide has been designed to be moderate in length since the interviews took place during the participant's office hours. The questions in the interview guide focused on inquiring about the food and activity environment of school age children and the barriers and opportunities

to implementing a health promotion program within primary schools. Sections of the interview guide addressed the following themes: (1) beliefs about opportunities and barriers to healthy eating and active living for children, (2) perceived importance of promoting healthy eating and physical activity in school, (3) opportunities and resources for implementing a health promoting school framework in schools and (4) issues and challenges associated with the implementation of the HFLE in primary schools.

3.4.1.2. Interview Process

There are several methods of recording interviews. They include audio recording, video recording, note taking, and remembering (Kvale, 2009). For this project the researcher used a digital audio recorder to document the interviews. Audio recordings were best suited because this method can capture a large amount of data and data in this form is easily transportable and does not require a lot of set up time. The researcher was mindful that taking extensive notes during an interview may be distracting to the interviewee and may interrupt the flow of conversation (Kvale, 2009), consequently, directly following each interview field notes were used as another way to document what occurred during the interviews. As stated by Bogdan and Knopp Bilken (2003) "the meaning and context of the interview can be captured more completely if, as a supplement to each interview, the researcher writes out field notes" (p. 111). Notes included reflections, ideas and patterns which emerged in the interview as well as sights, impressions and extra remarks said before and after the interview. This helped to create a context which was used for interpretation of the interview at a later date (Patton, 2002). Field notes serve to supplement other data collection methods as well as help the research keep track of the development of the project (Bogdan, 2003). Audio recording was done for all 13 interviews, as well as the students interviews. Permission to record was also obtained prior to the interview.

3.4.1.3 Transcribing the Interviews

Given time limitations in Trinidad to collect data, the interviews were not transcribed fully until the recordings were brought to Saskatchewan. While in Trinidad, topics and issues raised during the interview process were identified, using field notes and observations, and used to help guide the issues to be addressed in the questionnaire prior to the initial pre-test. These included: snack consumption during school hours, time spent in physical activity, knowledge of healthy eating and time spent in sedentary activities. These categories were further refined following the transcribing of the interviews.

For this project, the naturalized style of transcription was used. Naturalized transcription attempts to capture as much detail as possible. This method aims to provide an accurate account of the real world (Oliver, Serovich and Mason, 2005). Naturalistic transcription describes the speech verbatim and allowed the researcher to interpret the Trinidadian accent. This accent is said to be a "sing-song" accent. Intonation and inflection is critical to the way Trinidadian people speak and is just as important as sighs and pauses. The researcher chose to be the sole individual responsible for the transcription of the interviews. Although it was quite a time consuming task, it, allowed the researcher to get further immersed in the data and gather more insight (Patton, 2002). Once the interview process was completed, the recorded interviews were manually transcribed

3.4.1.4 Interview Analysis

After transcription, interviews were coded and themed. Coding involves linking the data to the idea (Richard and Mores, 2007). For this project, topic coding was used to identify all the relevant information from the interview transcripts for later recovery and reflection. Coding the

transcripts was the first stage of data analysis and helped to identify the type of information within the data.

Thematic analysis was conducted after the interview data had been coded. A theme is one of the main ideas which are more pervasive throughout the data than a topic or category. A theme captures something from the data which is a patterned response within the data set (Braun, 2006). The thematic analysis was conducted according to the outline provided by Braun et al. (2006). The first step in thematic analysis is sorting the codes and considering how different codes can be combined to form overarching themes. Thematic maps were used to visually illustrate how the codes come together to form the major themes. Figure 2 depicts a sample of the thematic map. In developing the thematic maps, it was essential to keep the students as the central piece. This was done to ensure that the themes were positioned from the perspective of the students. Once the thematic maps were created, the coded data for each theme was reviewed and analyzed to determine if a consistent pattern arose from the data. Coded data which did not fall into any of the themes which emerged, were placed into the miscellaneous category. For each theme, a detailed analysis was written to describe the theme.

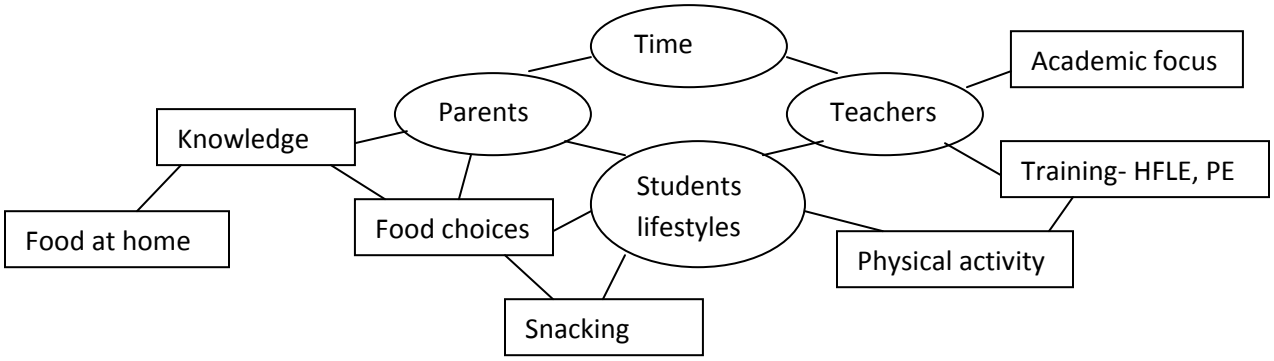

Figure 2- Sample thematic map. [Themes are located in circles, codes are located in the squares]

3.4.2 On-Site Observations

Observation methodologies seek to understand the "real world" in its most authentic state (Angrosino and Mays de Prez, 2000). During the research term in Trinidad, on site observations were conduced to further understand the barriers and opportunities to good nutrition and physical activity within the school environment. One day was spent with the NSDSL where staff were asked about current practices. These included the goals, future plans, current school programs and guidelines for menu planning. In addition, several schools were visited where lunch time in the classroom was observed. Students recess activities, along with school canteen offerings were observed during these visits. In some classes, the research team was also witness to teachers delivering lessons on nutrition and fitness which helped to gain a good understanding of how healthy eating and physical activity were being incorporated, if at all, into daily classroom curriculum. Grocery stores as well as street vendors and commonly frequented fast food restaurants were observed. Observations of these facilities provided information on the food environment of Trinidad and Tobago.

3.4.3 Content Analysis of the Literature

The review of previously validated questionnaires which addressed healthy lifestyle behaviours in school children aged 8-11 was also part of the data gathering process. Questions from the School Physical Activity and Nutrition Project (SPAN) (designed for students in 4th grade) (Sasser, 2005), the Child and Adolescent Trial for Cardiovascular Health (CATCH) (Perry, 1997), the Health and Behaviour Questionnaire (HBQ) (Perry, 1992), The Battle River Project (Plonikoff, 2007), and Eat Well and Keep Moving (Gortmaker, 1999), were identified as possible questionnaires to be incorporated into the development of the KABP questionnaire. These questionnaires were chosen to help guide the questionnaire development because they were school based interventions which dealt with modifying students knowledge, behaviour and

self efficacy with regards to living a healthy lifestyle. These research projects focused on how the school environment can improve health outcomes of school age children. Identification of previously validated questionnaires served as a starting point for questionnaire development. These questionnaires were combined with information from the interviews and on sight observations to develop the questionnaire. Combining items from previously validated questionnaires with items generated from literature and expert advice serves to maximize the content validity of the questionnaire (Parmenter, 1998).

3.5 Steps of Questionnaire Development

When identifying the constructs to be measured by a questionnaire the first step is to identify the research question, target population and the objective of the questionnaire (Williams, 2003; Marshal, 2004; Rattray, 2007). A review of the literature began in Canada, at the University of Saskatchewan prior to the researcher leaving for Trinidad. This was necessary to gain a deeper understanding of the KABP questionnaire, its constructs and approaches used in questionnaire development. Interviews were done in Trinidad along with site observations during the months of June-July, 2008. The initial pre-test of the questionnaire was conducted in August, 2008.

Based on the data from the interviews and on site observations, issues and gaps the questionnaire needed to address were identified. Questions from the previously validated questionnaires, which addressed these constructs, were then adapted to meet the specifics of the study. Several previously validated questionnaires were used as starting point of the development of the KABP questionnaire. Previously validated questions were not available for all of the issues/themes identified during the interview process. Therefore the questionnaire required the

creation of questions to fit this unique population. The previously validated questions and the newly developed questions were combined to form the KABP questionnaire.

3.6 Pre-Testing the Questionnaire

A critical step that occurs in the questionnaire development process is pre-testing. A pre-test is a process for determining a target group's reaction and understanding of a tool before the tool is produced in its final form (AIDSSCAP). A pre-test is one which simulates the main study as closely as possible and is used to identify and correct flaws in instruments under development (Ghillam, 2000). The questionnaire was pre-tested in order to ensure that the tool was age appropriate, contained proper wording (readable), was culturally appropriate, acceptable to the audience, and assessed relative outcomes. The pre-test participants were similar to the study population. None of the students who participated in the interview portion of KABP development were included in the pre-testing of the questionnaire.

The designed questionnaire was administered to groups of students at various stages in development, following the completion of the first draft of the questionnaire. This first pre-test took place in August of 2008. The prepared questions were pre-tested on 27 students aged 8-11 years. A convenience sample of pre-test participants was used. Pre-test participants were located through personal contacts, via requests put in with various UWI faculty members and employees, during the UWI "Take your Child to Work Day" and permission was also given by the Ministry of Education for pre-testing to be carried out within an academic summer camp for students upgrading their skills. The pre-tests were conducted in a one-on-one setting, small groups of 2-3 and in the classroom. Pre-testing allowed for the researcher to assess reading comprehension skills required to understand the materials, to obtain individual reactions to draft materials, to probe for individual's responses, discuss the issues addressed in the questionnaire and to gain a

clearer idea of how well the questionnaire worked within a similar audience to the one that was to be selected for the larger study. Each student submitted a letter of consent signed by their guardian prior to questionnaire administration.

In each of the pre-test settings the same procedure was used to obtain information and clarify students understanding of the questionnaire. Each question was read aloud by the research assistant, while the researcher circulated through the classroom answering any questions the students may have had. Students were given ample time to answer each question and were encouraged to ask questions. When a student asked a question they were probed with follow-up questions which included "what do you think this question is asking?" and "does the question make sense to you". All questions asked by the students were documented during the pre-test, as well as any observed problems the students had with the questionnaire were recorded. Once the pre-testing was complete these observations were grouped into language issues, formatting issues and issues of relevance. These recorded observations were used to modify the pre-tested questionnaire to form Version 1.0 of the KABP questionnaire.

3.7 Content Validity

Content validity is a critical aspect in instrument development which explains the questionnaire content to determine whether it covers a relevant sample of the behaviours to be measured (Stewart, Lynn and Mishel, 2005). When instruments are developed sometimes the results they receive are unclear. This could be the result of a situation where the definitions and underlying content of the instrument were unclear (Grant, Davies, 1997). In developing the KABP questionnaire content experts were employed to ensure that the questionnaire content was specific to that of school children in Trinidad and Tobago. Developing a tool from qualitative data using subjects as content experts serves to assure that the instrument reflects the meaning of

the phenomenon to be measured (Felury, 1993). To increase content validity research suggests using content experts in the development and evaluation of instruments (Grant, 1997).

3.8 Rigour and Trustworthiness

Rigour in action research is based on checks to ensure that the outcomes of a research project are trustworthy (Stringer, 2007). To ensure trustworthiness of the outcomes from the research inquiry, this study incorporated three activities to increase credibility; prolonged engagement, persistent observation and triangulation (Lincoln and Guba 1985). The first two activities were realized as the researcher was stationed in Trinidad for three months during the summer of 2008. During this time, the researcher immersed themselves within the culture. That time allowed the researcher to foster relationships with stakeholders and this time also allowed the researcher to observe the operations of the school systems, school feeding programs and sit in on various health related conferences. The third activity, triangulation, was also used. This involves judging the accuracy of particular pieces of data using one or a combination of four methods which include inquiry through different sources, peer debriefing, transferability and decision trail of the research process (Lincoln and Guba, 1985). These methods are described next.

All four of these methods of triangulation were used in this study. Inquiry though different sources is one of the most commonly used method of triangulation (Mathison, 1988). This method of triangulation was achieved as the researcher spoke with stakeholders from different areas of the health promoting school community and used this information to develop the questionnaire constructs. Peer debriefing is a means of providing an external check to the inquiry process which also adds credibility to the research process. This was accomplished by the critique of the researcher's ideas by supervisors and committee member in Canada and

Trinidad. Lincoln and Guba (1985) also talk about the need for transferability which includes the rich description of people, places and contexts. Transferability was achieved through the thick description of the results from the interviews and sight observations, which included a thorough set of details concerning methodology and context provided in this research report. Lastly, a study can be viewed as dependable if the reader can follow the decision trail of the research process (Lincoln and Guba, 1985). In order to achieve this, the researcher kept accurate and complete records documenting the data gathering and analysis process.

Even though all these method checks are in place, research which involves qualitative processes still faced with the question "how do we know that what the participant is telling is true?" (Seidman, 2006). By interviewing a number of participants, the researcher was able to connect their experiences and check the comments of the participants against each other (Seidman, 2006). Also, by listening and not interrupting the participants the researcher attempted to prevent skewing the participants to give me the answers the researcher wanted to hear. By incorporating both of these tactics into the interview process the researcher aimed to ensure that the information being obtained from the participants was as accurate as possible from the stakeholders perspective.

3.9 Confidentiality and Ethical Approval

Ethics approval was obtained from the University of Saskatchewan Advisory Committee on Behavioural Ethics in Human Experimentation and The University of the West Indies Ethics Committee. Ethical approval can be found in Appendix H. Access to schools and other related stakeholders were obtained from the Ministry of Education of Trinidad and Tobago. Permission was obtained from all participants prior to the beginning of the study (Appendix A-D)

Chapter 4: Results

4.1 Introduction

The process of designing a questionnaire is essential to assessing the impact of a health promotion intervention. The steps employed in the design of the KAPB questionnaire were (i) identifying constructs to be measured, (ii) deciding the type of questions, (iii) wording and writing of the questions, (iv) preparing the questionnaire flow, and (v) piloting the questionnaire (Kumar, 2002). In this section, findings from the interview process and observations from the onsite visits are presented. This chapter begins with the findings from the interview process. This is followed by modification of previously validated questions obtained from the literature search and development of question items. The development of the KABP questionnaire is presented along with the outcome of the pre-testing of the initial draft of the questionnaire. The last section describes the characteristics of version 1.0 of the questionnaire following pre-testing.

4.2 Common Themes and Issues Arising out of the Stakeholder Interviews

As stated in the previous chapter, stakeholder interviews were conducted with teachers, curriculum officers and staff members at the NSDSL. Each interview was conducted in a private setting, and ranged from 16 to 37 minutes in length. Six main themes were identified from the interview transcripts. These are: (1) lifestyle of the students, (2) teachers and programming, (3) school feeding program, (4) parental involvement, (5) financial cost associated with healthy eating, and (6) media/foreign influence. Findings from these interviews provided the context for the design of the KABP questionnaire. The remainder of this section will present the themes identified.

4.3. Lifestyle of the Student

When asked what the stakeholders believed was the major health issue facing children and youth in Trinidad and Tobago most of the stakeholders identified issues with the students' diets, one-third of the stakeholders directly stated that obesity was the main issue. This section will report the lifestyle of the students. Several sub themes were identified.

