

GRADE NINE STUDENTS AND POLICY: PERSPECTIVES OF THE SCHOOL
NUTRITION AND PHYSICAL ACTIVITY ENVIRONMENT

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Dedication

To my sons, Easton, Ty, Dane and baby who bring happiness and laughter to my life every day. I am very proud of each of you. To my husband, Chris, you are the love of my life, my rock, my friend, and I am grateful for the life we have built together.

Abstract

The school environment is often the focus of healthy eating and physical activity policies intended to address childhood obesity. However, students are usually excluded from the development and implementation of such policies. The purpose of this study was to explore grade nine student perspectives regarding: supports and barriers to healthy eating and physical activity at school; strategies for improving the school nutrition and physical activity environments; and potential student contribution to the development, implementation, and evaluation of school-based policies. A qualitative approach utilizing focus groups and photovoice with 30 students from two schools in southern Alberta was used to collect data. Major themes included: access to healthy food choices; teacher influences; peer influences; access to physical activity opportunities; impact of marketing; and conflicting messages. Students can provide valuable insights to policy development, implementation and evaluation. Implications for future research and policy development are reviewed.

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Chapter One: Statement of the Problem

Rationale for Study

In Canada, childhood overweight and obesity are at epidemic proportions (Shields, 2006). Factors recognized as contributing to obesity include sedentary lifestyles and rising energy content of the diet (Brown & Summerbell, 2009). Schools are increasingly accessed for obesity prevention efforts, specifically promotion of healthy eating and active living (Jaime & Lock, 2009; Spitters, Schwartz, & Veugelers, 2009). The school environment can be an ideal setting for the promotion of healthy eating and active living as children spend a majority of their day at school and they make numerous choices related to eating and activity at school (Budd & Volpe, 2006; Mendelson, 2007; Spitters et al., 2009). The school environment which includes the infrastructure, physical environment, policies, curricula, and staff, contributes to and influences children's health behaviours (Brown & Summerbell, 2009). MacLellan, Taylor and Freeze (2009) summarized by stating,

...consensus is emerging within the research and stakeholder communities that action at the school level, including nutrition policies, must be a priority; such action can create supportive environments that enable children to make healthy food choices and that, ultimately, will reduce the future morbidity and mortality associated with overweight and obesity. (p. 167)

In Alberta there has been investment from the government in the promotion of healthy weights in children and youth in the school setting (Alberta Health and Wellness, 2011). In 2005, all schools in Alberta were mandated to implement thirty minutes of daily physical activity (DPA) as a curriculum policy for students in grades one through nine (Alberta Education, 2009; Gladwin, Church, & Plotnikoff, 2008). In June 2008, Alberta Health and Wellness released provincial nutrition guidelines to help schools offer

healthy food choices for children and youth (Alberta Health and Wellness, 2011). They recently revised these guidelines based on feedback to enhance the use of the nutrition guidelines (Alberta Health and Wellness, 2011). While these guidelines have not been mandated by Alberta Education, many school districts have begun to use the new guidelines to develop their own school nutrition policies.

Medicine Hat School District No. 76 (MHSD76) was one of the first districts in southern Alberta to adopt school nutrition policy. Since the release of the Alberta Nutrition Guidelines for Children and Youth, MHSD76 has enhanced its nutrition policy with the addition of two administrative procedures to be consistent with the guidelines (Appendix A). The policy emphasizes that “schools play an important role in improving the health of students and their ability to learn by reinforcing sound nutrition principles through its food services and its education programs” (MHSD76, 2004).

In 2009, MHSD76 applied for and received a grant from the Alberta Healthy School Community Wellness Fund to help bring its nutrition practices in alignment with the school district nutrition policy as well as to enhance DPA by increasing the number of physical activity opportunities for children. The “Living in a Healthy School Community” Project was funded for two years, ending in spring 2011. A healthy school project facilitator was hired to oversee implementation of the project in 14 elementary schools and three secondary schools in the district, liaise with community partners, and coordinate project activities. Feedback from stakeholders was collected at the end of the first year of the project with an emphasis on the teachers, parents and administrators.

Another potentially important but relatively silent voice is that of the students who are directly affected by school programs and policies. Students have unique

perspectives and can provide important understanding of how the school environment encourages or discourages healthy behaviours (Bauer, Yang, & Austin, 2004). Policy 680: Healthy Nutritional Choices from MHSD76 (2004, para 5) states “where and as appropriate, students should be involved in decisions regarding the food choices available in schools.” My study occurred at an opportune time in the ongoing process of including the students who were affected by nutrition and physical activity and ensuring they are heard as important stakeholders in MHSD76.

Background Information

Little research exists on youth’s perceptions of healthy eating and physical activity (Protudjer, Marschessault, Kozyrskyj, & Becker, 2010). In the education context, policy and program decisions are often made without students’ input although they are the ones most affected by these decisions (Marshall & Rossman, 2006). Students thus remain marginalized from the policy development and implementation process. Consulting with school-age children to provide input into interventions that affect their health decisions has the potential to improve policy effectiveness and sustainability (Fitzgerald, Bunde-Birouste, & Webster, 2009; Hohepa, Schofield, & Kolt, 2006).

Protudejer et al. (2010) explored the meaning of healthy eating and physical activity among school-aged children. In-depth interviews with children revealed that they perceived physical activity as being easier and more fun than healthy eating. Healthy eating, although seen as necessary for health, was perceived as less fun than eating high fat, high sugar foods. Physical activity such as actively playing or passively watching sports was seen as a social activity to do with friends. The authors concluded

that children understand the meaning of healthy eating and being physically active but that there is a disconnect between knowledge and actual food and activity choices away from home.

Harrison and Jackson (2009) found that youth aged 13 to 15 described healthy foods as natural and nutritious. Youth associated healthy foods with increased energy and necessary for physical activity and physical development and growth. In contrast, participants described unhealthy foods as being artificial, processed, and containing excess sugar and fat. They associated unhealthy foods with sedentary activities such as watching TV and time spent with friends. Youth in this study also perceived unhealthy foods as being more fun than healthy foods as well as being linked to peer acceptance. By building a better understanding of students' perceptions of healthy eating and physical activity, schools can enhance programs and policies to be more supportive of healthy choices (Protudjer et al., 2010).

Fitzgerald et al. (2009) engaged primary school children through focus groups, drawings, and photovoice to provide insights regarding the school physical activity and nutritional environment. Fruits, vegetables, and water were identified by the children as being important for health. Suggestions to improve healthy eating included having a short fruit and vegetable break during school and being able to have a water bottle in class. Children identified that play equipment and the outdoor environment such as grass, school buildings, and cement courts should be in good condition. Suggestions to improve physical activity included access to a swimming pool and soccer facilities. The researchers concluded that children can provide effective suggestions to improve physical activity and nutrition environments at school and that student views are important to the

development of school health programs and policies. Providing opportunities for children to have an active voice can increase their interest in the environment, improve learning and promote healthy behaviors (Fitzgerald et al., 2009).

Theoretical Framework

The theoretical framework chosen to guide this study was a social ecological model. This framework can be used to describe how health behaviors and beliefs are influenced by the social and physical environment (Bauer et al., 2004). The influence exerted by the environment can affect health choices in a positive way, acting as an enabler to healthy decisions, or in a negative way, acting as a barrier to healthy decisions (Bauer et al., 2004). The social ecological model is further described in Chapter Three.

Overview of Method

Qualitative methods were used to collect data through focus groups (Morgan & Kreuger, 1993) and photovoice (Wang & Burris, 1997). Photovoice is a participatory-action research methodology which engages people as the experts based on their own lives (Wang, Morrel-Samuels, Hutchison, Bell, & Pestronk, 2004). Through photovoice, participants are provided with cameras to take photographs of their everyday realities to create discussion to reach policy makers (Wang et al., 2004). Photovoice was selected as a method to provide youth a way of showing through their eyes how the school environment can support or inhibit healthy behaviours. In this study, six focus groups (3 female and 3 male) were conducted with grade 9 students in two high schools within MHSD76. Females (n=16) and males (n=14) were divided into separate groups for focus groups as gender differences have been reported in studies around student perceptions of

healthy eating and/or physical activity (Croll, Neumark-Sztainer, & Story, 2001; Harrison, & Jackson, 2009; Hohepa et al., 2006; Neumark-Sztainer, Story, Perry, & Casey, 1999; Protudjer et al., 2010; Rees et al., 2006; Shepherd et al., 2006). Three focus groups were conducted in each school. Students were asked to identify: the supports and barriers to healthy eating and physical activity at school; strategies to improve the school nutrition and physical activity environment; and potential student contributions to the development, implementation and evaluation of school-based policies. Focus group participants were invited to volunteer for photovoice. Students interested in participating in photovoice submitted their name into a container at the end of the focus group session. Two or three names from each container were randomly selected after each focus group session. A total of 13 participants were selected for photovoice (six females and seven males). Basic demographic information such as age and gender was collected through a survey during focus groups (Appendix B).

Focus group sessions were audio-taped and notes were made to capture students' comments and ideas. Students identified important concepts that arose from the discussion. Flip chart notes and audiotapes were used record focus group discussions. Transcripts and debriefing notes were used as the basis for thematic content analysis. By selecting and interpreting their own photos, participants were involved with the analysis process. Students each selected two or three photographs to contextualize by telling stories about what the photo meant to them. The written narratives were also used for thematic content analysis. The final research report showcases the photos and the findings from focus groups and photovoice. A better understanding of student perspectives of supports and barriers to eating healthy and being active at school was

obtained from this study. Implications for future student involvement with school nutrition and physical activity policy were also identified.

Problem Statement and Purpose

Students are not often consulted when it comes to school policy implementation. There has been little research identifying students' perspectives of factors in the school environment that promote or undermine healthy eating and physical activity choices (Bauer et al., 2004). The purpose of this study was to explore youth's perspectives of the school nutrition and physical activity environments; supports and barriers to healthy eating and being active; strategies for improving the school nutrition and physical activity environment; and potential student contributions to the development, implementation, and evaluation of school-based policies.

Research Questions

The research questions that guided this study were:

- 1) To what extent are students supported to make healthy eating choices at school?
- 2) What do students identify as barriers and challenges to healthy eating at school?
- 3) To what extent are students supported to be physically active at school?
- 4) What do students identify as barriers and challenges to being active at school?
- 5) How do students think schools can better support healthy eating and activity?
- 6) What contributions do students think they can make to the development, implementation and evaluation of school based policies?

Significance

The development and implementation of school nutrition policy in Canadian schools is relatively new and evaluation of whether it makes a difference in nutritional intake and overweight and obesity rates is in the formative stages (Dietitians of Canada, 2008). Knowing how youth perceive their school environment will further the understanding of how schools can support children to develop healthy habits to carry into adulthood, possibly reversing the overweight and obesity trend. The supports and barriers to healthy eating and being active at school were identified in this study. Recommendations to improve healthy eating and physical activity environments at school and students' role in policy were also established. The findings will inform the implementation of effective and sustainable healthy school policy and program development. This research offered a unique opportunity to showcase students' experiences, opinions, and ideas for improvement in this area.

Chapter Two: Review of the Literature

In this chapter, I provide an overview of the prevalence and consequences of child and adolescent obesity in Canada. In the following section I review the role of the school environment in influencing students' behaviors around healthy eating and physical activity. School-based obesity prevention will be highlighted with specific regard to the role of physical activity and nutrition policy. Finally, I discuss the importance of children's and adolescents' perspectives on school nutrition and physical activity environments and the need to ensure that their voices are heard in this regard.

Childhood Overweight and Obesity

Obesity has become the most significant contributor to poor health and mortality in the world, surpassing under-nutrition and infectious disease (Lau et al., 2007). Globally, nearly 22 million children under five years of age are overweight (World Health Organization [WHO], 2008). In Canada, child overweight and obesity are increasing at alarming rates. Canada has one of the highest rates of childhood obesity, ranking fifth out of 34 developed countries (House of Commons Canada, 2007). In 2004, 26% of Canadian children and adolescents aged 2 to 17 were overweight or obese and 8% were obese. This is an increase compared to 1978/79 when 15% of children and adolescents were overweight or obese and 3 % were obese. The combined overweight/obesity rates are about 70% higher than in 1978/79 and the obesity rate is 2.5 times higher (Shields, 2006). These changes are of particular concern in the 12-to-17-year old group as the overweight/obesity rate has more than doubled and the obesity rate has tripled. In fact, the average body mass index (BMI) of adolescents aged 12 to 17 rose

from 20.8 to 22.1 between 1978/79 and 2004. This shift towards a higher BMI in adolescents is of concern as it contributes to the development of adult obesity (Shields, 2006). Clearly, prevention efforts are needed for this age group to reverse upward trends.

In Alberta, 22% of children and adolescents were overweight or obese in 2004 (Shields, 2006). A study entitled Raising Healthy Eating Active Living Kids Alberta (REAL Kids Alberta) is currently being conducted in the province to evaluate the Healthy Weights Initiative of Alberta Health and Wellness. Phase one of the evaluation was conducted in Spring 2008 with a total of 3935 grade 5 students and 4209 parents participating. Results showed that 29% of grade 5 students in Alberta were overweight or obese (University of Alberta, 2009).

Measurement of Overweight and Obesity

Underwater weighing and dual energy x-ray absorptiometry are methods of measuring fatness; however, they are typically not used in clinical or community practice as they are not practical or easy to use (Dietitians of Canada, Canadian Pediatric Society, The College of Family Physicians of Canada, & Community Health Nurses Association of Canada, 2004). BMI has been shown to be a valid measure of adiposity for children and adults (Budd & Volpe, 2006; Dietitians of Canada et al., 2004; Lau et al., 2007). BMI is often used in population-based surveys given the ease and high reliability of measuring height and weight (Meizi & Beynon, 2006). BMI is calculated as weight in kilograms divided by height in meters squared: $BMI = \text{weight (kg)} \div \text{height (m)}^2$.

The 2006 Canadian clinical practice guidelines on the management and prevention of obesity in adults and children recommend measuring BMI in all adults, children, and adolescents (Lau et al., 2007). Growth of all Canadian school aged children

and adolescents between the ages of 5 and 19 years should be evaluated using growth charts from the World Health Organization Growth Reference (Dietitians of Canada, Canadian Pediatric Society, The College of Family Physicians of Canada, & Community Health Nurses of Canada, 2010). These growth charts have been updated to address the obesity epidemic and are therefore considered to be closer to growth standards (Dietitians of Canada et al., 2010). BMI-for-age should be used to assess weight relative to height and to screen for overweight and obesity for all children two years or older. BMI-for-age reference is an important measure of overweight in children. Age is taken into account, as a child's body build and composition change over time. The recommended cut-off criteria for overweight and obesity using BMI-for-age are different for children two to five years and 5 to 19 years of age. The following criteria are used to provide guidance on the need for further assessment, referral or intervention for children two to five years: risk of overweight (>85th percentile); overweight (>97th percentile); obese (>99.9th percentile); and severely obese (not applicable for this age group). The cut off criteria used for children 5 to 19 years of age are: risk of overweight (not applicable for this age group); overweight (>85th percentile); obese (>97th percentile); and severely obese (>99.9th percentile) (Dietitians of Canada et al., 2010).

A major limitation of BMI as a measure is that it is unable to distinguish increased fat mass from lean mass (Dietitians of Canada et al., 2004; Meizi & Beynon, 2006). For this reason, it is important to realize that BMI-for-age is not an individual diagnostic tool for obesity; however, it is an effective screening tool for identifying children who have higher than normal adiposity (Dietitians of Canada et al., 2004).

Health Consequences of Child Overweight and Obesity

Overweight and obese children are likely to remain overweight or obese as they enter into adulthood (House of Commons, 2007; Shields, 2006; WHO, 2008). They are also more likely, as adults, to develop chronic conditions such as Type 2 diabetes, cardiovascular disease (House of Commons, 2007; Lau et al., 2007; Spitters et al., 2009; WHO, 2008), joint problems, mental health issues (House of Commons, 2007), hypertension and hypercholesterolemia (Lau et al., 2007; Taylor, Evers, & McKenna, 2005), and certain forms of cancers (Lau et al., 2007; Spitters et al., 2009). Obese children may also suffer significant social and emotional difficulties (Dietitians of Canada et al., 2004).

The rapid increase in childhood obesity results from more than just genetic factors. The current obesogenic environment encourages excess food consumption and sedentary lifestyles (Brownell, Schwartz, Puhl, Henderson, & Harris, 2009; Lau et al., 2007). Unhealthy eating habits during childhood can continue into adolescence and adulthood leading to long term positive energy imbalance in which energy intake exceeds energy expenditure (Taylor et al., 2005). The Canadian Community Health Survey reported that children and adolescents who ate fewer than five servings of fruits and vegetables per day were significantly more likely to be overweight/obese or obese than those who ate fruit and vegetables more regularly (Shields, 2006). The majority of children aged 9 to 13 ate fewer than five servings of vegetables and fruit with 62% of girls and 68% of boys not meeting the recommended servings (Garriguet, 2004). Only 27% of Alberta grade 5 students consumed a minimum of six servings of vegetables and fruits per day (University of Alberta, 2009). Adolescents aged 14-18 consumed 25% of

their calories from foods and beverages that are not part of the four major food groups (Garriguet, 2004). Canada's Food Guide recommends moderate consumption of such foods as they tend to be high in calories, sugar, fat, and salt and their persistence in adolescent diets contributes to excess energy intake.

Sedentary lifestyles and increases in "screen time"--time spent watching TV, playing video games, or using the computer--also contribute to the likelihood of being overweight or obese (Shields, 2006). The 2009 Report Card from Active Healthy Kids Canada (2009) stated that Canada is among the countries with the highest proportion of youth accumulating more than two hours of screen time per day (23rd out of 40). National data show that only 10% of Canadian youth meet the guideline for fewer than 2 hours screen time per day and, in fact, many are spending up to 6 hours a day (Active Healthy Kids Canada, 2009). In Alberta, 47% of grade 5 students spend three or more hours in front of a screen outside of school hours and the majority of these students are not physically active (University of Alberta, 2009). The Canadian Community Health Survey revealed that overweight/obesity rates increased from 23% for adolescents whose screen time was less than 10 hours per week to 35% for adolescents whose screen time amounted to more than 30 hours per week (Shields, 2006).

