

**THE PROMOTION OF HEALTHY EATING IN CHILDREN THROUGH SCHOOL
SNACK AND LUNCH PROGRAMS IN ELEMENTARY SCHOOLS IN SASKATOON**

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ABSTRACT

School snack and lunch programs (SSLP) in Canada are of growing interest as solutions to the rising obesity and food insecurity are sought. SSLP offer nourishment to hungry students during school hours but they also have the ability to influence children's eating habits, to establish sustainable and healthy eating patterns and to thereby prevent childhood overweight and obesity. The purpose of this multiple case study was to 1) gain an understanding of elementary school student and staff perceptions of school snacks and lunches, and 2) examine the impact of a SSLP on children's food choices. Data was collected through a survey with the principals and community school coordinators of 13 elementary schools in Saskatoon, Saskatchewan and group interviews with students who were the primary beneficiaries of a SSLP. Results showed that both students and staff had positive views of their schools' snacks and lunches, and believed that the SSLP provides a platform for promoting healthy eating. This study also revealed that the SSLP may have motivated students to practice healthy eating both in and outside of school. The results reinforce the importance of school-based programs in promoting healthy lifestyles among children.

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DEDICATION

This thesis is dedicated to:

My sweet wife, Veronica Kusiwaah

And our precious kids, Georgina, Caleb and Theresah

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LIST OF ABBREVIATIONS

BFL.....	Breakfast for Learning
CDC.....	Centers for Disease Control and Prevention
CFG.....	Canada’s Food Guide
CHEP.....	Child Hunger and Education Program
CHMS.....	Canadian Health Measures Survey
FFT.....	Food for Thought
Potash Corp.....	Potash Corporation of Saskatchewan Incorporated
SES.....	Socioeconomic Status
SFC.....	School Food Coordinator
SSLP.....	School Snack and Lunch Program

CHAPTER 1

INTRODUCTION

1.1 Background

Over the past decades, children's eating patterns, along with those of the general population, have changed to include a greater amounts of high-fat, high-salt, and high-sugar foods (Stevenson, Doherty, Barnett, Muldoon, & Trew, 2007). These changes can be attributed to changing lifestyles, greater availability of energy-dense food options, and the targeting of food advertising to children, amongst other factors (Stevenson et al., 2007). The recent Canadian Health Measures Survey (CHMS) indicates that a quarter of Canadian children and youth are overweight or obese (Colley et al., 2011; Winson, 2010). Canadian society faces a looming health crisis due to an increasing and unprecedented prevalence of overweight and obesity, as well as diseases thought to be closely linked to excessive weight, such as type 2 diabetes. The Standing Committee on Health of the House of Commons noted in its 2007 report that Canada has one of the highest rates of childhood obesity in the developed world (Merrifield, 2007). The committee further expressed concern that Canadian children today may be the first generation to have poorer health and a shorter life expectancy than their parents, if childhood overweight and obesity are not prevented (Merrifield, 2007). This will have detrimental effects on the nation's development (Merrifield, 2007).

Concerns are being raised about the short- and long-term health implications of rising obesity in relation to disease (i.e., cardiovascular, hepatic, endocrinal), as well as psychosocial problems (McLaren, Zarrabi, Dutton, Auld, & Emery, 2012). Moreno, Johnson-Shelton, and Boles (2013), asserted that childhood obesity is associated with a variety of serious health conditions, including hyperlipidemia, fatty liver disease, asthma, sleep apnea and certain types of cancers. Furthermore, childhood obesity has psychosocial impacts such as lower self-esteem, depression, and behavioral

problems (Moreno et al., 2013). The numerous health challenges associated with childhood overweight and obesity have raised global awareness to target intervention efforts and develop effective population-based programs and policies to combat this epidemic early in life (Wang & Lim, 2012). Studies have established that the long-term health of a child is linked to nutritional habits beginning early in life, and encouraging healthful eating among children should be a priority in fighting childhood obesity and later-life disease risk (Li, Goran, Kaur, Nollen, & Ahluwalia, 2007; Nonnemaker, Morgan-Lopez, Pais, & Finkelstein, 2009; Winson, 2008).

In September 2010, Canada's Ministers of Health and Health Promotion/Healthy Living endorsed the Declaration on Prevention and Promotion, a statement of vision to work together, and with others, to make the promotion of health and the prevention of disease, disability and injury a priority for action (Potvin & Jones, 2011). As a critical first step in helping Canadians live longer and healthier, the federal, provincial, and territorial ministers of health adopted a framework for action that will: make childhood overweight and obesity a collective priority; support healthy eating and physical activity among children; take early action to identify the risk of overweight and obesity in children (Potvin & Jones, 2011). Within this context, educators, nutritionists, and public health experts in Canada have focused on school settings as an optimal environment to address the health of the nation through the promotion of lifelong habits (Quintanilha et al., 2013). To help address childhood overweight and obesity, efforts have focused on health promotion interventions. One of the key health promotion interventions to reduce childhood overweight and obesity is to embark on school-based healthy eating programs (Veugelers & Fitzgerald, 2005a).

The school is an important environment to promote child nutritional health given that the average child spends almost 50% of his or her waking hours in school and will eat lunch and a snack during school hours (Foster et al., 2008). In order to develop an understanding of the increasing

prevalence of childhood overweight and obesity, there is a need to examine the school food environment, the role of structural factors in shaping this environment, the resulting nutrition and health outcomes, and how these environments can be influenced to promote healthy eating and improve health outcomes (Winson, 2010). Recent investigations of school food environments in relation to childhood obesity have explored the positive contributions schools can make in responding to this epidemic (Odum, McKyer, Tisone, & Outley, 2013). For instance, several studies have stated that obesity prevention programs in schools have a positive impact on healthy dietary habits and can contribute to reducing the rate of weight gain in children (Zenzen & Kridli, 2009; Kropski, Keckley, & Jensen, 2008; Shaya, Flores, Gbarayor, & Wang, 2008; Spiegel & Foulk, 2006). As a result, school settings have been put forward as the potential focal point for childhood obesity prevention and for consideration as an important partner in population-level interventions by supporting early development of healthy behaviors, including healthy eating (Johnston et al., 2013 & Fung et al., 2013).

Harper et al and Hyslop (2008 & 2014) have suggested that countries which operate national school food programs should extend services beyond the traditional provision of food to address hunger among children from low income households, to providing opportunities for children to learn the necessary skills to make positive food choices (Harper, et al., 2008 & Hyslop, 2014). Canada, unlike the United States, does not have a national, or federal, school food program and instead relies on provincial and territorial governments, as part of their constitutional responsibilities for education provision, to develop policies to regulate and manage food within school settings (Fung, McIsaac, Kuhle, Kirk, & Veugelers, 2013 & Hyslop, 2014). Presently, every Canadian province and territory has food-related policies aimed at facilitating healthy eating in schools as a broader effort to support child development and disease prevention (see table 1 at pages 20-21 for the provincial and territorial

food guidelines). In Saskatchewan, the Saskatchewan School Boards Association provides nutrition policy for a number of school divisions throughout the province. In 2008, the Saskatchewan Ministry of Education introduced food guidelines called ‘Nourishing Minds’ for all food related programs and activities in schools, and the Saskatchewan School Boards Association also provides nutrition policy for various school divisions. To date, there are various school food programs in Canada, some of which not only provide food to hungry students but also provide opportunities to influence the behaviors of children and, therefore, children’s weight status over time (Fung et al., 2013 & Hyslop, 2014).

In Saskatchewan, there are organizations that work closely with school divisions to support school food programs, with the two most recognized organizations being Breakfast for Learning (BFL) and CHEP Good Food Incorporated, formerly known as the Child Hunger and Educational Program (CHEP). These organizations have helped to provide breakfasts, snacks and lunches in elementary and secondary schools across the province. In 2012, Potash Corporation of Saskatchewan Incorporated (PotashCorp) made the commitment to support existing food programs for school-age children across the Saskatoon Public School Division and Greater Saskatoon Catholic School Division through an initiative called Food for Thought (FFT). The introduction of the FFT initiative has complemented the existing school food programs, and together they provide a comprehensive nutrition education approach which incorporates behavior change and motivation strategies to promote healthy eating in schools (Nijamkin et al., 2012).

In this study, one aspect of the FFT initiative is examined, the snack and lunch program, a population health intervention in schools in the Saskatoon public and Catholic school divisions. As schools incorporate the FFT initiative into their existing nutrition education, it is beneficial to

evaluate the students' direct experiences with the initiative and understand how the program might influence children's eating habits.

1.2 Purpose and objectives

The purpose of this research is to examine the perceptions of the student beneficiaries and the principals of their schools' snack and lunch programs that are supported by the FFT initiative, and further explore whether or not these programs have any influence on student beneficiaries' food choices outside the school and hence healthy eating habits.

1.3 Research questions

1. What are the perceptions of the student beneficiaries and key school staff on the school snack and lunch program?

2. How have the school snack and lunch programs influenced the food choices of student beneficiaries outside their school food environment?

1.4 Context of the study

This study will contribute to understanding children's perceptions of food choices and the influence of these perceptions on healthy eating. Research on the promotion of healthy eating among children by influencing attitudes and behaviors, stresses the need to encourage repeated exposure to a wide variety of foods and to address children's self-efficacy for choosing healthier foods (Chu et al., 2013; Cunningham-Sabo & Lohse, 2014). Studying healthy eating among children from their own perspectives has become increasingly important, not only to inform effective interventions to reduce childhood overweight and obesity, but also to influence children's understanding of what, when, and how much to eat (Pai & Contento, 2014). In addition, a life-course approach that examines dietary exposures across different phases of child development is essential for nutrition-related population health research (Wall, Thompson, Robinson, & Mitchell, 2013). Results from this study will aid

stakeholders of the SSLP to incorporate healthy eating interventions that commensurate with students' perceptions and their typical eating patterns.

1.5 The Food for Thought initiative

Food for Thought (FFT) is a school-based nutrition initiative that was implemented by the Saskatoon Public Schools Division (SPSD) in 2012 in Saskatoon, Saskatchewan. The initiative is funded by PotashCorp and is administered by the SPSD with evaluation support from the University of Saskatchewan. The SPSD administers the funding for the program and provides support through the distribution of the provincial school curriculum guide and Nutrition Positive manuals. PotashCorp, through the FFT nutrition initiative, provides financial support to the Saskatoon school divisions' ongoing nutrition programs. The FFT initiative benefits 20 schools in the Saskatoon Public School Division and 22 schools in the Greater Saskatoon Catholic School Division (PotashCorp, 2014). This research was initiated through a partnership with the SPSD and therefore focuses only the FFT schools within the public system.

At the launch of the FFT project, all public schools in Saskatoon were invited to apply for initial funding to participate in the program. Upon review of applications, fourteen elementary schools and six high schools from Saskatoon Public School Division were selected to participate. The selection criteria included: schools being able to demonstrate the need for assistance, having strong curricular connections to healthy eating, food production in the schools (e.g. community garden, learning garden etc.), a focus on nutrition education, and involvement of families and the community wherever possible. Among the fourteen elementary schools participating in the FFT project, one dropped out before commencement of this study.

The FFT program aims to support policies and practices, which create school environments that promote healthy eating by both students and staff. The long-term goal of the program is to

establish healthy eating habits in students, thereby having a positive impact on childhood obesity. The program includes components such as daily healthy snacks and lunches, with an emphasis on fruits and vegetables, nutrition education based on Canada's Food Guide (CFG) to Healthy Eating, establishment of school learning gardens, and school-community initiatives to encourage parent involvement in the preparation and delivery of healthy snacks and lunches in schools. This study focuses on the schools' healthy snack and lunch programs through the lenses of the school food guidelines, the policies and practices as expressed by school administrative staff which together drive the promotion of healthy eating among students, and the thoughts and opinions of the child beneficiaries of the programs.

1.6 Definition of terms

Healthy Eating: For the purposes of this study, refers to the regular consumption of a combination of foods that provide sufficient energy and nutrients to allow for growth and development, and which also help optimize health and reduce the risk of disease (More, 2002). CFG defines healthy eating as consuming a variety of foods from the four groups to feel good and maintain health (Taylor, Evers, & McKenna, 2005).

Nutrition Positive Schools: These are schools in Saskatoon that embrace the principles of healthy eating by promoting healthy food environments, increasing children's access to fruits and vegetables, reducing sugar sweetened foods, and offering nutrition education aimed at shaping children's food choices towards healthy food options. Nutrition Positive is a concept conceived by the Saskatoon Health Region to help kids eat better, feel better and hopefully thereby achieve better in school within the various school divisions in Saskatoon and area communities. Being a Nutrition Positive School can be simple as incorporating nutrition ideas with nutritious foods into classroom

activities, lesson plans, serving healthy foods for fundraisers or implementing a healthy food policy (<http://www.chep.org/en/programs/nutritionpositive>).

School Food Environment: For the purposes of this study, school food environment refers to the physical settings where cost, availability and other factors influence what students eat while at school. The school food environment includes the foods and beverages offered in school vending machines and school food stores; foods used as rewards and incentives in the classroom or sold as part of school fundraising; peer support of healthy food choices at school; the role modeling behavior of staff; advertising of foods within the school; and school food policies and practices (Kubik, Lytle, & Story, 2005).

Community Schools: In Saskatchewan, the Community Schools designation is part of a strategy to address Aboriginal poverty and to provide enhanced educational opportunities for First Nation and Métis peoples. Their objective is to provide additional supports and opportunities to elementary schools, and to encourage communities and families to become more involved in their children's education, helping them to stay in school and achieve success in life. These are schools, often located in inner-city neighborhoods, which have programs that are directed toward reducing social problems that students may experience and that bridge the gap between the culture of the school and the culture of the home (Bouvier, 2010).

Community School Coordinator: This is a hired staff person who liaises with parents, families and community members from within community schools. Part of the duties and responsibilities of community school coordinators includes supervising nutrition coordinators and managing a school's budget for food (Henry et al., 2006).

Nutrition Coordinator: In the Saskatoon Public Schools Division a Nutrition Coordinator refers to a school staff member who organizes, prepares and serves the school lunches. The Nutrition

Coordinator's duties also include food budgeting, shopping, menu planning and maintaining the school's lunchroom.

CHAPTER 2

LITERATURE REVIEW

2.1 The importance of school-based healthy eating programs

School-aged children are learning rapidly and tend to be influenced by their peers' actions, teachers' advice and popular trends in their social environments, providing a unique and timely opportunity to encourage and introduce life-long, health-related behaviours (Bandura, 2004). Therefore, the promotion of healthy eating in schools offers an important strategy towards managing children's weight while their eating habits and lifestyle practices are developing and may be easily influenced or modified (Quintanilha et al., 2013). Increasingly, research has established that children who are introduced to healthy foods early in life to have a higher probability of developing healthy food preferences and making healthy food choices throughout their life time (Aldridge, Dovey, & Halford, 2009; Anderson et al., 2005). Drummond (2010) studied the impact of nutrition education and cooking classes in primary schools in South Australia and presented a compelling argument in support of encouraging healthy foods exposure early in life. The study found food knowledge, attitudes, and skills that resulted from the initiative were linked to changes in behavior, with foods that were previously disliked and refused at home being sought out during school mealtime by students (Drummond, 2010).

A study with grade 5 students in Nova Scotia found that children who regularly ate breakfast were 50% less likely to be overweight than their counterparts who did not eat breakfast regularly (Veugelers & Fitzgerald, 2005b). The study further noted that children who missed lunch regularly had a higher risk of excess body weight than regular lunch eaters (Veugelers & Fitzgerald, 2005b). It appears to be important to encourage students to eat regular meals as a strategy to maintain normal body weight among children and reduce the likelihood of childhood obesity.

Comprehensive approaches that integrate school-based health programs with family and community efforts have been found to be more successful in promoting health and in preventing adverse behaviours than school-based programs with no family or community integration (Bandura, 2004). As such, Bandura (2004) recommends that school-based programs that promote healthy habits should operate in conjunction with the home, the community, and the society at-large. As Drummond (2010) also stated, school-based healthy eating programs have not only helped to build positive attitudes and habits among students, but have expanded beyond the school environment to influence family members and the community. Eating habits that students acquire through school-based health programs arguably empower them as agents of change in their homes and communities (Drummond, 2010).

School-based healthy eating programs provide an opportunity to enhance children's future health and well-being, because these programs can reach a large population of children, enhance learning, provide social benefits, support growth and maturation at a critical time period when proper nutrition is needed, reduce the risk of chronic diseases in adulthood, and help establish healthy eating habits that will lead to life-long healthy habits (Veugelers & Fitzgerald, 2005a). Health is influenced by an individual's lifestyle and behaviours, and understanding this enables individuals to exercise some measure of control over their personal health, which can lead to longer and healthier lives (Bandura, 2004).

2.2 Determinants of children's healthy food choices

Canada has strived to promote the health of its citizens by encouraging healthy eating nationwide with the provision of a national food guide. The federal government, through the Ministry of Health, introduced Canada's first food guide in 1942 which was called Canada's Official Food Rules, and is known today as Canada's Food Guide (CFG). This official document has gone through

many changes, but still maintains its original purpose of assisting Canadians in making healthy food choices and reducing the risk of nutrition-related chronic diseases. Recently, much attention has been focused on child nutrition, considered an important area of public health policy for healthier citizens into the future (Katamay, et al., 2007). Likewise, provincial and territorial school food guidelines have been developed to engage schools in promoting healthy eating. Healthy eating in children refers to the regular consumption of a combination of foods that provide sufficient energy and nutrients to allow for growth and development and which also help optimize health and reduce the risk of disease (More, 2002). Canada's Food Guide (CFG) defines healthy eating as consuming a variety of foods from the four groups to feel good and maintain health (Taylor et al., 2005). In order to shape children's eating habits, regular exposure to information about healthy food options and tasting a variety of healthy foods should be encouraged. This may contribute to children consuming healthy food products throughout their lives, thereby reducing the risk of developing nutrition-related diseases (Lee et al., 2011).

The interplay of many factors is generally understood to determine eating behavior, including physiological factors and socio-demographic characteristics such as income, education and ethnicity (Martinez-Gonzalez et al., 1998 & Merrifield, 2007). Factors such as gender, age, socio-economic position, preferences, availability and accessibility of food at home and in the school, as well as parental modeling, also contribute to child food intake (Rasmussen et al., 2006). For instance, a study of grade 3 to 12 students found that boys consume more meat and fish products while girls eat more fruits and vegetables (Caine-Bish & Scheule, 2009). Also, parents' socioeconomic status (SES), which includes education level and income status, has been found to be connected to children's food intake and can predict children's eating patterns (Patrick & Nicklas, 2005). Therefore, it is important to consider these factors, and others, when implementing a school food program. With regards to

how the food environment affects children's eating behaviors, Patrick & Nicklas (2005) argued that children are more likely to eat foods that are available to them and easily accessible, and tend to eat greater amounts when foods are available in large quantity. It is therefore necessary to improve children's immediate food environments to encourage healthy eating habits.