4.3.1. Food Choices

Several participants commented on the food landscape of Trinidad and Tobago, which they believe is rapidly changing and having a strong impact on children's food choices. Participants noted that in recent years there has been a shift away from the traditional diet towards a diet which includes increasing amounts of foods from fast food chain restaurants such as Kentucky Fried Chicken™ (KFC), Churches Chicken™, Mario's Pizza™, TGI Fridays™ and Subway™ to name a few. As stated by a curriculum officer:

> A societal problem that we have is we have moved away from our traditional diet and we have inculcated the North American diet because we believe that is, I don't want to say a better diet but because it's fast.

The participant's comment is reflected in the speed and accessibility of the fast food industry which has become quite attractive, as Trinidad and Tobago adopts a culture of convenience seen in many industrialized countries. Stakeholders noted that this is an issue because traditional local food choices cannot compete with the attractiveness of foreign fast food items. Several factors were identified as contributing to the move away from traditional eating patterns to a higher proportion of fast food intake by children. One curriculum officer stated:

> We follow what the big country [the industrialized west] promotes and we watch the media, television and so on... so our little bake and shark or our local type of food is being overridden and over looked for foreign junk food.

A teacher supported this point by stating:

> The healthy foods that we used to eat we are not eating them in the amounts that we need to eat, and we have replaced it with the fast foods in greater and greater amounts.

The influx of foreign goods and aggressive advertising has greatly influenced how Trinidadian people are eating and this has filtered directly down affecting food choices being made by school aged children.

Although school aged children are not entirely in control of all the meals they consume in a day, they do make a number of decisions each day regarding some of the foods they eat. A number of stakeholders expressed that a large percentage of students carry money with them to school to purchase snacks and/or lunch. This was also evident during on site observations where students purchased snacks from the school canteen that were generally very sweet or had a high fat content. One teacher suggested that parents should also share the blame:

> They [parents] give them money, they [the children] go to school and they buy what they want, children will buy what they like not what's good for them.

According to stakeholders, the availability of fast food on school premises as well as within the school vicinity (street foods) also plays a key role. Students are purchasing unhealthy food options from the school canteen and roadside vendors because that is what is available. During observation of the school site, the researcher noticed that when fruits were consumed by students it was generally in the preserved form with high added sugar and/or salt content, an example of this would be Salt-prunes and Tamarind balls. Salt prunes and tamarind balls are fruits which have been seasoned and preserved with salt and sugar. Approximately 1 ½ pounds of sugar is needed to season 1 pound of tamarind pulp. Several respondents commented on the food choices they see students making:

> Children tend to go for the pizzas, they want fries, all the fast foods, the high fat saturated foods and hardly any vegetables... of course they don't for fruits,

> they'll go for more of the preserved items, pre packaged items which are high in trans fat, and the very sweet biscuits and pastries.
>
> Children are very outspoken and when you try and tell them they need to consume more fruits most of them will tell you 'miss I have a fruit but I prefer to buy other snacks'... they may have the fruit at their disposal but they will leave that fruit and go and buy the same fruit but as a preservative.

The overarching issue being seen is that when students are given the opportunity to buy foods and choose their own snacks and meals they are not making healthy choices.

4.3.2 Snacking

When discussing food patterns of school aged children one of the common themes that arose was the amount of snacking students were partaking in and the types of foods they are consuming for snacks. Snacks are defined as small portions of food, drink or light meal which are consumed between regular meals. Types of snacks consumed as well as frequency of snacking are important to note because of the increased contribution of daily calories to the diet. Eight of the stakeholders brought up snacking as an issue when it comes to children's daily nutrition. One participant expressed that most children may not be consuming "the right foods, especially where snacks are concerned" and that most of the snacks consumed tend to be "the salty kinds of snacks, the cheese sticks, the big foot, rather than fruits". Snacks packed in lunch boxes and brought from home were also considered problematic by a few of the stakeholders. Parents, one participant noted, "are not taking time to prepare healthy snacks for children, just pack them what's available in the grocery". A few teachers remarked that the consumption of unhealthy snacks by students may also be contributing to poor classroom behaviour. They said:

> Ultimately we are facing problems with children having limited attention spans who are being disruptive, who can't concentrate for long, and it could be attributed to what they are eating to a large extent.

> When you look at the cafeteria there are a lot of sweet and salty snacks. The teachers keep saying that these salty and sweet snacks tend to make children hyper but we still go along with it.

During site visit to schools, the researcher observed that the school canteens were open during morning and afternoon recess as well as during the lunch period. The canteen was the main source of snacks type foods. The school canteens were fully stocked with various types of chips, candy, pastries and sodas. Some canteens also sold hot dogs, hamburgers, beef patties and other fast food items. Very few, if any healthy snacks choices such as fresh fruits or vegetables were available.

4.3.3 Sedentary Lifestyles and Lack of Physical Activity

Respondents were asked to comment on what they felt were the major barriers resulting in decreased physical activity of school aged children. Most respondents stated that technology and digital gaming had the largest influence and were therefore considered barriers. The general perception of most respondents was that students, when at home, after school and on the weekends prefer to be on the computer, watching television or playing on the latest gaming system instead of participating in physical activity. This point was summarized by an interview participant who said:

> When they [students] are at home they [students] are in front of the TV, and the gameboys, and the computer games and so on. I think generally children prefer to do those things rather than exercise. It's the era we are living in.

A number of stakeholders expressed that sedentary lifestyle may also be related to the current culture which has been created in Trinidad and Tobago where children are participating in less traditional exercises. As one curriculum officer stated:

> Traditional games which required that you run around the place that you be physically active, they are no longer seen as being really appropriate now a day...

> so the very culture that we have created makes our children sedentary rather than active.

This finding is supported by current thinking that the sedentary culture has been fuelled by the industrial transition in Trinidad and Tobago. In the last decade, there has been a transition from living in rural areas to more urbanized locations where there are less opportunities to play in open spaces. Especially in the city, the researcher observed small yards and less open park space. With less yard and park space the opportunity of physical activity somewhat diminishes. One of the NSDSL staff members illustrated this change when they said:

> Long ago in the Caribbean we lived in yards and spaces. You run downstairs you play all day, you pick mangoes and guava. But now we are more inside with the electrical entertainment and we come outside hardly.

A few respondents commented that the current government of Trinidad and Tobago has seen this lack of spaces for physical activity as an issue which needs to be addressed, and they are taking steps to utilize the savannahs (open field space) and make them into accessible areas which are better equipped for both structured and unstructured physical activity. A curriculum officer described the changes that the present government is making:

> Our present government, more or less what they are doing is to have the savannah in the different areas developing, that have installed light systems and so forth so that young people can go and they can play night football and in the daytime the younger children can go and play. They have put up things where people can sit and watch games and they can go and play.

When the researcher had the opportunity to visit the savannahs and noticed exercise equipment and open field space that was being used by the general public, but most of the patrons were older teenagers and adults.

From another point of view, a few of the stake holders indicated that children on the whole were very active but they lacked structured physical activity during school hours. They

noted that within the Trinidad and Tobago school system, physical education is scheduled two (2) times per week in school. Some participants felt that physical education is not being taught in schools during the scheduled time period. Those stakeholders gave the following three key reasons for this. First, there is a lack of trained personnel in the schools. Secondly, appropriate facilities are not always available and thirdly, time scheduled for physical activity is often replaced by academic lessons. One curriculum officer attributed the lack of emphasis on physical activity in the curriculum to the lack of emphasis being placed on it at the teachers training curriculum. She stated that:

> At the teachers training college they have stopped giving physical education as a basic requirement for all teachers and because of that I think that the program in the schools has suffered and they [teachers] are not seeing the relationship between just that and healthy lifestyle habits of our children.

Consequently,

> New teachers are not being equipped with the tools necessary to run physical education programs and because of that these programs are suffering.

This remark suggests that the extent to which physical education is taught in the curriculum may be influenced by lack of trained personnel. Teachers also expressed that inadequate facilities may also be a factor. Said a few teachers:

> Our school, we have a phys-ed program. If you look at the structure of our school there are no grounds or area really to carry out the physical education program. So implementing physical exercise within our school is very tough.

> I can't see any exercise or anything fitting into the daily routine of the children. Our school, given the physical setting, children are advised not to run about too much because they could get themselves damaged knocking into the teachers and other students and so on.

> The schools have very little area for physical activity and most of the schools may not have a playing field close by where the children can really engage in good supervised physical activity.

Concerns were also expressed about how neighbourhoods affect physical inactivity. There was a feeling that in some instances levels of crime in some areas may limit children's ability to play outside their home after school hours and on weekends. Psychological fear of crime has led to feelings of insecurity which is negatively affecting the amount of time some school age children spend in unstructured physical activity. A few stakeholders explained:

> People always say that when you're at home play and stay away from the computer, but because it's not safe for your child to play outside in the yard, we tend to keep them inside. So you have to look at it both ways, not that you don't want them to be physical but you have to look out for their safety.
>
> The crime situation may also contribute in the instance that some parents may not feel safe taking their children to the parks or taking them out.

Feelings about security may affect what activities parents are comfortable allowing their children to participate in. This suggests that since students may not be able to participate in unstructured physical activity outside of school hours, physical activity periods during school hours becomes increasingly important.

4.4 Teachers and Programming

The school system in Trinidad and Tobago was developed based on the British school system and is free and compulsory from the age of 5 to 13. Students are in primary school for seven years. During the final year of primary school students write the Secondary Entrance Assessment (SEA). This period is considered a very stressful time for students because of the higher expectations for "making the grade". Unlike schools in North America students must apply to secondary schools and acceptance is heavily based on SEA results. A series of tests are also written during secondary school but for the purposes of this paper we will be focusing on the SEA exam written during primary school.

4.4.1 Filled Academic Timetable and Focus on the National Tests

When asked what respondents perceived to be the biggest barrier to properly implementing a health promoting framework within elementary schools was, the overwhelming response was time constraints. Teachers as well as curriculum officers explained that teachers did not have enough time to cover all the material that is to be tested during the school year, therefore all superfluous materials tend not to be included in what is taught. The responses suggested that the HFLE sections of the curriculum that focus in part on healthy eating and physical activity, are often not taught. There is a saying among curriculum officers "If it isn't tested, it isn't taught".

> We have so many competing interests... teachers tend to focus on the areas that are going to be tested. So in terms of Family Life[HFLE] and these other areas that are good but not going to bet be held up to assess the school performance, they get put on the back burner.
>
> Our curriculum is focused on a number of national tests... focus is geared towards getting children to excel in these national testes. Not so much emphasis is placed on health so I think that needs to be boosted a bit
>
> The emphasis is on education and curriculum in my estimation, up until a certain ages stops the children from being more active because it's always a pressure to pass for the best school to get good grades.

Concerning HFLE, one teacher said that some effort has been made by the Ministry of Education to train teachers to deliver the HFLE curriculum:

> They [Curriculum Administrators] are trying to sensitize us and let us know that it is important because even though it's not going to be tested and held up, it still is going to impact how the children will perform and so on.

But as one participant stated "Unless people are affected by ill health or some sort of deficiency, they [teachers] do not place emphasis on nutrition". The general feeling which arose from the teacher interviews was that if a particular subject area was not tested, or formally placed on the academic time table it was not always given classroom time.

Unlike the HFLE program, physical education is time tabled for a specific amount of time each week. The teachers who participated in the interview process stated that that PE was timetabled in their schools for 45-60 minutes twice each week. Although PE has a place in the time table, the push for academic excellence has also influenced the amount of time teachers spend in PE. While speaking with the interview participants, it became clear that using the time scheduled for PE to supplement lessons from other subjects is a relatively common practice:

> Because of the academic push, and the focus on coming in the first 100 we don't allow the children to participate in the physical programs.

> It [PE] is time tabled for 45 minutes... during the PE period they [Teachers] will stay inside and teach another subject or they will complete some subject that they [the students] had not finished.

The time for structured PE, in some instances, is used as time which teachers can focus on getting caught up on testable lessons. By overlooking HFLE and PE students may not be being equipped with the tools to lead a healthy lifestyle. As one teacher stated:

> Schools are supposed to be places where children don't just learn academics but it's a place where they should be gaining skills for life.

4.4.2 Lack of Training and Resources

A few respondents commented that a lack of trained physical education teachers along with a lack of key resources often hamper progress in meeting timetable commitments for physical education in the curriculum. They felt that the quality of training teachers received in College may be one approach to help/hinder progress towards promoting healthy behaviours among school children. A number of participants reported that the amount of training in health and physical education teachers receive at the college level has been significantly reduced over the years. Some of the interview participants felt that teachers are no longer being equipped with the tools to properly teach health promotion in schools. They said:

> Teachers Training College where the teachers are trained, there was health education and then it has been phased out.
>
> They [teachers'] are not informing the students [with the HFLE syllabus], I made the case that they are not teaching because they are not informed as they should be because it's not at the teacher training college level.

It was observed that in some schools where physical activity is the responsibility of specifically trained teachers, the absence of these specially trained teachers generally lead to a reduction in the number of hours children spend in formal activities. A teacher offered that although they used to have a PE teacher in their school "but since he has been transferred you find that most classes to do not participate in PE". Those sentiments were echoed by a second teacher who stated "If the class teacher is responsible for PE you find that most times the class teacher will use that time for something else".

Concerning a lack of key resources, some participants expressed a need for mentorship to be built into the overall training. One teacher expressed that her biggest complaint about programs such as physical activity and the health and family life curriculum was that there was not enough trained personnel coming into the school to give teachers ideas and strategies as to how to deliver programs such as physical education: "how to best get children involved, how to best make sure they are doing it in the long term". The interview responses suggest that a shift of focus at the Teacher Training College level along with a mentorship program may help increase teachers' confidence in delivering health promotion in schools.

4.5 School Feeding Program -An Approach to Encourage Healthy Eating in Schools

In Trinidad and Tobago, all students who attend a government run school have the opportunity to participate in the National School Feeding program, primarily the lunch program. Depending on the socioeconomic status of households in a given area, children attending some schools may receive a free breakfast along with free lunch. Approximately 85,000 students in

pre-school, primary, and secondary school classes receive school meals in Trinidad and Tobago (Guilford, 2002). This program is administered by the Nations School Dietary Services Limited (NSDSL) under the auspices of the Ministry of Education. The motto of the NSDSL is to improve the quality of life of school age children with nutrition; their mission is to provide services and information that promotes healthy meal choices and lifestyles. Various catering companies are contracted by NSDSL to prepare and distribute the lunches within a given geographic area, using guidelines developed by the NSDSL.

When school meals, or boxed lunch as many of the participants referred to them, originally started appearing in Trinidad and Tobago schools they were provided as a means to combat poverty. The stigma that only those who are impoverished need to eat the boxed lunches still exists. But as some participants pointed out "we have to educate the population to let them know it's not a box lunch because you can't afford it but it is because they are trying to be helpful".

When discussing the importance of the school meal program, teachers perceived that some students fail to participate because they "do not like the food being provided to them" and that "children are not always familiar with the types of food being included in the boxed lunch". The issue of students not being familiar with the items included within the school meals was an issue raised by a number of the stakeholders:

> We are also seeing that when the breakfast is composed of a fruit and a muffin or something like that, you find that the children will leave the fruit, if it's a banana or something because a lot of them do not eat fruits at home.
>
> The problem we face as a program, very often we serve items children are not accustomed to eating at home so they don't necessarily want to eat it from us.
>
> Boxed lunches try to bring meals that contain the six food groups. You will find they will bring a fruit most times. However the food is not being consumed by

> many of the students. They are saying that they do not like what they bring and they would rather go out and buy food.

It is possible that the students are not taking advantage of the healthy choices provided through the school feeding program because items served maybe unfamiliar to them given that they are not served these foods at home. One of the NSDSL members noted that the school feeding program may provide one opportunity to encourage standard on healthy eating not only for the students but also for teachers and parents as well. In doing so, the meals are offered by the NSDSL may be seen as a healthy option to foster health and learning and not just a program which is intended to combat the effects of poverty.