The School Environment

The school environment is often the focus of healthy eating and physical activity policies/programs to address childhood obesity (Jaime & Lock, 2009; Spitters et al., 2009). Children spend a majority of their awake time at school, 6 to 8 hours a day, 5 days a week, and make numerous choices relating to eating and activity at school (Budd & Volpe, 2006; Mendelson, 2007; Spitters et al., 2009). Because of this, schools are a

convenient and ideal setting to address prevention efforts and help students establish healthy lifelong behaviors (Brownell et al., 2009; Mendelson, 2007; Taylor et al., 2005; Wechsler, Devereaux, Davis, & Collins, 2000). Schools can offer a supportive environment and provide students with opportunities to practice healthy eating through nutritional policies, the types of food available, school nutrition and health curricula, and teacher and peer modeling (Taylor et al., 2005). Physical activity is supported by physical education classes, teachers who are trained in physical education, school intramural activities, and access to gymnasiums, local community facilities, and physical activity equipment (Active Healthy Kids Canada, 2009).

However, schools often fall short of providing a supportive environment to make positive healthy eating and physical activity choices (Brownell et al., 2009). Teachers educate children about healthy eating and being active but the school setting does not always complement that message (Taylor et al., 2005). Several environmental factors, such as easy access to foods and beverages high in calories, fat, sugar, or salt which are commonly sold in vending machines, canteens, or cafeterias contribute to poor nutrition during school hours. Pricing strategies, large portion sizes, and marketing to youth encourages consumption of nutrient-poor foods (Brownell et al., 2009). Hot lunch programs often rely on local fast food facilities and may fail to offer healthy food choices such as fruits and vegetables, whole grains, and low fat milk products. In the United States, young adolescents' consumption of fruits and vegetables and dietary fats has been shown to be negatively associated with access to a la carte programs, snack vending machines, and fried potatoes being served at school lunch (Kubik, Lytle, Hannan, Perry, & Story, 2003). Decreases in students' physical activity may be influenced by school

bussing, unsafe playing areas, and the need to stay inside after school while parents work (Budd & Volpe, 2006). A number of Canadian elementary schools do not have staff with university qualification in physical education (Active Healthy Kids Canada, 2009).

Pressure on schools to be accountable for academic achievement has meant health and physical activity in schools is a lower priority for fear of taking time away from core subjects (Brownell et al. 2009; Murray, Low, Hollis, Cross, & Davis, 2007).

Students, faculty, and staff identified numerous aspects within the school environment that compete with making healthy choices (Bauer et al., 2004). Focus groups and interviews revealed that competition, teasing, bullying, time, and safety when walking or biking to school were barriers to being active at school. Poor quality of food, easy access to non-nutritious foods, not having enough time for lunch, and weight concerns were identified as reasons for not being able to eat well at school. In another study, high school students identified barriers to being active as a lack of school facilities, after school activities, and places to play (Yoshida, Craypo, & Samuels, 2011).

Facilitators identified to support physical activity included having a wide variety of activities and competitive sports offered at the school. Availability of unhealthy food in cafeteria and vending machines, short lunch periods, and poor role modeling by teachers in schools were identified as discouraging healthy eating. Schools that were located in close proximity to fast food restaurants, gas station convenience stores, and food vendors also made healthy eating more difficult because of easy access to unhealthy food (Yoshida et al., 2011).

In a systematic review conducted in 2006, Shepherd et al. examined the barriers and facilitators of healthy eating identified among students aged 11-16 years. Barriers

identified included: poor availability of healthy meals at schools; teachers and friends not being a source of information or support for healthy eating; high cost of healthy foods; and wide availability of and personal preference for fast foods. Having support from parents and family members, eating well to improve or maintain appearance, and will power were identified as facilitators of healthy eating. Other facilitators included increasing availability of and decreasing price for healthy foods sold at school and providing better nutrition labeling identifying the nutritional content of school meals (Shepherd et al., 2006).

The barriers and enablers identified in these studies are from an American standpoint; schools are required to meet the United States Department of Agriculture (USDA) minimum nutrition standards as part of the National School Lunch Program. There is no National School Lunch Program in Canada and there are few data from a Canadian context addressing barriers and enablers to healthy choices in the school environment. Addressing the school environment in Canadian schools by decreasing barriers and making the healthy choice the easy choice can support students in making better choices to improve their health.

School Nutrition and Physical Activity Policy

Policies can be used to decrease exposure to negative environments and unhealthy behaviors and practices (Vecchiarelli, Takayanagi, & Neumann, 2006). Instead of targeting individuals, school nutrition and physical activity policies aim to impact the whole school population by bringing about an environmental change intended to improve individual student behaviors and choices (Vecchiarelli et al., 2006). School food and nutrition policies target the nutrition environment to improve access to healthy food and

improve healthy eating behavior of students (Jaime & Lock, 2009). Physical activity policies such as Daily Physical Activity (DPA) in Alberta aim to increase students' activity levels by providing supportive physical activity environments (Alberta Education, 2008). One of the measures adopted by the World Health Assembly in the "Global Strategy on Diet, Physical Activity and Health" is to develop and implement school policies focusing on healthy eating and physical activity.

School policies and programs should support the adoption of healthy diets and physical activity. Schools are encouraged to provide students with daily physical education and should be equipped with appropriate facilities and equipment. Governments are encouraged to adopt policies that support healthy diets at school and limit the availability of products high in salt, sugar or fats (WHO, 2008, p. 1).

In the U.S., the Child Nutrition and Woman, Infant and Children (WIC) Reauthorization Act of 2004 requires school districts to develop wellness policies that include addressing the types of foods available on school campuses (Briefel, Crepinsek, Cabili, Wilson, & Gleason, 2009).

In Canada, a national scan revealed that there were very few schools with nutrition policies prior to 1998 (Taylor et al., 2005). Recently, however, that trend has changed as all provinces are in the process of developing and/or implementing provincial school nutrition guidelines or policies (Dietitians of Canada, 2008). While New Brunswick and Nova Scotia have mandated provincial policies, most provinces have policy frameworks or guidelines to support schools and school districts in developing school nutrition policy (Dietitians of Canada, 2008). In Alberta, provincial nutrition guidelines were released in June 2008 to assist organizations and facilities including childcare, schools, and recreation centres to offer healthy food choices for children and youth. The Alberta Nutrition Guidelines for Children and Youth aim to assist Albertans

in creating environments that are supportive of promoting and providing healthy food choices to children where they work and play (Alberta Health and Wellness, 2011).

Recently an evaluation of the awareness and intent of Alberta schools to use the guidelines was conducted. Of the 357 schools that completed the survey, 76.1% of schools were aware of the guidelines and 65% were in the process of adopting them (Downs et al., 2011). Schools more likely to adopt the guidelines identified healthy eating as a priority and had a school champion to provide leadership and support. The schools were also more likely to be larger, public and urban (Downs et al., 2011).

Further evaluation of these guidelines is expected in the future once facilities have had a chance to implement them (Alberta Health and Wellness, 2011).

Effectiveness of School Nutrition Policy

Although school nutrition policies have been introduced nationally, there has been little evaluation of their impact on the improvement of children's health and prevention of obesity (Briefel et al., 2009; Jaime & Lock, 2009; Vecchiarelli et al., 2006). A systematic review conducted by Jaime and Lock (2009) looked at the effectiveness of school food and nutrition policies worldwide in improving the school food environment, students' dietary intake, and decreasing overweight and obesity. Of those school policies that have been evaluated, the most effective ones decreased total saturated fat and increased fruit and vegetable availability in the school. The authors also concluded that nutrition guidelines and price interventions for healthier foods improved students' intake and made a positive impact on the school food environment.

Reviews of school-based randomized trials revealed that behavioral changes are more frequently achieved than changes in a student's BMI (Brownell et al., 2009). These

authors reported that high school policies that limit students' access to unhealthy food and set scheduled lunch periods were associated with lower student BMI. Students were also shown to have better nutrition overall if they participated in a school lunch program (Brownell et al., 2009).

In a recent Canadian study, Mullally et al. (2010) assessed the nutritional benefits of a province-wide nutrition policy for elementary schools adopted in 2006 in Prince Edward Island. They examined the change in student food consumption prior to and one year following the implementation of the study. Students were less likely to consume low nutrient dense foods like potato chips, candy, and pop and were more likely to consume vegetables and fruit and milk products. These findings demonstrated an improvement in food consumption with the introduction of school nutrition policy. Ongoing evaluation and research are needed about the impact of nutrition policies on students' behavior and the school environment (Vecchiarelli et al., 2006) and their effectiveness in reducing BMI (Jaime & Lock, 2009).

Effectiveness of Physical Activity Policy

The school environment plays a large role in a child's activity levels as 20% to 40% of their activity occurs at school (Leatherdale, Manske, Wong, & Cameron, 2009). Canadian children received a failing grade for physical activity with only 7% of Canadian children and youth meeting the new Canadian Physical Activity Guidelines of at least 60 minutes of moderate to vigorous activity per day (Active Healthy Kids Canada, 2011). School physical activity policy implementation is becoming more apparent at schools with 65% of surveyed schools reporting a policy to increase activity levels in the school population (Active Healthy Kids Canada, 2009). Furthermore, 53% of surveyed schools

have implemented policies to provide a range of opportunities to be physically active (Active Health Kids Canada, 2009). In 2005, Alberta Education implemented the DPA Policy for all Alberta students in grades 1 to 9. The policy outlines that “School authorities shall ensure that all students in grades 1-9 are physically active for a minimum of 30 minutes daily through activities that are organized by the school” (Alberta Education, 2009, para 3). The policy was based on the belief that “healthy students are better able to learn and that school communities should provide supportive environments for students to develop positive habits needed for a healthy, active lifestyle” (Alberta Education, 2008, p. 1). A survey conducted in March 2007 to evaluate the impact of DPA policy found that 70% of schools offered daily physical education classes compared to 2005 when only 30% of respondents schools offered those classes. The majority of respondents also indicated that DPA has made a positive impact on the school environment, student wellness, and student learning (Alberta Education, 2008).

A systematic review and meta-analysis was conducted by Harris, Kuramoto, Schulzer, and Retallack (2009) to determine the effect of school based physical activity interventions on BMI in children. Their results revealed that current school policies which increase physical activity are unlikely to improve BMI although they had other health benefits. The authors concluded that multiple interventions which include increasing physical activity and improving student diets may show more promise in improving childhood obesity.

Comprehensive School Health Programs

Comprehensive approaches including school nutrition and physical activity policies that address a variety of environmental interventions are needed to address

childhood obesity. Obesity is a complex issue and there is no one solution or approach to fix the problem. Comprehensive school health, as defined by the Joint Consortium for School Health (2008):

- recognizes that healthy children learn better and achieve more
- understands that schools can directly influence children's health and behaviors
- encourages healthy lifestyle choices
- incorporates health into all aspects of school and learning
- involves the community at large. (p. 4)

Comprehensive school health is also known as “health promoting school” or “coordinated school health;” however, all terms convey the same concept (Public Health Agency of Canada, 2008). The health promoting school approach “is a multifactorial approach that covers teaching health knowledge and skills in the classroom, changing the social and physical environment of the school and creating links with the wider community” (Stewart-Brown, 2006, p. 4).

Programs that used elements of the health promoting schools approach found that the most effective health promotion interventions focused on mental health, healthy eating, and physical activity (Stewart-Brown, 2006). Such interventions typically involved parents and changes to the environment of the school. School programs that have multi-component interventions including reduced intake of high fat foods, increased fruit and vegetable intake, decreased screen time, and increased physical activity, showed the most significant reduction in BMI (Budd & Volpe, 2006). Students in schools with a coordinated program that included a healthy eating component had significantly lower rates of overweight and obesity, had more nutritious diets, and were reported to be more active than students from schools without nutrition programs (Veugelers & Fitzgerald, 2005). Findings are inconsistent, but overall, studies show that school interventions that

include both diet and physical activity components may help prevent overweight children in the long term (Brown & Summerbell, 2009). Better evaluation of school-based healthy eating and physical activity interventions in reducing childhood obesity is needed using quantitative and qualitative outcomes (Brown & Summerbell, 2009).

Child and Adolescent Perspectives

Including students in policy design, planning, and implementation is important for a school policy to be accepted by the student population (WHO, 2008). Students have creative and attractive ideas that can assist with improving nutrition and physical activity choices at school (WHO, 2008). When school-aged children have input into school programs, they are more interested in their environment, participate in learning, and make better health choices (Fitzgerald et al., 2009).

Recent results from the REAL Kids Alberta survey showed that the majority of grade 5 students surveyed cared about healthy eating and physical activity (Spitters et al., 2009). Youth perceptions were valuable in providing environment-focused strategies to improve physical activity (Hohepa et al., 2006). Recommendations from youth to increase participation in activity included increasing social support from peers, improving access and availability to activities at school and in the community, providing more organized activity at school, and restructuring physical education classes. Barriers to being active were identified as lack of peer social support, low accessibility, and availability of physical activity opportunities (Hohepa et al., 2006).

Bauer et al. (2004) conducted a qualitative study to explore student, faculty and staff experiences and perspectives on nutrition and physical activity in the school environment. Participants' recommendations for changes included increasing availability

of fruits and vegetables; decreasing availability of non-nutritious foods and beverages; increasing time to eat during lunch; increasing frequency of physical education classes; offering school teams for students who are low to average players; offering more opportunities for females to be active; and addressing competition, teasing, and harassment in physical education class by developing school-wide policies. Even with supportive nutrition and physical activity policy in place there can be barriers in the school environment that need to be addressed to improve students' health (Bauer et al., 2004).

Canadian researchers explored student and parent perceptions of barriers and facilitating factors influencing the implementation of school nutrition policies in Prince Edward Island elementary schools (MacLellan, Holland, Taylor, McKenna, & Hernandez, 2010). Barriers to implementing nutrition policy included: inadequate communication with parents and students about the policy and menu changes; limited school resources and volunteers; role/responsibility conflict concerning the feeding of children; and student food preferences. Recommendations to improve policy implementation included gaining parent and student support by sharing information and engaging and involving students and parents in the decision making (MacLellan et al., 2010).

When opportunities to participate in policy development are provided, students are empowered to advocate for changes in their school environment (WHO, 2008). It is also important to involve youth in order to develop effective interventions that meet their needs (Croll et al., 2001). The WHO (2008) summarized the advantages of including

young people's perspectives for improving nutrition and physical activity in schools as follows:

- fresh ideas, unshackled by the way things have always been done
- relevant information about young people's needs and interests
- candid responses about existing services
- more effective outreach that provides important peer to peer information
- additional human resources as youth and adults share responsibility
- greater acceptance of the policy because youth were involved in shaping it
- improved competencies and increased self-esteem of youth directly involved. (p. 28)

Children and youth should be actively engaged and consulted to provide direction and influence regarding the types of services and programs that are provided for them (Darbyshire, MacDougall, & Schiller, 2005).

Summary

While school nutrition and physical activity policy is currently being developed and implemented in Alberta, the process of its evaluation is still in the early stages. Successful policy implementation requires the involvement of a variety of stakeholders and members of the school environment (Dietitians of Canada, 2008). Students can provide creative ideas to assist with improving nutrition and physical activity choices at school. It is important to provide opportunities for students to voice their opinions and participate in healthy school policy implementation so that they are empowered to advocate for change in their school environment. Few Canadian studies have explored students' perspectives about the supports or barriers they perceive around healthy eating and physical activity in their school environment or students' roles in policy implementation. "There is a growing awareness that, while quantitative, survey, and experimental studies are vital, they cannot by themselves provide all of the information

and insight required to appreciate children's experiences or to help plan and provide appropriately responsive child and youth health services" (Darbyshire et al., 2005, p. 420). This qualitative study addressed this knowledge gap.

Chapter Three: Methodology

In this chapter I provide an overview of the theoretical framework in which the study is situated and offer justification for using focus group and photovoice as research methods. The purpose of this study was to give school-aged youth an active voice and learn from their experiences to enhance implementation of school nutrition and physical activity policy within MHSD76. The ethics of the study are discussed in detail. Data collection and analysis of focus group interviews and photographs are also described. Finally, I highlight the trustworthiness of the study, including the criteria of credibility, transferability, dependability and confirmability.

Methods

Exploring students' perceptions about school nutrition and physical activity environments requires qualitative methods that offer rich descriptions of the topic. The strengths of qualitative research are that it is exploratory, descriptive and it considers context and the setting where the research takes place (Marshall & Rossman, 2006). Qualitative research privileges students' voices and increases our understanding of their views regarding the school nutrition and physical activity environments. It is vital to have students' perspectives when trying to identify the processes involved in making healthy choices around nutrition and physical activity in the school setting. The findings will help identify successes to guide future practice and identify barriers that, if removed, could lead to more effective policy implementation.

Theoretical framework.

Guiding this study is a social ecological model which provides a theoretical framework for examination of how the school environment influences behaviors around healthy eating and physical activity (Fitzgerald et al., 2009). Obesity prevention efforts in the past have focused on individual and educational activities with little success. A social ecological model provides a broader approach in that it includes multiple levels of influence, multiple settings, and multiple intervention strategies which can have an impact on health behaviors (Robinson, 2008). The model can be used to describe how health behaviors can be directly and indirectly reinforced by the individual's social and physical environment (Bauer et al., 2004). Robinson (2008) proposes five levels of influence:

1. Intrapersonal - knowledge, attitudes, beliefs, and personality traits that influence behavior
2. Interpersonal - family, friends, peers, and groups who provide support, social identity and role definition
3. Organizational - rules, regulation and policies which prevent or encourage certain behaviors
4. Community - social networks and standards that exist among individuals, groups and organizations
5. Public Policy - local, provincial, and national policies or laws that support healthy actions or practices for disease prevention, control and management (p. 398).

While Robinson does not include social and physical environment explicitly in his levels of influence, intrapersonal and interpersonal influences operate within social environments and organizational, community, and public policy levels of influence operate within a context that includes the physical environment. Environmental interventions may increase the opportunity to practice healthy behaviors, decrease or eliminate the opportunity to make unhealthy choices, and provide positive role modeling

and positive reinforcement or rewards for healthy behaviors (Wechsler et al., 2000).

Environmental interventions can range from changes in policies and regulations to mass media communication and campaigns.

A recent Alberta example of how policy and mass media can target environmental change to reduce unhealthy behaviors is the Tobacco Reduction Act of 2007 (Smoke Free Alberta, 2009). Changes in legislation, taxation, litigation and public awareness campaigns led to a significant reduction in tobacco consumption in Alberta (Smoke Free Alberta, 2009). In discussing environmental interventions, Wechsler et al. (2000) stated, “the ultimate goal is to shift social norms and the physical environment so that they naturally reinforce health-enhancing behaviors and discourage health-compromising behaviors” (p. S123). Comprehensive environmental interventions reducing opportunities for unhealthy food choices and sedentary activities and increasing access to healthy foods and physical activity opportunities are needed to help improve nutritional and physical activity outcomes in Alberta.