Television food commercials serve as one of the first, and most intimate, exposures of food to children. Despite the effort by policy makers to regulate and reduce child exposure to undesirable food advertisements, foods high in fat, salt and sugar continue to be dominantly displayed on television screens globally (Halford, Gillespie, Brown, Pontin, & Dovey, 2004). Research has established the enormous effects of television advertising on children's brand preferences and food intake (Boyland & Halford, 2013). However, efforts are being made to influence children's food choice in schools by using positive food advertisement in the school environment; these interventions are yielding positive outcomes. For example, a study conducted in Rzeszow, Poland revealed a positive impact of healthy foods advertisement on healthy foods being sold in the school environment (Mazur et al., 2008).

Food choice differs among different population groups, and it is essential for studies to investigate the factors and structural conditions that influence what people eat, as well as the social and cultural meanings of foods. As children age, the range of foods they consume not only widens beyond the foods available to them in their home environment, but other factors, such as peers and the school environment, become important in determining food choice and should be considered in public health interventions (Wall et al., 2013). For this reason, schools have become an increasingly important setting for public health interventions to shape children's eating habits, thereby leading schools to implement policies focusing on relevant principles of nutrition in order to strengthen appropriate eating behaviors among students (Mazur, et al., 2008).

2.3 Influencing children's eating behavior

There are different ways through which children learn about eating, including their own experiences and by watching others, especially their parents, peers and teachers (Patrick & Nicklas, 2005). Parents are among the most influential and trusted sources of information regarding food, and parents' eating patterns directly influence those of their children (Patrick & Nicklas, 2005). Parents employ various feeding strategies, including applying pressure, restriction, modeling, rewards, encouragement and repeated taste exposure to promote healthy foods such as fruits and vegetables and to limit sweet and fatty snacks (Moore, Tapper, & Murphy, 2010; Scaglioni, Arrizza, Vecchi, & Tedeschi, 2011). Role models are very important in child development and the promotion of healthy eating. The use of modeling from parents, peers, or teachers can be very effective in shaping a child's eating habits as children may imitate their dietary habits, and the frequency with which children share meals with these role models can influence their own choice of food (Blanchette & Brug, 2005). Research has shown that the presence of an adult, or even a peer, during mealtime encourages children to select healthy foods such as fruits, vegetables and milk (Scaglioni et al., 2011).

2.4 School food environment

Child food selection needs to be understood in terms of how children learn from others in social settings. This knowledge can improve understanding of children's food choices and inform the development of school food programs (Shutts, Kinzler, & DeJesus, 2013). Schools have long been considered ideal settings for primary prevention efforts aimed at supporting and promoting lifelong healthy eating (Kubik et al., 2005). Children today spend considerable time in school and it is understandable that several school-related factors have been identified as important and potentially powerful predictors of children's dietary behaviors (Kubik et al., 2005).

The school food environment includes the foods and beverages sold in school vending machines, a la carte programs, and school stores; foods used as rewards and incentives in the classroom or sold as part of school fundraising; parental and peer support of healthy food choice at school; the role modeling behavior of staff and students; and school food policies and practices that support healthy food choices (Kubik et al., 2005). The school food environment also refers to the context in which students purchase and/or consume food, including the availability, cost, and quality (Olstad, Downs, Raine, Berry, & McCargar, 2011). Availability of unhealthy food and beverages in school is linked to a higher intake of these unhealthy foods options (Cullen et al., 2003). On the other hand, increasing the availability of healthy food and beverage options while decreasing the availability of high-sugar/fat food items in a school has been observed to improve healthy dietary intake among students (Terry-McElrath, O'Malley, Delva, & Johnston, 2009). Determinants that positively influence the school food environment include policies and guidelines which limit certain food items, restricting the use of unhealthy food as a reward in the classroom, setting standards for nutrition education, and having a supportive school community in a collective effort to support healthy food choices at school (Mâsse & de Niet, 2013; Story, Neumark-Sztainer, & French, 2002).

2.5 School food programs

Since the early 1990s there has been growing discussion of hunger among children attending schools in Canada, which has led an increasing number of community organizations and other groups to support food program interventions that offer meals in schools (Dayle & McIntyre, 2003). The organizations that offer these programs are not regulated, nor are they usually required to meet nutrition standards (Gougeon, Henry, Ramdath, & Whiting, 2011). Canada, unlike the United States, does not have a federally funded and mandated school nutrition program. However, some

provincial/territorial governments provide funding to support organizations that offer school food programs (Rasmussen et al., 2006).

School food programs in Canada, such as those which provide breakfast, snacks and/or lunches were implemented in response to changing social, economic, and educational environments that encouraged teaching domestic science in elementary school curricula, which then led to the promotion of hot lunch programs in schools (Henry et al., 2005). Since Canada has no federal regulations mandating school food programs across the nation (Henry et al., 2006), volunteers and non-governmental groups became agents of the state when they initiated ways of addressing child hunger through school food programs (Dayle & McIntyre, 2003). There are over 2200 known school food programs that aim to support child nutrition, health, and the ability to learn in Canadian schools (Russell, Evers, Dwyer, Uetrecht, & Macaskill, 2008). These programs provide breakfasts, snacks, and/or lunches to students across the nation and the programs continue to increase rapidly in number (Russell et al., 2008).

In Saskatoon, Saskatchewan, CHEP Good Food Inc. has promoted children's nutrition through its support of breakfast, snack and lunch programs in schools (Gougeon et al., 2011). CHEP, in partnership with the Saskatoon Public School Division (SPSD), supports the nutrition programs in community and non-community schools (CHEP plays the same role within the Greater Saskatoon Catholic Schools Division (GSCSD), but given the programs offered within that division are not included in this study, they are not discussed here).

The Ministry of Education provides funding to the school divisions for nutrition programs in designated community schools. In addition to providing some funding to run school meal or snack programs, this funding is intended to enhance nutrition-related educational opportunities for children, their families and community, after school cooking classes, and to engage families and community

with nutrition programming (Ministry of Education, 2010). In 2012, PotashCorp made a new financial commitment to support the SPSD's ongoing efforts to provide nutritious meals and snacks daily, enhance school-wide nutrition education, and increase the number of school and community gardens in the city of Saskatoon (PotashCorp, 2013).

Since the 1990s, stakeholders in child education in Saskatchewan have focused on reducing hunger, improving child nutrition to facilitate health and development, and seeking social justice for school-aged children (Henry et al., 2006). This has contributed to the formulation of various nutrition guidelines and policies to address poor nutrition in Saskatchewan schools. The Nutrition Guidelines of the Saskatchewan School Boards Association were first written in 2004 in conjunction with the Public Health Nutritionists Working Group of Saskatchewan. This document provided a framework for nutrition policies in schools and offered tools for assessing the links between nutrition, health and school performance (Berlinic, 2008).

In Saskatchewan, school nutrition policies fall under the purview of Boards of Education who shape and direct these policies to improve student nutrition and health. Through partnerships between these Boards, health regions, parent and student groups, non-governmental organizations, service groups, churches and other concerned individuals, efforts are made to improve the nutritional well-being of students in the province (Berlinic, 2008). For instance, the Saskatoon Public School Division, the Regina Catholic Separate School Division, the Prince Albert Roman Catholic Separate School Division, and the Prairie Valley School Division support and supervise various nutrition programs (Berlinic, 2008).

2.6 School-based obesity reduction in Canada

The school is an important environment for intervention to promote child health given that the average child spends almost 50% of his or her waking hours in school. School-based interventions provide several advantages, including maintaining continuous and concentrated contact with participants, conducting cost-effective interventions, and presenting interventions within the context of children's natural environment (Holsten, Deatrick, Kumanyika, Pinto-Martin, & Compher, 2012). The school environment provides the ideal setting to implement health promotion initiatives aimed at preventing or reducing childhood overweight and obesity. A Nova Scotia study on the effectiveness of school-based programs on children's weight, fruit and vegetable intake, quality of diet, fat intake, and participation in physical and sedentary activities found that schools that only utilized menu changes did not see a significant improvement in children's body weight (Veugelers & Fitzgerald, 2005a). However, schools that utilized menu changes, in addition to Centers for Disease Control and Prevention (CDC) guidelines for school programs promoting physical activity and healthy eating, found a reduction in overweight and obesity rate among students (Veugelers & Fitzgerald, 2005a).

Schools also have the ability to reach children from diverse ethnic and socio-economic backgrounds and, therefore, provide an opportunity to explore the impact of a socio-ecological approach in solving the obesity problem (Naylor, Macdonald, Reed, & McKay, 2006). For example, having chosen the school environment as an ideal location for healthy eating interventions to curb childhood obesity, "Action Schools-BC-Healthy Eating", a comprehensive school intervention to promote fruits and vegetables, was launched in British Columbia (Day, Strange, McKay, & Naylor, 2008). Day, et al. (2008) examined the effects of this whole-school model on modifying the eating behaviors of elementary school children. The study compared eating behavior change among

students in a school that received fruits and vegetables in the classroom, in addition to a healthy eating education program that was offered in both the intervention and control schools. The study showed a significant improvement in attitude among students in the fruit and vegetable intervention schools. The study also revealed an increasing willingness of the children in the intervention schools to try new varieties of fruits and vegetables compared to children in control schools. This supports other findings that children who are exposed to new foods regularly are less likely to exhibit food neophobia (Legg, Puri, & Thomas, 2000). It appears that the intervention examined by Day and colleagues provides an effective tool for novel food tasting experiences, which are identified to be an essential strategy for enhancing food behavior change among children. Finally, the study also impacted a broader agenda, including implementing and promoting policies for healthy vending machines, school meal programs, healthy fundraising policies and healthy eating campaigns.

Another comprehensive school-based program conducted on the Sunshine Coast of British Columbia is “Healthy Buddies”, a peer-led health promotion program designed for elementary school students. The program aims to promote three components of healthy living: nutrition, physical activity, and healthy body image (Stock et al., 2007). Students from 4th to 7th grade (older buddies) in the intervention school received health lessons to enable them to act as peer teachers for their younger buddies (Kindergarten to 3rd grade) students, while the students in the control school received no training. This program uses peer-led education, defined as education delivered to young people by young people (Shiner, 1999). The older buddies learned how to be positive buddies through healthy living lessons given by intervention teachers, and then acted as tutors for their younger buddies (Stock et al., 2007). One of the strengths of the intervention was its ability to combine obesity and eating disorder education along a continuum of disordered eating, unlike other programs that focus only on obesity (Stock et al., 2007). The intervention successfully used the peer

influences of the older students to impact positive health outcomes in the younger buddies while the older buddies also experienced positive health outcomes in the intervention school compared to the control school. This study found students in the intervention school to have a significant increase in health knowledge, behaviors and attitudes compared to students in the control group. Also, the intervention was designed to be flexible in order to meet different school curricula, and could be easily implemented across all elementary schools in Canada and around the globe (Stock et al., 2007). In conclusion, this study demonstrated that peer-led teaching can be an effective tool to achieve comprehensive health promotion in elementary schools.

2.7 Food guidelines and healthy eating

Canada's Food Guide is depicted in a rainbow image displaying the four food groups (vegetables and fruits, grain products, milk and alternatives, meat and alternatives) with examples of nutritious food options in each of the groups. It has recommendations for the quantity of food to eat, dependent on age and sex, advice for specific life stages and directional statements for each food group to guide the quality of food choices. The guide also addresses the importance of variety, food and beverages to limit, added fats and oils, adequate water consumption, physical activity and nutrition labeling.

Recently, much attention has been focused on child nutrition, considered an important area of public health policy for healthier citizens in the future (Katamay, et al., 2007). Likewise, provincial and territorial school food guidelines (to be discussed in detail later) have been developed to engage schools in promoting healthy eating. Table 1 lists various school food guidelines in Canadian provinces and territories.

Table 1: Provincial and territorial school food guidelines in Canada

PROVINCE	SCHOOL FOOD GUIDELINES	WEBSITE
Alberta	Alberta Nutrition Guidelines for Children & Youth	www.healthyalberta.com
British Columbia	Guidelines for Food & Beverage Sales in BC Schools	www2.gov.bc.ca
Manitoba	Manitoba School Nutrition Handbook: Healthy kids, Healthy futures	www.gov.mb.ca
New Brunswick	Healthier Foods & Nutrition in Public Schools	www.gnb.ca
Newfoundland	Go Healthy! Healthy Students, Healthy Schools	www.ed.gov.nl.ca
Nova Scotia	Food & Beverage Standards for Nova Scotia Public Schools	www.ednet.ns.ca
Nunavut	Nutrition in Nunavut A Framework for Action	www.gov.nu.ca
Ontario	School Food & Beverage Policy	www.edu.gov.on.ca
Prince Edward Island	The School Healthy Eating Toolkit	www.gov.pe.ca
Quebec	Going the Healthy Route at School	www.education.gouv.qc.ca
Saskatchewan	Nourishing Minds: Eat well, Learn well, Live well	www.education.gov.sk.ca
Yukon	Yukon Nutrition Framework	www.hss.gov.yk.ca

2.8 Conceptual framework

The Saskatoon Public School Division (SPSD), where this study was conducted, advises that all nutrition practices in the division must be informed by the provincial nutrition guidelines. The framework below shows how guidelines directly influence the various food practices in the schools and in turn guide the SSLP in promoting healthy eating in schools. In the framework, the provincial food guidelines provide the main structural guide for formulating individual schools' food practices, which in turn direct the implementation of SSLP in each school. Although the individual schools choose the kinds of foods served and plan their weekly menus independently, the guidelines provide the needed pathway and guidance in promoting similar healthy eating practices and thereby affect the snacks and lunches in the schools.

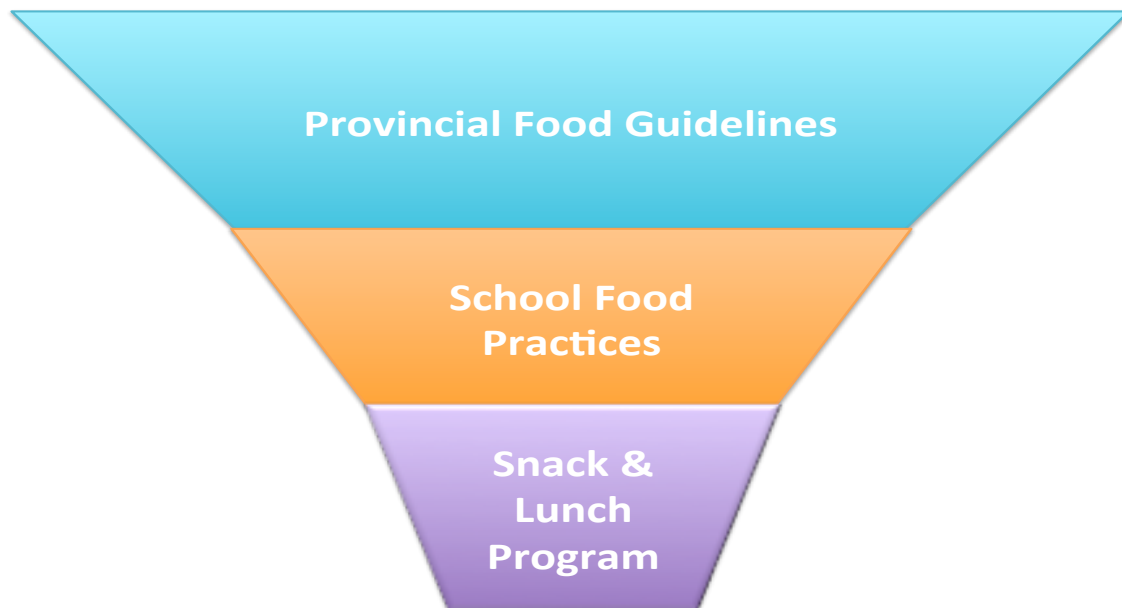


Figure 1: Framework for assessing healthy eating in the schools

2.8.1 Provincial nutrition guidelines

Health has been woven into Saskatchewan Ministry of Education policies through the school curricula. Building healthy eating habits among students requires healthy food policies and guidelines, as well as opportunities to practice healthy eating that will drive behavior changes among children. In Saskatchewan, the Ministry of Education has written food guidelines, called Nourishing Minds, that mandate all school boards to develop food practices reflecting the guidelines provided in this document. Below is the policy statement of Saskatchewan Ministry of Education:

“The Government of Saskatchewan is committed to working with school boards to ensure healthy food in schools. It is expected that the boards of education in collaboration with schools, youth, school community councils, parents and communities adopt and fully implement policies consistent with the guidelines provided in the Nourishing Minds and limit the availability of products high in salt, sugar and fats. Adopting and fully implementing policies based on these guidelines and aligned with the Health Education Curricula will ensure a consistent nutrition standard for all Saskatchewan schools” (Nourishingminds, 2012, p. 5).

Nourishing Minds incorporates the principles of the Comprehensive School Community Health, Saskatchewan Health Education Curricula, as well as the CFG healthy eating guidelines. The goals of Nourishing Minds are to make nutrition a priority in schools in the province, impact learning through good nutrition, facilitate students’ health through nutrition, and promote a nutritional environment that can impact both students’ health and learning (Nourishingminds, 2012). The interconnectedness of Nourishing Minds and the Saskatchewan Health Education Curriculum provides opportunities to reinforce classroom instruction by encouraging students to practice healthy eating (Ministry of Education, 2010). In addition to these principles, the guidelines include a food

rating system for food selection (Choose Most Often, Choose Sometimes, and Prepared Mixed Dishes for example) as categorized by the CFG. The curriculum also aims to enable students to develop confidence and competency in understanding, appreciating, and applying health knowledge, skills, and strategies throughout their lives (Ministry of Education, 2010). The Saskatchewan Health Education curriculum provides an educational foundation for childhood healthy eating in schools across the province. The table 2 below illustrates the areas covered by the Health Education curriculum from grade 1 through 9.

Table 2: Topics in Saskatchewan curricula supporting healthy eating

GRADE	TOPICS COVERED IN THE CURRICULUM
Grade 1	Choosing Healthy Snacks
Grade 2	Following Canada’s Food Guide
Grade 3	Choosing What We Eat: Reading labels
Grade 4	Aids to Good Digestion
Grade 5	Good Nutrition in Adolescence
Grade 6	Body Image and Nutrition
Grade 7	Healthy Eating
Grade 8	Eating Disorders
Grade 9	Promoting a Healthy Food School Policy

2.8.2 School board nutrition policy drives food practices

Nutrition policies in Saskatchewan schools are formulated and regulated by the school boards in the province. School board nutritional policies outline the standard for serving and selling foods in

the school environment, and these standards are important to conforming to the Saskatchewan Ministry of Education's Guidelines (Nourishing Minds) and Canada's Food Guide as well as the Saskatchewan Health Education Curriculum. The Saskatchewan School Board Association is comprised of a number of school divisions. Some of the school divisions have their own written nutrition policies.

Nutrition policies aim to promote healthy eating by supporting healthy food and beverage choices, and set standards for all food served or sold in the school environment. All the 13 SPSD schools involved in this study follow Saskatchewan Ministry of Education's nutrition guidelines. These guidelines direct the food practices and menu planning for the SSLP as well as providing the framework to ensure high quality nutritious food available to the students. In addition, schools are also required to follow these guidelines for food fundraising and other food events, such as First Nations cooking events in school settings.