4.6 Parents

Over the course of the interviews, when talking to the stakeholders one of the major themes which arose was the role the parents have in promoting a healthy lifestyle among their children. The commonality of both parents working outside of the home has impacted the time the parents have for meal preparation and subsequently the food practices in the home.

4.6.1. Time of the Parents

The concept of parental time for meal preparation was an idea which was identified by the majority of the stakeholders. Within Trinidad and Tobago, like much of the developed world, there has been a recent shift where, in the majority of cases, both parents in the household are working outside of the home. A number of stakeholders linked this phenomenon with the nutritional related issues seen in children and youth. Having both parents working outside of the home creates stresses on parental time and many look for ways to maintain their families while working 40 hours a week. When it comes to preparing meals it became quite apparent that this is an area where parents may be trying to save time. According to the stakeholders, consuming fast

food items for meals was a common practice used in order to save time because of the convenience of these food items:

> Basically what we have is both parents working, so they go for the fastest way of preparing meals. The fastest way of preparing meals now is to call KFC.
>
> The fact that now a days you have in most instances both parents working and that causes a time constraint. They just end up picking up what is available.
>
> Some parents don't have the time so it's more convenient to buy packaged items or go to a fast food restaurant and buy something that is already prepared.

It is not only the evening meal that parents are looking for easier options, teachers also commented that the parents tended to include fast food options in the packed lunches brought from home:

> When you look at the meals that the children bring, it's not well balanced, it's more like junk food, anything that the parents can get at that point in time or anything that the children prefer to eat, maybe a cake or cookie for lunch, that's it for lunch.
>
> Bad practices from parents because when they [the students] come to school you see they have a lot of sweets and a lot of drinks and all those things.

These findings suggest that parents maybe seeking fast food options as a way of saving time on meal preparation in their homes, and that this practice may further influence the purchasing and consumption habits of school children.

4.6.2 Food Practices in the Home

Although children do have choice in what they eat, parents have the ability to control what their children consume. When parents are the ones providing the meals they ultimately control the food items which are in the home and those that are purchased in their presence. This was reflected in the comments of one participant who expressed that "children eat what they are given, and if they are given foods that are not as healthy as they should be, that is what they will eat'. The general feeling among interview participants was that if healthy food practices are not

followed up at home, by the parents, then the effectiveness of programs such as the school feeding programs designed for health promotion will be lost:

> Proper nutrition starts from the home and the culture you have at home. Which means if you can't get through to the parents the child will suffer. It's one thing to tell them at school to eat properly but if it's not followed up at home that is a barrier.
>
> What happens when they leave school? What are they consuming? I think the parents have to get involved in the nutrition side of it because they are the ones feeding the children... if the parents continue to allow them to purchase what they want we will continue to have this problem.

The message being sent to children about the importance of healthy eating needs to be consistent on all fronts.

4.6.3 Knowledge of Parents

Making choices which are healthy involves a general understand and knowledge of healthy lifestyles. Most interview participants felt that parental motivation to encourage healthy eating among their children may also be hampered by a lack of knowledge. When looking at the choices parents are making for their children, participants perceived that parents may lack the knowledge needed regarding healthy lifestyles in order to make informed decisions. One stakeholder pointed out that the reason why some children were not partaking of healthy food options was because of "the mere fact that they [parents] don't themselves know what is healthy and what is unhealthy". Another stakeholder commented on the parents being able to link the relationship between the benefits of eating a nutritious diet and exercise with healthy living. A curriculum officer said:

> The parents are actually not educated enough to the benefits to eating and exercise and the relationship between the two and the relationship to good living.

When asked how to make the school programs more effective, a few stakeholders stressed the need to have parents get on board with the programs. The thinking appears to be that there is a

need for the parents to be informed on what is being taught in the classroom so they can follow up with healthy lifestyle practices in the home. Materials they noted are needed "to properly educate the parents to the behaviours we would expect at school as far as health his concerned. Educate everyone on nutrition and so on". A number of stakeholders pointed to the need to pass healthy eating and active living information onto the parents:

> A curriculum needs to be in place not only for the students but also their parents. So the parents know what their child is learning and they will be able to support it with activities in the home.
>
> We have to extend it to the parents as well, not just the students alone, because the parents play a very great role in the diet of the children... so you have to work together with the home in order to achieve what we set out to achieve with regards to nutrition.

Providing education materials to parents has been proposed by the stakeholders as a possible method of increasing the success of school based interventions designed to encourage nutrition and physical activity in schools.

4.7 Cost Associated with Healthy Eating

With regards to the financial cost associated with eating healthy the stakeholders were split as to whether they felt the changes in eating patterns were due to increased financial security or financial inadequacy. Some, however, felt strongly that a lack of proper nutrition was due to financial insecurity in the home and offered it as one of the major health issues facing children and youth. One teacher stated "Lack of proper nutrition for one, mainly due to financial inadequacies at home". Another argued that " some instances they [the parents] don't always make the best choice for the child's health, for many reasons, it could be because they don't have the income to do it". Conversely, others felt it the relatively recent increase in affluence of the general Trinidad and Tobago population has caused changes in food preferences. An employee from the NSDSL stated:

> Ever since we discovered that money wasn't a problem, that we could buy everything that we needed, we found that the dietary preferences changed very drastically from what it was before to what it is now.

Still others noted that poor food choice is not always linked to poverty given that in some cases "poor people, people with less money eat better" than others. Participants presented both sides of the argument relating to the influence financial situations have on food choices. The stakeholders were quite aware that financial situation affects food choices, but how exactly finances influence food choices in Trinidad and Tobago was unclear.

4.8 Media/Foreign Influence

When trying to promote any type of lifestyle there are always forces working against it. With regards to school programs which are trying to promote healthy eating and active living, the stakeholders felt that the media (television, radio and billboards) is working against the promotion of healthy lifestyles. There is a disconnect between what is being taught at school and what is being promoted in the media. As noted by a teacher:

> The gaps are the conflict that exists between what we are trying to teach them [students] and what they are being shown or promoted in the media because we talk to them and teach them about making healthy choices and we are bombarded by all the different things that are available.

How the media is projecting products is quite confusing to all viewers, not just school age children. Products are being marketed as 'health products' or 'sports drinks' when in fact they are giving an energy 'boost' because they are high in caffeine and/or sugar. One of the members of the NDSDL commented on how the media is affecting their programming:

> We feel that our media is really throwing our [the NSDSL] health program because they are introducing of number of 'health' drinks like lucozaide and a number of them are not good and our children are heavily involved with them

Within recent years in Trinidad and Tobago there has been a great influx of foreign items. Advertisements seen on foreign television stations have created a great demand for foreign food chains and items in within the sister island. The curriculum officers and NSDSL staff stated that the influx of foreign retailers is as sign that Trinidad and Tobago is adopting some of the negative aspects of the North American diet:

> North America has impacted a lot on us because we have a lot of fast food and many people travel and what they see they come back and we have most of these companies, they have come and set up and are easily accessible.
>
> I think we are gravitating a little bit more to the US lifestyle. Everything has become a bit globalized; the children are exposed to cable, they are exposed to a wide range of products that probably 20 years ago we didn't have down here.

The exposure to foreign media is creating a demand for foreign products which companies are capitalizing on. What is being seen now is that the advertisements make the foreign food items look appealing and there is a bit more prestige associated with consuming them. One stakeholder commented on how the foreign influence is directly affecting the diet of school aged children:

> It [diet] has changed through television, you see things, and then what is available. You find that with the influx of what is available, Price Mart is here, they bring a lot of foreign stuff and they [the children] go for it.

4.9 Group Interviews

Two group interviews with children aged seven to eleven were conducted. The first interview consisted of 4 students aged seven to nine. A second interview was conducted a week later with a second set of 15 children ranging in ages form seven to eleven. Although the researcher spoke with students from different age groups they were not from a diverse socioeconomic background. All students at this particular camp had parents who were highly educated and were from a relatively high SES. The answers from these interviews were used to assist in the development of the responses to the KABP questions.

4.9.1 Student group interviews

When asked about the importance of healthy eating the students expressed responses such as “So that you won’t get sick”, “So that we don’t get overweight” and “So you can stay healthy”. The answer of one student stood out more than the others. This individual’s response linked physical activity to positive and inactivity to a negative health profile. This student stated, “You eat healthy so that you grow up healthy and strong so that you won’t die of sickness”. The responses of the students indicated that they have a general awareness of the importance of eating healthy.

Concerning the importance of being a physically active individual, the responses students gave were varied. The students made a connection between physical activity and weight gain, but no link was reported between physical activity and other health related concerns. Responses to the importance of physical activity included: “So you won’t get overweight”, “So you won’t become lazy”, “To be better at the sport you’re practicing” and “To keep you occupied”. Students were also very forthcoming about the activities which prevented them from being physically active. From their responses, the main activities which inhibited them from participating in physical activity are watching television, surfing the internet, or playing videogames. The responses suggest that participating students may have some awareness of the factors that contribute a healthy eating and active lifestyle among them and their peers.

During the group interview students were also asked about the activities they participate in at home, the organized physical activities they participate in outside of school. As well, they were asked about their favourite snacks, favourite foods, food items available to them at school and the food items they considered to be healthy. With regards to the types of organized

physical activities students participated in outside of school, the students responded that cricket, football (soccer), rounders, and tennis are the most common.

Concerning fruit and vegetables students choices reflected the selection of locally grown and commonly imported produce items which included mangoes, portugals, avocadoes, kiwi, apples, broccoli, carrots, and cucumbers. The students expressed that these items were considered to be healthy options however, when asked what their favourite foods were there was a distinct shift away from fruit and vegetables towards more fast food and packaged snack items. The most common responses to their favourite foods included KFC, Chinese food, macaroni and cheese, doubles and roti. When asked specifically about their favourite snack, these were very similar to what is seen in North America which included potato chips, chocolate, snack cakes, granola bars and biscuits (cookies). When asked about food items available to purchase at their schools, students responses included a combination of snack and meal items which included chicken and chips (French fries), potato chips, cheese sandwiches, candy, sweets and snack cakes. What was interesting was the obvious absence of fruit and vegetable snack items. Only one student informed the researcher that apples were available for purchase at their school. These responses provided insight to the students' food and activity environments and assisted in the creation of potential constructs for the KABP questionnaire. Many of the combinations of activities participated in as well as the common foods consumed by the students are unique to the Caribbean, Trinidad in particular.

4.10 KABP Questionnaire Development

The next phase of this study includes the design and development of the KABP questionnaire which is linked to steps 2-4 in the questionnaire development stages identified at the beginning of the chapter. These steps are: (ii) deciding the type of questions, (iii) wording

and writing of the questions, (iv) preparing the questionnaire flow. This section details the process used to develop the first draft of the questionnaire.

4.10.1 Issues Addressed in the KABP Questionnaire

The KABP questionnaire developed in this study needed to address the specifics of knowledge, attitude, belief and practice relating to nutrition, physical activity, and overall health. Based on the responses from the stakeholders, the questionnaire needed to address the students' regular food and snack choices. To do this, questions were centered around snacks the students purchase at school, the types of lunches they have at school as well as the number of times they consume fast food items in a regular week (not weeks which include holidays). Also, it was important to assess the students level of knowledge with regards to the six food groups (Caribbean Food Guide) and their practices in amounts and types of food consumed from each food group. Knowledge questions were especially intended to assess levels of changes in students knowledge about food choices following an intervention. Since the interviews revealed that Trinidadian children have a fair amount of choice in some of the food options they consume each day, questions surrounding the types of foods the students were likely to purchase were included. The questionnaire also included a section on the students' self-efficacy surrounding their ability to make healthy food and snack choices. The thinking was that if the student believes they have the capabilities to make healthy choices they will be more inclined to do so.

The questionnaire needed to address the amount of time students spend being physically active as well as the amount of time they spend in sedentary behaviours. To get a full perspective on the physical activity environment of the students, the questionnaire addressed scheduled activity time, activities participated in during free time (when they had the choice as to what kind of activity to partake in), as well as organized and unorganized physical activity outside of

school hours. Parent-child participation in physical activity also needed to be documented, as parental modeling can have a substantial effect on the importance children place on physical activity. With regards to physical inactivity, the questionnaire needed to address how much time students spend in sedentary activities (not including time spent doing homework) such as watching television or digital gaming. Attitudes surrounding physical activity have been described as one of the main barriers to children enthusiastically participating in physical activity. The questionnaire, therefore, needed to address students' feelings about their PE program as well as which aspects of their PE program they favoured. By addressing students feeling about their PE program the aim was to gain insight about students beliefs and attitudes surrounding physical activity as well as changes in attitudes and beliefs following an intervention.

Safety issues were also identified by stakeholders as barriers to involvement in physical activity, especially after school hours. From what the stakeholders stated, the perceived lack of safety was thought to be a deterrent for parents to allow their children to participate in unstructured physical activity. Questions on safety therefore addressed children's perceptions about the extent to which they felt their immediate physical environment was safe. With the topics to be included in the questionnaire identified, the process of compiling potential questions to be included within the questionnaire was the next step. The next section describes the process of compiling question items from previously validated questionnaires.

4.10.2 Compiling and Modification of Previously Validated Questions

The next step in the KABP questionnaire development was the extraction of question items from previously validated questionnaires which addressed healthy lifestyle behaviours in school children aged 8-11. Questions from the School Physical Activity and Nutrition Project

(SPAN) (designed for students in 4th grade) (Sasser, 2005), the Child and Adolescent Trial for Cardiovascular Health (CATCH) (Perry, 1997), the Health and Behaviour Questionnaire (HBQ) (Perry, 1992), The Battle River Project (Plotnikoff, 2007), and Eat Well and Keep Moving (Gortmaker, 1999), were used in KABP questionnaire development.

A master list of applicable questions was compiled. This list was comprised of 177 questions which were applicable to the issues the KABP questionnaire was to address. Questions which did not apply to the program outcomes, such as salt intake in the CATCH questionnaire, were not included in the master list. Questions were divided into five sections: knowledge, attitudes, belief, practice and other. Once grouped into sections, the master list was then analyzed critically, by the researcher, on the basis of age appropriateness, topic coverage and repetition, to determine which questions best fit the outcome goals of the KABP questionnaire.

Modifying items from previously validated questionnaire and combining them with questions generated from interview data and literature search is thought to maximize the content validity of a questionnaire (Parmenter, 1998). Thirteen questions were selected, from the list of previously validated questions to be included in the questionnaire. These questions covered the areas of time spent in physical education class, physical activity participated outside of school hours, time spent watching television and/or digital gaming, knowledge about the food groups, food habits, school lunches and questions on self efficacy regarding the students' ability to change their own behaviours.

Some of the questions selected needed to be modified to fit the context of Trinidad and Tobago. One example of this was the questions adapted from the CATCH questionnaire which

measured students' level of knowledge surrounding the US Food Guide Pyramid. For this question to fit the context of Trinidad and Tobago, the responses needed to be altered. These questions were modified to reflect the Caribbean Food Group Charts.

Many of the questions which focused on students confidence in facilitating their own behaviour change from the HBQ did not cover all the issues which were pertinent to school environment of Trinidad and Tobago; however, this style of question has the potential to provide insight into the students feelings on how much control they have over their food choices. Three of the question points were kept the same. These included: "how sure are you that you can drink water instead of a sweet drink when you are thirsty?"(the term for sweet drink was substituted for soft drink to reflect local terminology), "How sure are you that you could eat fresh fruit instead of a candy or sweetie?" (the term sweetie was also included to reflect local terminology) and "How sure are you that you can be physically active 3 to 5 times each week?" Questions such as: How sure are you that you can eat healthy at school? How sure are you that you could eat healthy or choose healthy snacks when you are with your friends? And how sure are you that you can be physically active even if you have a lot of homework?, were developed specifically to cover the issues stakeholders spoke about. As safety was a theme which arose during the stakeholder interviews, questions which addressed students' feeling on the safety of their environment were included in the questionnaire.