Childhood habits are shaped by individual and family influences but the school and its physical and social environments also play an important role in the development of healthy eating and physical activity habits (Bauer et al., 2004). Healthy habits are taught in the school curriculum but the school should also provide a supportive environment for students to practice healthy behaviours. It is with this belief that I have chosen to use a social ecological model as the theoretical framework to guide this study.

Research Design

This qualitative research study used focus groups and photovoice as research methods to engage grade nine students within MHSD76 in Medicine Hat, Alberta. Focus

groups and photovoice methods are considered appropriate ways to gather a variety of student responses verbally (Bauer et al., 2004; Croll et al., 2001; Darbyshire et al., 2005; Fitzgerald et al., 2009; Horowitz et al., 2003) and through expression with photographs (Darbyshire et al., 2005; Fitzgerald et al., 2009; Wang, 2006). Students are comfortable with focus groups as they are familiar with group discussions and activities in the classroom setting (Darbyshire et al., 2005). In comparison to surveys, focus groups provide a greater opportunity for students to expand on their ideas, perspectives, and recommendations (Croll et al., 2001). Another advantage of using focus groups with youth is that they present a more natural environment than that of an individual interview and are more relaxed (Marshall & Rossman, 2006). Focus groups are particularly useful to elicit a range of ideas from the group (Krueger & Casey, 2000). A concern with focus groups is that participants may be susceptible to conformity, in which they withhold from the group comments they may normally make, or they provide comments that they think the group wants to hear (Morgan, 1997).

Darbyshire et al. (2005) recommended several strategies when conducting focus groups with children. These strategies include providing information and clear explanations about what will be discussed in the focus group, using an open space such as a gym or art area to create an informal environment and keep it as a fun activity, having trained facilitators with experience working with groups of children, and incorporating activities to sustain interest, stimulate thinking, and encourage discussion. One of the limitations of using focus groups in the school setting is that children are accustomed to putting their hand up and waiting until it is their turn to speak which can stifle the flow of

conversation in the group (Darbyshire et al., 2005). Outlining expectations of the focus group discussion with students ahead of time is important.

Focus groups should be considered when there is a power differential between participants and decision makers as is the case with students and school administrators who develop policies that affect students (Morgan & Krueger, 1993). “Focus groups facilitate data collection that enables programs and messages to be subsequently customized to meet the specific needs of the target group and can provide a rich understanding of a target group’s personal motivations, environments, and needs” (Croll et al., 2001, p. 194). This study is an attempt to bring forth students’ voices and minimize the power differential between those who develop policies and those whom the policies affect. Implementation of school policy may be more effective and successful by having input from students that identifies their needs.

Photovoice is another qualitative method that has been increasingly used with children and adolescents (Darbyshire et al., 2005; Fitzgerald et al., 2009; Goodhart et al., 2006; Wang, 2006). Photovoice uses photographs as a tool of communication in which participants are provided cameras to capture an image in their environment and are asked to write a description of what the picture represents (Darbyshire et al., 2005). There are three main goals associated with the use of photovoice as outlined by Wang and Redwood-Jones (2001): “1) record and reflect community’s assets and concerns; 2) discuss issues of importance to the community in large and small groups to promote critical dialogue and produce shared knowledge; and 3) reach policy makers” (p. 560).

Photovoice was selected as a research method because photographs offer a unique way of understanding how children see and interpret the world (Darbyshire et al., 2005).

This method, first described by Wang and Burris (1997), also provides a visual complement to focus group interviews with youth. As Wang (2006) explained, “Photovoice is based on the concepts that images teach, pictures can influence policy, and community people ought to participate in creating and defining the images that shape healthful public policy” (p. 148). Photovoice may be particularly powerful for students as it recognizes that they have their own expertise and insight into their school environment (Wang & Burris, 1997) and empowers them to become more aware of their surroundings (Goodhart et al., 2006).

Students taking photographs can generate ideas different than those obtained from focus group discussions (Darbyshire et al., 2006). One of the limitations of photovoice is the budget required for purchasing and developing disposable cameras. There are also ethical considerations which include protecting privacy and not intruding into personal space (Goodhart et al., 2006; Wang, 2006; Wang & Redwood-Jones, 2001). Processes for obtaining informed consent from the youth photographer and subjects being photographed and permission to publish youth photographer pictures are necessary (Wang, 2006). I describe these processes in the ethics section.

Accessing student population.

I have worked with a provincial initiative that focused on promoting healthy weights in children and youth. More specifically, I facilitated the promotion of healthy eating and physical activity in school communities. I have experience working within the school system and have developed rapport with the school board, administration, principals, teachers, parents, and students within MHSD76. Identifying a key person within a school or administration office who is interested in the research and obtaining approval from the

appropriate school official are key aspects of gaining access to students (Horowitz et al., 2003). For this study, informal support from the Associate Superintendent and the Healthy School Project Facilitator was obtained early in the design phase. In addition, I am known and trusted within the school community which facilitated access to focus groups and photovoice participants in the schools. Appendix C includes the letter written to the Associate Superintendent outlining the research plan. Early in the research process, I contacted and met with the Healthy School Project Facilitator in person to informally discuss the research and explore a tentative timeline. Access to the students was dependent upon gaining formal approval from the Associate Superintendent of MHSD76 which I obtained in November, 2010 (Appendix D). I contacted and met in person with the principals of the schools to discuss the study. After I received approval from the principals I worked with the vice principal in School A and the principal and administrative assistant in School B to identify suitable times and locations for the focus groups and photovoice meetings.

Sampling and sample size.

A convenient and purposeful sample of grade nine students from two high schools within MHSD76 was approached to take part in the study. Thirty students took part in the focus groups. I facilitated six focus groups, three in each school, with grade nine students, aged 14-15 years old. These discussions were held in December 2010 (three groups, with 4, 5 and 9 students), February 2011 (two groups, with 3, 3 and 6 students) and March 2011 (with 6 students). The six focus groups consisted of three female groups (n=16) and three male groups (n=14) (Table 1).

Table 1

Profile of Focus Groups

Focus Group	Focus Group Characteristics			
	Gender	n	Pseudonyms	School
1	Female	4	Ann, Jane, Sara, Emily	A
2	Male	5	Matt, Tom, Josh, Dan, Evan	A
3	Female	9	Molly, Dayna, Carrie, Jackie, Kate, Laura, Tina, Sue, Amy	B
4	Male	3	Paul, Chris, John	B
5	Female	3	Megan, Tracy, Gina	B
6	Male	6	Steve, Greg, Ryan, Jason, Luc, Brad	A
Total		30		

There is debate over how many focus groups are needed; recommendations range on average from 10 to 15 focus groups (Bryman, Teevan, & Bell, 2009). Krueger and Casey (2000) recommend starting with three or four focus groups and then determining whether saturation has been achieved. Saturation occurs when no new information is being collected from the focus groups (Krueger & Casey, 2000). After conducting four focus groups I conducted another two focus groups to establish and ensure saturation.

Typically the number of participants recommended for each focus group is six to ten members (Bryman et al., 2009; Horowitz et al., 2003). Over-recruitment is recommended to ensure that there are enough participants to compensate for those who do not show (Bryman et al., 2009). For the purpose of this study, focus groups were conducted at school, with female or male students in the same class. Students who

obtained parental consent to participate were involved with the focus groups. Three to nine students with signed consents participated in each focus group.

Two different recruitment strategies were implemented in each school based on the preference of the administrators. In school A, I left consent forms with the vice principal to distribute to a class prior to conducting the focus groups. Classes were chosen by the vice principal who was provided with a short script outlining the research to read aloud to the class. All students were provided an envelope containing the consent forms. The strategy used in school B was slightly different as grade 9 students were asked to meet in the cafeteria during their home room period. I provided a brief description of the research and interested students were invited to pick up consent forms if they were interested.

Focus groups were scheduled during students' home room time when they were free to work on assignments or homework. At both schools we decided not to run focus groups during the lunch hour or after school as we believed this might limit participation of students who played intramurals at noon or who had team practices or took the bus home after school. Students who took consent forms home obtained signed permission from parents so they could participate in the focus group and, if randomly chosen, to participate in photovoice. An assent form was also read aloud to students participating in the focus groups and photovoice. I further explain the consent form and assent forms in the ethics section.

This study used Wang's (2006, pp. 149-152) nine steps for the photovoice method.

- Step one is to recruit a target audience of policy makers or community leaders. In this study the target audience consisted of the Superintendent, the Associate Superintendent, the school board, principals, and parent councils of MHSD76.
- Step two is to recruit a group of photovoice participants. Wang recommended an ideal group size of seven to ten people. Focus group participants were invited to submit their names if they were interested in participating in photovoice at the end of the focus group session. Two or three names from each focus group were randomly selected to participate in photovoice. A total of 13 students participated (Table 2). Students were provided with an envelope containing the meeting dates, times and locations for the photovoice sessions.

Table 2

Profile of Photovoice Participants

Photovoice Group	Photovoice Group Characteristics		
	Gender	N	Pseudonyms
School A	Female	2	Ann, Jane
	Male	5	Brad, Steve, Matt, Tom, Dan
School B	Female	4	Tina, Amy, Tracy, Gina
	Male	2	Chris, John

- Step three is to provide a training session to participants about cameras and the ethics of taking pictures.
- Steps four, five, and six include: obtaining informed consent; brainstorming themes for taking pictures; and distributing cameras to participants.
- Steps seven, eight, and nine include: providing time for participants to take pictures; meeting to discuss photographs; and planning to share photographs with

policy makers (Wang, 2006). Steps three through nine will be further described in the photovoice section of this chapter.

Table 3 provides an outline of the focus groups and photovoice sessions which are further described in the next sections.

Description of focus group process.

Focus group sessions of approximately 40-50 minutes each were conducted on school premises at a mutually agreeable time and location within the school. All sessions were conducted by me, the primary researcher, as I have experience with secondary school-aged children and facilitating group discussions through my role as a registered dietitian. A research assistant was present to help with the audio recording and to write notes on flip chart paper during the focus group discussion. See Appendix E for the focus group interview process.

Before the focus group discussions began, the research assistant, participants, and I set ground rules for participation. It was important to ensure that students felt safe and comfortable with sharing their perspectives (Horowitz et al., 2003). Examples of ground rules that were discussed included: there were no right or wrong answers; everyone's view was important; be respectful of others' opinions; everyone had the opportunity to share their ideas; and what was said in the group stays in the group (Horowitz et al., 2003).

Table 3

Outline of Research Design

Method	Description
Focus Group	<p><i>Number of focus groups:</i> A total of 6 focus groups were conducted between two schools (3 focus groups of grade nine students at each school).</p> <p><i>Number of participants:</i> Population: Female (n=16) and male (n=14) students who had obtained parental consent to participate.</p> <p><i>Duration:</i> Each focus group (n=6) was 40- 50 min.</p> <p><i>Location:</i> At a designated room at each school.</p>
Photovoice	<p><i>Number of sessions:</i> Three sessions at each school (see description below).</p> <p><i>Number of participants:</i> Two to three female or male students from each focus group who expressed interest in participating by putting their name in a draw were randomly selected for a total of 13 photovoice participants (6-7 in each school).</p> <p><i>Duration:</i></p> <ul style="list-style-type: none"> ○ Session one ~ 30 minutes as a group. ○ Session two ~ 5 minutes per participant with researcher. ○ Session three ~ 30 minutes as a group. <p><i>Location:</i> At a designated room at each school</p>
Photovoice - Session one	<ul style="list-style-type: none"> - Youth participants met as a group at each school with researcher and research assistant. - Discussed ethics of picture taking and responsibility of students taking pictures. - Discussed ideas to focus on photographing in the school and what are the school boundaries. - Youth participants received instruction on how to use the camera.
Photovoice - Session two	<ul style="list-style-type: none"> - Youth participants met one on one with researcher to discuss the pictures they took. - Disposable cameras and notepads were handed in.
Photovoice - Session three	<ul style="list-style-type: none"> - Youth participants met as a group and received a copy of their pictures to review. - Youth participants selected two or three pictures to showcase. - Youth participants identified issues or themes that arose from photographs.

A semi-structured interview guide was used for focus group discussions (Appendix F). The focus group questions were open ended to help obtain a variety of responses. For each question a set of probes was created to help generate discussion, seek clarification or follow up to be used if needed. For questions five and six an ecological approach was used to examine potential strategies from individual and environmental perspectives. Questions five and six were framed to ask students to think about how they could help themselves eat healthy and be active and how their school could support them to eat healthy and be more active. To ensure content validity, the focus group questions were previously tested with students (grades 4-8) and teachers at the Healthy Active School Symposium conference in Medicine Hat, AB., on October 30, 2008.

During each focus group session the research assistant wrote students' comments and initials on a flip chart and students identified important ideas that arose from their discussion. This process provided an opportunity for the students to confirm that the researcher and the research assistant had captured correctly their discussion points. Focus group discussions were digitally recorded to ensure that all students' comments were included. The flip chart notes and initials assisted with accurate transcription of the audio recordings. To show appreciation for the students' participation a small incentive was provided after the discussion (\$15 gift certificates for iTunes or \$15 gift certificate for the mall). Immediately after the focus group, the research assistant and I discussed and recorded our impressions of the process, including content, atmosphere, nonverbal communication, and group dynamics (Croll et al., 2001). We debriefed using questions recommended by Krueger and Casey (2000) when conducting focus groups (Appendix

G). Focus group participants were invited to submit their names if they were interested in participating in photovoice; subsequently, two or three names from each session were randomly selected.

Description of photovoice.

Photovoice participants at each school attended three meetings at the school at mutually agreeable times. The first meeting took about 30 minutes. Appendix H outlines the goals for photovoice session one. In the first session the participants, research assistant, and I discussed the ethics of picture taking and the responsibilities of the students taking the pictures. The ethics of photovoice include protecting privacy, not intruding into personal space, and obtaining consent to take someone's photograph (Goodhart et al., 2006). The logistics of having youth photographers obtain informed consent to take pictures of students and teachers was a daunting task that could prove to be frustrating and difficult for the participants. Instead, to make the experience as easy as possible, youth photographers were directed to take pictures of inanimate objects and school areas or equipment without identifiable persons in the pictures. The students and I brainstormed creative solutions to protect an individual's privacy such as taking pictures of hands, feet, or the back of someone's head or body.

The research assistant and I provided an opportunity for youth photographers to discuss their ideas on what they would like to photograph in and around the school based on the research questions asked in the focus groups (Appendix F). Each participant was provided with a disposable camera and received instruction from the research assistant and me on how to use the camera. They also had an opportunity to practice taking pictures using the camera. Cameras were coded to track which photographer took what

picture. Minimal technical advice was provided to keep the activity simple and easy to carry out. A notepad was provided to the participants to write down the picture number and describe what the photograph represented. Participants were encouraged to take as many or as few pictures as they wanted, to a maximum of the 27 exposures available on the camera. Youth photographers returned their cameras after one week to the researcher at a predetermined time and location at the school. A date was also set for when the group would meet together to review and select their favorite photographs. Youth photographers were provided an instruction sheet outlining the photograph activity as well as my contact information should they need assistance (Appendix J).

For the second session I met individually with each photographer at the school for approximately 5 minutes during lunch hour to gather the cameras and notepads and discuss the pictures they took. I had to reschedule many meetings at each school as some students did not show up to drop off their cameras, had not had a chance to complete the activity, or were absent for the day. Of the 15 cameras that were distributed to students, 13 cameras were handed back in to be developed. Two male students were not able to complete the activity. I had the film developed and made copies of the photographs to provide to each participant.

The third meeting took place at the school and varied from 20-40 minutes in duration. Not all students were able to attend the third meeting so I made arrangements at each school to have another group meeting with the students who missed the first one. I met with one student individually as he was not available for either scheduled group meeting. See Appendix K for a detailed outline of session three. Each participant was provided with copies of her/his pictures and was asked to select the photographs she/he

believed were most significant. The number of pictures was negotiated with each student but generally, two or three photographs were chosen by each student. Students provided a written narrative describing the meaning of and reason for taking each photograph. To assist with the dialogue the following questions were posed: 1) What did you want to illustrate when you took this picture? 2) What do you want people to know about this picture? 3) What does this picture have to do with nutrition/healthy eating or physical activity? and, if applicable, 4) What can be done to improve this situation? Students identified issues or ideas that arose from or were represented by the photographs. In appreciation for the student's participation, a new disposable camera and photo album were provided to each participant for personal use.

Follow up activities and member check.

Focus group and photovoice participants at each school were invited to attend a free lunch for a presentation of the preliminary data as a member check. Of the 30 students invited, seven students (3 females and 4 males) from school A and eight students (all female) from school B attended the lunch session at each school. The lunch sessions took place close to the end of the school year which tends to be a busy time for students, likely affecting the number of students attending. I reviewed a powerpoint presentation providing an overview of the findings from focus group and photovoice. I requested feedback from students regarding my interpretation of what they said. I also provided an opportunity for students to comment if they felt anything was missed. Feedback was positive; students were appreciative of the free lunch and the opportunity to see what happened with the information they provided. The session was informal and students were able to socialize with the researcher and other participants.

As Wang (2006) recommended in step nine of the photovoice methodology, I prepared a powerpoint presentation using the photographs and the information collected from the focus groups to showcase student perspectives, insights, photographs, stories and recommendations to school policy makers. This presentation will be offered to MHSD76 School Board, Advisory Committee of Principals, and the Council of Parent Councils in the spring of 2012. A one page summary of findings was sent out to those participants and their families who had indicated on the consent form their desire to receive a copy. I received feedback through an email from a parent of one of the student participants stating that her daughter enjoyed the experience and that she appreciated receiving the research overview.

Data Collection

Data collection included field notes, audio recordings, transcripts of each focus group, selected photographs and written narratives and debriefing notes generated by myself and the research assistant. The research assistant and I met immediately after the focus groups to ensure the tape recorders worked and that field notes were complete. The research assistant noted the initials of participants beside each comment on flip chart paper to assist with transcribing the audio recordings accurately. I made two sets of prints when developing the cameras, one set for the participant to keep and one set for students to choose from for their written narratives. A digital file was also created to facilitate use of the pictures in a slide show presentation. Students taped their picture onto a colored piece of paper that I provided and wrote their narratives below or beside the picture. The pictures and written narratives were coded so that I could match each

picture to the photographer. The written narratives were transcribed into an electronic document with the corresponding digital copy of the pictures.