Food safety standards are a corner stone of the SSLP, ensuring that food and beverages that are offered to the students are prepared, stored, and served in a safe manner. To ensure food safety standards in school settings, all nutrition workers are required to complete a certified Food Safety course offered by Saskatoon Health Region. In addition to the food safety courses, the school division also offers training to all staff who may handle food in the schools to ensure the quality of food served. These practices are the basic foundation upon which the snacks and lunches are built. Details about the snacks and lunches are described in section 3 of chapter 4 of this thesis.

2.9 Summary

Now, more than ever, efforts to promote healthy eating among school-aged children require a school-centered approach that exposes children to healthy food options, in addition to home and community support for healthy eating. A greater focus on the school environment is necessary, not only because schools are ideal settings for population-based strategies to foster healthy eating practices, but also because the current school food environment is a key setting to educate the next generation of healthy citizens. The literature reviewed has established the importance of implementing school-based interventions in elementary schools for promoting healthy eating habits in children. Therefore, these literature provide a strong foundation for this thesis research but also reveal a research gap that this study sought to address. While these afore-mentioned studies utilized intervention and control schools and compared their outcomes, this thesis focuses mostly on the child beneficiaries' views on their schools' snacks and lunches, a gap left in previous studies.

It is clear from the literature that the elementary school stage is a pivotal period in terms of shaping and influencing children's food preferences and habits. For example, three Canadian studies cited in the literature review show the need to develop and implement school-based healthy eating programs in elementary schools that strongly capitalize on this critical stage in life to establish healthy eating habits, which will then theoretically continue into adulthood (Veugelers & Fitzgerald, 2005a; Stock et al., 2007 & Day, Strange, McKay, & Naylor, 2008).

CHAPTER 3

RESEARCH METHODS

3.1 Introduction

This chapter highlights the research design, the study rationale, and the methods used to gather and analyze data on the perceptions of child beneficiaries and key adult stakeholders of the school snack and lunch programs (SSLP) within the schools involve in the FFT initiative. The research methods describe the different sources of data and how they were analyzed to offer the reader the needed information to assess whether the findings and conclusions of the study are credible. This chapter also discusses ethical issues as well as the steps taken to maintain rigor in the study.

3.2 Research design

Regardless of the research paradigm, study design, data collection, and data analysis are important steps in the research process. Research design, including the methods used for collecting data and the techniques used in data analysis, must be aligned with the objectives of the research (Kothari, 2004, p. 30). In qualitative research such as in this case study, the research design is viewed as the expression of the tradition that will be followed clearly and concisely (DePoy & Gitlin, 2011, p. 290). The design is intended to facilitate the smooth sailing of the various research operations, thereby making research as efficient as possible, thereby yielding maximal information with minimal expenditure of effort, time and available resources (Kothari, 2004, p. 32).

As stated in the first chapter, the main purpose of this study was to understand the views of student beneficiaries as well as the school principals of the schools' snacks and lunches supported by the FFT initiative, and further explore whether the programs have any influence on student beneficiaries' food choices and hence healthy eating practice outside the school. In this light, a

decision to explore participants' perceptions and student experiences with their school snacks and lunches using primarily qualitative methods was made. A case study design was considered suitable for conducting this study because it is ideal for describing persons or events in-depth, over time and within the natural environment that they exist without sacrificing the complexity of human experience (DePoy & Gitlin, 2011, p. 311). This case study sought to uncover perceptions of school snack and lunch programs, as well as uncover whether or not students believe these programs have had any influence on their food choices outside the school environment.

3.3 Case study

Case study research is a strategy of inquiry in which the researcher explores in-depth a program, event, activity, process, or one or more individuals (Creswell, 2009). The investigator explores a case, or cases, through detailed, in-depth data collection involving multiple sources of information (Creswell, 2012). The distinctive need for case study research arises out of the desire to understand complex social phenomena. In this case study, my intention was to seek to understand the snack and lunch programs in their natural context and from the perspective of the participants involved (DePoy & Gitlin, 2011). In addition, a case study approach does not exclusively belong to experimental-type or naturalistic research. Rather, the approach is flexible and can be conducted in either research tradition, or it can integrate both traditions (DePoy & Gitlin, 2011).

Stake (2013) categorized case studies into three groups: the intrinsic case study, the single or instrumental case study, and the collective or multiple case studies. The intrinsic case study focuses on the case itself as the issue of interest, while an instrumental case study requires that the researcher focuses on an issue of concern, and then selects one bounded case to illustrate this issue. However, in a collective case study, the issue of concern is selected and multiple case studies are chosen in order to exemplify the issue (Liamputtong, 2013, p. 203-204). The case in this study was the school snack

and lunch programs as part of the FFT program in four elementary schools in Saskatoon. The purpose was to illustrate children's perceptions of their school snacks and lunches and to shed light on how the SSLP may have influenced their food choices. Deploy & Gitlin (2011) argue that the collective case study enables the investigator to examine the same phenomenon across several different cases (p.311). This study used collective case study design to identify characteristics of the schools, describe the perceptions of the participants of the SSLP and examine the impact the programs may have had on student's food choices.

VanWynsberghe and Khan (2008) have argued that a case study is variously conceptualized as a method, methodology, or research design. "They do not see it as a method because case study researchers do not actually collect information using a case study as data collection process. Rather, researchers use different methods such as in-depth interviews, observations, and document analysis to discover the case" (VanWynsberghe & Khan, 2008). Case study researcher Robert Stake also contended that case study research is not a methodological choice but a choice of what is to be studied (Stake, 2013, p. 12). In this case study project, a number of methods were used. First, and most importantly, group interviews with child beneficiaries of the snack and lunch programs were used as the major data source. This group interview data was supported by additional secondary data sources including 1) survey results with school principals; 2) direct observations of snack and lunch times by two research assistants – myself and a colleague, and 3) document analysis of key school board documents relevant to the FFT program.

3.4 Selection of study participants

Prior to conducting the group interviews with student beneficiaries of school snacks and lunches, I (the researcher in this thesis study) secured the needed ethics approval from the Saskatoon Public School Division (see Appendix H for the approval letter). After the ethics approval, I sent

emails to all the principals of the 13 elementary schools involved in the FFT initiative to help identify 6-8 active participants of the snack and lunch programs in their individual schools from grade 4 to 8 who would be interested in sharing their perspectives on the food they receive at school. Several follow-up telephone calls were made to set up dates for conducting the group interviews with the chosen students. The involvement of students in this study was a priority as they are the primary beneficiaries of the snacks and lunches provided by their respective schools, and as a result the findings of this study might be used for improving the existing SSLP and influencing future interventions focused on school snacks and lunches.

There were three main criteria set to select child participants to be part of the group interviews: 1) they should be active beneficiaries of the school snacks and/or lunches and comfortable articulating their thoughts, 2) they must return a consent form signed by a parent and 3) they must orally assent to be willing to participate in the interviews. Over a one month period, all the school principals were contacted to set dates for the group interviews and four of the thirteen schools were scheduled for the interviews. These school principals then designated student participants of the snack and lunch programs they thought would be able to articulate their thoughts well and sent consent forms home with these students. This thesis focuses on these four group interviews as the primary data source while secondary data obtained from the principals during the completion of surveys in addition to four sets of observations conducted in these same schools were also used to contextualize the group interview information.

Although all the 13 schools involved in the FFT initiative run either snack or lunch programs or both, the programs are not run the same in each school and using 4 schools in this case study may seem not to have given a fair representation of the students' views across all the 13 schools. However, the main goal for the snacks and lunches in all the 13 schools is the same; to

promote healthy eating among the students. Therefore, selecting 4 schools with similar characteristics in terms of running their SSLP can serve as a reflection of the programs in all the 13 schools. Personal observation showed that each of the case schools provided free lunch to students who do not bring their own lunches to school. However, some schools also offer universal snacks while others provide snacks to targeted groups. Among the four schools whose students participated in the group interviews, three had universal snacks and the other school had optional snacks for students who need them during school hours. All the four schools selected for this thesis research provide snacks and lunches to students. All the participants in each of the four group interviews were regular beneficiaries of the free snack and lunch programs (from Mondays to Fridays) in their respective schools and were believed to be able to fairly represent the students participating in the SSLP.

In addition, the four principals from these same schools whose survey responses were used in this thesis from among the 13 involved in the School Food Environment survey were all known to be in charge of their respective schools' snack and lunch programs at the administration level. Therefore, these principals' in-depth knowledge and views about their schools' SSLP were considered key additional data for this research. Finally, the direct observation notes taken in the same schools on their SSLP also provided additional contextual information on the programs.

3.5 Secondary data sources

In 2012 – 2013, prior to beginning my thesis research, I was hired to work as a research assistant to administer questionnaires with 13 elementary school principals and online surveys with their pupils as part of a larger study on the FFT School Food Environment study. The online survey involved the general student population rather than the student beneficiaries of the snacks and lunches. And as a result, the online survey was not considered to offer much information related to

students' experiences with the snack and lunch programs and therefore was not considered as rc66sch-fill-15e copy a secondary data source for this thesis research. On the other hand, the survey with the principals covered topics such as the schools' food policies and practices as well as the SSLP and therefore was considered useful in this research.

The surveys with the principals in each of the schools and the online surveys with the students were intended to capture information on the school food environment in relation to supporting healthy eating among students. A written report on the study was sent to the funders of the FFT initiative. Summarized findings from this study have been published as a 'FFT Fact Sheet' and can be found at this link – http://issuu.com/saskatoonpublic/docs/fft_factsheet_spheru04feb14.

Subsequent to administering the surveys with the principals, I became interested in further exploring the views of the student beneficiaries of their schools' snacks and lunches to complement the information from the principals. I considered the survey conducted with the principals on the school food environment and the FFT initiative to be useful secondary contextual data to support this thesis research but because it had already been analyzed for another purpose it was used mostly to support the primary group interview data collected specifically for this thesis research. Throughout the results, the secondary data were used to provide additional meaning to what the primary group interview data provided. However, in section 4.5 of the results, these secondary data were also used to cover areas that student participants had less information on to contribute during their group interviews.

This secondary survey and observation data was used to provide a general overview of the school food environment including the snacks and the lunches. This secondary data provided the context to the students' perceptions of their school snacks and lunches as provided in the group interviews. The data from the principals was collected using a Food Environment Assessment

Survey Questionnaire (see Appendix D). The questionnaire was adapted from a previous study “Think & Eat Green @ School” conducted in British Columbia (www.thinkeatgreen.ca). A team of researchers (including 3 of my thesis committee members) selected questions from this tool that were relevant to the FFT evaluation study and modified the questions as necessary. The tool was pilot tested prior to data collection, and additional changes were made to suit the circumstances of the program in Saskatoon.

The questionnaire consisted of three main parts: 1) a general information section to capture basic information on the school and its student population, direct observations of school food, which included among other things the kinds of foods students eat during lunchtime. These lunchtime observations covered foods served by the lunch programs as well as lunches brought to school by students who were not participating in the school lunch programs. The third part of the questionnaire consisted of close and open-ended questions for the school principals on the school food environment. These included questions about the school food program, food sales and fundraisers, as well as other food and nutrition initiatives such as kids’ cooking and school gardening that exist at the school. The data on the characteristics of the schools, the observation data of the snacks and lunches, as well as responses to the open-ended questions by the school principals on the snacks and lunches were used as secondary data in this thesis.

The school food environment surveys were all administered in late 2012 and early 2013. A colleague and I made telephone calls to all the principals of the 13 FFT schools and scheduled time to conduct the surveys and electronic copies of them were sent in advance by email. In 5 of the 13 schools, the principals responded to the questionnaires ahead of the meeting and my colleague and I spent a short time going over the responses given. In the remaining 8 schools where principals did not fill the questionnaires in advance, I asked the questions from the questionnaire and my colleague

filled in the answers. In addition to the thirteen school principals mentioned above, one vice principal and three school Community Coordinators who support their respective principals in managing the snack and lunch programs, participated in filling out the survey. Although 13 surveys were administered, only the 4 from the schools selected as the cases were used in this study.

Case studies take place in a real-world setting with direct observations of the phenomena of interest offering a source of evidence (Yin, 2014 p.113). Observational evidence provides a dimension for understanding the phenomenon in its natural context and helps validate other sources of data (Yin, 2014 p. 114). Observations are a common procedure to increase the reliability of evidence in a case study (Yin, 2014 p. 115). Direct observations and notes were taken during lunchtime in all 13 of the participating schools by my colleague and I. These observations focused on the kinds of food that students ate at lunch (including the schools' free lunches and the lunches brought to school and eaten in the classroom), the general atmosphere of the lunchrooms, and seating patterns with respect to age, ethnicity, and gender. In addition to the lunchtime observations, we also observed the types of food offered for snacks, fundraising where possible, as well as the foods and beverages available in the one vending machine in the one school that had one. In addition to food, we also observed students' access to quality drinking water, microwaves for warming food, and healthy eating advertisements on school grounds. Likewise survey with the principals, only 4 sets of observations on the snack and lunch programs and the school environment in the selected case schools were used in this study.

Observational evidence complemented the primary data source, the group interviews, to provide rich description of the settings under which eating occurs in the school setting among the children in this study (DePoy & Gitlin, 2011, p. 278). Observations were purposely aimed at gathering firsthand information about social processes in naturally occurring contexts (Silverman,

2006 p. 21). Overall, the direct observations served an important purpose by adding meaning to the data obtained through the group interviews, as well as the survey with the principals.

3.6.1 Primary data collection

The primary data was collected through group interviews, which focused on children's perceptions and experiences with their school's snacks and lunches. A group interview is defined as a method where data is collected through group interaction on a topic, in order to obtain the views, opinions, attitudes, and arguments of participants (Edvardsson, Troein, Ejlertsson, & Lendahls, 2012). Rabiee (2004) states that group interviews encourage participants to positively engage with the research process and are ideally suited for exploring complexity surrounding food choice and dietary behaviors within the context of lived experience. The main purpose of group interviews in this study was to gain the perspectives of child participants on their schools' snacks and lunches based on their lived experiences. This type of interview provides a group effect that enables a broad range of insights on a topic to be gathered in a single sitting (Hennink, 2014; Liamputtong, 2013). Researchers have argued that in some cases, a single group interview can generate approximately 70 percent of the content generated in a series of in-depth interviews with the same number of people (Hennink, 2014). This approach was considered appropriate for collecting data with elementary school children in this study because of the method's ability to address the asymmetric power between the researcher and student participants (Croll, Neumark-Sztainer, & Story, 2001). One of the primary reasons to conduct qualitative research is to explain why certain behaviors or phenomena occur (Liamputtong, 2013), and group interviews provide a forum for participants not only to describe certain beliefs, behaviors, or attitudes, but also to identify the underlying context in which they occur, enabling an explanation of why certain phenomena persist (Hennink, 2014).

Group interviews typically consist of six to eight participants who come from similar social and cultural backgrounds or who have similar experiences or concerns; however, they may consist of more or fewer participants depending on the purpose of the study (Hennink, 2014; Liamputtong, 2013). Participants in the group interviews in this study share a common characteristic as beneficiaries of their SSLP.

In this study, the groups were limited to five or six children per group to enhance the children's comfort and to account for the age and maturity level of the participants (Sylvetsky et al., 2013). A total of 22 students from grades 4 - 8 (aged 9 – 14 years) participated in the group interviews. This age group was considered important because they can articulate enough to express their perceptions and experiences of their schools' snacks and lunches to enable the collection of sufficient information to examine how the SSLP may have affected their food choices. Research has shown that late childhood and early adolescence are key periods when children and youth begin to exercise independence from their parents and are able to evaluate and change their dietary habits and attitudes (Sylvetsky et al., 2013). Among the student participants were sixteen children in grade 6, three in grade 8 and one in each of grades 4, 5 and 7 respectively. The ethnicity of the participants included 6 European-descended, 8 First Nation, 5 Asian and 3 African students based on the researcher's observations (students were not asked to self-identify). There were 12 female and 10 male participants.

The group interviews were conducted during school hours in the schools' lunchrooms. The lunchroom setting offered a natural environment with respect to participants' school lunches and snacks and also to provide a reminder to express their views on the food they receive daily. The interviews were 30 to 40 minutes in length, audio-recorded, and I acted as moderator. On the day of each interview, I arrived at the schools early to meet the principals who had selected the student

participants in their respective schools. Seating arrangements were made in the lunchroom to make a semi-circle to enable maximum participation. After the participants were seated, I introduced myself, explained the purpose of the group interviews and allowed participants to introduce themselves as a means of establishing rapport. Students provided the signed consent forms from their parents to participate in the study. In addition, I read the Students' Oral Assent Form (see Appendix C) out loud and participants orally assented to participate in the study. Assenting is the process whereby a child is afforded the decision-making ability to participate in research or not and this decision is complemented by a legally acceptable surrogate decision maker like a parent as ensured in this study (Lambert & Glacken, 2011). Offering children the chance to assent to research participation helps to address autonomy and beneficence of the research process (Lambert & Glacken, 2011). I emphasized participants' right to answer questions as they wished and their right to withdraw at any time during the interviews.

As the moderator, I explained the rules that participants ought to follow throughout the interviews in order to respect others' views while offering their own at any stage during the interview sessions. Participants were informed about the audio recording of the interviews and I stressed that the recorded voices would be erased after transcription, and the transcripts would be shredded after 5 years. The identities of participants' were kept anonymous by using pseudonyms in the transcripts. Throughout the interviews, I endeavored to keep participants relaxed and used non-verbal actions and gestures such as smiles and gentle finger pointing to draw shy participants into the interviews. These non-verbal gestures were intended to provide a non-threatening supportive climate that helped to encourage all participants in their groups to share their views (McLafferty, 2004). I offered sufficient time to the participants after asking a question to enable them to respond, and in situations where participants gave chorus answers, I used follow-up questions to find the number of

participants who supported the same view. At the end of each group interview, I thanked the participants for their contributions and encouraged them to eat healthy food.

3.6.2 Researcher's motivation

I observed the school snacks and lunches with keen interest as a research assistant administering surveys examining the School Food Environment in 13 elementary schools involved in the FFT program. With a previous background as a teacher in elementary schools for eight years in Ghana and China, I was excited to meet students in Saskatoon to learn their experiences with their schools' snacks and lunches. Furthermore, I had already witnessed three different lunch programs in three different countries – Ghana, China and Finland respectively. The lunch program in Ghana was government funded for elementary school children of lower socio-economic status while the lunch programs in schools that I witnessed in Henan province of China were school-operated and funded by students' feeding fees paid each term. However, the Finnish government runs free universal lunch for all elementary school children. As an educator, these personal experiences provided a strong drive to interact directly with children in the case schools to learn first hand how the student beneficiaries perceive their school snacks and lunches.