Several other questions which were included from previously validated questionnaires, required some modifications to reflect current technologies. Questions on digital gaming needed to be updated to include the latest gaming systems as well as include time spent surfing the internet and playing online games and instant messaging. These different computer/gaming activities needed to be included to get a full perspective on the amount of time students are

spending in sedentary activities outside of their homework hours. In the end, all the questions extracted from the previously questionnaires were modified in some manner to make them fit the goal of the KABP. The previously validated questionnaires did not cover all of the topic areas the KABP questionnaire needed to cover. The next section will describe the development of unique questions to fit the context of Trinidad and Tobago.

4.10.3 Development of Culturally Competent Questions

Once the questions from previously validated questionnaires were determined and modified, areas which required question development were identified. Items such as demographics, feelings and attitudes towards physical education classes, recess activities, parental involvement in physical activity, common snacks purchased, fast food intake, importance placed on healthy lifestyles, sense of safety within their external surroundings and emotional state at the time of questionnaire administered, needed to be developed. From the stakeholder interviews the general consensus was that PE was timetabled one or two times a week (depending on the school) for an average of 45 minutes, but this time is often used to pick up extra lessons. It was important to measure if students were getting the opportunity to participate in physical education class more often and if they in fact were increasing the time they were being physically active, as the intervention progressed. To determine students feelings about physical activity, they were asked about their level of enjoyment of PE as well as what they did or did not enjoy about their PE classes. The physical environment of the schools and their ill equipped spaces was an issue which was raised by the stakeholders. It was important to see if this lack of space influenced students recess actives. Students were asked about the activities they participated in during morning, lunch, and afternoon recess.

The issue of students purchasing snack items either at or around school was raised by the stakeholders. Therefore, it was important to address which food items were being purchased and how often the students purchased them. Questions on common food items purchased at school were included to allow for a measure of the effect of the intervention on students food purchasing practices. The students were also asked questions about their fast food habits since the quantity of foods consumed from fast food establishments was reported by stakeholders to be an issue.

4.10.4 Preparing Questionnaire Flow

Once questionnaire development was completed, all question items were then organized into a logical format. Since the target population consisted of children age 8-11 the questions needed to be organized in a manner which they could easily comprehend. Clustering and logical progression of topics within a questionnaire make a questionnaire easier for the respondents to work through (Ghillam, 2000). Ghillam indicates that questions on facts should be first, then those related to judgments, followed by those related to behaviours. Ghillam reasoned that factual questions are typically quite easy to answer and will ease participants into the questionnaire process while questions on judgments are generally difficult to write and as a result may be more difficult to answer. On the other hand questions on behaviour are also difficult to write, however, individuals are well placed to report on their own behaviours (Ghillam, 2000). For these reasons, the questionnaire started with factual questions on demographics, followed by questions on knowledge and then move into questions on attitudes and beliefs and ended with a section on practices and behaviour.

Initially, the questions were organized into four sections titled: knowledge, attitudes, beliefs and practice. Although this was quite logical for the researcher when speaking with some

teachers who dealt with this age group on a regular basis, there was concern that students would not be able to follow along with what the questionnaire was asking. To make the questionnaire easier for the target age group to understand the questionnaire was organized by topic. The four sections included: About you (demographic questions), activities you participate in, foods you eat, and feelings about healthy eating and active living.

4.11 Pre- Testing

Pre-testing was done to determine the target group's reaction and understanding of the questionnaire. The main goal of the pre-test was to make sure that the questionnaire was understandable, culturally appropriate, and acceptable to the audience. Pre-testing revealed a number of issues which needed to be addressed within the questionnaire. All issues which were revealed by pre-testing were addressed by the researcher once she returned to Canada.

The first issue that arose was the readability of the questionnaire. To ensure that the target population would be able to read the questionnaire most of words used were kept below three syllables. However, the pre-test revealed that even though the questionnaire was geared to the primary education level there were still instances where the students were not able to understand what was being asked of them. An example of this was the grouped questions which began with "how strongly do you agree with the following statements? The types of food you eat influences...". Generally, the students had the most trouble interpreting the word 'strongly' and many of them did not have a clear definition of the word 'influence'. Based on the results of the pre-test this question was changed to "how much do you agree that the types of food you eat can change". The last question in the questionnaire was aimed at getting some general information on how the students were feeling on the day the questionnaire was administered. Initially, the question stated "to help us know how good or bad your health is TODAY, we have drawn this

numbered line, like a math line from 1 to 100, please mark where your health is today". This question was accompanied by a line with zero at one end, 50 in the middle and 100 on the other end. Students were informed that zero was representative of the worst health they could imagine and 100 represented the best health they could imagine. Students had a very hard time grasping this concept and most students required further explanation of this question. The concept of overall health was too broad of a question for the students of that age group. Instead of asking children about their health on the day of questionnaire, the question was changed to one of which addressed relative wellness on the day of questionnaire administration. The question was altered to read "Let us know how you're feeling today. Colour the group of smiley's that best describes how you feel". The responses included text accompanied by a visual which the students could colour in. The students were given five options to describe how they were feeling on that day. With regards to readability, the main issue with the questionnaire was that the students were confused by the amount of information they were being given. Generally, questions were shortened and some of the additional supporting information was removed to make the questions easier for the students to understand.

Pre-testing also exposed some organizational issues within the questionnaire. For example, eight questions were organized into a table format as depicted in Table 1. The questions were located on the left hand side of the table, with the response options running across the top line. Students had some difficulties conceptualizing the alignment of the table.

Table 1

Example of pre-test question layout with students response

	Sat down (talking/reading)	Stood around	Walked around	Ran around and played a bit	Ran around and played hard (heavy breathing)
At morning recess		✓	✓	✓	
At lunch recess					
At afternoon recess	✓				

This resulted in students skipping questions, answering the same question twice and respondent apathy, where the students selected the same response for all the questions. This was a major issue as almost a third of the questionnaire was in this format. Once this issue was observed, particular attention was paid to these questions during the pre-test. Students had a hard time understanding that the empty spaces in the table were related to potential answers.

To repair this issue the questions in chart format were revamped. Questions in the chart format were altered to have to question stated and followed by boxes which state each of the answers. The students were instructed to tick one box which fits them the best. Some of the questions in chart format were also altered so that instead of responses being in boxes and students ticking them, they selected the answer that best suited them by circling their response.

10. During recess and lunch break, what do you do most often? Tick (✓) ONE box with the response that best suits you.

a. At morning recess	Stand around, read, do school work	Walk around	Run around and play a bit	Run around and play a lot	I do not have recess
b. At lunch	Stand around, read, do school work	Walk around	Run around and play a bit	Run around and play a lot	I stay in class
c. At afternoon recess	Stand around, read, do school work	Walk around	Run around and play a bit	Run around and play a lot	I do not have recess

Figure 3. Example of formatting changes made to questions in chart format.

A second formatting issue with the questionnaire was that it was not very aesthetically pleasing and did not hold the students attention. In order to make the questionnaire more visually pleasing cartoon images were added to the questionnaire. The images were directly related to the question which they were in close proximity with. Some examples of images included pictures of the various food groups, students participating in physical activity, and students in sedentary activities. In total 17 images were included within the questionnaire. Questions were also bolded in order to give the KABP more texture. Once all of the issues raised during the pre-test were addressed, this became Version 1.0 of the KABP questionnaire.

4.12 Version 1.0 of the KABP Questionnaire

Upon completion of alterations based on pre-test findings Version 1.0 of the KABP questionnaire was prepared. This questionnaire was the foundation of the questionnaire used at baseline, midpoint and endpoint evaluations. A copy of Version 1.0 can be found in Appendix F. In total this questionnaire is nine legal pages in length and consists of 30 questions, broken down into four sections. Several other pre-tests were conducted as part of the larger study and the final KABP questionnaire (Version 2.0) was developed for the larger study. A full description of the changes made to Version 1.0 to bring it to Version 2.0 questionnaire can be found in Chapter 7. (Appendix G). The following is a breakdown of the question types and the purpose of each question in the KABP questionnaire Version 1.0.

Table 2.

Purpose and position of questions in version 1.0 of the KABP questionnaire

Question No.	Question Type	Purpose
Section 1: About you		
1-4	Demographic	Questions measured demographic of the study population (age, standard, gender, ethnic background). To be used in organization of data and to determine if study population is representative of the ethnic distribution of Trinidad and Tobago
Section 2: Activities you participate in		
5-6, 9	Physical education (Practice)	Questions were incorporated to determine if structured physical activity increased over the course of the intervention
7-8	Physical education (attitude)	Question obtains a sense of the students' feelings towards physical education classes
10, 12	Physical activity (practice)	Questions captured a sense of the regular physical activity habits both structured and unstructured during and outside of school hours
11	Physical Activity (Parental Support)	Included to determine physical activity behaviour modeling in the home
13	Physical activity "do you think being physically active can change" (Beliefs)	Question evaluated beliefs held with regards to the impact physical activity has on various aspects of daily life
14-15	Sedentary behaviours- TV/Video (practice)	Question provided an estimation of the amount of screen time/sedentary behaviours (outside of homework) students participate in each day
Section 3: Foods You Eat		
16-18	Nutrition Knowledge Questions (Knowledge)	Assessed students' knowledge of the food guide and recommended quantities of consumption of the food groups.
19	Food and meal behaviour "how often do you eat" questions (practice)	Questions determined quantity quality and frequency of food types consumed during a regular day. Regular food behaviours

20-22	School lunches (practice/ beliefs/ Attitudes)	Questions to determine the type of foods consumed during school hours. These questions gauged the frequency of consumption of lunches from the school feeding program and feelings towards the health quality of the food provided.
23	Purchases during school hours (practice)	Included to assess purchasing practices of snack and lunch items during school hours over the course of the intervention
24	Fast Food (Practice)	Question to determine the quantity of the diet is made up of fast food meals
25	Nutrition "influences' question (attitudes/beliefs)	Question evaluated beliefs held with regards to the impact healthy eating on various aspects of daily life
Section 4: Feelings on Healthy Eating and Active		
26	"how much do you care about" questions (attitudes)	Evaluated attitudes towards healthy eating and active living
27	"the foods I eat now are" (beliefs)	How the child viewed their own diet.
28	"how strongly do you agree with" questions (attitudes)	Questions of self efficacy. Determined attitudes and beliefs with regard to possibility of some lifestyle changes and
29	Safety	Beliefs surrounding safety in common physical activity surroundings. Beliefs could potentially predispose students or inhibit involvement in physical activity.
30	Well being	To determine the state of well being (mental and physical) of the student. State of well being could potentially influence the responses that are given.

Chapter 5: Discussion and Lessons Learned

5.0 Introduction

This study was part of a process to develop a self-administered questionnaire that could assess changes in knowledge, attitude, belief and practice of a larger teacher-led intervention study. The study was undertaken because although several survey questionnaires were found in North American Literature, no tool was found which took the culture of Trinidad and Tobago into consideration. The questionnaire developed assed four key areas: nutrition and physical activity practices, knowledge of healthy lifestyles, self efficacy with regards to behaviour change and safety. Potential questions were written after a review of relevant literature and previously validated questionnaires, and interviews of key stakeholders in Trinidad and Tobago. The process of KABP questionnaire development described within this study may serve as a model for the development of a culturally appropriate tool to assess knowledge attitudes, beliefs and practices of school-aged children.

5.1 Concepts to be measured by the KABP questionnaire

Prior to the development of the KABP questionnaire, interviews were conducted with various stakeholder groups. Many of the responses given by the stakeholder were in-line with current research. What follows are highlights of some of the pertinent findings from the stakeholder interviews as they a) deviated from the literature or b) correlated with literature.

5.1.1 Students Snack and Meal Choices

One of the main sections of the KABP questionnaire focused on students' snack and meal choices. Stakeholders who participated in the interviews identified snacking as one of the major nutritional issues facing school aged children in Trinidad and Tobago. Stakeholders stated that they have seen a trend where children are snacking more often and the majority of snacks

consumed are of poor nutritional value. The stakeholders also reported that the students were increasing their consumption of salty snacks and candy and straying away from fresh fruits and vegetables. These observations were consistent with the results of studies conducted in the United States. Piernas and Popkin (2010) found that the prevalence of snacking has increased over the last 30 years. In their study, these researchers reported that the percentage of children who snacked increased from 74% in 1977-78 to 98% in 2003-06. Piernas and Popkin also reported a considerable increase in the amount of total daily energy intake contributed by salty snacks and other snacks (candy, cereal, nuts and seeds), while calories contributed to the diet by milk and fruit decreased over the 30 year period (Piernas, 2010). Nicklas et al., (2003) also found an association between snacking and weight status. This study found that the total number of sweets consumed, specifically as snacks, was significantly associated with overweight status in children (Nicklas, 2003). Results from the Nicklas study also reported that the total gram (g) amount of food consumed from snacks and the total gram amount of low quality foods consumed were positively associated with overweight status in children. Given these findings, questions pertaining to consumption of snack and other food items were included in the KABP questionnaire developed.

Although much of the research with regards to the impact of snacking on weight status has been conducted outside of the Caribbean, the trend seen is quite similar. The issue that the stakeholders have identified with regards to snacking during school hours has been identified as critical by the Pan American Health Organization (PAHO). For example, a recent document from PAHO/WHO (2007), on combating obesity and non-communicable diseases in the Caribbean, has recommended imposing increases in consumer taxes on selected high calorie, non–nutritious food items within the Caribbean (Henry, 2007). This type of recommendation is

not new. Health researchers and health policy advocates in the United States have proposed levying excise taxes on snack foods as a possible way to address the growing prevalence of obesity and overweight in the United States. Some suggest that higher prices alone will change consumers' diets. Others claim that change will be possible if earmarked taxes are used to fund an information program. Using baseline data from a household survey of food purchases, one study examined the potential impact of excise taxes on snack foods (Kuchler, Tegene, and Harris, 2004). This study found that relatively low tax rates of 1 cent per pound and 1 percent of value would not appreciably alter consumption—and, thus, would have little effect on diet quality or health outcomes. It would, however, generate $40-$100 million in tax revenues in the USA (Kuchler, Tegene, and Harris, 2004). From the United Kingdom, Marshall (2000) proposed extending the value-added tax (17.5 percent) to those foodstuffs he considered culpable in raising serum cholesterol levels—especially those high in saturated fats—and to exempt from taxation those foods currently taxed that are cholesterol neutral. Recent data which looked at the association between taxes, soda consumption and BMI found that increased taxes on sugar sweetened beverages reduced consumption of these beverages (Strum, Powell, Chirqui and Chaloupka, 2010). Decreased consumption was most significant in children from low income families (Sturm, 2010). With links identified between children's current snacking practices and increased weight status, government action combined with school based interventions promoting healthy eating could have the potential to shift students away from consumption of sweet and salty snacks and beverages towards more nutritious options.

In Trinidad and Tobago all students have the opportunity to receive lunch provided by the National School Dietary Services Limited (NDSL) under the auspices of the Ministry of Education. These lunches are regulated by the government agencies to ensure that they meet the

Caribbean Food Group guidelines, and provide a nutritious mid-day meal. Although the lunch is free and nutritious, many students do not consume the meals provided for them and prefer to purchase food items from local vendors or from the school canteens. The stakeholders identified that the stigma attached to accepting the school meals was one of the main factors contributing to students not choosing to consume these meals. Similar issues have been documented in the USA with the lunches provided by the National School Lunch Program (Pogash, 2008). Food items sold in schools which are not part of the national school lunch program are often referred to as competitive foods. Since only children who have money have the ability to purchase these competitive foods, Watkins (2001) recognized that children may view school meals as a program primarily for poor children instead of a nutrition program for all children. This places a stigma not only on the program but stigmatizes the children who need to consume these meals.