Data Analysis

Using Krueger and Casey's (2000) analysis process, I conducted focus group analysis concurrently with data collection. To ensure the process of data analysis was verifiable, a trail of evidence was clearly documented. Data from each focus group were analyzed and compared to that of earlier groups, to review what worked well with the focus group and if changes were needed to the format, facilitation, or focus group questions to improve the next focus group. It also provided the opportunity to look for group interaction dynamics that affected the responses and data collected. I debriefed with the research assistant immediately after each focus group to discuss the main ideas and meaningful quotes, what we found surprising, how the group was similar or different from earlier groups and if anything needed to be changed for the next group. I transcribed each focus group verbatim using the digital recording and flip chart notes to help identify students' comments correctly. After reviewing the first few transcripts, we discovered some developing themes that I needed to explore further with the next focus groups. I also realized I had to rephrase a question about students' role in policy development so that students had a better understanding about what I meant about the topic.

Flip chart notes, digital recordings, transcripts and debriefing notes were used as the basis for analysis. Focus group data were analyzed for thematic content (Burnard, Gill, Stewart, Treasure & Chadwick, 2008). This process involved close reading of the transcripts, identifying themes and categories, and sorting examples of those themes from

the text (Burnard et al., 2008). Each transcript was reviewed again and coded line by line using open coding. To organize the data I moved all of the answers from each transcript on question one to the same file. I continued this process for all of the questions so that I had one document containing all of the responses to each question. By doing this I was able to look at one master transcript rather than six separate transcripts (Casey, 1998). I kept the female and male comments separate so that I could determine if there were differences in responses based on gender. Within each question I organized quotes that identified a certain theme together and then continued the same process with the rest of the questions. I analyzed responses for each question looking for themes within the question and then looked for themes that cut across questions. Throughout the data analysis I discussed the themes with my advisors and identified relationships between the data sets for females and males.

In photovoice, participatory analysis allows participants to be involved in selecting, contextualizing, and codifying the photos (Wang & Burris, 1997). In the third photovoice sessions students were involved with the participatory analysis process. Students selected the photographs and provided a written narrative about their significance. I provided very little direction to students on how to interpret their pictures and instead they used the questions provided to help guide their narrative. The participants also assisted with codifying, by identifying ideas or issues that emerged from their photos. The photographs and written narratives from both photovoice groups were collated and thematically analyzed (Burnard et al., 2008) and compared to focus group findings. Selected quotes and photographs will be used to illustrate themes that emerged from data.

Qualitative Rigour

Rigour of the study was based on Lincoln and Guba's (1985) criteria for establishing trustworthiness through credibility, transferability, dependability, and confirmability. Credibility was enhanced by ensuring checking the accuracy of the data collected during focus groups and the third photovoice session in which the students validated content, ideas and interpretations of the information collected. For a member check, I invited focus group and photovoice participants for a presentation of the preliminary data over a lunch hour. I also had regular debriefing with my supervisors who were experienced in qualitative methods. Transferability of the findings was demonstrated by providing clear descriptions of the sample. Dependability was achieved by providing a detailed and clear description of the study. One important check of the validity of research findings was done by employing triangulation; that is, using focus groups and photovoice methods to answer the same research question with the goal of looking for similarities in findings (Nagy Hesse-Biber & Leavy, 2006). Finally, the participants' own words were used to authenticate the analysis of the data to establish confirmability. Conclusions were drawn by discussion and consensus building with my supervisors.

Ethics

Ethical approval for this study was obtained from the University of Lethbridge Human Subject Research Committee (Appendix L). Children are considered vulnerable participants and require special consideration by the Human Subject Research Committee (Horowitz et al., 2003). "Informed consent is a process involving consensual

understanding of the nature of the research and its potential risks and benefits, rather than just a form signed by parents, guardians, and child participants” (Horowitz et al., 2003, p. 323). A letter to parents (Appendix M), a parent information form for the focus groups (Appendix N), a parent information form for photovoice (Appendix P), and a consent form (Appendix Q) were sent home with each student one to two weeks before the focus group discussions. The parent information forms explained the purpose of the focus groups and photovoice and details of participation. The consent form requested parents to provide consent for their child’s participation in the research activities. The consent form also requested permission to publish and disseminate pictures taken by youth photovoice participants to promote the project’s goals.

Consent forms were collected by the school staff. I made arrangements with the principal or vice principal for a room to meet with students who had consent. A student assent form was provided and read aloud to all focus group participants to sign, attesting to their understanding of what would be discussed, their agreement to the ground rules of the discussion, and their voluntary participation (Appendix R). There were no students who stated they did not wish to participate.

There are many ethical considerations associated with the photovoice method. One of the main ethical considerations is respecting privacy laws when taking pictures of individuals. Youth photographers in this study were directed to take pictures of inanimate objects, school areas, or equipment without portraying persons in the pictures to avoid the need to obtain informed consent from subjects. Wang and Redwood- Jones (2001) recommended best practices to address photovoice ethics: providing a parental consent form and youth assent form to address participation; providing a group training

session to discuss the use of cameras, power and ethics as well as addressing safety; and providing and reviewing a consent form with participants for permission to publish photographs. During the first session I reviewed an assent form for all youth photographers to sign, detailing their rights and the responsibilities of participating (Appendix S). After the photos were developed, all photovoice participants received a copy of their photographs to keep.

There were several steps taken to protect the identity of study participants. While the focus group discussions were digitally recorded, any written material on flip chart paper, transcribed notes, field notes, or debriefing notes did not contain participants' names or any identifying information. Photographs taken by the youth participants did not have any identifying information attached to them. The focus group notes, photo descriptions, and photographs were kept in a locked filing cabinet in my office and only my faculty supervisors, the RA, and I had access to the information. The RA was required to sign an oath of confidentiality (Appendix T). All information will be destroyed as confidential waste five years after the end of the study.

Dissemination

I have prepared a visual presentation with the photographs and the findings collected from the focus groups and photovoice to showcase student perspectives, photographs, stories and recommendations to school policy makers. This presentation will be delivered to MHSD76 School Board, Advisory Committee of Principals, and the Council of Parent Councils in the spring of 2012. A one page summary of findings was provided to participants and their families who requested it. The public can access research findings through the University of Lethbridge, Institutional Repository of

Theses. To date, I have engaged in poster presentations at the Childhoods Conference: Mapping the Landscape of Childhood May 5-7, 2011 in Lethbridge, Alberta (Brooks, Gregory, & Harrowing, 2011a) and the Dietitians of Canada National Conference, June 16-18, 2011 in Edmonton, Alberta (Brooks, Gregory, & Harrowing, 2011b). An abstract from the poster research presentations at the Dietitians of Canada National Conference was published online in the Canadian Journal of Dietetic Practice and Research (Brooks, Gregory, & Harrowing, 2011b). Research findings will also be disseminated through oral presentations at professional conferences, publications in scholarly journals, and through the MHSD76 website.

Chapter Four: Findings

In this chapter I present the findings from the focus group interviews and photovoice. The focus groups were digitally recorded and transcribed verbatim using flip charts notes to ensure accuracy. Using Krueger and Casey's (2000) analysis process, focus group analysis was done concurrently with data collection. The method of analysis used for focus group data was thematic content analysis (Burnard et al., 2008). This process involved analyzing the transcripts, identifying themes and categories, and sorting examples of those themes from the text (Burnard et al., 2008). Participatory analysis was used with photovoice in which students selected two or three photographs (n=32) and provided a written narrative describing the picture and its meaning. Students took a total of 122 photos, with the number taken by each student ranging from 6 to 22. From that total, students selected 32 photos to provide written narratives. The photos with written narratives were coded and thematically analyzed (Burnard et al., 2008) and compared to focus group findings.

The research questions that guided this study were:

- 1) To what extent are students supported to make healthy eating choices at school?
- 2) What do students identify as barriers and challenges to healthy eating at school?
- 3) To what extent are students supported to be physically active at school?
- 4) What do students identify as barriers and challenges to being active at school?
- 5) How do students think schools can better support students to eat healthy and be more active?
- 6) What contributions do students think they can make to the development, implementation and evaluation of school based policies?

Major overarching themes emerging from focus group discussions were: access to healthy food choices; teacher influences; peer influences; and access to physical activity opportunities. Themes portrayed through photovoice pictures complemented focus group discussions, but emphasized the impact of marketing and advertising, identified conflicting health messages, and revealed how the school environment influenced choice.

In the following sections I provide an overview of participant demographics. I then present the focus group and photovoice findings about supports and barriers to healthy eating and being active at school. Recommendations for improvement and student discussions about their role in school policy development, implementation and evaluation will also be highlighted.

Characteristics of Participants

Thirty grade nine students aged 13 to 15 years old participated in focus groups. There were six focus groups in total with three female groups (n=16) and three male groups (n=14). Of the 30 participants a total of 13 students (six females, seven males) also participated in photovoice; seven in school A, and six in school B. Basic demographic information was collected through a survey during focus groups. This information is presented in Table 4.

Table 4

Demographic Information of Participants

Characteristic		Focus Groups			Photovoice		
F=Female, M= Male, Total = Total participants		F	M	Total	F	M	Total
		16	14	30	6	7	13
Age (years)	13	1	0	1	0	0	0
	14	15	7	22	6	3	9
	15	0	7	7	0	4	4
Identify with ethnic group	Yes (Cree, German, South African)	2	1	3	0	0	0
	No	14	13	27	6	7	13
Walk or ride bike to school	Yes	1	4	5	0	2	2
	No	15	10	25	6	5	11
Involved with sports team or organized sports at school	Yes	4	5	9	2	2	4
	No	12	9	21	4	5	9
Involved with sports team or organized sports outside of school	Yes	6	11	17	3	7	10
	No	10	3	13	3	0	3
Involved with other types of physical activity	Yes	14	12	26	6	6	12
	No	2	2	4	0	1	1
Active for at least 30 minutes (times per week)	Daily	4	5	9	2	2	4
	5-6 days per week	6	2	8	3	1	4
	3-4 days per week	3	5	8	1	3	4
	1-2 days per week	3	2	5	0	1	1
	Less than once a week	0	0	0	0	0	0
Purchase food or beverages at school	Daily	0	0	0	0	0	0
	3-4 times per week	0	1	1	0	1	1
	1-2 times per week	2	5	7	1	1	2
	1-2 times per month	4	2	6	1	1	2
	Less than once a per month	3	3	6	1	1	2
	Never	7	3	10	3	3	6
Pack a lunch from home to eat at school	Daily	11	7	18	5	3	8
	3-4 times per week	1	5	6	1	2	3
	1-2 times per week	1	0	1	0	0	0
	1-2 times per month	2	0	2	0	0	0
	Less than once per month	0	0	0	0	0	0
	Never	1	2	3	0	2	2

Characteristics of participants in focus groups.

Thirty grade nine students participated in the focus groups. Except for one 13 year old, all participants were 14 or 15 years old (Table 4). Most students did not identify an ethnic origin. The majority of students (n=25) did not walk to school. More students (n=17) were involved with sports teams and organized sports outside of the school compared to students (n=9) involved with a school-organized sports. Sport activities identified included: kickboxing, golf, soccer, ball hockey, hockey, ringette, swim club, skating and dancing. Almost all students (n= 27) stated they were involved with some kind of unorganized physical activity such as biking, working out, swimming, running, shoveling snow, walking, snowboarding, skateboarding, rollerblading and sledding. Physical activity was defined as “any movement that works your muscles and uses more energy than you use when you are resting” (U.S Department of Health and Human Services, National Institute of Health, National Heart, Lung, and Blood Institute, 2009, para. 1.). All students stated that they were physically active for 30 minutes daily at least 1-2 days a week. A larger proportion of male students than female students purchased food or beverages at school weekly; however the majority of students reported purchasing foods only once or twice a month or less at school (n=22). The types of reported foods purchased by students included: chocolate milk, wraps, garlic bread sticks, cookies, pizza, juice, sandwiches, fries, Caesar salad, and slushes. Both male and female participants stated that they usually brought a lunch from home.

Characteristics of photovoice participants.

Thirteen students (six females, seven males) who had participated in the focus groups also participated in photovoice. None of this subset identified with an ethnic group. There were no other differences noted in the demographics of the photovoice participants compared to the focus group participants (see Table 4).

Focus Groups and Photovoice

Throughout this section I include the participants' words and photos to further illustrate the themes from focus group discussions and photovoice. In reference to excerpts from the focus group transcripts, the participant's pseudonym name is used and the number following the name refers to the line number of the focus group transcripts. In reference to the coded photographs and written narratives, participants' pseudonyms are used and the letter after their name represents the students' school (A or B); the number after the letter corresponds to the picture selected by the student. Written narratives from the photos often portrayed more than one support or barrier as well as recommendations to improve healthy eating or physical activity and therefore may be referenced more than once in the findings.

The same research questions that guided the focus group discussions were used to guide students to take photographs. Participants were directed to take pictures of supports and barriers to healthy eating and activity, as well as recommendations for improvement. Themes and subthemes identified in focus groups and photovoice were organized under each focus group question and are presented in Table 5.

Table 5

Major Themes from Focus Group and Photovoice Data

Questions		Themes	Sub-themes
Healthy Eating	Supports	<i>Teacher influence</i> <i>Peer influence</i> <i>Access to healthy food</i> <i>Education</i>	<i>Awareness of marketing</i>
	Barriers	<i>Access to unhealthy food</i> <i>Conflicting messages</i> <i>Peer Influence</i>	<i>Awareness of marketing</i> <i>Environment impacts choice</i>
	Recommendations	<i>Increase access to healthy food</i> <i>Decrease access to unhealthy food</i> <i>Individual responsibility</i>	<i>Awareness of marketing</i> <i>Improve ingredients in foods</i>
Physical Activity	Supports	<i>Teacher influence</i> <i>Peer influence</i> <i>Physical education class</i> <i>Access to physical activity opportunities</i>	<i>Awareness of marketing</i> <i>Environment impacts choices</i>
	Barriers	<i>Limited physical education class</i> <i>Teacher influence</i> <i>Peer Influence</i> <i>Life is busy</i> <i>Limited access to physical activity opportunities</i>	
	Recommendations	<i>Increase physical education</i> <i>Increase access to physical activity opportunities</i> <i>Individual responsibility</i>	
Policy	Student Contributions to Policy	<i>Students as experts</i> <i>Have a vote or choice</i> <i>Peer influence and role modeling</i>	

Students identified multiple factors that influenced the choices they made regarding healthy eating and physical activity. In many instances the same factor (e.g., peer influence) was identified as both a support and a barrier to eating healthy or being

active. While responses from females and males were generally similar throughout the focus group discussions, there were some differences noted between genders which are highlighted later in this chapter. Major overarching themes that repeatedly emerged throughout the focus group discussions were: access to healthy food choices, teacher influence, peer influence, and access to physical activity opportunities. Themes portrayed through photovoice pictures complemented the focus group discussion findings and thus are presented together. Photographs revealed more emphasis on the impact of advertising and marketing, conflicting health messages, and the influence of the school environment. There were no differences between females and males in relation to the themes arising from photographs and written narratives. No pictures reflected student contributions to policy. The difficulty in capturing this concept in a photograph may have contributed to this outcome.

Supports for healthy eating.

Themes emerging from focus groups in relation to supports for healthy eating in school included having access to healthy food choices, teacher influence, peer influence and education. Photographs and written narratives also identified having access to healthy food choices and education as facilitating factors for healthy eating. An educational strategy that was emphasized through photovoice was the positive impact of advertising and marketing.

Access to healthy food choices.

Students noted that having access to healthy food choices made it easier for them to make healthy choices. MHSD76 had gradually implemented a newly revised school

nutrition policy during the previous and current school year. Students commented on how the cafeteria made changes to improve choices such as offering more sandwiches and wraps, reducing the size of cookies, and not selling pop.

They had elephant ears and like the cookies were double the size and they stopped selling pop and stuff like that (Emily, 103).

In the cafeteria now they sell lots of sandwiches and wraps (Jane, 30).

There are lots of sandwiches (Ryan, 3483).

Fruit cups and vegetables, salads (Brad, 3485).

Well I guess we have a lot of good stuff to eat like salads and stuff and like sandwiches. There's a lot of healthy stuff you can actually buy (Matt, 778).

Participants also noticed changes made to the beverage vending machines in that only water or flavored water was available.

Well in vending machines there's not like, pop and stuff. We've got like water (Matt, 793).

Yeah they took out all the Gatorade and stuff out of our school (Ryan, 3187).

Two students took photos of the vending machine to illustrate how increasing access to healthy beverages and limiting access to unhealthy beverages such as pop or other sugary drinks supported them in making a healthy choice (Figure 1).



Figure 1. Water vending machine in school.

1) That our vending machines sell only water. 2) That this is a way our school is influencing us to make healthy choices. 3) Water is healthier than pop, or other sugary drinks (Tom, A, 1).

Vending machines serving pure, healthy water as opposed to pop or other items. This is an excellent way to encourage healthier options (Dan, A, 1).

Improving access to fruits and vegetables at fundraising events and using pricing incentives to help promote the sale of healthy choices over unhealthy choices was identified as a supportive strategy to encourage healthy choices.

When they do have bake sales and cookies and stuff like they do encourage you to buy apples and stuff because they do carry that too, and I think they're actually way less than the actual baking (Jane, 664).

Usually the fruits and vegetables at the bake sales they're usually about \$.25 or \$.50 so more people would want to buy them (Emily, 674).

Teacher influence.

Both males and females in focus groups identified that teachers supported healthy eating by encouraging students to bring healthy snacks and allowing students to eat them

during class time. Teachers were seen as being able to influence the classroom environment making it more supportive for healthy eating. Students had regular breaks and lunch hours designated as times when they could eat and also appreciated teachers who provided the flexibility to eat in class. The privilege of eating in class can be supportive of healthy eating; however, if the teacher did not encourage healthy food choices explicitly it could also encourage poor choices as one student's photograph demonstrated (Figure 2).

And yeah the teachers...they like tell us to bring, if we want to eat something in class they tell us to bring apples and like fruit and stuff like that and not like junk food (Sara, 58).

Yeah you just kind of eat throughout class (Sara, 66).

They don't really care...(Ann, 68).

Just as long as it's healthy (Jane, 70).

Some teachers only allow healthy foods in their classes (Greg, 3522).



Figure 2. Snacks in classroom.

In some classes we are allowed food, doesn't matter what time of day it is. Some people bring in slushes and chips, others bring healthier snacks like fruits and veggies. There should be a rule that only healthy things are allowed to be eaten (Ann, A, 4).

Teachers played a key role in influencing students' health behaviors and such influence can be positive or negative. This theme is further explored in the sections on physical activity.

Peer influence.

Peers supported healthy eating choices. Having a friend who packed a lunch from home encouraged others to bring lunches packed from home because the food looked good. Peer influence could also negatively influence healthy choices and this phenomenon is further explored as a barrier to healthy eating.