As a researcher, I considered group interviews with student beneficiaries of the SSLP as the most important source of data to understand the children's perceptions of their schools' snacks and lunches. Before these group interviews, I had some prior training from a graduate level research methods course, and together with my eight years teaching experience in elementary schools, this enabled effective facilitation of group interviews with child participants. The interviews followed the guide in Appendix A. The questions were open-ended and allowed me to probe students' responses for additional information. The questions explored the children's perceptions of their schools' snacks

and lunches as well as what they may have learned about food from participating in the SSLP, and their individual healthy eating practices outside of school.

3.7 Data analysis

In qualitative research, transcription can be done in two modes: naturalism, in which every utterance is transcribed in as much as detail as possible, and denaturalism, in which pauses and interjections are removed. A naturalized transcription style enables the researcher to capture a conversation verbatim and present the speech as it is spoken by the participant rather than filtered by the transcriber (Oliver, Serovich, & Mason, 2005). The audio recordings were transcribed through the naturalized approach. The data were managed by typing up the transcripts for a detailed review (Creswell, 2012). I read through the transcripts several times during the data analysis process and got feedback from a PhD student friend who is knowledgeable in qualitative research on my analysis strategy. The subsequent series of readings of the entire data text enabled me to familiarize myself with the data. I then cleaned the data and rectified typographical errors. Following the data cleaning, I did another thorough reading to identify common words, phrases and quotes for manual coding. Although the reading check was a time-consuming task, it is necessary for building confidence in the data analysis and interpretation of the findings in the study (Galletta, 2013).

Following the detailed reading of the transcripts, the data were coded and later organized into themes. With support from my supervisor, the themes were further re-organized and coded. Coding involves the process of organizing the material into chunks or segments of text in order to develop a general meaning of each segment (Creswell, 2009, 2012). A two-step approach was used for the coding process, including open coding and selective coding. In open coding, differences and similarities between events, actions, and interactions are examined, while selective coding is the process of integrating and unifying around a core category (Liamputtong, 2013, p 228-230). The

open coding phase was meant to provide a broad framework analysis, organize responses by content areas, and exclude scripts not relevant to the research questions. A coding template was developed as it emerged from the data to capture general ideas including: students' attitudes towards the SSLP, foods they had tried as a result of the program, knowledge on healthy eating, healthy eating practices, and other related areas. Based on the stated template, similar phrases were organized for further coding.

In the selective coding phase, I aimed to identify the major themes regarding the research questions. Four overarching themes were identified: perceptions of the SSLP, program benefits, program challenges, and changes in food choices (see coding template in figure 2). Coded sections of transcripts from the open coding phase were categorized under these four themes. Recurring phrases in a particular group were coded only once per group because the objective was to gather information regarding the opinions of each group, not the number of times a particular theme was mentioned, and attention was given to themes communicated by the majority of the participants. My thesis supervisor evaluated the coded themes and the phrases categorized under these themes. Thematic analysis was conducted after the coding process. Thematic analysis is a method for identifying, analyzing and reporting patterns (themes) within data. It organizes and describes the data set in detail (Braun & Clarke, 2006). As the analysis advanced, other sub-headings were formed from the main themes to dive deeper into the data gathered. I focused on making meaning of participants' perceptions of their snacks and lunches as well as experiences had that could be attributed to participation in the SSLP. In the final part of my analysis, I compared the primary (group interviews) and the secondary data (survey data including structured observations) to make sense of the research results under the four main themes and the sub-themes as illustrated in figure 2.

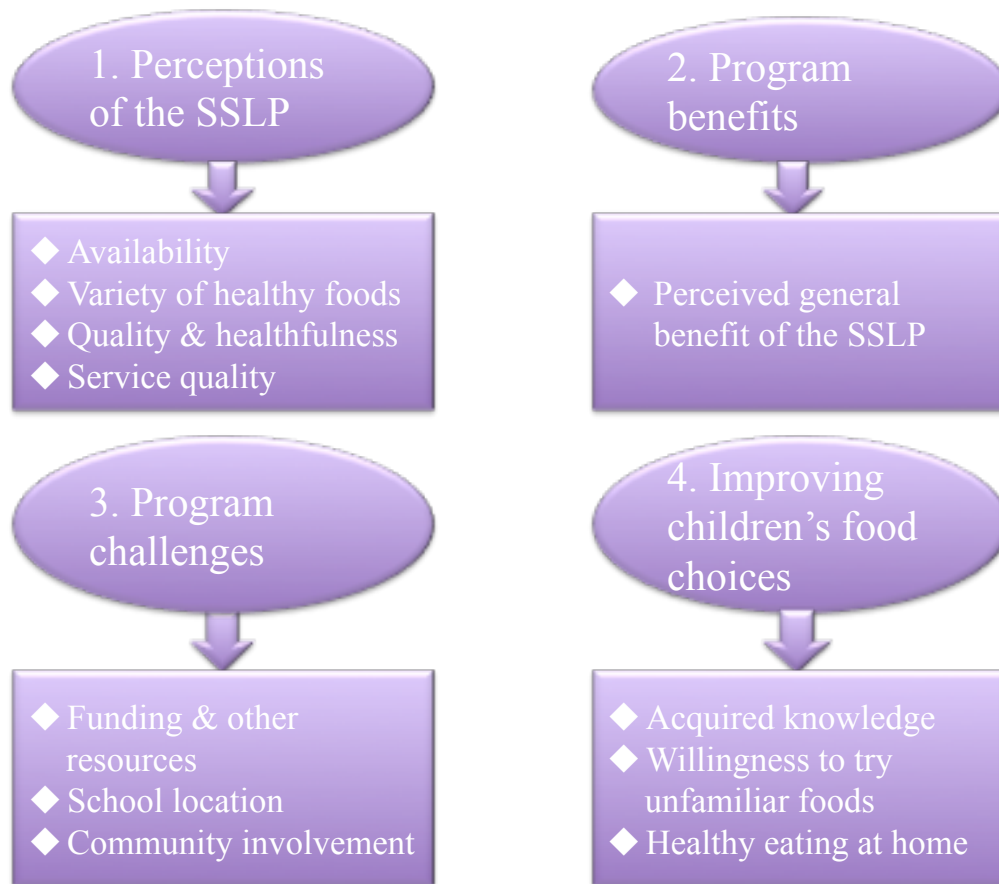


Figure 2: Coding template

3.7 Ethical considerations

Ethics approval was received from the Behavioral Research Ethics Board at the University of Saskatchewan to use the data obtained from the School Food Environment survey as secondary data. I was listed as one of the research assists of the School Food Environment study, however it was necessary to apply for further permission from the board to use the data as a secondary source for my thesis project (see Appendix G). Additional ethics approval was obtained from the Saskatoon Public Schools Division for the students' group interviews (see Appendix H). School principals who participated in the school food environment study survey verbally consented prior to the commencement of the survey. For child participants, parents consented to their participation by

returning a signed copy of the consent form, and children assented before the commencement of the group interviews. Consent and assent forms can be found in Appendices B and C.

Confidentiality is extremely important, particularly when conducting research with vulnerable groups (Liamputtong, 2013). The confidentiality of all the research participants was preserved throughout this study. Strategies to ensure the privacy and anonymity of research participants included having all forms of data (including filled questionnaires, field notes, transcripts and audio recordings) securely stored in password-protected computer files. Further, the identities of the participants were disguised (Liamputtong, 2013). Although direct quotations are reported from the group interviews, participant identities were excluded from the final results. Both the surveys and the group interviews were deemed to pose little risk to the participants, and participants had the right to withdraw at any time during the process. The recordings obtained from the group interviews were deleted upon transcription and the transcribed data will be stored at the University of Saskatchewan for a period of five years and then will be shredded.

3.8 Rigor

Rigor refers to procedures that enhance, and are used to judge, the integrity of a research design (DePoy & Gitlin, 2011 p.84). There are numerous methods of ensuring rigor in qualitative research, some more appropriate than others. The major methods for ensuring rigor are intricately linked with *reliability* and *validity* checks (Denzin & Lincoln, 1998 p.76). Data obtained through questionnaires, group discussions, and researchers' observations provided detailed information which enabled the investigator to present a thorough description of healthy eating promotion in the schools (Harris et al., 2009).

3.8.1 Validity

Validity as it applies to qualitative designs refers to the extent to which a study answers the research questions and produces findings that are accurate or reflect the underlying purpose of the study (DePoy & Gitlin, 2011 p. 90; Silverman, 2006 p. 289). Validity was ensured in this study through member checking, and use of multiple data sources. Member checking was conducted during the filling of the questionnaires. Most of the principals completed the questionnaires by themselves, prior to the scheduled survey time; however, researcher assistants went over the responses with the principals to ensure that the content was an accurate representation of their perspectives and to decrease the potential of introducing investigator bias into the data (DePoy & Gitlin, 2011 p. 280). Farmer et al., (2006) stated that varied data sources can be used to increase the validity of a qualitative study. This involves the use of multiple data sources or respondent groups (Farmer, Robinson, Elliott, & Eyles, 2006). Multiple data sources were used in this study to increase validity and, as stated earlier, these methods include school food environment surveys with the principals, direct observations by two research assistants, some document analysis and four group interviews with child participants.

3.8.2 Reliability

There were steps taken to improve data reliability prior to the survey with the principals. My colleague and I were trained and equipped with the necessary interviewing skills to produce trustworthy data when administering the surveys. Again, my colleague and I did the direct observation together, compiled field notes and reviewed records together to come to consensus (Yin, 2014) to ensure observational data reliability. Similarly, I had training in group interview moderation. Having moderated the group interviews, I went on to do all the transcribing as well as the data analysis. Harris et al., (2009) argued that multiple bouts of listening to audio recordings and

reading transcripts by the same person, could promote increased consistency in results and interpretations. I followed these procedures carefully.

CHAPTER 4

RESULTS

The availability of healthier food in schools can influence the overall eating behavior of children and thereby improve the health of children (Anderson et al., 2005). This section begins by highlighting characteristics unique to each school in terms of how it promotes a healthy food environment for students. Above all, this first results section focuses on the commonalities in light of the snacks and lunches offered to students in the case schools in this study. Next, the chapter also presents findings regarding perceptions of the participants of the snack and lunch programs, benefits and challenges of implementing the programs, and how the programs have contributed to changing participating children's food choices.

This study used group interviews with the student participants as the primary data while surveys with the school principals and direct observation of the snacks and lunches are presented as secondary supporting data focused on describing the program. Four group interviews were conducted in four case schools with a total of 22 student participants, and the survey and direct observation data was collected in all 13 participating schools that helped to provide context for the group interview data. However, in this study the secondary data was solely taken from the surveys and observations administered in the case schools.

In line with the structure for reporting in case study research described by Creswell, research results are presented to enable the reader to develop an in-depth understanding of the program, how children and the principals overseeing the program perceive it and how the program is affecting student food choices (Creswell, 2012).

4.1 General description of the case schools

All four schools included in this study were part of the Saskatoon Public School Division and were active Nutrition Positive schools in Saskatoon that embrace the principles of healthy eating by promoting healthy food environments, increasing children's access to fruits and vegetables, reducing sugar sweetened foods, and offering nutritional education aimed at shaping children's food choices towards healthy food options. Enrollment numbers in the four schools ranged from 220 to 350 as of February 2013 when the school demographic assessments were conducted.

All the four case schools have snack and lunch programs, however, the schools do not run their snack programs in the same way despite having a shared common goal of using their snacks to promote healthy eating in children. Three of the four case schools offer universal snacks to their students while the fourth provides snacks to some students only based on perceived need. Among the three schools that provide universal snacks, two offer them to all students from pre-kindergarten to grade 8 while the third school does not provide snacks to children in pre-kindergarten. The four schools involved in this study reported using their snack programs as a vehicle to promote fruit and vegetable consumption. This assertion was further affirmed by direct observation that recorded primarily fresh fruits and vegetables offered to students for snacks.

When it comes to the lunch programs, the case schools run their programs similarly. While there are differences in their daily menus, the four schools all offered targeted lunches to the students in all grades they perceive as needing the program. The principals reported that the contents of the lunches served in their schools were guided by the Saskatchewan Ministry of Education's Food Guide as well as the CFG recommendations for children. The direct observations conducted support the principals' assertion that the lunches provided in their schools are rich in vegetables and fruits.

The surveys with principals showed that all the case schools share ideas with other schools in terms of what works and what does not in running the snack and lunch programs efficiently.

4.2 The schools' neighborhood characteristics

In order to contextualize the SSLP, it is vital to keep the schools' characteristics and surroundings in perspective. The neighborhoods where the study schools are located have high prevalences of child poverty compared to the rest of Saskatoon (Jackson, Muhajarine, Waygood, Duczek, & Soiseth, 2004). In Saskatchewan, Community Schools were part of a strategy to address child poverty and to provide enhanced educational opportunities for First Nation and Métis peoples. The objective is to provide additional supports and opportunities to elementary schools, and to encourage communities and families to become more involved in their children's education, helping them to stay in school and achieve success in life (http://esask.uregina.ca/entry/community_schools.html). The state of childhood poverty in these neighborhoods can be attributed to the high percentage of low-income families, the high proportion of adults with less than a grade 9 education, as well as the high proportion of single-parent families (Vu & Muhajarine, 2010). In the 1980s the Government of Saskatchewan introduced the concept of community education in the province with a core principle being to establish citizenship building and community development through the inner-city elementary schools. This concept led to the establishment of Community School Programs throughout the province to reflect the principles of community education (Thompson, 2008). Generally, Community School Programs are directed at addressing social problems that may be experienced by inner city students in order to bridge the gap between the culture of the school and the culture of the community (Bouvier, 2010). Two of the schools involve in this case study are designated community schools and benefit from the community schools initiative.

Since its inception, the Community School Programs have been funded through the school division's School Operating Grant allocated annually to ensure equitable education opportunities for vulnerable students. School divisions and other stakeholders in education have consistently advocated for nutrition programs, such as breakfast, lunch, and snack programs, through the Community Schools as a strategy to improve learning, to meet children's hunger needs and supplement their nutritional intake, and to teach nutrition education and skills (Ministry of Education, 2010). The Saskatoon Public School Division together with other government partners collaborated with PotashCorp to create the FFT initiative to increase available funding for nutrition programs in the elementary schools in Saskatoon's core neighborhoods - areas with the highest percentage of child poverty (Jackson, Muhajarine, Waygood, Duczek, & Soiseth, 2004), and the snack and lunch programs receive support through this funding.

4.3.1 Common characteristics of the case schools

In order to provide anonymity for the schools and the students involved in this case study, the case schools are coded by letters A through D and the student participants are coded by their grades (G) and the letter assigned to their schools. For instance, a participant G8A represents a grade 8 student from school A. The four case schools have student populations that ranged from 200 to 350 at the time that the School Food Environment Survey was conducted. Each of the four schools had snack and lunch programs where lunches were offered to targeted students who needed them most during school hours. However, three of the schools offered universal snacks while the other school had a targeted snack for students in need only. These commonalities justify the selection of the four schools in this case study. It is also important to state that the four case schools have other programs that support healthy eating that complement the snacks and lunches. These programs are captured in the detailed description of each school below.

4.3.2 School A

School A is a community school that uses the grant it receives from the FFT initiative for both healthy snacks and lunches that serve students in all grades (Pre K – grade 8). The school runs a universal snack, which is delivered to each classroom every day. The snack was fresh fruits and vegetables when we observed the school food environment and recorded the food offered to students. The school also has a healthy lunch program that provides lunches for students who are unable to provide their own lunch. In addition to the universal snack, there were extra snacks that students can access in the afternoon, and this second snack, together with the lunch program, provides food to about 85 students in a day.

The principal also reported that the school runs a monthly hot lunch fundraiser at a cost of three dollars as a strategy to reduce students' dependence on unhealthy foods from nearby convenience stores. The school also engages in a yearly school-wide 'drop the pop' week to reduce unhealthy beverages in the school. This initiative aims at educating students that water and fruit juice are healthier options compared to pop.

The school also participates in school-wide monthly salad bars which are prepared and served by the grade 5 – 8 students and are aimed at encouraging students to try fruits and vegetables. The school has also been involved in kids' cooking programs after school where small groups of children can learn some basic cooking skills. Three students from this school who participated in the group interviews cited their experiences with the kids' cooking program. Finally, the principal indicated that education on food is an aspect of the school's curriculum and it follows the Ministry of Education's food guidelines when it comes to teaching about food and nutrition.

4.3.3 School B

At school B the principal described the student population as diverse and 16 to 20 different cultural groups are represented in the school. This school uses its FFT grant on universal snacks for all students (from Pre - K to grade 8). The principal explained that the snack is offered in the mornings and that it is focused on exposing students to fruits, vegetables and dairy products. The school also provides a free but targeted lunch for students in all grades who are not able to provide their own lunches. The principal estimated that the lunch program serves at least 60 students in a day.

In addition, the school also provides a free, fresh food buffet a few times throughout the year (at least once every term) as a school-wide promotion of fresh food consumption. As a Nutrition Positive School, the principal indicated that this school has a zero tolerance policy for the sales of candy and soft drinks during school events; instead the school supports the sales of healthy beverages like smoothies. The principal reported that the school located in a neighborhood where a single convenience store is the only nearby food store. The school therefore decided to bring in a food vending machine for the sales of healthy snacks and beverages as a fundraiser. The principal thought that the food vending machine had been a good alternative to the convenience store in providing a healthier source of snacks and beverages. A colleague and I observed and recorded the food sold by the vending machine and it was stocked primarily with fruit juice and other healthier alternatives to candy and chips such as Welch's fruit snacks and Ritz crackers & cheese. However, there were Kit Kat chocolate bars, a candy bar, in the machine, so not all of the choices were healthy. There was also a gardening club for students from grades 1 to 3 which enabled kids to experience agriculture in the classroom. The principal believed that introducing young children to the production of vegetables through this program might arouse their interest in vegetable consumption.

The school has its own food guidelines, which are a modified version of the Ministry of Education's guidelines, and promotes healthy eating through the curriculum.

4.3.4 School C

School C is a designated community school and according to the principal the school uses its grant from the FFT initiative on universal snacks. These snacks are available at all times and students are encouraged to access them whenever they are hungry. The principal stated that the snacks were usually fresh fruits and vegetables and observation confirmed this statement. In addition to the universal snacks, this school also provides a free but targeted lunch to students who do not bring a lunch from home. About 50 to 60 students participate in the lunch each day.

Other food programs highlighted by the principal that support healthy eating in this school include salad bars and food sales. The school offers a healthy lunch every Thursday at the cost of \$ 1.00. Students in grades 4 to 8 prepare these lunches and each class has the opportunity to host the preparation each term. These provide the students the chance to learn cooking and baking to complement to the school's nutrition classes and its health curriculum. Also, the school provides a free monthly salad bar for kids to try a variety of foods, especially fruits and vegetables, and occasional opportunities to learn about the foods of various ethnic groups.