Students' low frequency of fruit and vegetable consumption was also an issue raised by the stakeholders. Stakeholders reported that students were likely to leave the fruits and/or vegetables which were included in the breakfasts or lunches provided by the NSDSL. A study out of the USA proposed that although students' fruit and vegetable intake is generally low, the school meals program provides an important contribution to the daily fruit and vegetable intake of school aged children (Robinson-O'Brien, Burgess-Champoux, Haines, Hannan, Neumark-Sztainer, 2010). Looking at students fruit and vegetable intake Ronson- O'Brien (2 010) found that in children with low daily fruit and vegetable intakes (less than 5 servings/day), over half of their daily intake came from the school meals program. Based on this observation, Ronson-O'Brien (2010) proposed that when combined with programs promoting fruit and vegetable consumption within schools, the school meals program can provide an important opportunity to increase fruit and vegetable consumption. Given that the school meal program provides students

the opportunity to practice healthy food behaviours, the KABP questionnaire included questions on students participation in the school meals program along with separate questions on students fruit and vegetable consumption.

Children's eating behaviours can be examined by looking at individual and environmental factors (Birch and Davidson, 2001; Kral and Rauh, 2010; Kelder, Perry, Klepp, Leslie L, 1994). Personality is an individual factor which guides one's dispositions which will increase or decrease the likelihood of a person engaging in a particular behaviour. Knowledge is also an individual factor which directly affects intentions, skills and actions. Environmental factors are those aspects of one's surroundings that support, permit and encourage or discourage certain behaviours. In order to change eating patterns successfully, interventions must aim to modify the factors stated above. The KABP Questionnaire included questions about snacking and other food choices, including participation in the school feeding program.

5.1.2 Physical Activity

The physical activity portion of the KABP questionnaire was designed to assess the factors that were likely to influence a child's level of physical activity, or the likelihood that they would become active if exposed to an appropriate intervention. When speaking with stakeholders, it was made clear that there is a strong focus on meeting testable academic requirements in school, rather than on encouraging subjects that focus on health, or physical activity, which are non-testable subjects. With the emphasis placed on testable subjects, physical education is not a priority. But research has shown that even small amounts of time dedicated to physical activity in elementary school children can be productive when trying to achieve peak academic performance (Mahar, Murphy, Rowe, Golden, Shields, and Raedeke, 2006). Mahar et.al. looked at the effectiveness of a classroom-based physical activity program on elementary

school children's on task behaviour during academic instruction time. Results indicated that students on-task behaviour significantly increased after 10 minutes of classroom based physical activity (Mahar et. al., 2006). In addition, Coe et al. (2006) examined the effect of physical education class on academic achievement in middle school children. Based on individual grades in the core classes (math, science, English and world studies), results from this found no significant difference in academic achievement when comparing grades of students who participated in physical education when compared to those who did not. More importantly, a reduction in 55 minutes of classroom time each day, for physical education, did not result in an inferior academic performance either (Coe, 2006). Similarly, Carlson et al. (2008) found that time spent in physical education did not impair academic achievement. Using the time allotted for physical education as it was intended to can increase the quality of learning while providing students the opportunity to meet their physical activity requirements. To gain an understanding of the of the physical activity environment of the students, they were asked about their participation in both structured (Physical Education and organized sports) and unstructured (play and recess activities) physical activities.

Recess, or activity break, is another time period which provides students with the opportunity to be physically active and is an optimal time for children to engage in unstructured physical activity. When discussing the physical activity environment of the schools, teachers indicated that the facilities found within some of the schools did not provide an optimal environmental setting for students to engage in Physical Education or recess activity. During school visits it was observed that ground space was limited in the majority of schools visited. Classrooms lined the perimeter of the outdoor courtyard, thereby limiting the space for physical education classes and recess activity. In one of the schools in particular, inadequate parking in

the neighbourhood resulted in teachers parking their vehicles on school grounds reducing the space available for physical activity during recess. This practice negatively affected the type and extent to which students can play during recess period. Based on observations made about the physical activity environment of Trinidad and Tobago schools, the KABP questionnaire included items on length and frequency of PE, and activities participated in during recess.

With regards to physical activity, it is well understood that interpersonal, social and physical environmental factors can influence a child's level of physical activity (Sallis, Prochaska, Taylor, 2000). Children's perceptions of their physical and social environments in their home and neighbourhoods have been linked to participation in physical activity and therefore safety has been included in previous self-reported questionnaires regarding physical activity of children (Hume, Salmon, Ball, 2006).

5.2 Development of Version 1.0 of the KABP Questionnaire

There is no singular correct way proposed for identification of concepts to be measured within the process of questionnaire development. Identification of concepts to be measured has been conducted in a number of ways which have included, but are not limited to, review of the literature, interviews with experts, self-reported measures from participants, and incorporation of issued identified in previously validated questionnaires (Stewart, Lynn and Mishel, 2005; Stevens, 1999; Parmenter, 1998; Tefel, 1997). Similar to the *Pathways* study (Stevens, 1999), the current study sought to develop a KABP questionnaire to assess the effect of an intervention of a larger study on health related outcomes among children. In the *Pathways* study a team of nine experts familiar with the culture and environments of the American Indian tribes were asked to identify key concept areas to be measured within the questionnaire. For the current study, data obtained from key stakeholder groups was used in constructing various concept areas for the

KABP questionnaire to address. Unlike the Pathways study where only adult stakeholders participated, within the current study students were consulted as stakeholders in the interview process. The voices of school aged children provided a perspective about their diet, physical activity and the health related environment of their schools. Children are in the best position to provide data regarding their thoughts and experiences regarding the issue under investigation. Inviting students into the research agenda can be an empowering as it not only directs the research, but also respects the voices of the students. Their involvement could impact changes in the students that go beyond acquisition of knowledge to a lifetime application of knowledge and experience (Henry, Kalyn, Ramdath et al., 2010). This also helped to ensure that the KABP questionnaire was culturally and age appropriate for the target population (Stewart, 2005). The information from focus group discussion with students was combined with those of the adult stakeholders. Data from these groups were combined with information from the literature as well as previously validated questionnaires to generate questions for the KABP questionnaire.

5.2.1 Socioeconomic Distribution of Student Interview Participants

The responses from student interviews were used to assist in the development of the constructs to be measured by the KABP as well as create age appropriate, relevant, responses to the KABP questions. The children who participated in the interview process and the pre-test did not represent fully the general population in Trinidad and Tobago. Most were children from middle-high income households whose parents were university professors, graduate students or employees of the University of the West Indies, St. Augustine campus. Given the population it can be assumed that their parents also had a higher level of education. This may have had an impact on the responses given by the students during the interview, especially on type of foods regularly consumed as well as frequency of food consumption. It has been documented that

adolescents of parents with higher education reported a higher frequency of consumption of fruits and vegetables than adolescents of parents without higher education (Bere, van Lenthe, Klepp and Brug, 2008). Students of parents with higher education reported higher values for perceived accessibility, preference and knowledge of fruits and vegetables. The work of Bere et al. (2008) also reported disparities in fruit and vegetable intake with relation to family income. Children of families with a high incomes reported higher accessibility of fruits and vegetables at home. Given that the children who were interviewed for the questionnaire were from families where at least one parent has a high level of education and can be assumed to fall into a higher income bracket, their knowledge, intake and exposure to fruits and vegetables may be higher than the average child their age. This factor may have influenced the initial draft of the initial questionnaire.

5.3 Pre-testing of the initial KABP Questionnaire

Pre-testing of the initial questionnaire was done to make sure that the questionnaire was understandable, culturally appropriate and acceptable to the audience. The method of pre-testing used in the current study was quite similar to the pre-tests conducted in the Pathways study (Stevens, 1999). In both studies (Stevens and the current study), the pre-test students were asked the follow up questions “what do you think this question is asking?” and “does this question make sense to you?”. In this study, the KABP questionnaire was pre-tested on different group sizes, one-on-one and small group. This allowed for more in-depth responses from students and gave students the time to pose questions during the pre-test without the pressure of other students wanting to progress through the questionnaire at a faster pace. Much like the classroom pre-test conducted in the *Pathways* study, utilizing the classroom for pre-testing in this study provided a familiar setting for the participants and allowed the researcher to observe general reactions and

level of comfort with the questionnaire. In addition it provided an opportunity to understand how well the tool would work within the classroom setting.

5.3.1 Pre-testing to Ensure Content Validity

Pre-testing was used as a method to determine the extent to which outcome assessments thoroughly and appropriately assessed the skills or characteristics it is intended to measure. This is termed content validity. Content validity is important in determining the validity for children's self-reported instruments. Like the methods used in the development of the KABP questionnaire, Stewart and colleagues (2005) reported that using qualitative data generated by children to define the context of interest is a promising method for developing self-reported measures. In this study staying true to the qualitative data produced by the children allowed the questions to reflect the child's language and experiences. Pre-testing was another step taken to ensure the content validity of the questionnaire. Stewart and colleagues (2005) used the pre-test with students ages 8-16 with the primary goal of monitoring children's thoughts, reactions, comprehension and understanding with regards to the instrument being used. Incorporating children as the experts to develop and pre-test instruments also served as a method of member checking (Stewart, 2005). These methods employed during the KABP development process helped to enhance credibility of results as well as establish content validity within questionnaire items. Following the pre-testing of the KABP questionnaire, the responses from the pre-test were used to modify the questionnaire. Pre-testing can serve as an effective method to assess the content validity of a KABP questionnaire.

5.3.2 Practicality of a Questionnaire as a Method of Outcome Measure in Students

When conducting the pre-test, the researcher observed that participant's ability to answer the questions from the KABP questionnaire varied considerably. Some students completed the

questionnaire with little to know hesitation while others struggled to understand what the questionnaire was asking of them. The older student who participated in the pre-test appeared to have a quicker grasp of what was being asked of them. Teachers of the younger students (8-9 years of age) indicated that the questionnaire was a "bit over their heads". The younger students appeared to struggle with questions with responses which were on a scale about their feelings. Results from the *Pathways* study, which developed a KAB questionnaire, suggested that separating the children into separate groups for individualized testing may reduce confusion and improve accuracy of responses (Stevens, 1999). Within the current study the questionnaire was administered in classroom settings, which was assumed to be a setting in which students would receive guidance from their teachers during questionnaire administration. One option to increase clarity would be to create individual questionnaires tailored for each grade level. This was not feasible for this study given the time constraints of this study. Having the teachers cluster the students into smaller groups based on cognition level may also allow for more individualized monitoring and assistance which could also lead to more reliable responses from the students.

During pre-test questionnaire administration, on a number of occasions, students had to be reminded that the questionnaire did not contain right or wrong answers. Pre-testing revealed that some students wanted to answer the questionnaire with what they felt was the right answer not necessarily the answers which were relevant to their lived experience. This may have led to some improper answering of the questions, however, once students got a grasp of what was being asked of them questionnaire administration progressed smoothly. Overall pre-testing the questionnaires to this population was an effective way of ensuring that data gathered on health knowledge, attitudes beliefs and practices would be relevant to the children aged eight to eleven in Trinidad and Tobago.

Chapter 6: Summary and Conclusion

6.1 Summary

Schools provide an efficient and effective way to influence health related behaviours while lifelong patterns are being formed. With the implementation of health programming in schools comes the need to monitor and evaluate program specific outcomes. Questionnaires can offer an objective way of gathering information about the knowledge, beliefs, and behaviours while evaluating program specific outcomes (Boynton, 2004). One of the major criticisms of questionnaires is that they assume a shared culture between those developing the questionnaire and the research participant (Gillham, 2000). If the culture between the researcher and the research participants is not shared, the meaning and context of the questionnaire can be lost therefore compromising the quality of data collected. The correct cultural context is vital to the success of an evaluation tool and must be developed in a way which is sensitive to the beliefs and characteristics of a particular social, ethnic or age group (Stevens, 2003). The incorporation of the research participant's culture is imperative as culture has a very powerful effect on health-related behaviours (Teufel, 1997). When children are the study participants, evaluation tools need to be both culturally sensitive and age appropriate. Currently, little information exist on the development of culturally sensitive, age appropriate, evaluation tools. The present study sought to address the gaps in previous literature by describing the process used to design a culturally sensitive, age appropriate, KABP questionnaire.

The KABP questionnaire was developed to assess the effect of a larger project focused on the integration of a teacher led intervention for infusing health promotion across primary school curriculum in Trinidad and Tobago. Community based action research was the approach used in

this study and is a collaborative research process between the researcher and the stakeholders which is focused on the interests of a group or community. Data gathered from stakeholder interviews, on sight observations and literature search were used to identify the themes which would help to build the questionnaire. A total of 32 stakeholders including 19 school aged children were included in the interview portion of the study. Themes from the interviews included: lifestyle of the students, school feeding programs, teachers and programming, parental involvement, financial cost associated with healthy eating, and media/foreign influences. The questionnaire addressed physical activity during school hours, physical activity outside of school hours, sedentary behaviours, nutrition knowledge, food/snacking behaviours and feelings towards healthy eating and active living. Twenty seven students participated in the pre-test portion of the study. The draft KABP questionnaire was further modified following the pre-test results to form Version 1.0 of the KABP questionnaire

6.2 Limitations

This study aimed to describe the process of a culturally sensitive, age appropriate, KABP questionnaire to assess the effect of a teacher led intervention on integrating health promotion across the curricula for primary school children in Trinidad and Tobago. Qualitative methods were employed to develop the questionnaire. One of the strengths of qualitative research is that it provides information rich, detailed accounts of the research topic. The weakness within qualitative research comes in from the fact that these detailed accounts are obtained from a small number of sources. Therefore, results many not always be transferable to those other than study participants. By including varied perspectives from the school community in the interview portion of this study the researcher aimed to reduce this limitation. Transferability across the Trinidad and Tobago student population was insured by making the most use of the themes

which were pervasive throughout the stakeholder interviews. Although a small number of stakeholders were interviewed, including stakeholders with varied perspectives and combining these perspectives to form the themes of the questionnaire allowed for increased transferability of the data.

A second limitation found within this study was the short research term in Trinidad and Tobago. As the research term was three months long it required a quick adaptations and efficient use of time from the research team. Total emersion within the Trinidadian culture allowed for a steep learning curve. However, having guidance from the local research team for the larger teacher-led intervention allowed for quick establishment of the connections needed to for data collection to progress. Guidance from the research team was especially helpful in making stakeholder contacts for the interviews and site visits.

Lastly, a lack of parental involvement during the interview portion of this study may be viewed as a limitation of the study. Questions within the KABP questionnaire which dealt with practices inside the home were based on information provided in the student group interviews. Given the young age of some of the students interviewed (8-9 years of age), inclusion of proxy reports by parents could serve to verify the students responses (Sithole and Vegelers, 2008). Although both sources may have drawbacks (children can often times have difficulty remembering while parents may not be completely aware of physical activity conducted when parents are not present), Statistics Canada (Sithole, 2008) revealed that parents' proxy reports of child physical activity were not statistically significant than the child's self report. Although not a conventional method of verification, Sithole and Veglers (2008) suggest that the inclusion of parent's proxy reports is a logical way of comparing activity levels. Inclusion of parents has the potential to provide more insight into the daily lives of the students.

6.3 Recommendations for Future Research

Based on the results of the data collection process and the pre-testing of the questionnaire three recommendations for future research have been made. The first recommendation is the need for more research to be done on questionnaire administration to children of this age and population. Within Trinidad and Tobago the education system has a strong focus on academic success. The KABP questionnaire was designed to focus on the whole person. There may have been a disjoint between how students are normally tested and what the research team was asking of them. This may have led to some improper answering of questions. Research needs to uncover if questionnaire administration is the best form of data collection when assessing health behavior changes within this age and population group.