Some people that bring lunches sometimes, if they are healthy they look good. And so you want to eat it (Tracy, 2599).

Education.

Students also identified education such as health class, cooking class, guest speakers and programs as supportive of healthy eating choices.

The cooking classes here that teach us how to make cheap and healthy foods (Meagan, 2616).

Sometimes they do like days where they bring in like guest speakers and they will talk about like how to like eat healthy and they will do programs with us (Matt, 1246).

The importance of education was portrayed through photographs of a cooking class and posters used to teach students about healthy eating (Figures 3-5). Cooking classes were offered as an elective so not all students would have accessed this educational and skill building opportunity.



Figure 3. Cooking class.

Our school offers cooking as an elective. It teaches us how to make healthy meals and snacks along with teaching students about nutrition and healthy eating (Matt, A, 1).

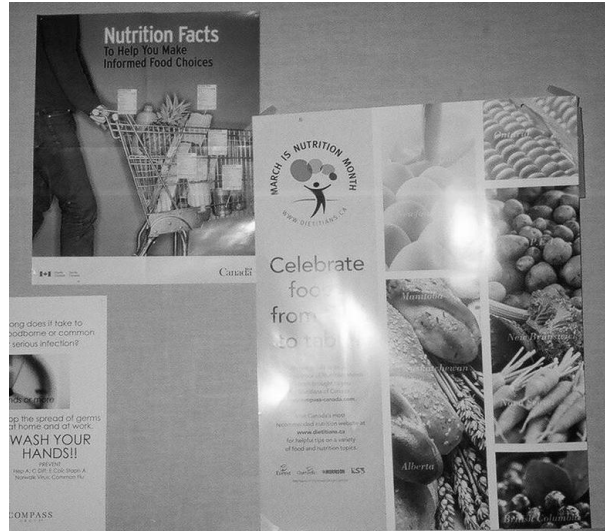


Figure 4. Nutrition posters.

In the cafeteria our school puts up posters about nutrition to teach students about healthy eating. They try and put them in areas with lots of traffic to increase awareness of healthy eating and nutrition (Matt, A, 2).

This student demonstrated insight into the process of social marketing. He was aware of the strategic placement of such posters and the positive impact on food choices. Another student from a different school came to a similar conclusion regarding the positive use of posters for advertising and the marketing of healthy food choices.



Figure 5. Milk poster.

1) Healthier options could lead to better outcomes. This poster says that by drinking milk at school you can win prizes. That promotes healthier options. 2) Healthier options can be fun in some ways, you can be healthy while having fun at the same time. 3) It promotes drinking milk. 4) It is already good. (Tina, B, 1).

Schools provide education about healthy eating and making responsible healthy choices throughout the elementary and secondary school years. Within the Health and Life Skills Curriculum in Alberta (Alberta Learning, 2002) students are also provided with education about how to analyze messages used by the media. Children and youth are increasingly targeted with aggressive forms of food marketing and advertising messages (Story, Kaphingst, Robinson-O'Brien, & Glanz, 2008). Throughout focus group discussions and photovoice narratives students demonstrated a sophisticated knowledge about nutrition and what constitutes a healthy food. They were also very knowledgeable about marketing and media messages and how these can potentially impact choices, positively or negatively.

Barriers to healthy eating.

Students' discussions identified the following barriers that undermined their ability to eat healthy foods: access to unhealthy food choices; conflicting messages; and peer influence. Ten of the photographs taken about healthy eating portrayed similar barriers to healthy eating identified in focus group discussions. Peer influence was not captured in photographs. This may be explained by the difficult nature of photographing an abstract concept. Other themes that were apparent in photovoice included the awareness of the negative impact of marketing and advertising, as well as how the environment impacts choice.

Access to unhealthy food choices.

Unhealthy food choices were available in many different areas of the school such as the cafeteria, vending machines, school fundraisers and special events.

Well we have like special food days sometimes but it's usually not something healthy, like a float or something (Tom, 803).

There are a lot of like unhealthy foods in the cafeteria, like garlic sticks and burgers and stuff (Josh, 814).

And like all the vending machines here, there are some healthy snacks but most of them are bad (Tracy, 2621).

Like when they have sales and stuff sometimes they sell like milkshakes and stuff but other time they're floats, and they have pop and ice cream which isn't very healthy (Emily, 685).

Students also identified that along with easy access to unhealthy food choices, there was limited access to healthy foods choices at their school. Healthy foods were difficult to find. There was not much variety and the healthy foods were expensive.

There's like no, I don't know, like not a lot of healthy food around, that you see (Dana, 1352).

There are not that many healthy choices (Steve, 3128).

The healthy foods are harder to get at (Brad, 3125).

It's expensive (Luke, 3130).

The availability of unhealthy food choices in school were portrayed through photos of vending machines or foods offered in the cafeteria. Students described or took photos of unhealthy foods and emphasized the limited availability of healthy foods in these settings (Figures 6-9).



Figure 6. Vending machine in school.

- 1) I wanted to show that by providing unhealthy options it makes it harder to eat healthy. Lack of healthy options.
- 2) This machine is one of many in the school.
- 3) Shows the unhealthy choices we have to make and the lack of healthy options.
- 4) Add more nutritious food, to the vending machines e.g. granola bars, fruit snacks, bear paws, foods that aren't super fattening, or with tons of salt (Amy, B, 1).



Figure 7. Fries with gravy sold at school.

The type of food readily available in schools. We could be serving much more healthy, nutritional goods instead, such as vegetables, fruits or other healthy items. They taste great and can be sold cheaper as an added incentive (Dan, A, 2).

There is an underlying theme apparent in these pictures in that the students understand how the environment impacts their choices. Having unhealthy food choices available increases temptation and makes it difficult for them to eat healthy. Students described being tempted by the good taste of unhealthy foods. When they had access to unhealthy foods it was hard for them to resist eating them. They felt conflicted when presented with choices as they knew they should choose the healthy foods over the unhealthy foods.

Like the good food that's not healthy.... Like the greasy stuff and cookies (Ann, 92).

The temptation of all the junk food (Carrie, 1394).

The junk food tastes better (Brad, 3138).

They stop selling like unhealthy food and that's the stuff that most kids want to eat (Emily, 94).

One student took a picture of a popcorn bag illustrating the types of unhealthy foods that are used for student fundraising.



Figure 8. Popcorn fundraiser.

To raise money, students sell various items, including this bag of popcorn. They could sell healthier things (Ann, A, 3).

Figure 9 illustrates the type of choices available on the cafeteria menu which lists hamburgers, cheeseburgers, chicken burgers, pizzoli, pizza, fries, gravy, poutine and sandwiches.



Figure 9. Cafeteria menu posted on wall.

A lot of unhealthy choices but also high prices. Healthy foods should be cheaper than unhealthy so people would go for the healthy foods (Ann, A, 2).

Male students in focus groups emphasized the influence of cost on food choices, stating that a cheaper but unhealthy food would be selected over a more expensive and healthier food.

[Unhealthy food], it's not very expensive so it's kind of easy to just come to school with like five dollars and buy a lunch (Matt, 846).

Participants also stated that many students leave the campus at lunch to access nearby convenience stores or fast food restaurants.

There is an open campus at lunch so you could walk down to the Mac's right across the street from the rink (Greg, 3140).

There is like Subway and Dairy Queen and fast food stuff over there [pointing] and A&W over there [pointing] (Ryan, 3145).

Participants acknowledged that the environment around the school increased their access to unhealthy foods.

Conflicting messages.

Another barrier students identified was the conflicting messages that they received in school regarding healthy eating. They were taught about healthy lifestyle choices, yet the type of foods offered at the school made it difficult to choose healthy options. Students expressed frustration with the school environment. They noted that specifically the cafeteria did not support healthy choices. They described conflicting messages when told that the school is improving the type of foods sold in the cafeteria, but not seeing the evidence.

Yeah, they don't give you much opportunity to eat healthy, basically they support it with posters sometimes but they don't put it into action sometimes... Like they put posters everywhere but they haven't really changed their food choice in the cafeteria. They have kind of kept it the same (Sue, 1398).

They have balanced choices, but then it says pizza by the slice under balanced choices (Tina, 1358).

Figure 10 depicts a photograph of the new slush machines that were added to the cafeteria. Figure 11 illustrates the new food items being brought into the cafeteria and while there were some new healthy foods items there were also items such as spicy fries, pancakes, double chocolate muffins and corn dogs.



Figure 10. Slush machine in cafeteria.

1) That the cafeteria was supposed to go healthy but put slushes into the menu. 2) That slushes are very popular and are very unhealthy too. 3) Slushes aren't that healthier than juice or milk and they don't sell many types or variety for the students. 4) Get more variety for juices and milks, also healthier fruits and veggies (Jane, A, 3).



Figure 11. New items on cafeteria menu.

The cafeteria has made the decision to bring in new items, some are healthy but others aren't. I want people to know what they are deciding to bring into the school, even if it's not nutritious. They could bring in more healthy foods instead of unhealthy foods (Matt, A, 3).

Conflicting messages were also apparent through marketing of unhealthy food choices within the school as well as in other food establishments outside of the school (Figures 12 and 13). Students understood how marketing and advertising works and were media savvy when it came to evaluating overall messages.



Figure 12. Rush for the slush poster

1) They make unhealthy options look cool. 2) Do not be fooled by posters, this poster catches your attention with its bright colours and active people, but unhealthy options make you lazy and bigger in the waist. 3) This photo promotes unhealthy options and makes it look fun but it isn't ☹️. 4) Have fruit smoothies instead of slushes (Tina, B, 2).



Figure 13. Convenience store advertising.

This shows how most convenience stores put unhealthy items on sale, such as energy drinks. They make the signs big and prominent to attract people even if it's bad for them. I think they should advertise the more nutritious stuff more heavily instead of the less healthy stuff (Matt, A, 4).

Peer influence.

Female students emphasized the impact of negative peer influences and concerns with body image on healthy eating.

People put pressure on you because you are eating unhealthy food and then you start feeling bad about yourself (Emily, 161).

A lot of the girls think like if we... like if we don't eat or basically like starve ourselves so we are pencil thin then the guys will like notice them (Sara, 689).

And most of the girls now they don't even eat lunch (Jane, 174).

They just kind of skip it [lunch] and maybe have like a cookie or something (Ann, 178).

When male students were asked if they felt their peers influenced them in the types of foods they chose about half thought they did and the other half did not. They did not express the same body image concerns or negative pressure from peers as was the case with female students.

Well sometimes when I hang out with my friends they might just want pizza or something unhealthy (Luke, 3311).

It depends on what they are eating because they can be having fruit and then you might want it, or they have like pizza and you want some of that too (Steve, 3324).

Recommendations to improve healthy eating at school.

Males and females identified similar strategies in the focus groups and photovoice to support healthy eating choices. Recommendations included increasing access to healthy food choices and reducing access to unhealthy food choices. They also identified individual strategies to help themselves eat better.

Increasing access to healthy foods.

Students identified the cafeteria as the main venue for offering healthy choices. Both female and male participants suggested that the availability of more vegetables and fruit, wraps, sandwiches, soups and salads would improve the selection of healthy foods. They emphasized the importance of the food being fresh and gave examples such as fresh salads and toppings for hamburgers or a “make your own sandwich or sub” station. Students wanted access to a variety of healthy choices such as fruit smoothies, fruit snacks, granola bars, fruit juice, flavored and plain milk, and fruits and vegetables (Figures 10 and 11). They also desired more healthy vending choices such as granola bars, yogurt, fruit and nuts, and fewer unhealthy options available in vending machines (Figure 6). Better access to food labeling, including the nutrition facts table, would make it easier for students to identify healthy food choices.

I would make the cafeteria carry more fruits and veggies and possibly more sandwiches and more variety of salads and different types of juices and milk (Jane, 643).

Maybe we could do something like restaurants, they tell you like how many calories and stuff is in the food. And then if there is like really unhealthy food in the cafeteria then we take that out and replace it with something a little better (Matt, 1190).

Students had many ideas on how to market new options to help promote the sale of healthier foods. Advertising healthier food choices in the cafeteria, offering special promotions, and limiting the availability of unhealthy foods were identified as viable strategies. The cost of healthy choices determined whether students would purchase them or not. Healthy food choices offered at a lower cost was seen as an incentive (Figures 7 and 9). Males emphasized lowering the cost of healthy food choices to

encourage consumption. All males in the focus group were in agreement that if healthy choices were sold at a better price they would buy them more often.

They could make healthy food cheaper (Dan, 919).

Lower the prices (John, 1958).

I'd say advertise the healthier food choices in the cafeteria (Emily, 261).

They could have special days in the cafeteria where they can like sell wraps or different kinds of salads (Jane, 204).

Students also offered suggestions about how to modify existing foods to make them a more healthy choice. Suggestions included using healthier ingredients such as whole wheat flour or whole wheat breads, less salt, less fat and providing vegetarian or organic options. These comments further demonstrated their high level of understanding of nutrition and healthy eating.

They can cut back down on like that salt or the grease that they use or sell different things like instead of pizza let's say like they could sell fruit salad or apple salad or sandwiches (Jane, 536).

I would say just either take out all of the junk food or make like healthier ingredients in the foods (Emily, 646).

Yeah, and just like in the cafeteria if they were to make like pizza and stuff just try and make it low fat, so that it is not all processed (Tracy, 2991).

Make the food we already have more healthier. Like use more whole wheat flour (Evan, 1194).

Go organic (Josh, 1200).

Reduce access to unhealthy food choices.

The temptation to eat unhealthy food was brought up when students discussed the barriers to healthy eating. Both males and females supported reduced access to unhealthy

food choices available to them in the school as a strategy to remove this distraction (See Figures 7, 10, and 11).

I think they should start taking out some of the really bad things in the cafeteria like the really greasy foods (Emily, 533).

Maybe like a few more healthier choices and less kind of like pizza and junk food things (Matt, 869).

No junk food. Get rid of all the junk food (Chris, 2400).

Individual responsibilities.

Individual strategies were also mentioned by students. They had a role to play in enacting their own healthy choices. One student mentioned influencing her friends to eat better. Many students stated they could pack their own lunches or seek healthier choices when they purchased foods outside of school. The majority of students indicated that they take a lunch to school daily or three to four times a week.

Check yourself and watch yourself like maybe sometimes a lot of people have their moms pack their lunches. Moms do know best but sometimes when you want to make a healthy lunch or a healthier choice yourself, you could pack your own lunch and see what you put in (Sara, 248).

We could make an effort to try more. Just to try to at least bring like a bag of grapes or an apple to school at least maybe once or twice a week (Jane, 255).

Just bringing a lunch more often. Make it healthier (Tom, 897).

By not packing like, junk food into it. Like bringing fruits or something (Matt, 905).

Or you could walk to Safeway and get like a sandwich from there or like chicken fingers or something that is healthier (Dana, 1466).

I would say trying to get your friends to eat healthier (Emily, 706).

A student took a picture of the strawberries she packed for lunch and further highlighted the importance of students packing their own healthy lunches.



Figure 14. Strawberries.

- 1) That home packed lunches are healthier than cafeteria food you buy. 2) That home packed lunches are better and healthier for you. 3) Because most home packed lunches are healthier than food you can buy at the cafeteria. 4) People should have more home packed lunches compared to buying cafeteria food (Jane, A, 1).

One student photographed the abdomen of her active younger brother to demonstrate an individual's role in healthy eating. Her narrative explains what she was trying to illustrate through the photograph.

- 1) I wanted to describe that when you decide on eating nutritionally, your body will benefit from your choices. 2) People should know that being inspired by others and following through with your goals, leads to being active and eating healthy for the rest of your life. It all pays off. 3) Engaging in after-school activities is not only fun, but good for your body. It will recognize this and get you to eat more nutritionally as you go. 4) People could sign up in groups to talk about physical activity and healthy eating or play more sports (Tina, B, 2).

Supports to being physically active.

Similar to their thoughts about healthy eating, students identified teacher influence, peer influence, physical education class, and access to physical activity opportunities as important to help students be active. Photovoice participants took a total

of seven photographs that represented supports for being active at school. Prevalent themes included the awareness of marketing and advertising, and how the environment can impact choices. Again, students were able to identify when marketing and advertising can be used in a positive way to encourage physical activity.

Teacher influence: Positive.

Students highlighted the importance of teachers supporting activity through encouragement in teams or other school events, offering ideas and strategies, having students track activity, and providing marks as an incentive. Teachers were also regarded as a source of ideas on how to be active outside of the school.

They encourage us to join sports teams and track teams and just go running (Jane, 275).

A lot of the gym teachers if they see what you are good at they will tell you to go out for that specific sport. The teachers really encourage you if you're good at that sport to go out and try for it (Sara, 278).

Teachers really encourage us to go in after school or just come and see them and like they can help with daily activities. Sometimes they say okay you can run laps in the gym or even if you go like on vacation they might say okay you just need to be active for like 30 minutes for the day (Jane, 335).

Some teachers take you for walks in their classes, or last year mine did, not this year (Ryan, 3519).

Teachers assigned activity as homework and students kept track of their activity in a log signed by a parent, teacher or coach. Teachers provided marks for the log as well as additional marks for effort in physical education class. Students thought that marks for activity and effort was a good incentive to be active.

Our gym teacher makes us do this like daily physical activity sheet (Evan, 1263).

It's worth quite a bit of marks (Josh, 1281).

It encourages you to like actually do something (Matt, 1283).

Our gym teacher makes us do half an hour of physical activity on our own and that's for marks (Greg, 3210).

They mark you on how hard you try so you want to try harder to get a better mark (Dana, 1569).

Peer influence: Positive.

Peer influence was another support to help students be active. Having friends who were active or meeting up with friends to be active together were noted as positive for both females and males. Females discussed the increased social standing of sports team members. Males discussed the competitive nature between friends as another driver to being active.

I would say back to the peer pressure thing because if you're on a sports team people will like think you are better or more healthy (Emily, 286).

If you're on a sports team you're like cooler or more popular. Kids class you, like, I don't know, in their own eyes if you're popular or not (Sara, 289).

Our peers influence us a lot because nobody really likes to exercise if they are doing it alone. It wouldn't be a very fun gym class if it's just by yourself (Emily, 371).

Friends that like, I guess if they want to play sports or something, you like go along with it (Tracy, 2732).

Positively. They take me, bring me along on walks, or go biking or skateboarding like everything like that (Chris, 2187).

Hitting the gym on the weekend (Paul, 2194).

I'm like never home I'm always with friends (John, 2196).

There's always competition to see who's the best (Ryan, 3283).

Physical education class.