4.3.5 School D

School D, unlike the other three schools that ran universal snacks, used its FFT grant on a targeted snack program for students identified as needing the food. This school also operates a targeted free healthy lunch for students who are unable to bring their own lunch to school. According to the school's principal, the snack and the lunch together serve about 50 students each day. The snack and the lunch provided in this school follow the Ministry's Food Guide and the CFG. It is

important to note that grade 6 to 8 students participate in the preparation and the serving of the healthy lunch as part of the school curriculum.

This school has other food programs that promote healthy eating among students. These programs include a free food market where students go to the lunchroom to try fruits and vegetables that might be new to them. The free food market enables students to learn about local produce and study CFG in relation to the daily-recommended portions of fruits and vegetables. The school also has a yearly ‘drop the pop’ week that is used to encourage reduction in the consumption of pop and promote healthy beverages.

4.4.1 Presentation of data

This section presents the responses offered by the participants of both the group interviews and the surveys/structured observations. The data are organized to examine the similarities and differences between the responses of the student participants as well as their respective principals. Participants’ views on the snacks and lunches are discussed under four categories: a) general perceptions of the SSLP, b) the program benefits, c) the program challenges and d) changes in food choice among children beneficiaries. Categories **A** to **C** above address Research Question 1 - What are the perceptions of the student beneficiaries and key school staff on the school snack and lunch program? Category **D** addresses Research Question 2 – How have the school snack and lunch programs influenced the food choices of student beneficiaries outside their school food environment? I have provided quotes by student participants to illustrate the categories, the information provided by the school principals that support or refute students’ views, as well as relevant information from the direct observation within each school.

4.4.2 General perceptions of the SSLP

Examination of the participants' perceptions of the snacks and lunches, as well as the secondary data from the school principals and the observations highlighted four data categories as follows: (1) availability of healthy food in the schools, (2) food variety, (3) quality and healthfulness of the food served, and (4) service quality and students' satisfaction.

The snacks and lunches served by the schools were intended to provide the nourishment that children need to stay healthy and productive during school hours. When discussing the benefits of the SSLP, the school principals and community school coordinators believed that the programs had helped provide for hungry students and had set the standard for healthy eating in their schools. Most of the principals simply noted that the snacks and lunches served in the school provided sufficient food support for students who do not bring their own food to school. They further explained that the snacks provided were mainly composed of fruits and cereals while the lunches contain food from all of the four food groups with a focus on fruits and vegetables.

4.3.1 Availability of healthy foods

In the group interviews, most students described receiving more healthy foods in school because of the SSLP and that had made them healthier eaters. These views were expressed in their description of the school food such as; *“Everything we eat here is healthy”* and *“Everything they give is healthy”* (G5B). In support of the students' view that the snacks and lunches are healthy, the principal surveys in the case schools revealed that the readily available snacks and lunches have not only reduced students' hunger in their schools but have also helped by providing the opportunity for students to practice healthy eating and have increased the availability of healthy food in the school setting. The direct observation of the snacks and lunches in the case schools showed there were fresh fruits and vegetables available at all times in the staff office for students who needed food during

school hours, and the lunches served in the school food programs follow what is recommended in CFG.

In a follow up question on why student participants thought their schools' snacks and lunches were healthy, most of them mentioned energy-dense foods as junk foods while referring to fruits, vegetables, and the food served for lunch in their various schools as healthy foods. For instance, a student viewed her school lunch this way. *"We don't eat junk food here and we don't drink pop. We get milk and sometimes smoothies"* (G7D). Another student listed a number of fruits provided for snacks: *"We get oranges, apples, bananas, um.... strawberries if we want something to eat"* (G6A). Similar to the student participants' views on avoiding junk foods and eating more healthy options due to the snacks and lunches, the general view expressed by the four principals was that children's eating habits could be influenced by the food that is available to them through the SSLP, and they considered it important to make food readily available at mealtime for students.

In addition to the students' view that the snacks and lunches offer them healthy food at school, most of the student participants believed that they had easy access to food provided by their schools. *"You can always get apples and other fruits, and we get free lunch every day at school"* (G6C). Another remarked; *"We get broccoli, carrots, celeries, little tomatoes, salad, lettuce, um... at lunch we get apples and bananas too. It's healthy and it's good for you"* (G8A). The observation of the snacks affirmed students' assertion of easy access to their school snacks as two universal snacks are offered in the classroom. In response to a question asking how the schools addresses the needs of hungry students, all of the case school principals noted that the snacks supplement foods students bring from home and these healthy snacks have helped to reduce hunger among students. Likewise, the principals also indicated that the school lunches that feed between forty and sixty students in each school had helped to improve availability of healthy meals in their schools and that they

believed that the lunches and snacks are contributing to the promotion of healthy eating practices. To them, the SSLP promotes adherence to healthy eating practices in their schools as required by Saskatchewan Ministry of Education's nutrition guidelines to increase consumption of fruits and vegetables. According to the principals, the SSLP has helped to increase access to fruits and vegetables and their consumption by children in their schools.

Some students across all the four group interviews noted that their schools' snacks and lunches provided healthy foods in addition to the fruits and vegetables that were frequently cited as healthy examples. These foods ranged from grain products, milk & alternatives to meat & alternatives recommended by CFG. The following are some of the statements made by the students on why they believed their SSLP offer healthy foods: "*We get mac and cheese sometimes, it is healthy and we all like it*" (G6D). Again, a student said, "*The cereals with milk. It healthy and they can give us more*" (G8C). Another student viewed all the school lunches as healthy and cited this reason, "*Our lunch is healthy and the beef stew with carrots and potatoes is yummy*" (G6B). In line with students' views, the direct observations of the school lunches were consistent with the assertion that the students receive healthy foods from the lunch programs. Lunches served in the schools were rich in vegetables, whole grain products and meat and meat alternatives from the records made on the lunches in the case schools. Children in these schools' lunchrooms also received a glass of milk during lunchtime and mixed of fruit as dessert.

All four principals noted that the SSLP had influenced the kinds of beverages consumed in their schools. The food environment questionnaire that was administered as part of the school staff survey indicated that all the case schools in this study provided non-flavored low fat milk to the students receiving school lunches every day. One of the schools that conducted milk sales twice a week during lunchtime as a fundraiser, which they considered to be a way of promoting healthy

drinks in the schools. Another school operates a food vending machine stocked with only healthy snacks and fruit juices as a fundraiser, in accordance with the Saskatchewan Ministry of Education's guidelines. This food vending machine sales is purported to ensure that students buy additional snacks and drinks that meet the standard stipulated in the food guidelines for schools. All the case schools encourage the drinking of water and fruit juice over soft drink consumption and on the days of the lunch observations, the researcher observed the lunch beneficiaries served with milk and most students who brought their own foods from home drank fruit juice and water rather than sugar-sweetened drinks. One girl shared a lesson she had learned from participating in her school's snacks and lunches, "*I've stopped drinking pop, because it's better to drink fruit juice or water*" (G6B).

Inconsistent with the majority view that the snacks and lunches have increased the availability of healthy foods to the student beneficiaries, there were a few students who stated that they did not think all the food was healthy. They appeared to attribute this to not liking the taste of the food. For example, "*Sometimes the apples we get for snack are not good. The taste, the taste is not good*" (G6D). This opinion seems to suggest that the student G6D was equating health with flavor, which is potentially problematic given that the two are not always the same.

Overall, this first theme suggests that the SSLP have contributed to the availability of healthy foods in schools. Both the student participants and the school principals involved in this study believed that the programs have helped reduced unhealthy snacks and lunches in their schools. The general views shared among participants were that the SSLP were promoting fruit and vegetable consumption in the schools, encouraging students to bring healthy foods from home, and encouraging children to consume healthy beverages.

4.3.2 Variety of healthy foods

Both the students and the principals emphasized the wide variety of healthy foods offered by the SSLP. Stressing that the programs exposed child beneficiaries to a range of healthy food options, a girl stated the following about her school's SSLP: *"I love the school food because we get many good things like fruits, veggies, cereals, salads, Greek yogurt, tacos and more"* (G8C). Another student noted the different kinds of foods served through the SSLP: *"We get more good food at school. We get oranges, bananas, watermelon, strawberries, kiwis. Sometimes, we get peaches and mangoes"* (G6B).

Similar to the views of the student participants expressed in the primary data, the principals' responses showed that the SSLP offer a variety of food to students. In addition, direct observations showed a wide variety of food that student get through the SSLP. When asked about how the schools ensure variety of food on their menus and promote diversity in the food they provide to their students, the responses from the principals indicated that all of the case schools use seasonal foods as much as possible. In addition to that, two of the schools that provide universal snacks had established partnerships with local food producers who regularly supplied them with fresh farm produce. This initiative is consistent with the Saskatchewan Ministry of Education's Food Guidelines.

In their attempt to highlight the variety of food they receive through the SSLP, some student participants told stories about certain fruits and vegetables that they did not commonly eat previously but have come to like through their school's snacks and lunches. Some of these fruits and vegetables cited in this context were common foods such as plums; however, some student participants explained that they were not used to these foods because their parents do not offer them at home. During the group interviews, some participants indicated that while they were familiar with the foods they were eating at school, they did not eat them until their participation in the SSLP: *"It's nice we*

can eat many stuff at school that we don't get at home. When we eat lunch at school, we get fruits like kiwi that I don't get in my home”(G6B). Secondly, some participants stated that the snacks and the lunches have empowered them to eat foodstuff that they did not know before: “I ate plums after lunch here. I didn't know it before” (G5B).

On the contrary, there were a small number of student participants who expressed displeasure about the lack of diversity on their school snack menus. These participants expressed no doubt regarding the healthfulness of the school snacks but felt dissatisfied when served the same food repeatedly. In one of the groups, students expressed concern about receiving apples as snacks most of the time and wished there could be different fruits such as honeydew, strawberries and others. Nevertheless, a majority of the participants expressed satisfaction with the variety of foods the SSLP provided. *“I like the food sometimes. But sometimes it is boring. You eat the same food today, the next day, and the next day and you feel like not eating it anymore. It will be nice to have different foods all the time” (G8C).*

It was clear from two of the principals' responses that they would prefer having a greater variety of food in the SSLP, although they acknowledged that the program provided the amount of variety that was within their budget. One of the principals expressed a desire to provide a wider variety of foods produced in the province in the SSLP, as has been practiced in some of the schools, to enable students to increase their familiarity with locally produced foods, as well as expand the variety of foods served at school.

4.3.3 Quality and healthfulness of the food

It was evident from the group interviews that many of the students perceived their school meals to be healthy and of a high quality. The single word used most often by the student participants to describe their school snacks and lunches, was *“healthy”*. Whilst students appeared to

be knowledgeable of what a healthy food was, they seemed to qualify the quality of their school food, especially the lunches, with food aesthetics, such as taste, appearance and smell. Many of the students reported on the physical properties of the school lunches with words such as “yummy” for flavorful, and “nice” for appearance. There was a general belief among the students that their schools’ food is of high quality. A description of the school lunch by two boys summed up what many students similarly said made their school food high quality. The first said: *“We get fresh fruits and vegetables every day and our school lunch is always nice, yummy, and it’s good for you”* (G6C). The other shared similar view this way; *“I think the food is good. Everything they give to you is good. That’s all”* (G6D). Direct observations of the schools’ snacks and lunches equally recorded more vegetables and fruits and healthy beverages like smoothies that support both the students and principals’ views that the programs offer fresh and high quality foods.

Student participants overall expressed liking the taste of their school lunches and thought that they tasted better than the packaged foods that some of them used to eat prior to participation in the programs. In most instances, students associated taste specifically with the lunches (which were a meal, milk or smoothie, a dessert and additional fruits), whereas healthy was associated with both snacks and lunches. For example, student participants described the quality of the snack and lunch she receives from the school programs this way: *“The food we get at school tastes good and it’s good for us. We usually have fruits and other healthy foods. The food is always yummy, and we all love it. Sometimes we have like crackers (for snack), but they are good too. We also get hot lunches and stuff”* (G6B).

The student participants related healthy foods to the quality of vegetables and fruits offered in their meals. The majority of these participants believed that their school meals provided sufficient fruits and vegetables and to them this made the food healthy. One of the students expressed it this

way: *“I like the food here (referring to both school snacks and lunches). We usually have vegetables like carrots, broccoli, cauliflower, and we also eat fruits like watermelons, oranges, bananas, and grapes. Sometimes, we also get banana bread and that's usually a treat, everything they give to you here is healthy”* (G6A).

Additionally, another strongly held opinion across all the group interview participants was that the school meals offered fresh foods. Students equated fresh foods with healthy foods and further suggested that the freshly prepared meals and the food provided as either snacks or desserts motivated students’ participation in the SSLP: *“We all like the food we eat at school. They are fresh and healthy and we like to eat more fresh foods”* (G5B).

From two of the principals’ perspectives, there were marked differences between the foods served by the school kitchens and those brought from home by some of the students who do not participate in the SSLP. The school staff reported observing that lunches brought from children’s homes were mostly energy-dense compared to the schools’ snacks and lunches which were perceived to be rich in fruits and vegetables. Also, when rating the nutritional quality of the schools’ foods and beverages that were either served or available for students in the schools, all the four principals in this study believed that their schools’ foods and beverages consisted of 90% nutritious options or better. Furthermore, the implementation of the SSLP was closely linked to the Saskatchewan’s Health Education Curriculum and nutrition guidelines and policy in terms of fostering the knowledge, skills and confidence for students to choose healthy foods.

On the whole, the responses of the participants suggest that the SSLP offers healthy and high-quality foods through the schools’ snacks and lunches. The students seemed to be satisfied with the quality and the healthfulness of their school snacks and lunches while school principals equally believe that the SSLP provides high-quality, nutritious food to their students.

4.3.4 Service quality

The perception of quality food service provided by the kitchen staff responsible for cooking and serving the lunches appeared to be an important component of the SSLP for child participants. Most of the students showed admiration for the food coordinators' friendly and helpful attitudes in the lunchrooms and the majority appeared to be satisfied with the services offered by the School Food Coordinator (SFC) during lunchtime: *"It's nice to eat at the school lunchroom. The women who serve the food are nice. If you need anything, they give it to you"* (G6D).

The size of the meals was described as an important aspect of healthy eating practice and child participants spoke positively about the amount of food they received from the SSLP. The students were aware that eating large portions of food is not a healthy eating habit and that it can contribute to weight gain. Across all the interview groups, participants demonstrated their understanding that the SSLP meal sizes were intended to keep them healthy and avoid excessive weight gain. Even though the students did not specify any standard meal size, many of them believed that their schools offered them the appropriate meal size for snacks and lunches: *"We get enough food every day at school. They give us veggies and fruits, a glass of milk and dessert but we don't eat too much"* (G7D).

The peer connectedness among child participants of the SSLP seemed to have created strong bonds among those who eat together and this was apparent during group interviews. Some children in this study expressed appreciation for the SSLP and the opportunity it provided for them to eat together with their friends in the school lunchroom. One of the participants expressed appreciation of the chance it offers to dine with her friends: *"It's fun to eat together with our friends"* (G4C).

Despite the majority perception of quality service in their SSLP, there were few voices that believed that the service provided during lunchtime was inadequate because there were few people

and in some cases only one person serving the lunches and that it took a long time to get served. A participant summed up this notion this way: *“The lunch here is good but you must wait for long time before you get it”* (G8A).

4.4 Perceived general benefits of the SSLP

Most of the students believed that the snacks and lunches they received at school had eased their daily challenges with carrying lunches to school or rushing home to eat lunch, which could result in them returning to school late in the afternoon. Some who had experienced hunger at school were pleased that the program changed their daily hardship and offered them the chance to eat good food at school. *“The school lunch is a good thing. Because when we come to school and we don't have any lunch, we need something to eat so that we don't stay hungry for the rest of the day. Some of us used to go home for lunch and return late to school after lunch, but now we have free lunch at school that makes eating lunch easier and better.”* (G6B). The view that the SSLP enables student beneficiaries to stay in school during school hours was supported by a principal's view of the benefits the school derives from the lunch program. The principal expressed that the school's lunch program has helped improve school attendance among students participating in the program. This principal explained that some of their students live in homes where the parents do not have the means to provide lunches throughout the week, and as a result these students were not regularly attending school. The principal further believed that free lunch provided by the school has helped reduce absenteeism among student beneficiaries.

When students were asked whether they like or dislike their school snacks and lunches, the most common response was that students liked their snack and lunches and one reason sums up why all the students liked the snacks and lunches. *“I like it. Because, I get something to eat when I'm hungry”* (G6A). All the principals of the case schools equally believed that the snacks and lunches

have contributed to reducing the number of hungry students in their schools and also help to improve nutrition knowledge among the children. Another similar view expressed by all the principals about the SSLP was that the programs have helped boost energy levels for learning of the student beneficiaries, and have improved the students' concentration in class. One of the principals noted for example that the program in his school had helped to improve students' classroom attention and ability to concentrate.

The principals noted that the SSLP also had a curriculum link, which enables students to gain the basic knowledge and understanding of healthy eating in relation to the snacks and lunches and the possible health impacts associated with healthy eating. All of the principals indicated that teachers in their schools incorporate the foods served by the SSLP into their lessons when possible. Other than the Health and Physical Education curriculum, the principals cited other subjects such as English Language, Arts, Science, Mathematics, and Social Sciences. For example, as part of promoting a healthy school food environment, the students had been engaged in making healthy food posters for the schools' lunchrooms through their Arts classes, and these posters were observed and noted in all the case schools. The principals seemed to consider the SSLP as a model for healthy eating, offering the opportunity for students to have firsthand experiences in relation to what is taught in their Nutrition class.

In the opinion of the principal, the snacks and lunches are not only providing healthy foods to students at school, but together with other nutrition-related initiatives, are providing the pathway to healthy eating at home and in the community at large. This is done through parents and community members volunteering in the preparation and serving of the schools' healthy lunches, as well as other initiatives which focus on parents' education such as budget planning for healthy foods, community and family participation in ethnic and First Nations food preparation, and adults and kids' after-

school cooking class. It is through these initiatives that parents and members of the community are involved in the education process regarding healthy eating, with the intention of influencing the kind of foods that parents could offer at home.

4.5 Challenges facing the SSLP

Despite the reported benefits of the SSLP, the principals identified a number of challenges that the snack and lunch programs faced. Based on their experiences of running the SSLP for at least a year, the principals reported the following problems: 1) funding, other resources, and the cost of food, 2) school location and the surrounding environment, 3) lack of active parental and community involvement in SSLP.

4.5.1 Funding, other resources and the cost of food

Funding for the snacks and the lunches was the most emphasized challenge mentioned by all the principals of the case schools. From their perspective, the insufficient funding of the SSLP is as a result of a lack of partnerships and connections to financing organizations. All the principals appealed for more funding and organizations to support the SSLP in order to provide for all students in their schools. In addition, the principals opined that sufficient funding would help to further improve healthy eating promotion by improving the quality and quantity of food provided by the SSLP, as well as maintaining the programs' sustainability. Although the principals were appreciative of the support they had received for the programs thus far, there were uncertainties about future funding and about whether organizations would continue to support the programs for an extended period of time. Expanding the programs to cover a larger number of the students who also need food assistance during school hours, if not the entire student body, was the ultimate goal expressed by the principals.