The second recommendation for future research would be to develop age group specific questionnaires. During the pre-test the younger students (8-9years) struggled more than the older students (10-11 years). Although in this age group (8-11years) language and reading skills are sufficiently developed to answer a questionnaire, memory capacity is not consistent across this age group (Borges, Leeuw, Hox, 2000). Retrospective recall is harder for younger children (8-9years) because they are still developing memory capacity, where memory capacity of children ages 10-12 is almost at the same level as adults (Warren, Marsil, 2002). Development of two questionnaires, one specifically tailored to the younger age group and the other to the older age group within the target population may make the questionnaire more straight-forward for the younger population and in-turn increase response accuracy.

The last recommendation for future research would explore the views of parents as stakeholders in the KABP questionnaire development. With information from the parents, the research team would be able to compose a more complete picture of the students lived

experiences. Insight to parental observations and concerns would be useful in guiding questionnaire development (Slater et al, 2009). Inclusion of parents as stakeholders also has the potential to identify areas of concern which were not identified by other stakeholder groups. Data from the parents would also serve as support for the responses given by students. Including parents as stakeholders has the potential to provide a more accurate image of students daily activities and help to identify gaps between parents, school facilitators, and students.

6.4 Personal Impact

Conducting research in a foreign country is not an opportunity which many masters' students receive. The opportunity to work within the Caribbean is even more special to me because both of my parents immigrated to Canada from the Caribbean. As both my parents are originally from the Caribbean this population is one with which I closely identify with. Although I am of Caribbean heritage I was raised within Canadian culture and the health related issues of the children in the Caribbean was not a topic I was well versed in. This project gave me the opportunity to fully immerse myself in a culture other than my own. In this section I will share some of the lessons I have learned as a researcher as well as an individual.

I feel I learned the most important lessons during the interview portion of the KABP development. The first few interviews conducted were shorter as the respondents did not elaborate on their thoughts. As I got more familiar with the interview process I learned the importance of making the respondents feel comfortable and ultimately more willing to engage in the interview process. The interview process also allowed me to understand the feeling of empowerment interviewing brings to the interview participants. Throughout the interview process it appeared that respondents appreciated the ability to give a voice to the issues that they were seeing in their schools and communities.

With regards to data collection I faced a number of challenges within my field experience and data gathering process. As I was stationed in Trinidad during the summer months, by the time I got acquainted with my surroundings and got into the groove of research, schools closed for summer vacation. Initially the plan was to interview students within the classroom, however, since this was summer, most students were on holidays. I became very creative with locating students for interviews and to participate in the pre-test. Difficulty locating research participants was not isolated to students. Locating stakeholders for interviews was difficult as there were a total of five public holidays during my three month field experience. This project allowed me to learn some valuable lessons about data collection and how to make the best use of the data which was available. These experiences taught me how unpredictable research can be and how to make the best of the situations presented. Despite these challenges I was still able to collect quality data.

Up until my research at the University of Saskatchewan, I had only been exposed to quantitative data collection and analysis. This project allowed me to grow and develop as a qualitative researcher. Though my class work and the experiences I had in Trinidad I was able to understand and embrace the importance of the kind of data qualitative research methods provide. The type of information required to develop this KABP questionnaire could not have been possible using quantitative research methods. Using qualitative methods provided detailed, information rich accounts from which the KABP questionnaire could be built upon.

Prior to beginning this master's project, I was not well versed on the nutritional related issues within schools. Given that my undergraduate degree was in Human Kinetics, I personally focused on the physical activity environment of school age children. This project has brought to

life the importance of promoting healthy lifestyles to school age children. As a result of my participation in this project, I feel this is a field in which I will continue further research.

Chapter 7: Epilogue

7.1 Introduction

Version 1.0 of the KABP questionnaire was used as the foundation from which the final questionnaire (Version 2.0) was built. Upon completion of Version 1.0 of the KABP questionnaire the questionnaire was pre-tested a second time and underwent further revisions. These were carried out following the researchers return to Canada by a trained research assistant under the supervision of the research team for the larger study. A second research term in Trinidad, a year later, gave the researcher the opportunity to witness the administration of the final version of the questionnaire during midpoint data collection. This chapter will describe the second round of pre-tests and the subsequent changes that were made to bring the questionnaire to version 2.0.

7.2 Development of Version 2.0 of the KABP questionnaire

Version 1.0 of the questionnaire was administered to a second group of students from three public primary schools in Trinidad, representing both urban and rural settings, during the fall term September–December, 2008. An approximately 80 students contributed input. The same protocol was used during the second round of pre-testing as during the initial. Administration of the second pre-test was undertaken by the trained research assistant as the primary researcher had returned to Canada at the end of the three (3) month field experience. Communication was maintained between the research assistant, the researchers and members of the researcher's supervisory committee, in particular, Dr. Dan Ramdath co-lead of the larger project *" A teacher-led model for integrating health nutrition and fitness across the curriculum"* for which the final questionnaire was intended.

Three primary alterations were made to Version 1.0 of the KABP questionnaire to bring it to Version 2.0. Version 2.0 of the KABP questionnaire can be found in appendix H. The first change was with the formatting of the questionnaire. Version 1.0 of the KABP questionnaire was organized into four sections. The first section was titled 'About you', section two was about the activities students participated in, section three was about the foods students consumed and section four addressed students feelings on healthy eating and active living. During the modification process of Version 1.0, it was deemed that this organization of the questionnaire was confusing for the students. Within a single section students were asked about their knowledge and behaviours surrounding a specific health practice. Students found this difficult to constantly switch from the practices they partake in to thinking about their feelings towards health behaviours and then switching into questions about knowledge on the particular topic all within one section. For this reason the final KABP questionnaire setup was altered. Version 2.0 of the KABP contained five sections. The first section of the Version 2.0 still remained titled 'About You'. Section two was title 'Knowledge' and contained all the questions which assessed student's knowledge of healthy lifestyle practices. Section three focused on attitudes and section four addressed students beliefs towards healthy eating and active living. The last segment, section five dealt with student's practices and the activities they commonly participate in. Reformatting the questionnaire in this concept specific manner allowed for students to focus on one task at a time without having to go back and forth between their feelings beliefs and regular practices.

The second change made to the questionnaire following was the inclusion of open ended questions. Version1.0 of the questionnaire only included closed ended questions. After revisions

the research team decided that some of the questions needed to be further elaborated on. This was done by including an open ended question to support the question item, as seen below:

24. Last week, did you miss any P.E. classes?

☐ Yes

☐ No

If yes, why? _____

Figure 4- Example of an open ended question used in support of a question in KABP version 2.0

Also, open ended questions were included when the research team could not predict the responses of the student. For instance, in the section on attitudes students were asked about what they enjoed about their PE class. The following question asked students to describe what they did not like about their gym class. The inclusion of this question gave the research team insight into why students dislike PE or which aspects of PE drew students away from it even though they do enjoy it.

27. Do you like being physically active?

☐ Yes

☐ No

i. If yes, in what ways?

_____

_____

ii. If no, what do you not like about it?

_____

_____

Figure 5- Example of an open ended question being used when responses could not be predicted. KABP version 2.0

The majority of open ended question items were like the one seen above and asked students to elaborate further on a closed ended question. Some of the open ended questions were quite unique as they asked students to draw pictures and describe the image that they have drawn. Question 6 posed the questions "what does a healthy person look like? What does an unhealthy person look like" and asked the students to draw pictures in the labeled boxes and describe their answers below the pictures.

6. **What does a healthy person look like? What does an unhealthy person look like?** Can you please draw a picture in the box and describe.

A healthy person looks like:	An Unhealthy person looks like:

Figure 6- Question 6 from Version 2.0 of the KABP questionnaire.

This type of open ended question offered the opportunity for students to express themselves with fewer restrictions and provided a wide variety of data as well. Inclusion of the open ended questions allowed the research team to increase their level of understanding of student's lifestyle practice and understand the environment surrounding them.

Lastly, the third major change to the questionnaire was the re-wording of some of the questions. Although the questions had undergone modification during the first pre-test, some questions needed to be further tweaked to fit the age and context of the target population. One of

the changes made were with the questions which focused on knowledge of the food groups. During the development of the pre-test questionnaire, the nutrition knowledge questionnaires did not include the food group names but it did give a number of examples of each. Following the first pre-test these questions were trimmed down and a number of examples within the question response options were removed because it was thought that all the extra words confused the students. A nutrition knowledge question from KABP Version 1.0 can be seen below.

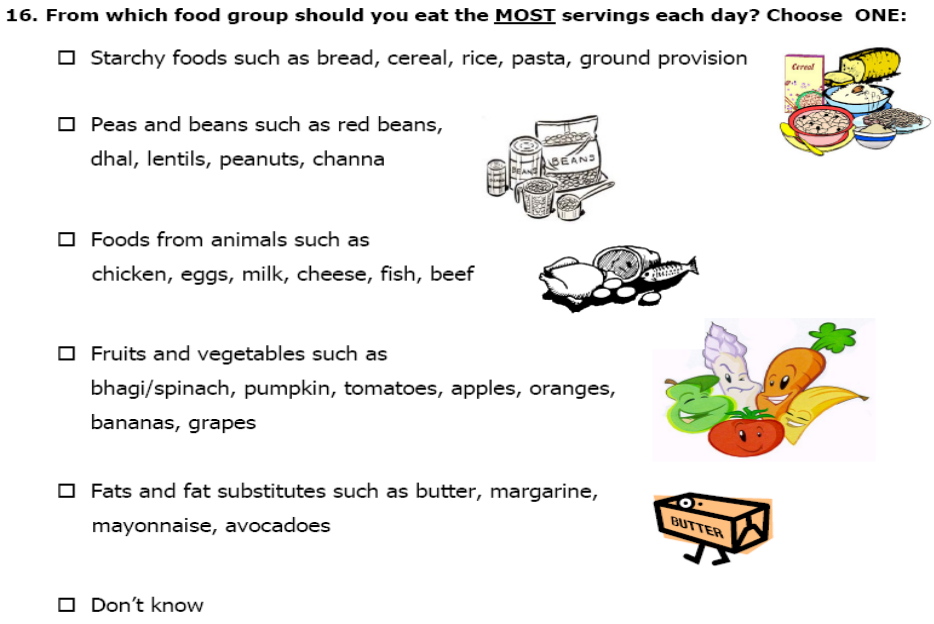

Figure 7- Nutrition knowledge question in version 1.0 of the questionnaire

On further consideration with the nutrition knowledge questions, it was felt that some of these explanations which supported the questions needed to be put back. As seen in figure 8, the information which supported the questions was revised to include all food group category names and give students simple, straight forward information which would help them answer the

questions.

10. From which food group within the Caribbean Food Guide should you eat the <u>MOST</u> servings each day? Choose ONE

- ☐ *Ground provisions* such as breadfruit, cassava, plantains
- ☐ *Cereals* such as bread, cereal, rice, pasta
- ☐ *Legumes and nuts* such as red beans, dhal, lentils, peanuts, channa

- ☐ *Foods from animals* such as chicken, eggs, milk, cheese, fish, beef
- ☐ *Fruits and Vegetables* such as mangoes, pumpkin, bananas, melongene

- ☐ *Fats and fat substitutes* such as butter, margarine, mayonnaise, avocadoes
- ☐ *I don't know*

Figure 8-Nutrition knowledge question in version 2.0 of the KABP questionnaire

Also, upon further analysis, the time periods of some of the questions found within version 1.0 were hard for the students to grasp. Questions with theoretical time periods were changed to reflect actual time periods. Also, the question was altered to include examples of lengths of a television show to give students a reference. An example of a question with a few of these changes would be one of the questions on television viewing. The question from version 1.0 is show below.

14. During the week, how much time do you usually spend per day watching TV?

- ☐ Less than 1 hour per day
- ☐ 1-2 hours per day
- ☐ 2-3 hours per day
- ☐ 3 or more hours per day
- ☐ I do not watch TV

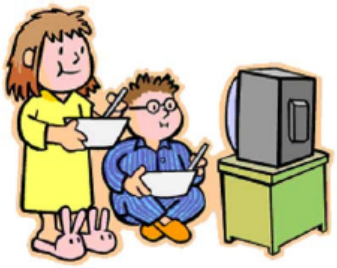

Figure 9- Sedentary behaviour question from KABP version 1.0

In Version 1.0 the question read ‘During the week, how much time do you usually spend per day watching TV?’ following this question was changed to read ‘Last week, how much time did you usually spend watching TV each day? (For example 30 min- 1 hour is approximately as long as the lunch period)’.

32. Last week, how much time do you usually spend watching TV each day? (For example 30min- 1hour is approximately as long as the lunch period)

- ☐ Less than 30 minutes per day
- ☐ 30 minutes- 1 hour per day
- ☐ 1 hour – 2 hours per day
- ☐ 2 or more hours per day
- ☐ I don’t watch TV

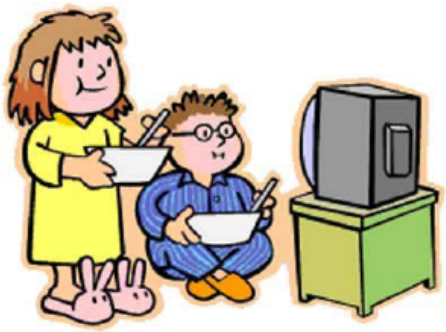

Figure 10- Sedentary behaviour question from KABP version 2.0

This question now asked about a specific frame of time as well as it gave students a reference by which to measure their television viewing time against. The alteration of the wording of the questions made the questionnaire clear and easier for the students to understand and respond to.

The Version 2.0 questionnaire had a slightly different aesthetic than the foundational questionnaire. It consisted of four sections. A total of 10 open-ended questions were added to the questionnaire. The questionnaire was 16 letter pages in length and consisted of 41 questions. Also, four images were added in to make the questionnaire more visually appealing. This questionnaire was used in the intervention *“A teacher-led model for integrating health nutrition and fitness across the curriculum”*.

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Appendices

Appendix A- Guardian Information Letter

THE UNIVERSITY OF THE WEST INDIES

ST AUGUSTINE, TRINIDAD AND TOBAGO, WEST INDIES

FACULTY OF MEDICAL SCIENCES

DEPARTMENT OF PRECLINICAL SCIENCES

BIOCHEMISTRY UNIT

Telephone: (868) 645-2640, ext. 4643, 2776; Fax: (868) 662-1873

Dear Parents/Guardians,

We would like you and your child's assistance in a study that is being carried out by the University of the West Indies, and the Trinidad and Tobago's Ministry of Education, in partnership with University of Saskatchewan. The purpose of this study is to explore means of creating school-based health strategies to ensure the promotion of health and healthy life-style behaviours among school-aged children in Trinidad and Tobago.

Your child will be asked to complete a questionnaire which assesses their knowledge, motivation and skills relating to diet, physical activity, and use of spare time. The questionnaire will take approximately 20-30 minutes to complete and will be administered by a member of the research team.

The information collected from your child will be kept confidential. Neither your child as a participant nor the school will be identified by name in any report or publication that may arise from the research.

Participation in this study is voluntary. You may decline to have your child participate or withdraw at any time and it will have no effect on the school's relationship with the partners- The University of the West Indies, The Ministry of Education, University of Saskatchewan or the researchers. This study has been approved by the University of The West Indies Ethics Committee and the University of Saskatchewan Behavioural Research Ethics Board. Please address any questions or concerns about the research study to Dr.Christine Carrington. Thank you for your participation.