All participants identified that physical education class supported activity. They described the class as being fun and a good way to be active. Students participated in various activities including use of the weight room, and engaging in running games, hockey, and track and field. As well, there were special days called Workout Wednesdays and Fitness Fridays.

Gym classes are awesome at school... (Jane, 275).

There's a whole bunch of running games and stuff like that. And then if you don't run they give you push-ups so it sort of encourages you to run more (Tina, 1539).

Where there's Fitness Friday at the gym, where you do something like a 14 minute run or stuff like that (Greg, 3507).

The gym class. We actually have a good curriculum (John, 2025).

Access to physical activity opportunities.

Having access to physical activity opportunities such as sports teams, intramurals, and specialty classes such as outdoor education and recreation education were identified as important. It was also important to have access to facilities and equipment such as the gym and fitness center before and after school.

Our school does a lot. We have like track meets and we have all the track equipment. We also have very good equipment (Jane, 322).

We have the fitness center which is like open to anyone after school...It has weights and machines (Emily, 325).

And treadmills and elliptical, exercise bikes and a punching bag (Ann, 331).

Well they also have a weight room ...where you can go in lunch hours or you can come in after school and just work out there for a couple of hours and then go home (Tina, 1560).

There is also like open gym, at like lunch, you can go in and practice basketball or do anything (Amy, 1566).

It's kind of easy because they open up the gym at lunch time so you can go in and play basketball or volleyball (Matt, 937).

You can go outside to play basketball too. And you can take out like footballs and basketballs and stuff (Josh, 942).

We have lots of equipment and lots of activities to do. There is track, floor hockey, basketball and stuff (Ryan, 3238).

Students discussed accessing other facilities in the community to be active on their own or through specialty classes such as outdoor education or recreation education.

There is also the leisure center where we can go swimming or ice-skating or something (Ann, 354).

We have ski trips too. We do them for like grade nine and then we have a class called Rec Ed. and it's pretty much like another class like gym. Like you leave the school more and do sports. And it's stuff like, you get rock climbing (Matt, 991).

Pretty much anything. Swimming, you go skiing too. Javelin and stuff too (Josh, 1001).

Rec ed. I think, isn't part of the physical education program... yeah like you go outside of school and then do it. And outdoor ed. is like, they just had a camping trip and they went out and made their own shelters (Tina, 1512).

Access to physical activity opportunities was portrayed through photographs of posters and signs marketing and advertising physical activity opportunities as well as facilities available for students' use. Visual images portraying activity were described as motivating and inspirational to students.



Figure 15. Play green poster.

- 1) I wanted to show that our school puts effort into promoting health with posters.
- 2) I want people to know that there are inspirations out there to keep you going while having fun.
- 3) This shows that even in video games you can get active. And posters are an inspiration to get healthy.
- 4) Put posters up with goals to achieve (Tracy, B, 3).

The school color is green. “Green” was used as an adjective as part of their social marketing campaign for healthy messages throughout the school. Another marketing approach used by the same school to promote access to physical opportunities included advertising spring sports teams on a large sign prominently displayed outside of the school’s main entrance.



Figure 16. Outdoor display board promoting school clubs and teams.

1) This illustrates that our school is promoting healthy activity with a variety of sports. 2) I want people to know that there are ways to get active within school. It doesn't cost money so all people/kids can do it. 3) This picture has tons of activities and hobbies so kids have their pick. 4) Have more times available to sign up or play these sports (Tracy, B, 1).

One student described having access to sports teams and using team photos on the wall as another way to promote physical activity. She highlighted the importance of having fun and photographed a collage hanging outside of the school gym.



Figure 17. X-Country 2010 poster.

1) Being part of school sports is a huge benefit for physical activity. 2) Being a part of a x-country team or any sports team is fun. It looks like a great time so that encourages others. 3) This shows students running in cross country. That promotes physical activity. 4) Its good already (Tina, B, 3).

The theme of environmental influences was also prevalent in photographs demonstrating supports for physical activity. The school environment including its facilities and the physical structure itself influenced students' access to physical activity opportunities.

One student described the track located at the back of the school.



Figure 18. Track in the winter.

1) This track represents a place for kids to lose their energy if they are hyper and a lot of kids enjoy running around because they can get out of their desks and move around. 2) Lots of kids don't like to be stuck in their desks they just want to be free. 3) Kids at school spend hours sitting in their desks and having to sit there when they could be running wild in gym class. 4) Give the kids more gym classes so they aren't always sitting around (Steve, A, 2).

Another student described how the structure of the school environment promoted activity (Figure 19). There are two floors in the school and students have to take the stairs to get to the second floor of the school. Access to the elevator is only provided to those students who are physically unable to take the stairs.



Figure 19. Stairs at school.

1) I wanted to show how our school is very old and still promotes healthy activity. We still have stairs. 2) I want people to know that even though our modern society keeps us from doing some things, it is still possible. 3) We have a lot of stairs in the school and about 2 elevators. Students have to use the stairs if they are able to, and not disabled. 4) Keep it the way it is. Stairs are good (Tracy, B, 2).

Barriers to being active.

Students identified barriers to being active such as limited physical education class, the negative influence of teachers and peers, having busy lives, and limited access to physical activity opportunities. Photovoice participants depicted limited physical education and limited access to physical activity opportunities, consistent with focus group findings. Other barriers highlighted through photovoice were the frustration with conflicting messages and the impact of environment on choice.

Limited physical education class.

Physical education, or gym, was offered in one school three times a week throughout the year, whereas in the other school it was offered on a semester basis. Both

males and females expressed concerns with only having physical education for one semester (school A) or 3 times a week (school B). The majority of students thought that physical education should be offered every day throughout the year.

And we only have gym three times a week. Pretty stupid (Ryan, 3249).

I wish we could have it year round [the whole] semester so that we could have it all the time (Gina, 2770).

Yeah, because you're active for like the first part and then they don't give it to you anymore and you stop being active (Tracy, 2775).

Well for like the kids that don't play sports... like we only have gym three times a week so there is like, two days where they don't really get much. There isn't much they can do (Tom, 1022).

An interesting way to photograph limited physical education was demonstrated by one student who took a picture of her time table. The time table was difficult to read in the photo; however the student provided a written narrative on what she was trying to illustrate.

1) This shows that we only have gym 3 times a week. 2) That in high school we aren't getting exercise each day we are only getting it 3 times a week. 3) Physical activity is only 3 hours each week and kids in high school need more. 4) Get gym in at least 4 times a week and help improve physical activity (Jane, A, 2).

Students also identified their dislike of some of the activities in physical education class as a barrier to activity. Males expressed frustration with inactive time during gym. Time spent setting up and taking down equipment and warming up left little time for actual activity.

In gym lots of times it's kind of annoying like you get so much time setting up you don't really get much time to do anything...like let's say we're doing like I guess like basketball unit, or well something you have to set up like bases or whatever. Let's say were playing baseball you have to like bring all the stuff outside (Josh, 1028).

Or volleyball and badminton because we have to set up all the nets and that takes a while to put up and put down (Matt, 1037).

And then sometimes our warm-ups take way too long and then we only have like 10 minutes to do it actually (Tom, 1046).

Teacher influence: Negative.

Even though teachers were identified as a support for being active, students also noted that teacher influence could be negative. Students preferred having a choice in the type of activity they did in physical education class and did not like being forced to do an activity they did not like. Teacher expectations could be daunting with a negative impact on students' self-esteem and their desire to be active.

Sometimes they make you do stuff that you're not very good at, it's harder to do it (Amy, 1585).

It makes you feel bad about yourself, you can't do it right but everyone else can (Carrie, 1588).

Like if the activity, you don't want to do it but, they like tell you to do it anyway (Chris, 2159).

They force you into it. (John, 2164).

Yeah they force you to do whatever activity the teacher says (Chris, 2166).

You just listen, do it (Paul, 2168).

Peer influence: Negative.

Peer influence was also identified as being a barrier to activity. Females observed that time spent socializing with friends was mostly inactive whereas males expressed that they had a combination of active time and inactive time such as working out or playing video games with their friends. Both males and females stated that not having a friend on their team or to do activities with also impacted whether they were active or not.

Our peers influence us a lot because nobody really likes to exercise if they are doing it alone. It wouldn't be a very fun gym class if it's just by yourself (Emily, 371).

Mostly when they ask you to do something it's mostly to go to the movies or the mall (Sara, 366).

They have lunch time intramurals but people don't usually go to that because they just want to walk around the school with their friends (Ann, 426).

I think somewhat they do, because sometimes during lunch they just want you to come and sit and talk with them instead of walking around (Gina, 2911).

Yeah and like afterschool some friends are like into video games and if you want to go outside and do stuff they don't want to (Tracy, 2915).

They hold you back a bit (Gina, 2918).

Being the only person on the team when you don't know anyone else (John, 2097).

Yeah sometimes... cause they just want to sit down and you just sit with them (Brad, 3300).

They want you to play videos games with them (Greg, 3302).

Life is busy.

Students described their lives as busy. A barrier to being active was lack of time.

Students noted that short lunch hours, after-school activities, and homework or jobs prevented them from being active. A couple of students also stated they did not join sports teams because of the expected time commitment.

Um I just find my life is already so busy and stuff and kind of, that would make it too busy, so really no time (Tracy, 2760).

Like I know I can't do many of the things because I have a lot of work like extra work that I do. Like I also do piano and violin and I do theory at night like piano theory. So a lot of the times I can't participate in sports because all my stuff is on a Wednesday and that's when everything happens (Sara, 400).

Well sometimes at lunch like it's pretty short so like after you eat you don't get much time to do anything really (Josh, 1062).

We get too much homework, that's the whole thing. People who actually care about their curricular, they just kind of stay inside and do that (Gina, 2814).

Limited access to physical activity opportunities.

There were various factors that limited participants' access to physical activity opportunities. One of these factors was portrayed through photos of facilities in and around the school that were inaccessible. Again an underlying theme with the photographs was how the environment impacts choice. Figure 20 depicts a locked gym during TA class, which is a home room class for students to study or work on assignments and projects.



Figure 20. Locked gym.

1) Shows that the gym is locked during TA time (because of clock). 2) We don't have access to the gyms during TA, and we should. 3) It would promote us to be active, by providing us with places to be active. 4) Open the gyms during TA (Amy, B, 2).

Access to outdoor physical activity opportunities, especially in southern Alberta, is limited by the weather. Focus groups were conducted over the winter months of

December, February and March. The photographs were taken by students in March 2011 when there were cold temperatures and snow on the ground. It is important to note that snow may be present from October through May in southern Alberta, which is a significant proportion of the school year.

Sometimes if it's like too rainy or too cold outside for gym class we just stay inside and play dodgeball or something (Ann, 415).

In winter the track is always closed (Emily, 418).



Figure 21. School field in the winter.

1) A lot of sports that we do at our school are played outside but we can't do them because the weather might be bad (snow, rain, etc). 2) Winter sucks when it comes to outside sports. 3) Physical activity, because we can't do a lot outside while there is snow on the ground. 4) Nothing really, teachers could let the kids do what they want if the weather is bad (Steve, A, 1).

Another factor influencing access to physical activity identified by both females and males was the distance between home and school. The physical proximity of a students' house to school determined whether they could use active transportation such as walking or biking to school. Many students took the bus because they lived too far from

the school to walk. The majority of participants reported getting a ride or catching a bus to school regardless of where they lived.

Some kids like live all the way in [neighborhood far from school] so they have to take the bus. You can't really walk to school (Ann, 380).

I guess you can get buses like if you live in {neighborhood close to school}, you can still get bussed to school. And if you live close you still get rides to school. You could walk. Like you could get the bus anyways, which kind of takes away from the chance to be active (Matt, 1055).

Students also described that it was more difficult to play on a sports team when they lived at a distance from the school.

And sometimes when you're on a sports team you wouldn't really be relied upon if you live all the way in {neighborhood far from school} and can't get a ride. You wouldn't be on the team (Emily, 393).

Like most sports are after school and if they are and people can't get a ride because their mom and dad are at work and stuff (Molly, 1642).

It's just your parents that can give you a ride pretty much or your friends (Carrie, 1632).

There was also discussion around limited access to sports teams. Being "cut" or eliminated from a team meant that students would not be able to play even though they wanted to.

Not everybody has a chance to be on a sports team because they make cuts and then you don't have any secondary teams here (Sue, 1599).

When it came to sports, females believed that males received many more opportunities to access teams than females. This was a common sentiment in all the focus groups with female students. Females stated that many sports teams offered at school were geared to boys. In physical education class females were subject to ridicule, thought of as wimps or they were excluded from activities with boys.

I too think we see that a lot in terms of all the sports because they always get more opportunities, they are kind of bigger and can do the football and baseball and basketball (Gina, 2829).

Men are thought to be stronger than girls, I guess they get made fun of and stuff (Tracy, 2838).

If we are playing soccer for example they are kicking it back and forth to the guys all the time and never really pass to you (Gina, 2848).

Females felt the boys received more attention from coaches, more practice times, more promotion for their games and had more fans than the girls' teams.

Well, they give the gym to the guys more often than they do the girls and the guys have more practice time and they go away on more trips and they have more fans (Jane, 456).

And when the girls come on there's like almost no one there and we don't have enough practice time and that's maybe why the girls don't do as good. Because we don't have a lot of practice time and nobody really pays [attention]... and like the coaches sometimes don't even pay attention to the girls they pay more attention to the guys because they are stronger (Sara, 460).

There's like guys teams playing tonight and if there's girls team they really just won't announce it or anything. They always go like for the guys (Carrie, 1711).

Like some night if they have the same game or whatever, they'll say how the guys did but they won't even say how the girls did (Tina, 1714).

Unless we did like really good, but if we like lose they won't say anything. But if the guys lose they will be like oh they had a sad loss or whatever (Carrie, 1717).

When males were asked if they thought that the male sports teams were given more opportunities than the females sport teams they disagreed. There was consensus in the focus groups from males that they did not think they received more opportunities; however, they agreed that they did have bigger audiences at games. They attributed this to having a good game and good promotion of the team.

Because they are more like, well like basketball is pretty much, well it could be for anything, a girl and a boy but it's pretty much usually for boys sport. Because like the senior boys, like the grade 12 boys, they have a good game and

everybody goes to see it. And then when it comes to the seniors girls' game barely anyone goes to see it (Paul, 2239).

Well like sports are like for anyone, I think. It's not like just for boys, it's for everybody (Chris, 2258).

If the team is doing good they get recognized (Ryan, 3444).

Conflicting messages.

Another barrier identified by a student was the conflicting message of having sporting events sponsored by fast food companies. This photograph provides a good example of how students are marginalized from the messages they receive at school. The student who took this picture was focusing on the track and field bib that has the McDonald's logo and name across it in the bottom of the right hand side of the photo.



Figure 22. Track and field bib.

- 1) That our school has athletic clubs but displays fast food in its posters, as team names.
- 2) That sports are fun but team names usually promote the names of unhealthy foods.
- 3) It promotes by showing other kids having fun but still having barriers within.
- 4) Keep out advertisements from unhealthy foods and companies (Tracy, B, 4).

The student suggested that such corporate sponsorships should not exist; however, decisions such as this are often taken in isolation of the students.

Recommendations to improve physical activity.

There were three main recommendations identified by students in focus groups and photovoice to improve physical activity: increasing physical education; increasing access to physical activity opportunities; and establishing students' individual responsibilities to be active.

Daily physical education.

All students expressed wanting to have physical education class every day all year round. Having a voice in choosing the activities or having options in physical education class were important to both females and males. Strategies identified to improve physical education class included more fun games, sports and activities, reduction of inactive time in gym, and smaller classes for a longer duration. Two females wanted more instruction on how to properly use the weights in the fitness room.

I wish we could have it year round semester so that we could have it all the time (Gina, 2770).

We could have like options like in gym class so you could like choose between a couple things because then you're not being forced to do something you don't want to do so you don't try (Amy, 1775).

They could like take out a... if there was a course in gym where you're not really doing too much, like you're kind of standing around in it. They could take those out and replace them with something a little more interesting (Matt, 1091).

And then like smaller classes for gym. Like sometimes there are so many people it's hard, well it's hard to do anything (Josh, 1161).

Students also made reference to having daily physical activity (DPA) on days when the gym was not available for physical education class.

Well maybe because we have certain classes that we get three times a week like we get gym, and then we have other classes like math and LA that we do six times

a week. And that can get like really, really annoying and boring because you're sitting in a chair a lot. So maybe we could do like daily physical activity in those (Matt, 1217).

Teachers can put in a daily physical activity at least one class a day. So if we don't have gym that day we are still doing something active (Jane, 724).

And there are times when the gym is like busy, and we have no choice but to stay in the class and do an activity in the classroom, which is really not cool. Because I would rather be in gym than in a classroom working out (Paul, 2306).

As illustrated in Figure 18 a student described wanting more activity rather than sitting at a desk. As he explained:

Give the kids more gym classes so they aren't always sitting around (Steve, A, 2).

Another student observed that:

Physical activity is only 3 hours each week and kids in high school need more. Get gym in at least 4 times a week and help improve physical activity (Jane, A, 2).

Students recognized the importance of being active every day and saw benefit in having daily physical education class scheduled in their timetable.

Increased access to physical activity opportunities.

Increasing access to physical activity opportunities was also recommended by all participants. This included offering both lunch and afterschool intramurals as some students did not have enough time at lunch to participate and others were unable to stay after school to participate. Students also wanted additional opportunities to join sports teams or clubs such as tennis, golf or a non-competitive running club. Figure 16 recommended offering more sports teams and times available to participate in sports.

I think there should be more sports teams like because we always have the normal ones like basketball and football maybe we should try some different sports teams like tennis and stuff (Emily, 429).

I also think they should have like a mixed team like a girls and guys team then they would be compared equally and not the guys would be appreciated, appreciated more than the girls (Sara, 598).

I think it should be more open to people who are accepted onto the teams (Emily, 589).

I think a lot more people would go for sports. There just isn't enough teams to go out for (Sara, 595).

Figure 20 depicted a student trying to open a locked gym. The participant observed that:

We don't have access to the gyms during TA, and we should. It would promote us to be active, by providing us with places to be active. Open the gyms during TA (Amy, B, 2).

Both males and females enjoyed leaving the school facilities to go swimming and skating and wanted more opportunities to try other activities in the community such as rock climbing, archery, horseback riding, yoga, curling and bowling.

Like during gym class you go to places, like bowling or curling or something (Luke, 3359).

Maybe you could like leave, like put a little more funding into it and then we could like leave the school to do stuff, like maybe curling, or maybe like swimming or ice games kind of thing (Matt, 1178).

And then the gym wouldn't be so full (Tom, 1182).