It was also clear from the secondary data that lack of materials and human resources were major challenges facing the SSLP. The schools in this study did not have well-equipped kitchens for the preparation of school lunches. And in addition, the schools do not have enough foodservice staff to prepare and serve the food in the schools. When asked about challenges facing the SSLP, it surfaced from the principals' responses that their schools' kitchens operate with residential cooking equipment for large scale cooking and in most cases a single kitchen staff struggles to prepare the entire meal for the students throughout the week.

Another challenge that emerged from both the staff and student participants about the SSLP was the high cost of healthy foods. Most of the principals described the high cost of fruit as a major challenge facing the snack programs, and in turn healthy eating promotion in the schools, especially given that unhealthy snacks are sold in convenience stores near their schools. The high cost of healthy foods was also echoed in the students' group interviews. When students were asked about their willingness to try some of the healthy foods that they had received at school while outside of school, some students mentioned their desire to try new food items introduced at school, but that they could not afford them. *"I love the honeydew we eat at school, but it is costly to buy them"* (G5B).

4.5.2 School location and the surrounding environment

The principals' reported a desire to maintain a healthy school food environment through the SSLP together with other nutritional education. However, according to the survey, the schools' efforts to eradicate unhealthy foods in the school environment had encountered difficulties when it came to preventing children from buying unhealthy foods, such as candies and soft drinks, due to convenience stores being located close to the schools. All the principals of the case schools were concerned about the negative impacts convenience stores were having on promoting healthy eating

among students, due to their accessibility to students for purchasing unhealthy foods during classroom breaks. Close observation of the school food environment confirmed the close proximity of a number of schools to convenience stores, which could indeed hinder the effort to promote healthy eating habits in the schools.

4.5.3 Lack of active parental and community involvement in healthy eating promotion

Despite targeted efforts by the case schools to involve parents and community members in healthy eating promotion, the four principals shared concerns about the limited responses from parents and community members with regards to getting directly involved in the schools' healthy eating initiatives such as the SSLP. All the case schools were working to establish a parent group as a way to provide education on healthy eating in childhood and to seek their involvement in the SSLP, however there was one case school that sometimes had volunteer parents who supported lunch preparation. Some of the principals argued that the lack of involvement by parents from lower socio-economic status and ethnically diverse families, for instance, might be due to their low literacy. They believed that this made it difficult for some families to carry on the education that students learn at school in the home setting and by extension, the lessons learned through participation in the snacks and lunches.

4.6 Improving children's food choices

Another important goal of the SSLP was to use the programs to teach child beneficiaries about healthy eating habits. When student participants were asked to explain what they had learned from participating in the SSLP during the group interviews, their responses seemed to indicate three main outcomes: 1) They had acquired some knowledge about healthy food choices 2) They had developed the willingness to try unfamiliar but healthy foods, and 3) They were practicing healthy eating at home.

4.6.1 Acquired knowledge

Student participants appeared to be well informed about healthy food choices. When asked to explain what they had learned about food or cooking from participation in the SSLP, the vast majority of respondents expressed that they had learned to choose healthy foods, such as fruits, vegetables, whole grains, meat, fish, and dairy products, instead of foods they referred to as junk food, such as fast food, candy, and pop. A student explained how participating in her school's SSLP had changed her mind about junk foods. *"My favorite foods were chips and pop, but in our school we're given fruits and veggies and sometimes cereal mixed which I think are better. I don't eat chips and pop often"* (G7D).

Another participant expressed what she believed constituted a healthy diet. She linked her school's snacks, lunches, and desserts to healthy foods, and stated that sugar-sweetened options, such as chocolates and candies, are unhealthy options. *"I guess it is better to eat healthy foods like what we get in school. It makes you feel better than eating foods like Big Mac or chocolate. You can eat something good, but it will still be healthy. The yogurts we get are really good, but it's not full of sugar and all those bad stuff that you get in candies. Things can be sweet, but healthy at the same time. Like the strawberries, oranges, and the melons all have nice sweetness to them, but these sweetness are not the same as what other sweet foods have; but the natural sweetness"* (G6A).

Responding to a question about what he had learned from participating in the SSLP, a boy in grade 6 stated that not only did he believe in making healthy food choices but he also believed that eating sugar-sweetened foods in moderation could be part of healthy eating. To him, the foods served by the school lunch program were healthy and he enjoyed them; however, he believed one could also enjoy sweetened foods without compromising on healthy eating habits. *"I have learned to eat healthy foods all the time. But it's okay to eat candy or chocolate sometime but not every day"*

(G8C). Two other respondents shared similar views; they were equipped with the knowledge of healthy foods but were also aware of why some foods should be avoided in large quantities. One of these students clearly stated her view on this: *“The school foods are good. They are not like McDonald’s fries which are not good; they got too much salt on them”* (G7D).

Children may not make their household grocery list, but their knowledge and awareness of healthy food choices could influence the kinds of food served in their homes when demands for healthy foods are made known to their parents. Most of the child participants’ responses indicated that their acquired knowledge of healthy foods made meaningful contributions towards food choice in their families. A grade 6 student described how he had influenced the grocery list of his mother: *“I always do grocery with my mom on Saturdays. At first, she will buy me a candy or chocolate as a treat. We learned that it’s good to eat more fruits than junk foods and sweets and now, my mom buys me fruits as a treat.”* (G6C).

The responses from several student participants revealed that their knowledge of healthy food choices seemed not only to have affected their personal food habits but also impacted the food choices of their family members. This view was well conveyed by one of the participants this way; *“In my home, we used to drink a lot of pop, but one day I asked my dad if we can make fruit juice. It is very easy to make. You only need to peel the fruits like oranges, apples, bananas, kiwis, and slice them, put them together in a blender and blend them into a fruit drink (referring to smoothies). It’s really good and we like it more than soda pop”* (G8C).

Acknowledgement of cultural influences on children’s food choices was expressed in one of the group interviews. Children of immigrant families explained that by participating in the SSLP they had learned a great deal about social phenomena in their new home country (Canada), including food culture. A girl who had emigrated from Africa stated a cultural lesson learned from

participating in her school's meal program: *"In my home, we don't eat salads and desserts. I've learned to eat salads and desserts in school and it is healthy for you"* (G6A). Another student of Asian descent cited her experience with new food items through her participation in her school's lunch. *"I didn't know broccolis in my home. I ate a little at first in school, and now can eat more"* (G6A).

Most of the participants discussed their views of healthy eating in terms of food selection, however, some participants gave a different perspective of what healthy eating meant to them. For instance, a participant believed that healthy eating also requires the avoidance of food waste and safe food handling practices. He explained that the school food coordinators encouraged the students not to waste food: *"I've learned not to waste food because it is not good. I need to keep my food in the fridge to keep it healthy all the time"* (G6D). There were other participants who touched on food hygiene as lessons learned about healthy eating. *"Put your food in the fridge if you're eating it. Wash your hands before you eat. And wash your dishes after eating"* (G6A). Another participant said: *"Put your dishes away after eating"* (G6C).

The majority of the student participants demonstrated considerable knowledge learned about food and other nutrition information through their participation in the SSLP. Students described how they are incorporating the knowledge gained from the SSLP into their individual food choices, as well as their family's food choices. It is important to state that some of the participants' statements may not directly be linked to lessons learned through the snacks and the lunches.

4.6.2 Willingness to try unfamiliar foods

A strong and widely held belief among student participants was that the SSLP provided healthy and tasty foods; this seemed to further instill a positive attitude towards the school's meals and, as a result, encouraged students to try unfamiliar foods and new flavors. When participants were

asked to name some of the unfamiliar foods they had eaten at school that were not served in their homes, every participant had at least one food item to mention. Most of the children also expressed their readiness to try more unfamiliar foods. One of the participants who had tried and liked honeydew through the school snack program said, *“I never tried honeydew before, but I got it from our school snack and it's good. I don't get it from home, but I like it. Maybe they can introduce more foods to us”* (G5B). Another participant said this: *“I ate pickles in school and um... sweet pepper too.”* (G6B).

It is important to note that student participants were not only willing to try new foods, but they also believed that by doing so their horizons of healthy food options were broadened and boredom associated with only eating a few foods could be reduced. In one group interview, some participants stated that the SSLP had introduced them to new types of fruits that they previously had not been used to eating: *“I liked apples, bananas, oranges, strawberries, and watermelons. (Referring to time before joining the school snack and lunch programs) I have tried new fruits like kiwis, dragon fruits, and mangoes. I like them and they are healthy too”* (G7D).

Participants were not only interested in trying new flavors, but also demonstrated willingness to learn how to prepare some of the new foods. *“I have tried tuna salad at school and I loved it, but my parents don't use tuna at home. I hope one day I can learn how to make tuna salad by myself”* (G8C).

There were also social factors that motivated children to try unfamiliar foods. A participant explained that he had tried an unfamiliar vegetable because he observed his friends eating it at lunch in school: *“I didn't like celery, but in our school lunch we get salad with celery and all my friends eat it. I also tried a little at first, and I like it now”* (G6B).

Several participants mentioned that they had positive experiences when trying unfamiliar foods. It is interesting to note that some of the unfamiliar foods are common foods, but the student participants reported not have eaten them at home. For example, a participant said, *“I’ve tried onions. And I used not to eat it. I ate it yesterday, I love them now”* (G4C). Another participant stated this about his first experience with an unfamiliar fruit. *“I’ve tried dragon fruits at school and they are good. It was new to me because I don’t eat it at home. At first, I tried a little, but now, it’s my favorite”* (G6C). Overall, the student participants demonstrated their willingness to try new foods and they seemed to understand that this practice is consistent with healthy eating.

4.6.3 Healthy eating at home

Without exception, participants in the group interviews reported that they were able to enjoy at least some of the new foods from the SSLP at home. Although children may not have full control over the food they eat at home, child participants claimed that they suggested some of the new foods they had eaten at school to their parents. A girl said, *“I like how you can buy health food like lean ground beef instead of buying unhealthy stuff, store them and use them, but the healthy stuffs are expensive these days, but it helps you a lot and gives you a lot of vitamins”* (G8A).

Parents’ dietary preferences also appeared to be influenced by children’s participation in the SSLP. One of the student participants underlined how her love for Saskatoon berries was impacting her parents’ interest towards the fruit: *“I ate Saskatoon berries in school. It was so good. One day I went with my parents to the Saskatoon farmers’ market and I asked them to buy Saskatoon berries. Now, it’s our family’s favorite. It’s fun to eat them, it’s easy to wash them and eat them”* (G6B).

Participants also stated that sometimes the food they consumed at school was similar to the food at home; however, foods they enjoyed at school were not always available at home: *“All the foods we get from the school kitchen are healthy and good. Some of the foods I get from the school*

are similar to what I eat at home; like the salads and cereals, but I also eat Greek yogurt at school, that I don't eat it at home. I told my mom about it and now she often buy it for me” (G6C).

When asked how they try to buy or prepare some of the foods from the SSLP at home, the majority of the student participants stated some of the easiest ways that they had practiced some of the food they eat at home this way: *“I tried oranges, it’s easy to peel and eat it” (G6D) and: “The celery. It’s easy to cut them and eat them” (G6A).*

Although most of the student participants claimed to be successfully trying some of the foods they ate in the SSLP at home, a few participants mentioned their failed attempts to prepare some of the food. One of the participants told a story about a failed attempt to bake a pie. *“I tried to make Saskatoon pie at home by myself but I failed. I couldn’t mix well (referring to the ingredients) and when I put them in the oven, it burned too” (G5C).* Overall, participants’ responses suggested that healthy eating habits are gradually being practiced outside of the SSLP and in their homes.

4.7 Summary

It was revealed from the results that both the student participants and the principals involved in this study had positive views about the snack and lunch programs in their school. However, these participants believed that the programs could be improved further. Each of these two groups of participants had different perspectives on how to improve the programs. The student participants considered more varieties of foods while the principals focused on financial and human resources to support the programs.

CHAPTER 5

DISCUSSION

This chapter summarizes and further discusses the findings of this study. It also highlights implications for practice by comparing and contrasting previous knowledge from the literature with the results of this study, and makes recommendations for future research. The focus of this research project was to examine how the snacks and lunches, as a component of the Food for Thought (FFT) program in elementary schools, contribute to promoting healthy eating among children, and understand whether or not the programs may have improved the eating habits of the children beneficiaries.

This research used case study design, which included four elementary school cases involved in the FFT initiative, with an emphasis on the schools' snacks and lunches. Four group interviews were conducted with children who participated in the snack and lunch programs, while a survey conducted with school principals of the same schools on the school environment, and direct observation of the schools' snacks and lunches that had been done prior to the group interviews from the same schools provided additional information and descriptions of the cases. Twenty-two students participated in the groups, while four school principals completed the survey which included both closed and open-ended questions. The group interviews were designed to enable students to express their views on the schools' snacks and lunches, and to describe how the program had helped change their food choices.

The study results indicate that both the school principals and the child participants generally perceived the schools' snacks and lunches as healthy food options. From the child participants' perspectives, eating healthy meant eating more fruits and vegetables, as well as foods such as cereals and dairy products, while avoiding junk food. The results also showed positive perceptions by the

child participants towards the content of their schools' snacks and lunches. Direct observations supported the participants' views that the school foods met recommendations by Canada's Food Guide and Nourishing Minds with regards to the recommended food groups. The guide emphasizes selecting from the CFG food groups to make better food choices for meals, snacks, and all other foods offered in schools in Saskatchewan (Nourishingminds, 2012, p. 13). In spite of their parents' inability to provide them with daily snacks and lunches at school, child participants in this study seemed to be happy participating in the programs partly due to their general perception that their school's snacks and lunches were healthy. Similarly, in another study with primary school children in South East England who equally perceived their school lunches as healthful, these students exhibited a high participation rate (Noble, Corney, Eves, Kipps, & Lumbers, 2000). In responding to why students liked their school foods, students highlighted the large quantity of fruits and vegetables that were available to them through the snacks and lunches. It was also evident from the child participants' responses that many of the students consume more fruits and vegetables at school compared to at home, and this motivates them to eat healthily outside school. This highlights the importance of promoting nutrition adequacy and variety within school food programs to improve students' access to healthy food choices. This may affect students' academic performance and, over the long term, health as recommended by the Children's Lifestyle and School- Performance study in Nova Scotia, Canada (Florence, Asbridge, & Veugelers, 2008).

Another key perception captured in this study about the snacks and lunches expressed by the student participants was the idea that their school food was in their words "good for you" meaning the snacks and lunches offered by the schools could serve as a good model for healthy eating. This finding is in agreement with a study which suggested that school meals can contribute effectively to

shaping the eating habits of participants, if the meals are viewed as a good model for improving healthy eating (Tikkanen & Urho, 2009).

Student participants were also in agreement that their school lunches tasted good; with some students suggesting that their school lunches tasted better than the packaged food they used to buy for lunch prior to their participation in their schools' lunch programs. The older students who sometimes help in the preparation and serving of their schools' lunches felt particularly strongly that their school lunch tastes better. This assertion could be as a result of taste exposure to different meals while preparing food in their schools' kitchen and their familiarity with the food ingredients used. This is consistent with the literature which states that repeated taste exposure increases a child's preference and liking for foods, and that preference is associated with consumption (Moore, Tapper, & Murphy, 2010). Arguably, the acknowledgement of liking the taste of the schools' food is an important characteristic for the promotion of healthy eating through the lunch programs.

A key finding was that all the student participants had tried at least one new food item that was unfamiliar to them prior to their SSLP and they currently enjoy eating these new foods. This assertion suggests that the snacks and lunches could be useful in reducing child food neophobia. According to some studies, exposing children to a large variety of unfamiliar foods in an environment that promotes social influence, such as the school setting, can help reduce children's neophobic reactions towards foods and encourage children to try different foods and to pay attention to food quality, which may lead to healthier and more balanced eating habits (Mustonen, Rantanen, & Tuorila, 2009; Popper & Kroll, 2005). The students' willingness to try new foods may be partly attributed to the supportive food environment provided to the students in their schools. This finding supports previous research that the school is one of the most important settings to influence eating habits in children (Brug, Tak, te Velde, Bere, & De Bourdeaudhuij, 2008). In addition, the lunch

environment specifically provides an environment for child socialization. As children socialize, they learn from one another and this natural behavior might have facilitated students' willingness to try new foods. Some of the students in this study attributed their willingness to trying new foods to the fun involved in eating with their peers. This finding is consistent with a study that argued children's food choices could be socially modified in school settings (Hendy, 2002).

Children in this study stated that their experience of trying unfamiliar foods through the SSLP had inspired them to try new foods outside of their school snacks and lunches and most importantly in their home environments and beyond. This assertion by the student participants when followed through could aid the expansion of students' food choices. The participants' stated willingness to try unfamiliar foods is consistent with the finding that any increase in children's willingness to try new foods provides an opportunity to promote increased diversity and healthy eating in their diet (Gibbs et al., 2013).

Another key finding of this study was that the SSLP, in addition to other sources of knowledge such as the curriculum on healthy eating, may be affecting children's food preferences outside of the school environment. Most student respondents stated that when they suggested their parents buy the healthy food that they had consumed in the SSLP, some of those foods were then added to their home grocery list. This may enable family units to experience some of the new foods that had been offered to students in the school at home, and thereby potentially enrich the family's food choices. This finding is consistent with a study that suggested children could influence the food they eat at home by communicating their preferences to their parents (Holsten et al., 2012).

Although the principals involved in this study expressed the need to expand the snacks and lunches to cover more students and they specifically mentioned they would like the programs to be universal, it was equally interesting to note that the principals believed that the SSLP had helped

reduce hunger among their students and as a result helped to improve students' concentration in class and academic work output. This finding is consistent with a school-based Children's Lifestyle and School- Performance study in Nova Scotia which associated the quality of the school meals with positive outcomes in children's academic performance, improved health status, and healthy development (Florence et al., 2008). The principals also argued that the program had helped reduce the number of times children go home in search of food during the school day, thereby reducing absenteeism. These principals explained some of the students who previously were not bringing food to school would go home during lunchtime and most of them did not return to school for the afternoon. However, the snacks and lunches have helped reduce the number of students who leave the school to eat at home. This finding is supported by a study in India, which suggested that school food programs make regular attendance at school more desirable for children of resource poor households (Afridi, 2011).

The results of this study also identified that the student participants may have acquired through their school learning, the basic skills required to prepare fruits and vegetables for personal consumption. Children's personal initiative to consume fruits and vegetables at home or elsewhere individually requires basic skills in food preparation, such as washing, peeling, cutting, and sometimes making simple salads as asserted in the literature (Rakhshanderou, Ramezankhani, Mehrabi, & Ghaffari, 2014). The basic food preparation skills noted in student participants' responses in a school where older students participate in the preparation of their healthy lunches, may have been particularly influential. However, students from schools who have not yet involved students in the preparation of their school lunches also shared knowledge of basic food preparation skills. This may confirm that the acquisition of basic food preparation skills may be the collective result of the school food policies, curriculum focused on teaching basic knowledge about food and

food preparation, the various nutrition education programs on offer such as kids cooking in the schools and other food practices (Šumonja & Novaković, 2013).