Sincerely,

Dan Ramdath PhD

Head, Dept. of Pre-Clinical Sciences

Appendix B- Guardian Consent Form

THE UNIVERSITY OF THE WEST INDIES

ST AUGUSTINE, TRINIDAD AND TOBAGO, WEST INDIES

FACULTY OF MEDICAL SCIENCES

DEPARTMENT OF PRECLINICAL SCIENCES

BIOCHEMISTRY UNIT

Telephone: (868) 645-2640, ext. 4643, 2776; Fax: (868) 662-1873

I have read and understand the goals of the study and my child's involvement in the study. I am aware of my child's participation in this study is strictly voluntary and that my child may discontinue participation at any time without prejudice. I can also ask that information given be removed from the final report. I also understand that the strictest confidentiality will be maintained throughout this study and that only the research team (including the research assistants) will have access to the confidential information. I acknowledge that I have received a copy of the consent letter for my records. I understand that my child will also give his/her signed consent to participate in the study. If I have any question or concerns I can contact Professor Dan Ramdath or his research assistant Samantha Mitchell. If I wish to clarify the rights of my child as a participant, I may contact the Office of Research Services (306-966-2804).

I _____ am willing to allow my child,

_____ to participate in the study conducted by the College of Pharmacy and Nutrition, University of Saskatchewan, in partnership with the University of the West Indies.

Signature_____ Date_____

Appendix C- Student Assent Form

THE UNIVERSITY OF THE WEST INDIES

ST AUGUSTINE, TRINIDAD AND TOBAGO, WEST INDIES

FACULTY OF MEDICAL SCIENCES

DEPARTMENT OF PRECLINICAL SCIENCES

BIOCHEMISTRY UNIT

Telephone: (868) 645-2640, ext. 4643, 2776; Fax: (868) 662-1873

Month/ Day/ 2009

Dear Student:

This questionnaire looks at what you know, and believe about healthy living. This questionnaire will also ask you and those of other students your age about your daily activities. We want to know what you know about the Caribbean food guide and some of the activities you participate*.* We know that the activities you participate in and the things that you do may not be the same as everyone else. We are interested in your answers to the questions in the questionnaire.

The questionnaire is completely private. No one, except the researchers, will see your finished questionnaire, so please be as honest as you can. If there is a question that you do not know how to answer, or do not want to answer, that's okay, feel free to ask or just go on to the next one.

Do you agree to participate in this survey?

_____ Yes

_____ No

Name (printed): _____

Date: _____

Witness: _____

Appendix D- Stakeholder Consent form

THE UNIVERSITY OF THE WEST INDIES

ST AUGUSTINE, TRINIDAD AND TOBAGO, WEST INDIES

FACULTY OF MEDICAL SCIENCES

DEPARTMENT OF PRECLINICAL SCIENCES

BIOCHEMISTRY UNIT

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Month/ Day/ 2009

Dear Sir/ Madam

We would like your assistance in a study that is being carried out by the University of the West Indies, and the Trinidad and Tobago's Ministry of Education, in partnership with University of Saskatchewan. This pilot study seeks to gain insight into the effectiveness of a program designed to promote nutrition and healthy lifestyle behaviours among children in Trinidad and Tobago. Researchers suggest that there are five essential priorities in school heath promotion and education; the number one being a need to link health curriculum with other school-based interventions.

We are asking you to complete an in-depth interview with a member of the research team lasting for approximately 30 minutes. Results of the study, including information from this interview, may appear in various publications. Neither the names of the participants nor the names of the

schools or school districts will appear in any written report arising from the study. Names of the participants will be replaced with code numbers in all interview transcripts and other data records or master lists linking names to code numbers will be stored in locked cabinets along with copies of all correspondence with participants.

With your permission the interview will be audio-taped. Each participant is free to shut the tape recorder off at any time he/she desires. A transcript of the interview will be prepared from the audio-tape and used to compare and integrate what you tell me with transcripts of from other interviews. When it is completed (in a month or so) I will provide you with a copy of the transcript from this interview to serve as a record of what we discussed. I will invite you to review the transcript and offer comments, but you are under no obligation to do so. Participant can add, or delete any of the information contained in the transcripts. You will not be identified by name in the study or any subsequent publications. The audio-tapes from the interviews, the interview transcripts, notes and correspondence will be stored in locked cabinets in a university office, or for brief periods, at the residence of the research associates. Only the primary researcher, Carol Henry or a member of the research team will have access to the interview transcripts and other research materials and records.

Participation in this study is voluntary. You may refuse to participate, refuse to answer any questions or withdraw from the study at any time with no effect on your relationship with the University of Saskatchewan, The University of the West Indies or the researchers' ethical and professional obligations to you. All information pertaining to the participant will be deleted on withdrawal from the study.

The proposed research project was reviewed and approved on ethical grounds by the University of Saskatchewan Ethics in Behavioural Science Research and The University of the West Indies Ethics Committee.

Thank you for your time,

Dan Ramdath, PhD

Head, Dept. of Pre-Clinical Sciences

I _____ am willing to participate in the study conducted by the College of Pharmacy and Nutrition, University of Saskatchewan, in partnership with the University of the West Indies.

Signature_____ Date_____

Appendix E- Semi-Structured Interview Guide

Semi-structured Interview Guide

1. What do you perceive as a major health issues facing children and youth of Trinidad and Tobago

2. What do you feel are the barriers/ opportunities to positive health behaviours for children? How? Why?

3. What do you believe stops children from having health full food and drink? How? Why?

4. What do you believe stops children from being physically active? How? Why?

5. What do you feel are the various mediating psychosocial variables which influence changes in dietary behaviour and eating patterns?

6. What is your understanding of a health promoting school framework which supports healthy eating choices for children

7. In your view what opportunities exist in schools to implement a health promoting school framework? What are the barriers?

8. In your view what resources (school staff, facilitators etc.) are needed to implement and sustain a Health promoting school approach in Trinidad and Tobago schools?

9. What are the challenges in implementing a health education curriculum in your school?

10. Do you feel the Health and Family Education program currently in place is effective at promoting healthy eating and active living?

11. In your opinion how would you improve the present curriculum to promote and/or improve school health?

12. What do you think are the issues/gaps that need to be addressed in the curriculum? How do we fix these?

13. What suggestions would you have for implementing a Health Promoting School Approach in your school?

Appendix F- KABP Questionnaire Version 1.0

Section 1: About you

1. **What standard are you in? _____**
2. **How old are you? I am_____years**
3. **Are you a:**

 ☐  ☐

4. **What do you think your ethnic background is?**

- ☐ African
- ☐ Indian
- ☐ Mixed
- ☐ Chinese
- ☐ White
- ☐ Other

Section 2: The questions in this section are about the activities you participate in. Please answer the questions by ticking, circling or colouring the answers that best represent you.

5. **Last week, how many days did you go to physical education (P.E) or gym classes?**

- ☐ 0 days
- ☐ 1 day
- ☐ 2 days
- ☐ 3 days
- ☐ 4 days
- ☐ 5 days
- ☐ I don't have PE

6. **During your P.E. class, how many minutes do you spend actually exercising or playing sports?**

- ☐ I do not take P.E
- ☐ Less than 10 minutes
- ☐ 10-29 minutes
- ☐ 30 minutes or more

7. **Do you enjoy your P.E. classes in school?**

- ☐ Not at all
- ☐ A little bit
- ☐ Quite a lot
- ☐ Very much

8. **What do you enjoy about your P.E. classes? You can choose more than one answer**

- ☐ Being active
- ☐ Getting fit
- ☐ Having fun
- ☐ Learning different sports
- ☐ Spending time with friends
- ☐ Learning about healthy bodies
- ☐ Nothing

9. Do you have a chance to be active in other classes OR are you able to move around/play in other classes?

- ☐ No
- ☐ Yes, some other classes
- ☐ Yes, all classes

10. During recess and lunch break, what do you do most often? Tick (✓) ONE box with the response that best suits you

a. At morning recess	Stand around, read, do school work	Walk around	Run around and play a bit	Run around and play a lot	I do not have recess
b. **At lunch**	Stand around, read, do school work	Walk around	Run around and play a bit	Run around and play a lot	I stay in class
c. **At afternoon recess**	Stand around, read, do school work	Walk around	Run around and play a bit	Run around and play a lot	I do not have recess

11. Do one or both of your parents do physical activities with you?

- ☐ No
- ☐ Less than once a week
- ☐ 1-3 times a week
- ☐ 4 or more times a week

12. Do you take part in regular sports and physical activities outside of your school?

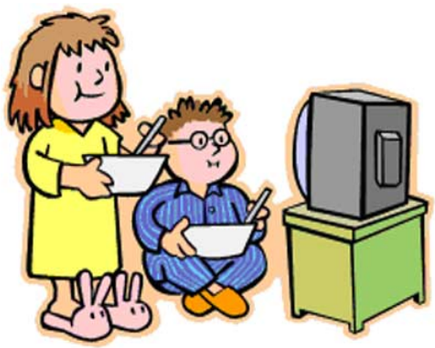
- ☐ Yes, once a week
- ☐ Yes, twice a week
- ☐ Yes, three times a week
- ☐ Yes, four or more times a week
- ☐ I do not participate in extra-curricular activities

13. Being physically active can influence or change many habits and feelings. Do you think that being physically active can change (Tick (✓) the best answer)

a. **The kinds of food you eat**	No	A little bit	A lot	Very much
b. **How you feel**	No	A little bit	A lot	Very much
c. **How you do in school**	No	A little bit	A lot	Very much
d. **Your health**	No	A little bit	A lot	Very much
e. Your body weight	No	A little bit	A lot	Very much

14. During the week, how much time do you usually spend per day watching TV?

- ☐ Less than 1 hour per day
- ☐ 1-2 hours per day
- ☐ 2-3 hours per day
- ☐ 3 or more hours per day
- ☐ I do not watch TV



15. During the week, how many hours per day do you usually spend playing video games or use the computer to surf the Internet outside of school?

- ☐ Less than 1 hour per day
- ☐ 1-2 hours per day
- ☐ 2-3 hours per day
- ☐ 3 or more hours per day
- ☐ I do not own a computer
- ☐ I do not play video games

Section 3: The questions in this section are about the food you eat

16. From which food group should you eat the MOST servings each day? Choose ONE

- ☐ Starchy foods such as bread, cereal, rice, pasta, ground provision

- ☐ Peas and beans such as red beans, dhal, lentils, peanuts, channa

- ☐ Foods from animals such as chicken, eggs, milk, cheese, fish, beef

- ☐ Fruits and vegetables such as bhagi/spinach, pumpkin, tomatoes, apples, oranges, bananas, grapes

- ☐ Fats and fat substitutes such as butter, margarine, mayonnaise, avocadoes

- ☐ Don't know

17. From which food group should you eat the LEAST servings of each day? Choose ONE

- ☐ Starchy foods such as bread, cereal, rice, pasta, ground provision

- ☐ Peas and beans such as red beans, dhal, lentils, peanuts, channa

- ☐ Foods from animals such as chicken, eggs, milk, cheese, fish, beef

- ☐ Fruits and vegetables such as bhagi/spinach, pumpkin, tomatoes, apples, oranges, bananas, apples, grapes

- ☐ Fats and fat substitutes such as butter, margarine, mayonnaise, avocadoes

- ☐ Don't know

18. How many servings of fruits and vegetables should you eat each day?

- ☐ At least 2 servings
- ☐ At least 3 servings
- ☐ At least 5 servings
- ☐ At least 7 servings
- ☐ I don't know

19. How often do you eat or drink the following? Tick (✓)the answer that best represents you

a. Fruits	None	1 time per day	2 times per day	3 times per day
b. Fruit juice (non-sweetened)	None	1 time per day	2 times per day	3 times per day
c. Fruit drinks	None	1 time per day	2 times per day	3 times per day
d. Vegetables	None	1 time per day	2 times per day	3 times per day
e. Peas and beans	None	1 time per day	2 times per day	3 times per day
f. Starchy foods	None	1 time per day	2 times per day	3 times per day
g. French fries or chips	None	1 time per day	2 times per day	3 times per day
h. Soft Drinks	None	1 time per day	2 times per day	3 times per day
i. Cakes and Cookies	None	1 time per day	2 times per day	3 times per day

20. Do you eat lunches from the School Feeding Program?

- ☐ Almost always or always
- ☐ Sometimes
- ☐ Almost never or never
- ☐ I bring my own lunch

21. I think the lunch served in my school is healthy for my body:

- ☐ Yes, almost always or always
- ☐ Yes, sometimes
- ☐ No, almost never or never
- ☐ I bring my own lunch

22. I like to eat the lunches served in my school:

- ☐ Almost always, or always
- ☐ Sometimes
- ☐ Almost never or never
- ☐ I bring my own lunch

23. When you buy food at school, what do you usually buy and how often? Tick (✓) the best answers

a. Bottled water	Never	Once per week	2-3 times a week	3 or more times a week
b. Milk	Never	Once per week	2-3 times a week	3 or more times a week
c. Fruit juice	Never	Once per week	2-3 times a week	3 or more times a week
d. Sweetened Drinks	Never	Once per week	2-3 times a week	3 or more times a week
e. Doubles, Phulorie, Saheena, Roti	Never	Once per week	2-3 times a week	3 or more times a week
f. Sandwiches, Hot dogs, burger	Never	Once per week	2-3 times a week	3 or more times a week
g. Snacks: cookies, corn curls, sweeties	Never	Once per week	2-3 times a week	3 or more times a week
h. Snacks: vegetables, fruit,	Never	Once per week	2-3 times a week	3 or more times a week

24. How often do you eat fast foods?

- ☐ Never or almost never
- ☐ 1-2 times per week
- ☐ 3-4 times per week
- ☐ 5-6 times per week
- ☐ 7 or more times per week

25. The types of food you eat can influence or change :

a. **How well you do in sports**	Not at all	A little bit	A lot	Very much
b. **How you feel**	Not at all	A little bit	A lot	Very much
c. **How well you do in school**	Not at all	A little bit	A lot	Very much
d. **Your health**	Not at all	A little bit	A lot	Very much
e. **Your body weight**	Not at all	A little bit	A lot	Very much

<u>Section 4: The questions in this section are about your feelings on healthy eating and active living</u>

26. How much do you care about:

a. **Eating healthy food**	Not at all	A little bit	A lot	Very much
b. **Being physically active**	Not at all	A little bit	A lot	Very much
c. **Being healthy**	Not at all	A little bit	A lot	Very much

27. The foods I eat now are healthy

- ☐ Yes
- ☐ No

☐ I don't know

28. Do you agree with the following statements: Circle your answer

a.	**I can eat fresh fruit instead of candy**	NO	YES	MAYBE
b.	**I can drink water instead of sweet drinks**	NO	YES	MAYBE
c.	**I can eat healthy at school**	NO	YES	MAYBE
d.	**I can eat healthy or choose healthy snacks when I'm with my friends**	NO	YES	MAYBE
e.	**I can eat healthy when eating with my family**	NO	YES	MAYBE
f.	**I can be physically active even if I have homework**	NO	YES	MAYBE
g.	**I can be physically active 3 to 5 times per week**	NO	YES	MAYBE
h.	**I can be physically active most days of the week**	NO	YES	MAYBE

29. Do you agree with the following statements: : Circle your answer

a. I feel safe when playing in my school

NO RARELY SOMETIMES OFTEN ALWAYS

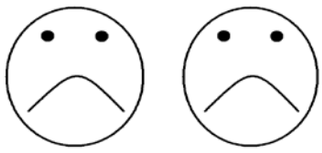
b. I feel safe when playing at a recreation centre or park

NO RARELY SOMETIMES OFTEN ALWAYS

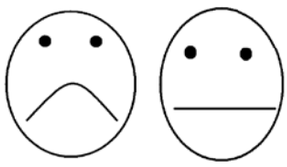
c. I feel safe when playing outside in my neighbourhood

NO RARELY SOMETIMES OFTEN ALWAYS

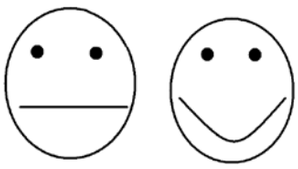
30. Let us know how you're feeling today. Colour the group of smileys that best describes how you feel



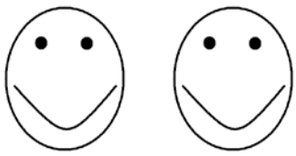
I feel sad/bad



I feel okay



I feel a little happy/fine



I feel happy/good

I feel very happy/ great

Appendix G- KABP Questionnaire Version 2.0

KABP Questionnaire

Date_____

Please provide the following information, which will be used to code your survey results:

First two (2) letters of your first name: _____ Month and day you were born (eg May 24= 05/24) _____

Section 1: About you- we would like to know more about who you are

1. **What standard are you in?** _____
2. **How old are you?** I am_____ years old
3. **Are you a:**

Boy ☐

Girl ☐

4. **What is your background?**

- ☐ African
- ☐ Indian
- ☐ Mixed
- ☐ Chinese
- ☐ White
- ☐ Other_____

5. **What is the name of the town where you live?** (e.g. San Fernando)

_____

6. **What does a healthy person look like? What does an unhealthy person look like?**
   Can you please draw a picture in the box and describe.