I think there should be more out of school fitness activities like we usually have swimming and skating but maybe like just some other things that we could do like rock climbing and stuff like that (Emily, 466).

Individual responsibility to be active.

Individual responsibility to be active was a common idea discussed by both females and males. Students believed they were responsible to participate in sports, physical education, and extracurricular activities. Students noted that by taking better

advantage of the many sports and fitness opportunities at school, they could increase their activity levels.

And maybe get yourself motivated to start because I know when you go for a walk you get more motivated and maybe you would start running and you just want to spend more time outside (Gina, 2924).

Yeah it kind of inspires you (Tracy, 2928).

I think we play quite a big role with that though, when you choose to participate in activities, some don't and that really makes a difference (Gina, 3055).

If you don't understand how to do something actually just ask the teacher (Jackie, 1682).

Participate in sports maybe and if you like some sports teams go try out for them (Tina, 1682).

Try for sports teams I guess. Cause you do a lot of work in them. Because you practice almost every day or either you're playing games or something (Matt, 110).

And work harder in gym I guess. Like it's boring for a lot of people to just walk around (Josh, 1117).

As well, like going to the open gyms at lunches is a good way to get active (Tom, 1124).

A student's individual responsibility to be active was illustrated through a variety of photographs. One female student asked her mother to take a picture of her walking their two dogs. She described being motivated and taking the initiative to be active as ways to engage in activity.



Figure 23. Walking the dogs.

1) When I took this picture, I wanted to show that when you are motivated to engage in physical activity it is easier to do so. 2) I want people to know that there are a ton of ways to get active, so all you have to do is get going and enjoy the outdoors, whether it be with friends or even family. 3) I believe that this picture demonstrates that you must take the initiative to be physically active because if you are physically engaged, you will eat healthier. 4) If you wanted to improve this situation, you could get a daily job or routine going (Gina, B, 1).

Student responsibility to be active was also illustrated in two photographs recommending students walk to school as a way to increase activity levels. Figure 24 depicted a student walking home at lunch. Figure 25 depicted a limo driving away. The student used the limo as a symbol of people preferring to drive to school than walking.



Figure 24. Walking to school.

Walking to school from home is what was being captured. This picture was taken at lunch. If you walk home after school and at lunch you can get a lot of physical activity (Brad, A, 1).



Figure 25. Driving to school.

Some people prefer to drive vehicles instead of walking so then they don't get the activity they need. I would like to see more people walking instead of driving (Brad, A, 3).

Student contributions to policy.

All students except one male agreed that students should have a role in policy development, implementation, and evaluation. When further probed about why he didn't think students should have a role he stated he wasn't sure why. Students identified that they could provide numerous contributions to policy. The main areas described by students were: students as experts; having a choice/vote for preference for activity and food choices; and being role models.

Students as experts.

Students identified their expertise in knowing what worked at the school and how to improve situations.

Like trying to get things to change. I think that is a really big thing because adults don't really know what kids go through now nowadays. And if we have say in the change and stuff then maybe we can help to make it better (Emily, 518).

Well like because we are the, like the ones that have to do the activities and stuff so we know what's working and not and if we like it we keep it in and if we don't like it or don't think it is working we just kind of get rid of it (Matt, 1146).

I think we should decide on what policies we get (Brad, 3405).

Having a vote/choice.

Students described the importance of having input regarding food and activity choices that are presented to them. Two female students also recognized that not all students will vote for healthier options.

I think we could maybe have some votes on what we could have in the vending machine and what is sold at school. Maybe then some people could volunteer with homemade recipes and make some... I don't know (Gina, 2947).

It may be hard because some people aren't motivated to get healthy and then if we vote or something, some people will want healthy food and some people will want junk food (Tracy, 2951).

And like some people, I guess like at home they don't have home-cooked meals and stuff is it's hard for them. (Tracy, 2964).

They get used to eating out and then they don't want to eat other foods, because they have never tried them before (Gina, 2967).

I think the gym, you would be able to choose like which activity you would like to do, which better like, encourages you to be more active (Chris, 2468).

Like pick what they're having at the cafeteria one day or a couple days (John, 2466).

Peer influence and role modeling.

Being a role model or leader was described as a way to help implement policy. A female student provided insight into the culture of high school by describing the influence of grade 12 students on other students in the school.

I think students should get involved because it's also like a trend. Like if someone is wearing like something, and the rest of the students want to wear it because it's cool. So they like get a whole bunch of like, students in grade 12 or something to start eating healthy or doing certain stuff and some of the younger ones might follow because it's like a cool thing to do (Sue, 1781).

The people around you... [the kids] you hang out with and stuff, like what their lifestyle is like, so because you kind of take on what they do. So if you hang out with healthy people you will probably become more healthy (Tracy, 3049).

Summary

In this section themes arising from focus groups discussions and photovoice with grade 9 female and male participants were presented. Students identified many supports and barriers to eating healthy and being active at school. Themes that repeatedly emerged throughout the discussions were: access to healthy foods, teacher influences, peer influences and access to physical activity opportunities. Differences in responses

based on gender were noted. Female students emphasized the impact of negative peer influences on healthy eating. They also perceived a relative lack of support for girls' sports teams, compared to boys' teams. Male students emphasized that the cost of food influenced their healthy food choices. Females and males proposed similar strategies to support healthy eating choices such as increasing variety of healthy food choices, improving existing foods by using healthy ingredients, and reducing the amount of unhealthy choices in vending and cafeterias. Strategies to support physical activity included having daily physical education class and increasing access to physical activity opportunities. The majority of students agreed they should have a role in policy development and implementation.

Chapter Five: Discussion

In this chapter, I provide a brief overview of the study and a discussion of the findings in relation to the current literature. I provide an evaluation of the utility of the social ecological framework that was used to guide this study. The major barriers and supports to healthy eating and active living at school will be presented as well as recommendations for improvements in both areas. The students' role in policy development, implementation and evaluation is explored. Implications for future research and policy development as well as limitations associated with this study are reviewed at the end of the chapter.

Overview of the Study

In Canada, childhood overweight and obesity are at epidemic proportions. In Alberta, 22% of children and adolescents were overweight or obese in 2004 (Shields, 2006). The school environment is often the focus of healthy eating and physical activity policies to address childhood obesity as children spend the majority of their day at school. However, students are usually excluded from the development and implementation of such policies.

Policies can be used to decrease exposure to negative environments and unhealthy behaviors and practices (Vecchiarelli et al., 2006). Instead of targeting individuals, school nutrition and physical activity policies aim to impact the whole school population by bringing about an environmental change intended to improve individual student behaviors and choices (Vecchiarelli et al., 2006). Comprehensive approaches including

school nutrition and physical activity policies that address a variety of environmental interventions are needed to address childhood obesity.

Including students in policy design, planning and implementation is important for a school policy to be accepted by the student population. Students have creative and attractive ideas that can assist with improving nutrition and physical activity choices at school (WHO, 2008). Few Canadian authors have explored students' perspectives about perceived supports or barriers related to healthy eating and physical activity at school or students' roles in policy development and implementation. The purpose of this study was to explore youth's perspectives of: the school nutrition and physical activity environments; supports and barriers to healthy eating and being active; strategies for improving the school nutrition and physical activity environment; and potential student contributions to the development, implementation, and evaluation of school-based policies. The research questions that guided this study were:

- 1) To what extent are students supported to make healthy eating choices at school?
- 2) What do students identify as barriers and challenges to healthy eating at school?
- 3) To what extent are students supported to be physically active at school?
- 4) What do students identify as barriers and challenges to being active at school?
- 5) How do students think schools can better support students to eat healthy and be more active?
- 6) What contributions do students think they can make to the development, implementation and evaluation of school based policies?

This qualitative study used focus groups and photovoice to engage grade nine student participants within MHSD76 in two high schools in Medicine Hat, Alberta. Photovoice

involves providing people with cameras to take photographs of their everyday realities to create discussion to reach policy makers (Wang et al., 2004). The strengths of using both focus groups and photovoice with the same group of students were that it offered multiple ways to elicit their responses and it enabled them to elaborate on their experiences. The study was guided by the social ecological model which provided a theoretical framework to examine how the school environment influences healthy eating and physical activity behaviors. Permission to involve students was granted by the Associate Superintendent of MHSD76 in November, 2010 (Appendix D). I contacted and met with the principals of the schools to discuss the study and obtain approval to recruit students.

Students were provided with a letter to parents (Appendix M), a parent information form for the focus groups (Appendix N), a parent information form for photovoice (Appendix P) and a consent form (Appendix Q) to take home to obtain signed permission from parents so they could participate in the research. Thirty students (16 females and 14 males) took part in six single-gender focus groups.

Focus group participants were invited to submit their names if they were interested in participating in photovoice; subsequently, 13 participants (six females, seven males) were randomly selected for this component of the study. Photovoice participants received orientation regarding use of the cameras and ethical guidelines for subject choices. Students were asked to provide a written narrative describing the meaning and reason for taking the photographs they determined were the most significant. Finally, focus group and photovoice participants at each school were invited to attend a free lunch for a presentation of the preliminary data as a member check. Seven students (three females

and four males) from school A and eight female students from school B attended the sessions.

Using Krueger and Casey's (2000) analysis process, I conducted focus group analysis concurrently with data collection. Photovoice participants were involved with the analysis process by selecting and interpreting their own photos. Focus group transcripts, debriefing notes, photographs and written narratives were used as the basis for thematic content analysis.

Students identified multiple factors that influenced the choices they made around healthy eating and physical activity. There were some different responses noted between genders. Major overarching themes that repeatedly emerged throughout focus group discussion were: access to healthy food choices, teacher influence, peer influence and access to physical activity opportunities. Themes portrayed through photovoice pictures complemented the focus group discussion but emphasized the impact of marketing, identified conflicting health messages and the influence of the school environment. Students identified numerous contributions that they could initiate for purposes of policy development and implementation.

Utility of Theoretical Framework

The theoretical framework used to guide this study was the social ecological model. An "ecological framework emphasizes connections between people and their environment; views behavior as affecting and being affected by multiple levels of interacting influences" (Story, Kaphingst, Robinson-O'Brian, & Glanz, 2008, p. 254.)

This model was useful in the examination of school environment influences on behaviors around healthy eating and physical activity. It helped inform the development

of focus group questions so that not only was I asking for potential strategies from an individual perspective but also from an environmental perspective. Robinson (2008) proposed five levels of influence that impact health behaviors including intrapersonal, interpersonal, organizational, community, and public policy. Students identified factors from all five levels of influence that impacted their health behaviors in a negative or positive way. Participants were keenly aware of the influence of personal factors (knowledge, attitudes and lifestyle) and interpersonal factors (peer influence, teacher influence) on their health behaviors. They were also very aware of the importance of the environment (school, community and home) and how it can present enablers and barriers to eating well and being active. A summary table portrays the various levels of influence identified by students in groups and photovoice using the social ecological framework and the five influencing factors (Table 6).

The findings of this study are consistent with the social ecological model and the levels of influence within a school context. A complex array of factors interact to affect the eating and physical activity behaviors of adolescents. Healthy eating and physical activity behaviors are related to individual factors (students' education and busy lifestyles), interpersonal factors (peer and teacher influence), organizational factors (access to healthy foods and physical activity opportunities in the school), community factors (access to unhealthy foods, impact of marketing) as well as public policy factors (school nutrition and physical activity policy). The value of using the social ecological model is that it provided a useful framework to better understand the various levels of influences (enablers and barriers) that impact adolescent health choices around food and activity. It also provided guidance to develop recommendations for appropriate nutrition

Table 6

Major Themes from Focus Group and Photovoice

Environmental Factors Influencing Health Behaviours (Robinson, 2008)	Focus Group and Photovoice Themes
Individual (Individual motivation, education, knowledge, attitudes, beliefs, that influence behavior)	<i>Education</i> <i>Individual responsibility</i> <i>Life is busy</i> <i>Awareness of marketing</i>
Interpersonal (Interpersonal relationships, social networks - family, friends, peers who provide support, social identity and role definition)	<i>Teacher influence</i> <i>Peer influence</i>
Organizational (Physical environment and setting, school environment, rules, regulations and policies which prevent or encourage certain behaviors)	<i>Access to healthy foods</i> <i>Access to unhealthy foods</i> <i>Conflicting messages</i> <i>Physical education class</i> <i>Access to physical activity opportunities</i> <i>Awareness of marketing</i> <i>Environment impacts choice</i>
Community (Physical environment and setting, community and neighborhood environment, social networks and standards that exist among individuals, groups and organizations)	<i>Access to healthy foods</i> <i>Access to unhealthy foods</i> <i>Access to physical activity opportunities</i> <i>Awareness of marketing</i> <i>Environment impacts choice</i>
Public Policy (Local, provincial and national policies or laws that support healthy actions or practices for disease prevention, control and management)	<i>Physical education class</i> <i>Conflicting messages</i> <i>Access to healthy foods</i> <i>Access to unhealthy foods</i> <i>Awareness of marketing</i>

and physical activity intervention strategies within each level of influence for students which is further discussed in the next section. A variety of strategies targeting multiple levels of their environment is needed to address the eating and physical activity behaviors in students.

Discussion

The school environment is often viewed as an ideal setting to implement nutrition and physical activity policy. It is important to consider students' perspectives of the influence of these types of policies on their choices of healthy foods and being active. The students in this study identified that the school environment can be supportive to make healthy eating choices and be physically active; however, they also identified many barriers to healthy choices.

Knowledge of healthy and unhealthy foods.

Students were very knowledgeable and fairly consistent about what would be considered a healthy or unhealthy food choice. Healthy foods included vegetables and fruits, salads, sandwiches or wraps, yogurt, granola bars, water, milk, and juice. They commented on foods being fresh, not deep fried or processed and containing healthy ingredients such as whole wheat flour. Foods they considered to be unhealthy included pop, slushes, milkshakes, cheese or bread sticks, cookies, burgers and fries, chips, pizza. They also described unhealthy foods as junk foods or being greasy. Other authors have demonstrated that children and adolescents understand the concept of healthy foods and are well educated about healthy eating practices (Croll et al., 2001; Harrison & Jackson, 2009; Protudjer et al., 2010). Efforts to increase students' knowledge around the importance of healthy eating and physical activity have done little to create individual behavior change. Improving the health of adolescents requires looking at the social and environmental context in which healthy behaviours are reinforced (Brownell et al., 2009). When students are presented with a variety of choices, they know but are often unable to

consistently select the healthier choice. They are faced with multiple factors, such as personal preference for unhealthy foods, peer influence, and powerful marketing strategies which influence their choice. This type of environment is not supportive of healthy food choices. The students in this study identified multiple strategies such as reducing prices of healthy foods, decreasing access to unhealthy foods, improving access and variety of healthy food choices, and increasing the marketing and promotion of healthy food choices that they believed could improve the food environment in school. These types of interventions go beyond educating students to make healthy choices by structuring the environment to make the healthy choice the default option.

Impact of advertising and marketing.

Students in this study demonstrated a sophisticated level of knowledge about the impact of marketing on their food choices. They identified multiple areas within the school and community environment that are used for food marketing and advertising including school hallways, poster boards or displays, cafeteria menus, fast food facilities, and convenience store windows. Some of the advertising emphasized healthier foods and beverages and students were in favor of these posters or campaigns being placed in the school. However, the vast majority of the marketing messages within and outside the school environment emphasized high-calorie and low-nutrient foods and beverages. This is consistent with the findings of the Institutes of Medicine (IOM) Committee of Food Marketing to Children and Youth (2005, p. 1) which concluded that “food and beverage marketing practices geared to children and youth are out of balance with recommended healthful diets and contribute to an environment that puts their health at risk.” Students were very observant about the positive and negative impacts of marketing strategies and

were quite media-savvy when it came to evaluating the overall message. However, students expressed frustration with conflicting messages and struggled with making healthy choices. Croll et al. (2001) and Protudjer et al. (2010) reported similar concerns in that children and adolescents understood healthy eating guidelines but did not consistently follow recommendations and regularly chose less nutritious foods instead. Unhealthy food advertising can create brand loyalty, associations with happiness and achievement and promote impulsive purchase and consumption (Brownell et al., 2009). In order to support young individuals to make healthy choices, marketing efforts need to emphasize healthier child and youth oriented foods and beverages (Story et al., 2008). Schools can ensure that any advertising or marketing within the school environment including classrooms, hallways, poster boards, cafeterias, and vending machines promote healthy food choices.

Access to unhealthy foods.

Students identified many different venues within the school, such as in the cafeteria, vending machines, school fundraisers, and events where unhealthy foods choices were promoted. Ease of availability of these foods has been identified as a common barrier to healthy eating by students in other studies (Bauer et al., 2004; Harrison & Jackson, 2009; Neumark-Sztainer et al., 1999; Yoshida et al., 2011). Similar to participants in Harrison and Jackson's (2009) research, students in the current study also accessed unhealthy foods in the community through fast food restaurants and convenience stores. Limited access, selection, and cost of healthy foods also negatively impacted students' choices to eat well. A systematic review by Shepherd et al. (2006) identified that young people reported similar barriers to healthy eating, including poor

availability of healthy foods at school, expense of healthy foods, and personal preference for fast foods. Having unbalanced access to unhealthy foods over healthy foods is problematic in the school and community environment.

Increasing access to healthy foods

Potential approaches identified by students to support healthy foods choices have also been identified in other studies involving youth (Bauer et al., 2004; Kubik, Lytle, & Fulkerson, 2005; Neumark-Sztainer et al., 1999; Shepherd et al., 2006). Strategies included decreasing access to unhealthy foods and increasing access to healthy foods. Students identified the cafeteria as the main venue for improved selection of healthy food choices. Both males and females suggested that the availability of more vegetables and fruit, wraps, sandwiches, soups and salads would improve the selection of healthy foods. They also supported reducing access to unhealthy foods choices available to them in the school. Neumark-Sztainer et al. (1999) reported that students were in favor of making healthy foods the only option because they will pick the unhealthy foods if given a choice. Males in this study emphasized that the cost of food influenced their food choices and noted they would be more likely to select a cheaper but unhealthy food over a more expensive food. Rideout, Levy-Milne, Martin, & Ostry (2007) reported that students will choose healthier food options such as fresh fruit or baby carrots over high fat snack foods if there are price reductions. Students had many innovative ideas on how to market new options to help promote the sale of healthier foods. Schools leaders should consider providing special pricing incentives and discounts to attract more students to purchase healthy food options. Student involvement in this process would be instrumental in the success of such changes.

Increasing physical activity opportunities.