Bevans et al. (2011) argued that school nutrition services should provide access to a variety of nutritious foods that promote students' health and that this must be done in accordance with policies and guidelines that mandate a compulsory standard for school meals. As such, healthy school food policies were in place in all the case study schools, ensuring that decisions about the availability of food and beverages in schools are deliberate, and in the interest of students' well-being. The policies provide explicit guidelines for all food sales and services in the school system, while also serving as an educational tool (Berlinic, 2008). The secondary data clearly portrayed favorable school food policies in the case schools.

School food should not only be viewed by student beneficiaries as food offered on their plates to reduce hunger, but in addition school food should be seen by children as a pathway to healthy living. To help children attain this mindset, the food must be viewed to be healthy and of high quality (Sylvetsky et al., 2013). There is a belief that children choose foods on the basis of preference rather than their perceptions of healthfulness and that this can create a nutritional gap between the 'favorite' choice and the 'healthy' choice (Noble et al., 2000). The results of this study are not entirely consistent with this assertion. The majority of the children involved in this study responded to questions about their food choice with answers, such as 'because it's healthy' and 'it is good for you', indicating their preferences for healthy choices instead of, 'because I like it', which represent their favorite choices. This could be due to the research context, which may have influenced them to answer in ways that they thought were socially desirable rather than true. On the other hand, the strong focus on healthy food choices within the FFT program as a whole may indeed have influenced these children's beliefs about food.

Finally, this study revealed participants' knowledge of healthy eating. Students not only attributed healthy eating to eating more fruits and vegetables and avoiding junk foods, but more specifically that healthy eating also involves eating what is considered as unhealthy or junk foods (specifically candies and pop) in moderation. Previous work in this field showed that adolescent participants in focus groups in Minnesota, USA, cited eating unhealthy food in moderation as one of ways of eating healthfully (Croll et al., 2001).

5.1 Strengths

One of the strengths of this study is the multiple strategies used for data collection; surveys with school principals and community coordinators, direct observations of lunchtime and snacks provided in the schools, and the group interviews with students. Although different approaches were used in data collection, the results of the survey with school principals and community school coordinators are consistent with results from the group interviews with student participants and are also supported by the direct observations. The group interviews, which yielded the primary source of data for this study, have increasingly been used in health research in recent years (Hambach et al., 2011). The group interviews approach in this study enabled the thoughts and perceptions of the primary beneficiaries of the SSLP to be assessed. In this way, the researcher was able to see the SSLP through the eyes of the children (Henry, et al., 2006). The group interviews were conducted in a relatively natural setting, resembling in some ways the types of interactions the children might have in their everyday lives. Additionally, the advantage of letting children share their experiences with the SSLP is that they had the opportunity to express their individual thoughts on the programs instead of answering questions about what the researcher believed to be important.

The findings in this study suggest that the snack and lunch programs may have similar impacts in the other nine schools where students were not engaged in the group interviews, given

that all the schools have similar goals for the SSLP, share ideas on running the snacks and lunches and use similar food guidelines and policies; there was unanimous support for the program by student participants and it is likely that students in a similar program, following similar food guidelines would show similar outcomes. Therefore, the findings of this study may be transferable in the other nine schools with similar programs. This confirms Malmström, et al's. (2013) assertion that the findings of qualitative studies may be transferable depending on the degree of similarity between study population settings (Malmström, Ivarsson, Johansson, & Klefsgård, 2013).

5.2 Limitations & delimitations

This study considered the relative influence of several aspects of the children's food environment, but not all potential influences in the schools were studied in depth in relation to the snacks and lunches, nor how these together promote healthy eating among the students. For instance, components of the FFT program, such as school gardening, nutrition education, school-community food events and healthy food advertisement, may have affected children's food knowledge and preferences, but these were not captured in detail in this thesis.

Another identified limitation was the participant sampling method. Student participants in the group interviews were hand picked by their school's principals, and it is possible that these children's opinions may have been different from other student beneficiaries of the SSLP. Furthermore, the selected children may have felt as though they were selected ambassadors of the program, thereby giving an account of the program that was overly positive.

Research suggests that parental advocacy and involvement in school food programs has the potential to promote children's healthy eating both at school and at home (Kubik, Lytle, Hannan, Perry, & Story, 2003). Although all the schools involved in this study encouraged parents' involvement in the SSLP, there was only one school that had some parent or community

involvement in the lunch program. Therefore, this study did not involve parents and community members in examining the SSLP because there were insufficient parent and community member representatives.

Another delimitation of this study was the time frame for data collection. In a typical case study, the investigator explores a case, or cases, over time through detailed and in-depth data collection. This study, however, took place over a short period of time. In spite of these limitations and delimitations, this study provides valuable insights into the perceptions of students and staff on the Food for Thought snack and lunch programs, and the influences of the programs on children's food choices.

5.3 Implications for action

The results of this study provide several elements that could be considered for a school-based intervention to promote healthy eating among children. Exposing children to a wide diversity of healthy foods rather than repeating weekly menus may increase the diversity of children's food choices. Introduction of locally produced foods, such as lentils and other pulse crops, over time may also contribute to diversity in children's diet. Efforts should be made to sustain school gardens and integrate the food produced from the gardens into the school snacks and lunches. A study by Gibbs and colleagues (2013) concluded that child participation in food production contributes towards consumption of that food. Finally, parental education and involvement in the SSLP may allow for repeated exposures to healthy food choices in a child's home environment and diverse methods should be employed to promote such involvement.

CHAPTER 6

CONCLUSION

Over the past four decades, children's eating habits have changed significantly towards calorie-dense and heavily sweetened foods, and this has contributed to childhood overweight and obesity (Francis et al., 2009; Waynforth, 2010). Children's awareness of healthy behaviors is being promoted through school meal programs, which can provide a valuable opportunity for children to learn about proper nutrition (Taylor et al., 2005; Veugelers & Fitzgerald, 2005). The two-fold purpose of this research was 1) to examine students' and principals' perceptions on the SSLP and 2) to understand how the SSLP may have contributed to changing participating children's food choices, thereby influencing the student beneficiaries eating habits.

A study conducted in Ontario, Canada suggested that stakeholders of school food environments, such as community activists, parents, teachers, and provincial governments, have been seeking to remake schools into sites of healthy eating for children as an effort to combat child overweight and obesity (Winson, 2008). Both student and principal participants involved in this study indicated that their schools' snacks and lunches have provided the opportunity for students to practice healthy eating and they recognized the school as a healthy eating hub for children. As a result of the SSLP, several students indicated a change in their eating habits from junk food towards healthy options. In addition, many of the students indicated that their participation in the SSLP had supported them to limit their intake of soft drinks, which they considered to be an unhealthy option because of the excess added sugars. This is similar to what Gleason & Suitor (2003) found about the US National School Lunch Program; the program had impacted children's diet by limiting their intake of soft drinks (Gleason & Suitor, 2003).

Finally, children/students in this study showed a clear understanding of healthy eating and had the willingness to practice it, both at school and at home. It can be stated that most of the students understood healthy eating as the consumption of more fruits and vegetables while consuming energy-dense foods in moderation. To them, the school's snacks and lunches had improved their willingness to try, and to later adopt, unfamiliar foods, thereby changing their personal food choices. Holsten et al., (2012) found similar observations, that children's food preference is a major driving force for food choice and, hence, healthy eating habits.

6.1 Recommendations for further research

The strength of these findings, in terms of children's positive perceptions of the SSLP and the strong willingness to practice healthy eating by themselves, may be evidence of the success of the SSLP in achieving its primary objectives. Nevertheless, the themes in this study revealed some aspects of the SSLP which can allow for improvement of the program in order to promote healthy eating among elementary school children.

It appears from this study that schools can provide a food environment which supports children's healthy eating behavior. However, this study was not able to fully examine the food environment in schools, nor the home food environments, both of which are necessary to support healthy eating. Further research which uncovers the children's home food environments will be necessary to explore the link between the school and the home in promoting children's healthy eating behaviors.

This study based its findings on student and adult participants' perceptions, as well as researchers' direct observations of the SSLP and school food environment. A comparison of other students, for example those who bring food from home, may help to uncover other perspectives which would be useful for improving the SSLP. Finally, input from the food coordinators who

prepare the program's food is necessary in any follow-up studies to help formulate strategies for improving the nutritional quality of the meals while sustaining the program.

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APPENDIX A: GROUP INTERVIEW GUIDE



GUIDE FOR GROUP INTERVIEWS ON THE SSLP

Rapport: Hi, my name is Peter and I am here because I want to learn about the breakfast/snack/lunch program at your school. It's important for me to find out what you think about it so that is why you are here today. First, could you say your name, and tell me about a new food you have tried recently. I will start. Like I said, my name is Peter and recently I got to try kiwi, and celery for the first time. Now let's go round, starting from my right hand side.

Students: Self-introduction.

Go over format: "I'll be asking you some questions about food served as part of the school food program. There are no right or wrong answers to the questions. I just want to hear about what you think or feel. You can ask each other questions too. Your teachers and parents won't ever hear what you say. When I ask a question I want to hear all your answers, so when you have something to say please wait until the person who is talking stops. When someone says something, you might think the same thing as them or think something else. It's important to let me know when you think the same thing and when you think something different.

Are there questions before we start our discussion?

Questions:

1. Tell me about the school snack/lunch/breakfast/gardening programs at your school (go through each one by one).
2. What foods do you eat at your school's snack/lunch/etc program? Specific vegetables? Specific fruits? Dairy products? Meat? Other foods?
3. Do you like the food that you eat at the program? If not, why not and If yes, why?
4. Please name/describe any foods you eat in the school program that you do not eat at home?

-Have you ever tried to buy or prepare any of the food you eat at school so that you can eat them at home? If so, which ones?
5. Can you tell me about anything you have learned about food or cooking from participating in the school snack/lunch/ etc. program?
6. Are there other foods you would like to be included in the food served at school?

Questions for students at schools where there is a gardening program or other aspect of FFT:

Tell me about the gardening/other program at your school. Do you participate in it? What, if anything, have you have learned from that program.

7. Is there anything you will like to say about your school's snacks and lunches?

Thank you for your contributions to this group discussion

APPENDIX B: CONSENT AND ASSENT FORMS



Dear Parents and Guardians,

As part of the "Food For Thought" program (an on-going school-based nutrition program that has been implemented beginning in 2012 in 13 public elementary schools in Saskatoon, Saskatchewan), we are conducting research to find out how students who are participants of the program have been influenced by their school's snacks and lunches in their daily food choices.

As a follow up to previous research that included interviews with the principals and surveys of the students, your child is now invited to participate in-group discussions to share his/her thoughts on the program. These focus groups will consist of 6 to 8 students from each participating school. Your child will be asked to express his/her views on the snacks and lunches offered by the school. Your child's participation is voluntary and if he/she decides to participate or not or decide to leave the focus group at any time it will not affect how he/she is treated or any access to service at the school.

At the end of this study, the findings will be used to write reports, journal articles, make presentations and recommendations to the major stakeholders of the snack and lunch programs in the schools. The confidentiality of your child will be maintained during and after this study unless he/she or a member of discussion group discloses it. There will be no way to identify an individual child participating in the study through the report writing, presentations or journal publications unless he/she mentions it. The questions that your child will be asked are not of a personal nature and there are no known risks to your child's participation.

The recording that will be obtained from the focus groups will be deleted upon transcription. The transcribed data will be kept by the principal investigator, Dr. Rachel Engler-Stringer at the University of Saskatchewan for a period of five years before shredding.

For more information, you may contact the Research Ethics Office at the University of Saskatchewan. Any question regarding your child's rights as a participant may be addressed to that committee through the Research Ethics Office ethics.office@usask.ca (306 966 2975). Out of town participants may call toll free (888 966 2975). Or contact the Principal Investigator, Dr. Rachel Engler-Stringer, Department of Community Health and Epidemiology, University of Saskatchewan (306-966-7839). This research has been approved by the University Advisory Committee on Ethics in Behavioural Sciences Research on [approval date].

Please keep page one for your records and, if you are willing to allow your child to participate, sign page two and return it to your child's teacher in the envelope provided.

If you are willing to allow your child to participate in the focus group discussion, please sign your name and fill in the date.

I, _____ understand the guidelines as described to me, and agree to let my child, _____ participate in the focus group discussion on snacks and lunches served in his/her school. In addition, I understand that I can choose to withdraw my child from the study at any time without penalty or loss of services from my child's school or from the University of Saskatchewan.

Parent or Guardian's signature _____ Date _____

Please return this page to your child's teacher in the envelope provided.

APPENDIX C: STUDENT ORAL ASSENT FORM



STUDENT ORAL ASSENT FORM

You are invited to participate in a study entitled *The Promotion of Healthy Eating in Children through School Snack and Lunch Programs*. Please listen carefully to these information on your participation, and make sure to ask any questions you might have.

Who is doing the research study?

Dr. Rachel Engler-Stringer, Department of Community Health and Epidemiology, University of Saskatchewan (306-966-7839)

What is this study about?

The purpose is to find out what students think about the food served through the snack and lunch programs in the school.

What do I have to do?

You will be asked to be part of a group to share your views on your school's snack and lunch or other food programs.

The group discussion will be done during school time but will not be part of your regular class work. The discussion will take between 30-40 minutes among 6-8 students who are part of the school snack and lunch or other food programs.

Why should I bother?

To be part of an important research study in your school and, to provide your views on your school snack and lunch programs. It is your choice to take part in the study or not. The decision to take part of the study or not will not affect your regular school work.

Who will hear the information I share?

The information you give will be recorded with a coded name like student 'A' (which means that no real name will be included in the recording) except the consent form, which has been filled and signed by your parent. Your identity will be kept secret.

The information you give will only be listened to by the researcher, and will be written up as a summary of a group. When we finish collecting information from other groups from different schools across Saskatoon, we will write about it and give presentations so that more people will learn about what you and other students think about the school snack and lunch program.

Your real name will not be used on any of the papers that will be written and no one will be able to know that you participated in this project unless you tell them. When we are done, the recorded information will be deleted. Other written materials will be kept in a locker by Dr. Rachel Engler-Stringer, Department of Community Health and Epidemiology at the University of Saskatchewan for five years.

What rule must I follow?

You will be expected to cooperate with all members in the discussion group; allow others to express their views freely, respect every person's view and use decent language when sharing your views.

What if I start and then decide I want to quit?

The decision to take part in this study or not is up to you. If you get involved in the study and then decide to quit, that's okay. If you withdraw from the study at any time, any information that you have given will not be used if that is what you request. It is up to you if you want to contribute to the group discussion or not and you can stop whenever you want. You are free not to answer any question if you so choose, or to quit the study at any time and no one will be upset or angry with you.

If something bothers you about any part of the project you can tell your parents about it and they can phone one of the people listed on the bottom of this page. Once the data collection is complete and the data has been analyzed participants and principals will be invited to information sessions conducted at each school to see the results of the study.

For more information, you may contact the Research Ethics Office at the University of Saskatchewan. Any question regarding your rights as a participant may be addressed to that committee through the Research Ethics Office ethics.office@usask.ca (306 966 2975). Out of town participants may call toll free (888 966 2975), or contact the Principal Investigator, Dr. Rachel Engler-Stringer, Department of Community Health and Epidemiology, University of Saskatchewan (306-966-7839). This research has been approved by the University Advisory Committee on Ethics in Behavioural Sciences Research on [approval date].

If you want to take part in the focus group discussion please print your name below.

My name is _____ and I want to take part in this study. Date _____

APPENDIX D: FOOD ENVIRONMENT ASSESSMENT TOOL

Checklist

(Before you set out to the school for a visit, make sure you have...)

1. Instruction Sheet
2. Definitions Sheet
3. Relevant sections of F4T tool
4. Blank paper for note-taking
5. Excel spreadsheet for listing/organizing foods assessed for question 9, if applicable
6. Consent forms for interviewees to sign (bring several extra)
7. Please use pen; not pencil

Questions? Please Contact:

Dr. Nazeem Muhajarine, Chair, Community Health and Epidemiology
Nazeem.muhajarine@usask.ca
(306) 966-7940

Instructions for researchers:

Before visiting your assigned schools, be sure to:

- o Complete the Tri-Council ethics tutorial and review consent procedures:
<http://www.pre.ethics.gc.ca/eng/education/tutorial-didacticiel/>
- o Comprehensively review all sections of the tool with your partner and ask for clarification if needed. Decide who will do what during the interviews (note-taking, asking questions etc.)
- o If possible, please send your school partners a list of the questions you will ask at least one week in advance.
- o If possible, request contact information for school marketing contact (for school store) and request a time to visit school store as part of observation. If unavailable, request a time to visit school store when meeting with school administrator as part of survey.

When visiting your assigned schools....

- o Make sure to report to the office when you arrive to sign in and get a visitor's pass (if required by school)
 - o Try to arrange to observe the lunch period!
 - o Be understanding of the challenging and dynamic nature of the school. If your contact is late for a meeting, has to re-schedule at the last second, or has to cut the interview short, you should try to be as flexible as you can and plan ahead if possible.
 - o For all questions, keep a log of which respondent answered which question(s) (i.e. principal, vice principal, teacher, food service staff).

Photos:

You are encouraged to take photos of the school food environment (e.g. food available in vending machines, the cafeteria, menu boards, school garden, compost/recycling bins/stations, etc.).
However, you may not take pictures of individual students or their faces!

After visiting your assigned schools....

- o Reflect on your findings with your partner and coordinate your notes. Summarize the key findings, strengths and challenges you have documented
- o If appropriate, make an appointment to visit the school a second time to review your findings with school personnel. The main point of this follow-up visit will be to confirm that your notes are accurate representations of the school food environment.

GENERAL INFORMATION

School Name: _____

School population (number of students): _____

Date completed: _____

Name of researchers completing this F4T:

Note: Please refer to the last page for definitions of terms marked with (*).

PHYSICAL OBSERVATION QUESTIONS

1. Briefly describe where students eat lunch and any details you noted from direct observations during the lunch hour. For example,

- **What types of things do students eat?**

- **Are there areas designated for sitting that are unoccupied; areas not designated for sitting that are occupied?**

- **Are there obvious age/ethnic/gender differences in seating patterns?**

- **Is there adequate seating; does the eating area have a pleasant atmosphere, etc.?**

2. To what extent do you agree with the following statements about water fountains at this school?

	S D	D	A	S A	Comments
All water fountains are clean.					
All water fountains are in working order					
Water fountains are located near gyms and exercise areas					
Students can easily fill water bottles at water fountains					

2a. Total number of water fountains in the school: _____

2b. General observations about access to water at the school (e.g., if there are several floors in the school, how many fountains are on each floor? Are there water coolers used by students? If so, where are they and how well are they accessed?)