A healthy person looks like:	An Unhealthy person looks like:

7. **What does and active person look like? What does and inactive person look like?**
   Can you please draw a picture in the box and describe.

An active person looks like:	An inactive person looks like:

8. **Would you consider yourself healthy?**

☐ Yes ☐ No

Tell us why_____

_____

<u>Section 2: Knowledge-</u> The questions in this section are on your knowledge of healthy lifestyle practices. Please answer the questions by ticking (✓), circling or colouring the answers that best represent you.

9. Have you heard about the Caribbean Food Guide?

☐ Yes ☐ No

I. If yes please tells us where you heard about it: _____

II. What is it _____

10. From which food group within the Caribbean Food Guide should you eat the <u>MOST</u> servings each day? Choose ONE

☐ *Ground provisions* such as breadfruit, cassava, plantains

☐ *Cereals* such as bread, cereal, rice, pasta

☐ *Legumes and nuts* such as red beans, dhal, lentils, peanuts, channa

☐ *Foods from animals* such as chicken, eggs, milk, cheese, fish, beef

☐ *Fruits and Vegetables* such as mangoes, pumpkin, bananas, melongene

☐ *Fats and fat substitutes* such as butter, margarine, mayonnaise, avocadoes

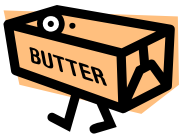
☐ *I don't know*

From which food group within the Caribbean Food Guide should you eat the <u>LEAST</u> servings of each day? Choose ONE

☐ *Ground provisions* such as breadfruit, cassava, plantains

☐ *Cereals* such as bread, cereal, rice, pasta

☐ *Legumes and nuts* such as red beans, dhal, lentils, peanuts, channa



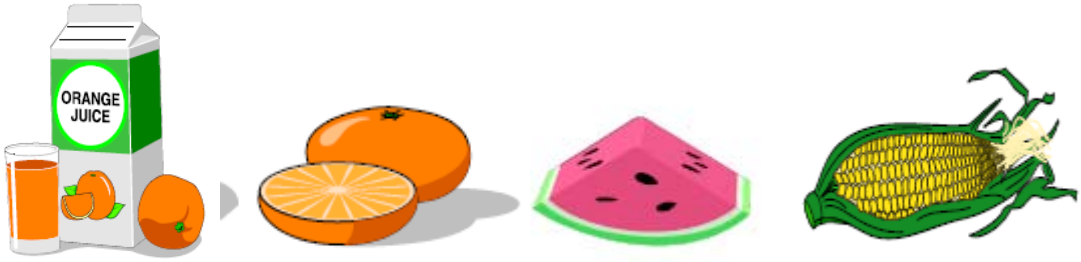
☐ *Foods from animals* such as chicken, eggs, milk, cheese, fish, beef

☐ *Fruits and Vegetables* such as mangoes, pumpkin, bananas, melongene

☐ *Fats and fat substitutes* such as butter, margarine, oil, mayonnaise, avocadoes

☐ *I don't know*

11. According to the Caribbean Food Guide, how many servings of fruits and vegetables should you eat each day? (a serving size is equal to one medium sized fruit, ½ cup of cooked vegetables, or ½ cup of juice)



- ☐ At least 2 servings
- ☐ At least 3 servings
- ☐ At least 5 servings
- ☐ At least 7 servings
- ☐ I don't know

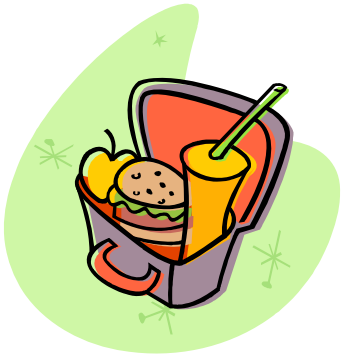
12. Being physically active: (tick as many as you like)

- ☐ Makes my heart stronger
- ☐ Keeps your bones and muscles strong
- ☐ Gives you more energy
- ☐ Helps to prevent certain diseases such as diabetes and heart disease
- ☐ Helps to maintain a healthy weight
- ☐ Does nothing

<u>Section 3:</u> Attitudes- This section contains questions about your attitudes towards healthy eating and active living. Please answer the questions by ticking (✓), circling or colouring the answers that best represent you.

13. I think the lunch served at my school is healthy for my body

- ☐ Yes, almost always or always
- ☐ Yes, sometimes
- ☐ No, almost never or never
- ☐ I bring my own lunch



14. I like to eat the lunch served at my school:

- ☐ Yes, almost always or always
- ☐ Yes, sometimes
- ☐ No, almost never or never
- ☐ I bring my own lunch

15. Do you enjoy your P.E. class in school?

- ☐ Not at all
- ☐ A little bit
- ☐ Quite a lot
- ☐ Very much

16. What do you enjoy about your PE class?

- ☐ Being active
- ☐ Getting fit
- ☐ Learning different activities
- ☐ Spending time with friends
- ☐ Learning about healthy bodies
- ☐ Other_____
- ☐ I do not enjoy my PE class

17. What do you not enjoy about your PE class:

_____

_____

<u>Section 4- Beliefs</u>- This section contains questions about your beliefs towards healthy eating and active living. Please answer the questions by ticking (✓), circling or colouring the answers that best represent you.

18. I believe that the types of food I eat can influence: (Tick (✓)the best answer)

a. The energy I have for physical activity	Not at all	A little bit	A lot	Very much
b. How I feel physically	Not at all	A little bit	A lot	Very much
c. How I feel emotionally	Not at all	A little bit	A lot	Very much
d. How I feel mentally	Not at all	A little bit	A lot	Very much
e. How I feel spiritually	Not at all	A little bit	A lot	Very much
f. How I feel socially	Not at all	A little bit	A lot	Very much
g. How well I do at school	Not at all	A little bit	A lot	Very much
h. My health	Not at all	A little bit	A lot	Very much
i. My body weight	Not at all	A little bit	A lot	Very much

19. I believe that the foods I eat now are:

- ☐ Healthy, most of the time
- ☐ Healthy , some of the time
- ☐ Unhealthy, most of the time
- ☐ I don't know.

20. I believe that being physically active can influence: (Tick the best answer)

a. The kinds of food I eat	Not at all	A little bit	A lot	Very much
b. How I feel physically	Not at all	A little bit	A lot	Very much
c. How I feel emotionally	Not at all	A little bit	A lot	Very much
d. How I feel mentally	Not at all	A little bit	A lot	Very much
e. How I feel spiritually	Not at all	A little bit	A lot	Very much
f. How I feel socially	Not at all	A little bit	A lot	Very much
g. How well I do at school	Not at all	A little bit	A lot	Very much
h. My health	Not at all	A little bit	A lot	Very much
i. My body weight	Not at all	A little bit	A lot	Very much

21. I believe that it is important to:

a. Eat healthy food.	Extremely	Very	Some what	Not at all
b. Be physically active	Extremely	Very	Some what	Not at all
c. Be healthy	Extremely	Very	Some what	Not at all

22. Do you agree with the following statements: Circle your answer

I believe I can make the choice to eat fresh fruit instead of candy

Never Some of the time All the time

I believe I can make the choice to drink water instead of soft drinks

Never Some of the time All of the time

I believe I can make the choice to eat healthy at school

Never Some of the time All of the time

I believe I can eat healthy or choose healthy snacks when I'm with my friends

Never Some of the time All of the time

I believe I can eat healthy when I'm eating with my family

Never Some of the time All of the time

I believe I can be physically active even if I have lots of homework

Never Some of the time All of the time

I believe I can be physically active 3 to 5 times each week

Never Some of the time All of the time

I believe I can be physically active most days of the week.

Never Some of the time All of the time

<u>Section 5: Practice</u>- This section contains questions about the things you do and activities which you participate in. Please answer the questions by ticking (✓), circling or colouring the answers that best represent you.

23. Last week, how many days did you go to physical education (P.E.) or gym class?

- ☐ 0 days
- ☐ 1 day
- ☐ 2 days
- ☐ 3 days
- ☐ 4 days
- ☐ 5 days
- ☐ I don't have PE

24. Last week, did you miss any P.E. classes?

- ☐ Yes
- ☐ No

If yes, why? _____

25. During your P.E. class how much time did you spend being physically active

- ☐ None of the time
- ☐ Some of the time
- ☐ Most of the time
- ☐ All of the time
- ☐ I did not take P.E.

26. During recess and lunch break, what do you do most often? (tick the best answer)

At morning recess I	Stand around, read, do school work	Walk around	Run around and play hard quite a bit	Run around and play hard most of the time	I do not have morning recess
At lunch recess I	Stand around, read, do school work	Walk around	Run around and play hard quite a bit	Run around and play hard most of the time	
At afternoon recess I	Stand around, read, do school work	Walk around	Run around and play hard quite a bit	Run around and play hard most of the time	I do not have afternoon recess

27. Do you like being physically active?

- ☐ Yes
- ☐ No

i. If yes, in what ways?

_____

_____

ii. If no, what do you not like about it?

_____

_____

28. Do you participate in regular physical activity outside of school? (tick as many as you like)

- ☐ Dance class
- ☐ Football training
- ☐ Cricket training
- ☐ Karate
- ☐ Gymnastics
- ☐ Other_____
- ☐ Walk home
- ☐ Ride a bike
- ☐ Play in the yard
- ☐ Play in the park

29. Describe what you normally do afterschool? *For example, ride a bike, walk home, eat a snack, pay in the yard, do homework, watch TV etc.*

_____

_____

30. Do either of your parents (or caregivers) encourage you to be physically active?

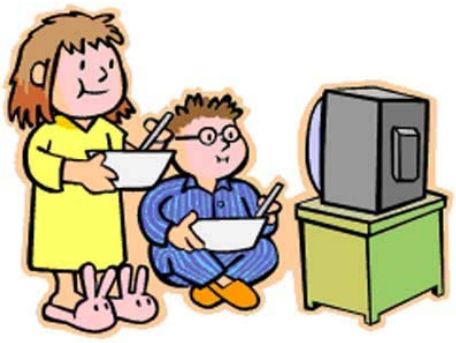
- ☐ Yes
- ☐ No

31. Do either of your parents (or caregivers) do physical activities with you? *Like going for walks, jogging, cycling, swimming, dancing, etc.*

- ☐ No
- ☐ Less than once a week
- ☐ 1 to 3 times a week
- ☐ 4 or more times a week

32. Last week, how much time do you usually spend watching TV each day? (For example 30min- 1hour is approximately as long as the lunch period)

- ☐ Less than 30 minutes per day
- ☐ 30 minutes- 1 hour per day
- ☐ 1 hour – 2 hours per day
- ☐ 2 or more hours per day
- ☐ I don't watch TV



33. Last week, how many hours did you spend playing video games or using the computer to surf the internet outside of school? *This includes X-Box, Playstation, Wii PsP and other computer games.* (For example 30min- 1hour is approximately as long as the lunch period)

- ☐ Less than 30 minutes per day
- ☐ 30 minutes- 1 hour per day
- ☐ 1 hour – 2 hours per day
- ☐ 2 or more hours per day
- ☐ I don't play video games or use the computer

34. When you buy food at school what do you usually buy, and how often? Tick the best answer

a. Bottled water	Never	Less than once a week	1-2 times a week	3 or more times a week
b. Milk	Never	Less than once a week	1-2 times a week	3 or more times a week
c. Fruit Juice	Never	Less than once a week	1-2 times a week	3 or more times a week
d. Sandwiches, Doubles, Roti	Never	Less than once a week	1-2 times a week	3 or more times a week
e. Snacks like Cookies, chips Candy	Never	Less than once a week	1-2 times a week	3 or more times a week
f. Snacks like Vegetables, Fruit, yogurt,	Never	Less than once a week	1-2 times a week	3 or more times a week

35. When you buy food at school where do you usually buy it from?

- ☐ School canteen
- ☐ Outside vendor
- ☐ Other _____
- ☐ I do not buy food at school

36. How often do you eat or drink the following? Circle the answer that best represents you.

a. **Fruits-** such as mangoes, oranges, portugals, bananas

Never once a day twice a day three or more times a day

b. **Fruit Juice** (sweetened)- such as Fruita, Orchard, Tang, Gatorade, Iced Tea

Never once a day twice a day three or more times a day

c. **Vegetables**- such as bhagi(spinach), pumpkin, tomatoes, melongene

Never once a day twice a day three or more times a day

d. **Peas and beans**- such as red beans lentils, dhal, channa, pigeon peas, peanuts

Never once a day twice a day three or more times a day

e. **Starchy foods**- such as bread, cereals, rice, ground provisions

Never once a day twice a day three or more times a day

f. **French fries or chips-** such as potato chips, tortilla chips or other snack chips

Never once a day twice a day three or more times a day

g. **Soft Drinks**- such as Coke, Pepsi, Solo, Chubby, busta

Never once a day twice a day three or more times a day

h. **Cakes and cookies**- such as sweet bread, doughnuts, , pies,

Never once a day twice a day three or more times a day

37. How often do you eat fast foods? *Such as KFC, Royal Castle, Churches, Mario's, Boomers, Pizza Hut, Chinese food*

- ☐ Never or almost never
- ☐ 1-2 times per week
- ☐ 3-4 times a week
- ☐ 5-6 times per week
- ☐ 7 or more times per week

38. When you eat fast food, do you eat it as:

- ☐ Breakfast
- ☐ Lunch
- ☐ Snack
- ☐ Dinner (evening meal)

39. If you eat fast food, where are you most likely to eat it?

- ☐ School
- ☐ Home
- ☐ In a restaurant
- ☐ at a friends
- ☐ other _____

<u>These questions deal with how you are feeling about yourself and your surroundings</u>

40. Do you agree with the following statements: Circle your answer

a. I feel Safe in my school

No Rarely Sometimes Often Always

b. I feel safe at a recreation centre or park

No Rarely Sometimes Often Always

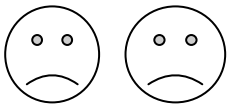
c. I feel safe in my neighbourhood

No Rarely Sometimes Often Always

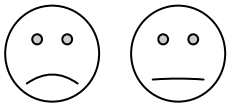
What causes you feel unsafe at school?

_____

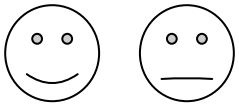
41. Let us know how you're feeling today. Colour the group of smileys that best describes how you feel



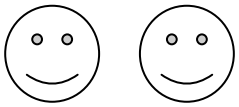
Today I feel sad/ bad



Today I feel Ok



Today I feel good/ fine



Today I feel happy

Today I feel GREAT!

The End!!