3. Please describe the types of food service facilities available at the school:

	Total number	Location	Hours of operation (if applicable)
Nutrition room(s)			
Lunch room(s)			
Microwave oven(s)			
Food vending machine(s)			
Beverage vending machine(s)			
Other: specify			

Additional notes about access to nutrition room, or vending machines:

*****If possible, take photographs of the layout of food and beverages. Ensure that the photographs DO NOT CONTAIN ANY STUDENTS' FACES.*****

4. Who operates the nutrition room? (i.e., nutrition worker, community coordinator, school administration, etc.)

5. School food sales

Assess all food items in each vending machine, documenting the name/description and size of each item in the excel spreadsheet template provided to you. Also, document any foods available at the school store (if there is one), at any food fundraisers taking place on the day of your visit or any other food sales outside of the cafeteria as applicable (on spreadsheet)

After filling out the excel spreadsheet summarize your findings in the table below:

- Food vending machines
 - Beverage vending machines
 - Food fundraisers on day of observation
 - Other (specify)
-

6. School Food Signage and Advertising

Document and describe all food and beverage related advertisements, including signage that consists of just a brand name (e.g., sign for event sponsored by Coca-Cola), as well as any signs, posters, or banners advertising or promoting foods and beverages that are located in food vending machine(s), beverage vending machine(s), and other. Document the location and size of each advertisement, as well as the name/description of the product being advertised.

Administrator Questions

A 1a. What have been your school's greatest successes in the area of supporting healthy eating? (Healthy eating is a pattern of eating that contributes to best possible health through positive relationships with food, and diverse and balanced food choices that meet the body's needs for nutrients and energy.)

A 1b. What have been your school's greatest challenges in the area of supporting healthy eating?

A2a. Is hunger an issue among students at this school? If so, how does the hunger issue manifest itself in your school?

A2b. If so, how are the needs of hungry students being addressed?

A 2d. Does your school offer a subsidized (or free) meal program (breakfast and/or lunch)?

a. Yes

b. No

If yes, approximately how many meals are served per day? ____ #of meal times x ____ #students served = ____ total

For which grades? _____

A 3. Describe current initiatives related to food and nutrition at your school.

A3b. How do the nutrition-related services provided at your school meet religious, ethnic, vegetarian, and medical/allergic needs of staff, students, and families;

A3c. Are nutrition-related training programs (e.g., basic nutrition, Canada food guidelines, benefits of organic and sustainable agriculture, etc.) for teachers and food services staff offered either at your school or at the division-level?

A3d. Are school food facilities (e.g., kitchens, food preparation areas, food storage appliances, etc.) used during holidays and outside school hours?

A 4. What kitchen facilities are available in the school?

	Yes	No	How are they used? (Comments)
Home economics lab			
Nutrition room kitchen			
Kitchen in staff room			
Lunch room			
Other (specific)			

A 5. Other than through the home economics/foods programs, describe other student education initiatives about food preparation? (eg. garden club, a teacher doing a food unit in Social studies)

A 6a. On average, how often does your school hold food fundraisers? (These are events or campaigns where food is sold to students, families, and/or neighbours for fundraising purposes, such as sushi or pizza lunches, bake sales, chocolate sales, candygram sales, frozen meat, cookie dough, etc.)

- a. Never
- b. A few times per year (how many)

- c. At least once on most months (but less than once per week)
- d. Once or more per week on most weeks
- e. Everyday

A6b. Please describe the kind of food sold at these fundraisers at your school, including any limits your school has in place (e.g. frequency, types of foods sold, participation with cafeteria, etc):

A 7. Does your school have or follow any written policies that promote healthy eating? (Circle all that apply) Obtain copy of guidelines if available.

- a. Yes, we have developed our own food guidelines (Please use space below to describe your policies)
- b. Healthy eating is a goal of our school (e.g. an annual goal or through the Healthy Schools Network)
- c. We follow guidelines for healthy fundraising
- d. No, we neither have nor follow any written guidelines

Notes:

A 8. Does the school actively involve other parties in shaping food at school(e.g., starting a garden, shaping the eating environment, developing a shared vision and action plan to achieve goals and/or in writing policy, deciding what foods and beverages are offered/sold at school) Circle all that apply:

a. Yes, we involve

parents

b. Yes, we involve

students

c. Yes, we involve other community members (if so, please describe) _____

d. Other (Specify) _____

e. None of the above

A 9. Who are the key individuals or groups driving food-related change at your school?

- a. A single staff member (e.g., nutrition worker, teacher, administrator, etc.)
- b. A group of staff members
- c. The whole staff

- d. The SCC (school community council)
- e. A single or small group of parents
- f. A single or small group of community members
- g. Other _____

A 10. How do you rate the nutritional quality of the food and beverages that are served or available for sale in your school?

- a. All food available represent healthy choices (100%)
- b. Most food represent healthy choices (75%)
- c. There are a few healthy choices (25%)
- d. Have not monitored the nutritional quality

A 11. Did your school initiate/continue any activities or programs addressing healthy eating? If so, please describe:

A 11b. When was this activity/program implemented?

Initiated this year	Has been in place	Has been in place	No, we do not have

A 12. During the past 12 months, did your school initiate/continue any of the following food system sustainability-related activities/programs at your school?

	Initiated this year	Has been in place for 1-2 years	Has been in place for >2 years	We do not have this program
A club or committee dealing with sustainability				
School learning garden or orchard				
Farm visits				
Formed partnership(s) with local farmers				
Held a sustainability fair/event				
Held waste-free lunch days				
Other (describe)				

A13. On a scale of 1 to 10, how pleasant and comfortable is the student eating environment? (1 indicating the least pleasant and 10 indicating the most pleasant). Please reflect on cleanliness, comfort and atmosphere.

_____/10 lunch room #1 _____

_____/10 lunch room #2 _____
_____/10 lunch room #3 _____

A 14. In what ways does your school integrate food and healthy eating into the curriculum? (i.e. Science, physical education, homeroom, career and personal planning, etc.) Please comment:

A 15. Are there any concerns at your school related to food and beverage advertising? If so, please describe: (for example, amount of advertising; types of foods being advertised; advertisements for food/beverage fundraisers; the use of food related coupons or giveaways; student driven advertising campaigns; the impact of advertising on efforts within the school to promote healthy eating):

A 16. Do your students create advertisements for the school store, class projects, and/or fundraising events? If yes, does your school board/school have or follow any written policies around the types of foods and/or beverages that can be advertised within schools? (Circle all that apply).

- a. Yes, we follow the relevant Saskatoon Public Schools' administrative procedures.
- b. Yes, we have developed our own food advertising guidelines (Please use space below to describe your policies).
- c. Yes, our students follow guidelines to advertise only healthy food and/or beverage items for the school store.
- d. Yes, our students follow guidelines to create only healthy food and/or beverage campaigns for school projects.
- e. Yes, when fundraising we follow guidelines to advertise only healthy food and/or beverage items.
- f. No, we neither have nor follow any written guidelines.

Space to describe policies:

A 17. How often are the following items typically available for students to eat in your school meal program:

	Every Day	Once a week - a few times a week	Less than Once a week	Never	Comments, if applicable
a. One or more fresh fruits?					
b. One or more cooked (not deep fried) vegetable(s)?					
c. A salad bar					
d. Raw vegetables?					
e. Dark green vegetables?					
f. Local vegetables or fruits?					
g. Organic vegetables or fruits?					
h. Seasonal fruits or vegetables?					
i. Foods produced in a school garden?					
j. Non-flavoured, low-fat milk options? (i.e., 2% or less)					
k. Another dairy product? (i.e. yogurt or cheese, describe)					
l. Foods containing whole grains?					
m. Vegetarian entrée options?					
p. Bottled water?					
q. Any deep-fried foods?					
r. Regular pop/sweetened beverages?					

A18. How important are each of the following for making decisions about what is served at lunch? If not applicable, please explain why.

	Not applicable	Not at all Important	Low Importanc	Somewhat Important	Extremely Important
a. Foods are SK grown					
b. Foods are healthy					
c. Prices are reasonable					
d. Foods are in season					
e. Foods are culturally appropriate					
f. Foods are grown on-site					
g. Foods are used as part of the learning					
h. Vegetarian options are available					
i. Expose students to new foods					
j. Other					

A19. Does your school have the ability to do any of the following? (Please check all that apply, and specify when they were put into place.)

	Yes / No	Initiated this year	Has been in place for 1-2 years	Has been in place for >2 years	Please briefly describe and challenges or barriers
a. Promote purchasing SK foods					
b. Choice in purchasing items with less packaging					
c. Reduce the use of single-serving package beverages by using refillable containers					
d. Donate uneaten lunch items to a "share a lunch" program					
e. Other (Specify)					

NOTE: If there is no garden/orchard please skip to question 21c.

Please describe any of the programs initiated or already put into place:

A 20a. If your school has a food garden or fruit trees describe who uses the garden and what school activities are integrated with the garden:

A 20b. Number of teachers involved in garden:

A 20c. Number of classes involved in garden:

A 20d. Frequency of use of garden and types of school activities (eg. weekly, monthly, a few times / yr; biology class; Home Ec. Class, etc.) If applicable, please briefly describe how well the school garden/orchard is used:

Overall	For teaching about food preparation	For teaching about healthy eating	For employment/skills training	For teaching gardening skills	For teaching science or other subjects (please	For food (student consumption, donations,

a. Very well utilized	a. Very well utilized	a. Very well utilized	a. Very well utilized	a. Very well utilized	a. Very well utilized	a. Very well utilized
b. Moderately well utilized	b. Moderately well utilized	b. Moderately well utilized	b. Moderately well utilized	b. Moderately well utilized	b. Moderately well utilized	b. Moderately well utilized
c. Minimally utilized	c. Minimally utilized	c. Minimally utilized	c. Minimally utilized	c. Minimally utilized	c. Minimally utilized	c. Minimally utilized
d. Not well-utilized	d. Not well-utilized	d. Not well-utilized	d. Not well-utilized	d. Not well-utilized	d. Not well-utilized	d. Not well-utilized

Other notes about garden/fruit tree utilization, including barriers to use:

A 21a. Do you have in place a formal plan for utilizing all harvested produce? If so, please describe:

A 21b. How did your school decide on what types of produce to grow? Please describe (e.g. student participation; consultation with food service; teacher interest; donated items, etc.)

A 21c. Are you interested in creating a garden or orchard?

A 21d. Are there any specific goals you would like your school to achieve over the next 1-3 years in terms of changes to the school food environment, food systems sustainability or healthy eating?

GENERAL SUMMARY OF STRENGTHS AND OPPORTUNITIES FOR IMPROVEMENT

These questions can be asked of more than one staff person (e.g. food service staff and/or administrator). Please note the source of each of these items.

A 22. What are the main strengths of the School Food Environment in relation to health?

A 23. What are some areas for improvement?

A24. Are there specific goals you would like your school to achieve over the next 1-3 years in terms of changes to the school food environment, food systems sustainability or healthy eating? If there are projects you want to initiate but feel you cannot due to barriers, please elaborate here.

Interviewer reflections: How long did this interview take? _____

Who was interviewed to help complete this form (check all that apply)

- a. _____ Contact info: _____
Principal Contact info: _____
- b. Vice-Principal _____ Contact info: _____
- c. _____ Contact info: _____
Teache Contact info: _____
- s Contact info: _____
- d. Supervision aide _____ Contact info: _____
- e. Foodservice staff _____ Please specify _____
- f. Other _____

DEFINITIONS

Sustainable: Sustainability refers to using environmental resources with the goal of replenishing, preserving, or sustaining them for future generations. For foodservice operations, this might mean choosing energy and water-saving equipment or purchasing food products from local suppliers. Foodservice operations have unique demands that make environmental sustainability complicated, such as water use, food packaging and transportation, energy use associated with refrigeration and CONSUMPTION, and food waste.

www.bced.gov.bc.ca/greenschools

Other useful resources:

- a. Healthy eating at school website: Healthyeatingatschool.ca
- b. BC Guidelines for Food and Beverages Sales in BC Schools: www.bced.gov.bc.ca/health/guidelines_sales.pdf
- c. For categorizing brand name foods: <http://www.brandnamefoodlist.ca/about.aspx>
- d. Canada's Food Guide: www.healthcanada.gc.ca/foodguide
- e. BC Ministry of Education:
 - a. Green Schools project: www.bced.gov.bc.ca/greenschools
 - b. Health at School: www.bced.gov.bc.ca/health/
 - f. School Meal and School Nutrition Program Handbook: www.bced.gov.bc.ca/communitylink/pdf/smph.pdf

APPENDIX E: PERMISSION FOR PRINCIPALS' INTERVIEWS



Dear Principal,

Thank you so much for your participation in the Food for Thought project. As you are aware, we are conducting a short evaluation at each of the participating schools. Ideally, this evaluation will be completed by the end of March 2013.

We would like to arrange for a convenient time for you so that we can come to your school and conduct this evaluation by completing a survey and observation.

The survey should take approximately 45 minutes to complete. Please find attached a copy of the survey questions. Feel free to look over the questions and answer them in advance - although we will go over them with you when we meet.

As a part of our evaluation, we would also like to observe a lunch period at your school. If possible, we would like to do that on the same day that we meet to do the survey. We will be in touch within the next week to arrange a time for the interview and observation. However, if you have any questions about the project, please contact us by phone or email.

Peter Opoku - Cell: 306 202 9433 - Email: peo724@mail.usask.ca

Chu Luan- Cell: 306 716 5837 - Email: cml779@mail.usask.ca

Or you can contact our supervisor Dr. Nazeem Muhajarine at 966-7940 or nazeem.muhajarine@usask.ca.

Best regards,

Peter Opoku and Chu Luan

Research Assistants, Food for Thought

APPENDIX F: PERMISSION FOR STUDENTS' FOCUS GROUP DISCUSSION

Dear Principal [insert name],

Thank you for your cooperation and participation in the Food for Thought (FFT) program evaluation research project. As you are aware, to date we have conducted an interview with you and an online survey with your students in order to collect data. As part of my Master's thesis studying the FFT project, I would like to conduct a focus group discussion with students in your school to find out how students participating in the program perceive their food choices have been influenced by the school's snack and lunch program. Ideally, this focus group will be complete by the end of February 2014. The group discussion will take between 30-40 minutes among 6-8 students who are active participants of the school snack and lunch programs. I am requesting that you and your staff assist me in recruiting suitable candidates for the discussion.

Please find attached a copy of the discussion guide, consent form for parents, and students' assent form for the focus group research. I will be in touch in about a week to arrange a time for the group discussion. However, if you have any questions or concerns about this study, please do not hesitate to contact me by phone or email.

Peter Opoku – Phone: 306 202 9433 – Email : peo724@mail.usask.ca.

You can also contact my supervisors Dr. Nazeem Muhajarine at 306 966 7940 (nazeem.muhammad@usask.ca) or Dr. Rachel Engler-Stringer at 306 966 7839 (rachel.engler-stringer@usask.ca).

Best regards,

Peter Opoku - Research Assistant, Food for Thought Program.

APPENDIX G : ETHICS APPROVAL (UofS BEHAVIOURAL RESEARCH ETHICS BOARD)



UNIVERSITY OF SASKATCHEWAN

Behavioural Research Ethics

Certificate of Approval

PRINCIPAL INVESTIGATOR
Rachel Engler-Stringer

DEPARTMENT
Community Health and Epidemiology

BEH#
13-390

INSTITUTION(S) WHERE RESEARCH WILL BE CONDUCTED
Saskatoon Public Schools
310 - 21st Street East S7K 1M7

SUB-INVESTIGATOR(S)
Nazeem Muhajarine

STUDENT RESEARCHER(S)
Peter Boateng Opoku

FUNDER(S)
POTASH CORPORATION OF SASKATCHEWAN INC.

TITLE
The Promotion of Healthy Eating in Children through School Snack and Lunch Programs in 13 Elementary Schools in the City of Saskatoon

ORIGINAL REVIEW DATE	APPROVAL ON	APPROVAL OF:	EXPIRY DATE
03-Dec-2013	20-Dec-2013	Application for Behavioural Research Ethics Review Recruitment Poster Parent Consent Form Student Assent Focus Group Guide	19-Dec-2014

Full Board Meeting Delegated Review

CERTIFICATION

The University of Saskatchewan Behavioural Research Ethics Board has reviewed the above-named research project. The proposal was found to be acceptable on ethical grounds. The principal investigator has the responsibility for any other administrative or regulatory approvals that may pertain to this research project, and for ensuring that the authorized research is carried out according to the conditions outlined in the original protocol submitted for ethics review. This Certificate of Approval is valid for the above time period provided there is no change in experimental protocol or consent process or documents.

Any significant changes to your proposed method, or your consent and recruitment procedures should be reported to the Chair for Research Ethics Board consideration in advance of its implementation.

ONGOING REVIEW REQUIREMENTS

In order to receive annual renewal, a status report must be submitted to the REB Chair for Board consideration within one month of the current expiry date each year the study remains open, and upon study completion. Please refer to the following website for further instructions: http://www.usask.ca/research/ethics_review/

Beth Bilson, Chair
University of Saskatchewan
Behavioural Research Ethics Board

Please send all correspondence to:

Research Ethics Office
University of Saskatchewan
Box 5000 RPO University, 1602-110 Gymnasium Place
Saskatoon SK S7N 4J8
Telephone (306) 966-2975 Fax: (306) 966-2069

**APPENDIX H : ETHICS APPROVAL (SASKATOON PUBLIC SCHOOL
DIVISION)**

APPENDIX H : ETHICS APPROVAL (SASKATOON PUBLIC SCHOOL
DIVISION)



Saskatoon Public Schools
Inspiring Learning

310-21st Street East, Saskatoon, Saskatchewan S7K 1M7
Tel: (306)683-8200 • Fax: (306) 657-3900
www.spsd.sk.ca
Avon Whittles, Director of Education

February 4th, 2014

Peter Opoku
31-20 Summers Place
Saskatoon, SK S7H 3W4

COPY

Dear Mr. ^{PETER}Opoku:

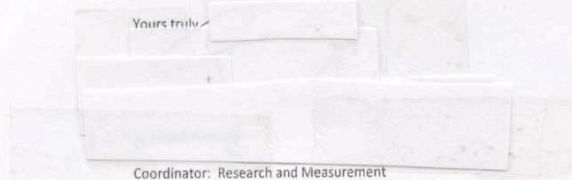
I have received and approved your request to conduct research in Saskatoon Public Schools. Your study entitled, *"The Promotion of Healthy Eating in Children through School Snack and Lunch Programs in 13 Elementary Schools in the City of Saskatoon"* promises to provide interesting and relevant information.

Please contact principals directly and provide them with the written details of your study, and a copy of this letter when seeking permission to conduct research in the school.

Our staff and students voluntarily participate in research and are free to withdraw from the research at any time.

Upon completion of your research, we request that you submit a copy of your study to our office. Best wishes for success with your research.

Yours truly,



Coordinator: Research and Measurement

ST: tf

Copy to:

Susan Pattison – Principal at Caswell School
Deb Stevens – Principal at Caroline Robins School
Yves Bousquet – Principal at Fairhaven School
Mickey Jutras – Principal at Pleasant Hill School
Superintendents of Education