Several researchers have highlighted the importance of increasing access to physical activity opportunities for youth (Bauer et al., 2004; Kubik et al., 2005; Hohepa et al., 2006; Rees et al., 2006). Limited availability to physical activity opportunities and venues such as the school gym, athletic facilities, and sports teams was identified as a barrier to being active by students. Improving access by offering lunch and afterschool activities, additional sports teams or non-competitive clubs, and more open hours at facilities in the community were recommended. Hohepa et al. (2006) recommended increasing accessibility to sport equipment, more organized activities, a greater number of sports teams, and a wider variety of sports or other activities to improve engagement of youth in physical activities.

Findings from the current study also support physical education every day at school as a strategy to improve physical activity levels in youth. All students expressed to the desire to have physical education class every day and offered various suggestions on how to improve classes such as including more fun games, sports, and activities. A statement from the American Cancer Society, the American Diabetes Association and the American Heart Association (2006) on physical education in schools summarized the benefits of physical education beyond fitness including improvements in student academic performance and cognitive ability as well as a positive impact on tobacco use, insomnia, depression, and anxiety. As of 2005 in Alberta, the Daily Physical Activity (DPA) policy mandates 30 minutes of daily activity for all students in grades one through nine (Alberta Education, 2008). Challenges with scheduling and lack of facilities has made implementation difficult in many high schools where physical education is offered

every second or third day for a longer duration or every day for half of the school year.

What is important to consider is that the students in this study, having grown up with the DPA policy in place since grade two or three, overwhelmingly supported having physical education every day. As students move into the higher grades they will not have this mandatory physical activity policy to support activity. As described by students, busy school schedules, homework, after school activities, and jobs further compete for students' time to be active. These factors further support the need for daily physical education to be part of the school curriculum for all students in grades K-12.

Gender differences.

There were some gender differences apparent among participant responses. Female students noted that negative peer influence and concerns with body image could impact their food choices. They reported knowing girls who limited food intake by skipping lunch or only having a cookie as ways to manage their weight so boys would notice them. They also felt judged for choosing healthy foods over unhealthy foods in front of their friends. Other authors have also noted gender difference around eating habits with girls expressing more concerns with weight gain, health, and physical appearance (Bauer et al., 2004; Harrison & Jackson, 2009; Kubik et al., 2005; Protudjer et al., 2010). Discomfort with eating in front of boys was an important barrier identified by female students in another study (Bauer et al., 2004). Croll et al. (2001) summarized the different perceptions that boys and girls have around healthy eating. Boys tend to focus on energy and appetite and the importance of healthy eating for sports when describing healthy eating, whereas girls focus more on appearance and weight loss for special events or school social events as a motivator for healthy eating.

The males in this study did not express the same body image concerns as the females and they minimized the impact their friends had on their food choices. However, this could be an uncomfortable subject for boys to discuss in front of their peers which may have limited their responses in this area. Other authors have reported that adolescents' food choices are impacted by their peers as healthy eating can be seen as uncool or undesirable and unhealthy foods are associated with pleasure, friendship and social environments (Croll et al., 2001; Harrison & Jackson, 2009; Protudjer et al., 2010; Shepherd et al., 2006). When schools are implementing school nutrition policy, gaining student support for the healthy foods changes will be pivotal to help increase acceptance of these foods because of the influence peers have over food intake (MacLellan et al., 2010).

There were also gender differences in responses around physical activity opportunities with females acknowledging that there were more opportunities and support for boys on school sports teams and in physical education class. Similar concerns have been acknowledged in other studies where females have expressed the structure of physical education class, open gym times, and other school activity opportunities (sports teams) allow boys to dominate (Bauer et al., 2009; Hohepa et al., 2006). Females suggested that having more sports teams, non-competitive teams and clubs, and greater instruction and access to facilities in and outside of the school would increase their participation. Creating positive physical activity opportunities for females during their adolescence is important for adopting healthy active behaviors as an adult (Alberta Education, 2006). Schools can better engage females by offering a variety of activities that are appealing and accessible (Alberta Education, 2006). Providing more

opportunities that are fun and non-competitive with space and time for both single sex and mixed activities will help encourage participation for both females and males (Rees et al., 2006). Acknowledging and supporting female accomplishments in sports, activities, and events and promoting equity throughout the school will further support females' confidence and self-esteem (Alberta Education, 2006).

Peer influence.

Peer influence was identified as an influence on student physical activity levels. Students stated that peers can act as a support to physical activity through the social aspect of having a friend to do an activity with or on a sports team. Peers could also exert a negative influence on activity levels by encouraging sedentary social activities such as playing video games, hanging out at the mall, or going to movies. Not having a friend on a sports team or to do activities with decreased a student's physical participation. These findings are congruent with other research that showed peer influence strongly impacted young adolescents' physical activity behavior (Hohepa et al., 2006). Role modeling and verbal encouragement from friends can positively impact physical activity behaviors. Promoting a variety of social opportunities for students to be active with their peers is likely to positively impact physical activity levels in youth.

Teacher influence.

The impact of teachers on healthy food choices and physical activity levels was also identified numerous times by both genders. Students appreciated teachers' encouragement to bring and consume healthy snacks during class time. Teachers were seen as able to influence the classroom environment through their support of healthy

eating. Teachers were also identified as an important support for participation in sports teams and school events and were regarded as a source of ideas on how to be active inside and outside of school. However, teachers could also impede activity if students were forced to do an activity they did not like. Teacher expectations could negatively impact students' self-esteem and willingness to participate in activity. Bauer et al. (2004) reported that a teacher's negative comments regarding students' athletic abilities led to students feeling self-conscious and avoiding activity. Teachers play an important role in positively influencing students' attitudes and apprehensions related to physical activity. Five key areas that can help teachers to encourage physical activity with students include: developing awareness of current physical activity levels; setting goals with students; providing specific feedback and praise; revisiting goals frequently to encourage students' commitment; and rewarding and recognizing change (Alberta Education, 2006).

Importance of students voice and individual choice.

Students had strong opinions around their own contributions to policy development, implementation and evaluation. They believed they should be consulted on decisions prior to implementation, acknowledging both the direct effect on them and their expertise in predicting the outcome and suggesting more effective approaches. Yoshida et al. (2011) demonstrated that youth can have a strong influence in policy work. The youth he studied were able to engage policy makers at the local and state level and influence school wellness policies. They also identified healthier school food options and obtained increased access to facilities and equipment to increase physical activity (Yoshida et al., 2011). Being a role model or leader was described as a strategy students could use to help implement policy. As in this study, other students have recommended

influencing peers by making healthy eating the “cool thing to do” (Neumark-Sztainer et al., 1999). Students in this study also valued having a choice in the type of foods and activity that are presented to them. Both females and males felt choices for healthy foods at school were compromised as they were hard to access and limited in variety. Shepard et al. (2006) concluded that young people value having choice and autonomy in relation to food. A supportive healthy eating environment should provide a variety of healthy and affordable foods for young people to choose from (Shepard et al., 2006).

To increase physical activity opportunities students in this study recommended increasing access to competitive and non-competitive sports teams and activities. Kubik et al. (2005) reported that students wanted more opportunities to be active during the school day and the freedom to choose from a variety of activities. Similar to the findings of Hohepa (2006) and Rees et al. (2006), students in this study wanted to be consulted about the type of activities done in physical education class.

The findings from this study demonstrate the valuable insights and contributions students can provide if consulted while the school is developing, implementing, and evaluating school nutrition and physical activity policy. Exploring avenues to actively engage high school students in this process can lead to more effective interventions addressing the nutrition and physical activity environments in schools.

Summary of recommendations

Students are exposed to conditions in their environment that increase barriers to healthy eating and being physically active. Relying on students to avoid making unhealthy choices is difficult when their environment makes it easy to make unhealthy choices (Brownell et al., 2009). Efforts can no longer focus only on increasing students’

knowledge around the importance of healthy eating and physical activity. Multiple intervention programs are needed to address the eating and physical activity behaviors in students.

Edwards, Mill, and Kothari (2004) describe the multiple intervention programs approach as a combination of interventions that are used to target multiple levels and multiple sectors of a socio-ecological system. A good example of the impact of multiple intervention programs on health behaviors has been demonstrated within tobacco control programs and policies (Kothari, Edwards, Yanicki, Hansen-Ketchum, & Kennedy, 2007). Comprehensive tobacco control programs include interventions such as reducing environmental tobacco exposure, minimizing tobacco access to youth, increasing tobacco taxes, offering smoking cessation assistance, provision of public education programs and school based programs, initiating marketing bans, and promoting anti-tobacco media campaigns (Kothari et al., 2007). In Alberta, the Tobacco Reduction Act of 2007 included banning retail tobacco displays, prohibiting tobacco sale in pharmacies, healthcare facilities and educational institutions, prohibiting smoking in all public places and workplaces, and increasing taxes on tobacco products (Smoke Free Alberta, 2009). A tobacco tax increase in 2002 contributed to a 24% decline in tobacco consumption the next year (Smoke Free Alberta, 2009). The Alberta Tobacco Reduction Strategy focused on three major areas: prevention of tobacco use by youth, cessation of tobacco use by current tobacco users, and protection of all Albertans from second-hand smoke (Alberta Health Services – Alberta Alcohol and Drug Abuse Commission [AADAC], 2008). Specific interventions included school based programs, community capacity building, marketing, public awareness and communication, cessation programs, policy initiatives,

research and evaluation, and leadership and support. Since its inception in 2002, Alberta's tobacco use rate has decreased from 25% to 21% (Alberta Health Services – AADAC, 2008). Shifting the environment to support healthy behavior choices and discourage smoking behaviors has proven to decrease tobacco use rates. We can learn from this experience, and a similar approach to improving the food and physical activity environments for students is likely to have a significant effect on their health behaviors.

Throughout the discussion a number of recommendations were made for nutrition and physical activity intervention strategies. These types of interventions go beyond educating students to make healthy choices by structuring the environment to make the healthy choice the default option. At the interpersonal level, strategies to encourage peer support and positive teacher influence to increase physical activity behaviors were identified. Schools can promote a variety of social opportunities for students to be active with their peers. Teachers can promote awareness of physical activity, set goals with students, provide specific feedback and reward physical activity behaviors (Alberta Education, 2006).

At the organizational level, schools can implement strategies to improve the availability and accessibility to healthy foods choices and physical activity opportunities. Reducing prices of healthy foods, decreasing access to unhealthy foods, improving variety of healthy food choices, and limiting marketing and promotion of unhealthy foods were just a few of the strategies identified to improve healthy eating behaviors. Schools can influence physical activity levels in students by providing more opportunities that are fun and non-competitive with space and time for both single sex and mixed activities (Rees et al., 2006). Strategies to better engage females to be active include offering a

variety of activities appealing and accessible to female students and by promoting equity, support, and acknowledgment of female accomplishments in sports, activities and events (Alberta Education, 2006).

At the public policy level, recommendations were made to have school policy that further supports healthy eating and physical activity levels in students such as extending the DPA policy to include all students in grades K to 12 rather than including only younger students. Another strategy was to actively engage students in policy development, implementation, and evaluation to develop more effective and student-centered interventions. Involving students in policy work can further develop leadership, problem solving, and consensus building skills and enhance their confidence to continue advocating for change in their communities as adults (Yoshida et al., 2011). However, having a policy in place does not necessarily influence the school environment on its own. A variety of different interventions targeting multiple levels of the larger system, as well as a champion to move the agenda forward, are needed to address the nutritional and physical health of students.

Implications for Future Research

This study identified several supports and barriers to healthy eating and physical activity levels of grade nine students at school. Further research is needed to implement and evaluate interventions which remove these barriers and build on the successes as well as to explore in greater detail the needs of both female and male students. As implementation of Canadian school nutrition policy is still in the relatively early stages, further evaluation of the impact of nutrition policy on improving individual behaviors and overall health is needed. Further qualitative studies are also needed so that we can

continue to listen and respond to the views of young people. Evaluation of greater engagement by youth in policy development and leadership roles within the school and community is crucial. Future research should also explore the use of multiple methods such as focus groups and photovoice with students and how each method promotes different levels of engagement from the students.

Implications for Policy Development

The findings of this study give voice to students' perceptions of the supports and barriers to healthy eating and physical activity in their school environment and their perceived role in contributing to policy. Various strategies and recommendations for consideration when developing, implementing, and evaluating policy have been presented. Interventions that target multiple levels of influence, in multiple settings, using multiple strategies are needed to improve the impact of programs and policy (Robinson 2008). The importance of recognizing students as experts and the need to nurture their future involvement in decision making and policy consultation is essential. Nutrition policy and interventions designed to improve the school nutrition environment need to take into consideration the barriers that impact students' selection of healthy foods. Similarly, policy and strategies aimed at increasing activity need to address a range of barriers while building on interventions that have proven to be successful. The findings from this study demonstrate the valuable insights and contributions students can provide when developing, implementing, and evaluating school nutrition and physical activity policy. Exploring avenues to actively engage high school students in this process can lead to more effective interventions addressing the nutrition and physical activity environments in schools. Providing opportunities and experiences in policy work can

also help develop leadership, confidence, and instill a sense of accomplishment and validation in students (Yoshida et al., 2010).

Combined Use of Qualitative Methods

In this research study, I used two qualitative methods, focus groups and photovoice, to explore students' perspectives of the supports and barriers to healthy eating and physical activity in the school environment. Other researchers have suggested the benefits of using two or more qualitative methods such as focus groups and photovoice with students (Fitzgerald et al., 2009; Pearce et al., 2009). Cooper and Yarbrough (2010) reported that photographs may provide richer data and thicker description than can be collected in focus groups. They also reported that data collected using photovoice was richer, more reflective and more contemplative when compared to focus groups (Cooper & Yarbrough, 2010).

The strengths of using both focus groups and photovoice with the same sample of students were that they had multiple ways to share their responses and they could elaborate on their experiences. During the focus groups sessions, students could verbally express their individual viewpoints, expand on and confirm what other group members were saying and contribute to a group discussion. The risk with focus groups is that there can be a tendency toward conformity and students may withhold things they do not want to reveal in a group setting (Morgan, 1997). Participants may also have provided perspectives they felt the researcher wanted to hear. In photovoice, participants could provide their own perspective through a more private and creative outlet without the influence of others. Taking photographs allowed them to use their individual energy and translate it into action. They could give their own voice to photos they chose to represent

supports or barriers to healthy eating and physical activity. One male student who was very quiet during the focus groups provided multiple insights through photographs and written narratives which may have been a more comfortable avenue for him to express his views. His views might not have been captured if focus groups were used alone.

The two approaches were compared to see if information that did not emerge in focus groups emerged through photographs. Using verbal (focus group) and written responses as well as photos (photovoice) proved to be another strength of using a multiple method approach as it was more inclusive than single methods which rely on just one form of data collection. Photovoice amplified and validated what was said in the focus group and highlighted the sophisticated knowledge held by students about factors that influenced their choices. I found that themes portrayed through photovoice pictures complemented focus group discussion findings; however, there were some differences in responses noted for both focus groups and photographs. Photographs revealed more emphasis on the impact of marketing, conflicting health messages and the influence of the school environment, but did not capture the impact of peer or teacher influence or student contributions to policy which were prominent themes in focus group discussion. The difficulty in capturing these abstract concepts in photographs may have contributed this outcome.

Thought must be given to factors such as the time of year in which focus group and photovoice research is conducted in the school setting. Time tables, special events, examination schedules, and school vacations compete for attention. Weather is another factor to take into consideration because of the wide variability of seasons during the school year. For example, a photograph portraying a snow-covered outdoor running

track as a barrier to being active would not have been taken if the study was done in the late spring, summer or early fall.

Both methods added additional information to improve the understanding of the research questions. Although focus groups and photovoice can be quite time consuming and photovoice adds additional complexities to the research process, I found both methods were positive in engaging students to elicit feedback. “Photographs can be viewed as tools to enrich and extend existing interview methodologies by providing information that cannot always be obtained through direct analysis” (Cooper & Yarbrough, 2010, p. 651). I would recommend the use of multiple methods for future research with students.

Limitations of Study

This was an exploratory qualitative study to further our understanding of students perspectives of their school environment from two high schools in Southern Alberta; therefore the findings are specific to these contexts and should not be considered conclusive. However, the detailed description of the study design and methods and discussion of the findings should allow the reader to judge the transferability of the findings.

The participants in this study were 13 to 15 years old and represented the younger cohort in a high school setting. Focus groups and photovoice with older adolescents who have more independence and perhaps more disposable income might have revealed different perceptions of the school environment. There is also the risk of bias among the participants as they self-selected to participate. It is possible that they were more interested in the topics of healthy eating and physical activity at school than the general

population of students. However, the sample of students identified a variety of different interests and priorities in the demographic information collected prior to the focus groups.

Another factor that may have impacted the findings was the cold weather. Focus groups were conducted over the winter months of December, February and March. The photographs were taken by students in the month of March when there were cold temperatures and snow on the ground. Student responses may have been different if the research was conducted in the early fall or early spring. However the reality is that snow may be present from October through May in southern Alberta, a significant proportion of the academic year, and results in limited access to school-based outdoor physical activities.

As a registered dietitian I have worked within the school setting to promote healthy eating and physical activity initiatives. This pre-understanding of the context may have been useful when gathering data, in terms of following up on concepts, or probing with more questions to further enhance group discussions. However it could also have been a weakness, if some statements were taken at face value and important statements not thoroughly probed. Having a research assistant present at the focus group discussions and to debrief with immediately after the focus groups, and meeting regularly with my advisors to review data provided other perspectives and facilitated follow up questions in later focus groups.

Reflection

There were many lessons learned on my journey as a novice researcher. I have gained a great deal of insight into the use of qualitative research and more specifically

using focus groups and photovoice as methods with youth. I had facilitated focus groups discussions in the past so felt I had some experience in this area but I quickly learned that my knowledge of focus groups was quite basic as I started my thesis research. There is a systematic nature to focus group research that tells others how you conducted focus groups so that it is verifiable should someone else want to replicate your study. Many steps have to be considered in this process and a lot of time went into designing my research to make sure I considered all of these factors.

During the focus groups I captured data by using two digital recorders and having a research assistant present to take notes on flip chart paper. The research assistant put the participants pseudonym beside the comments on the flip chart paper. This was helpful in two ways: participants had a visual record of what was being recorded and could modify or add to their comments, and I had a record of names to help with transcription of the digital recordings. Having a research assistant to debrief with immediately after the focus group was vital so that we could review the main themes discussed, what went well, what did not, what needed to be changed or probed so we were always prepared for the next focus group. I tried to allow myself a couple of days between focus groups so that I could transcribe one fully before the next one took place. Conducting focus group analysis concurrently with data collection allowed me to pick up on concepts or themes I wanted to further explore for the next focus group.

As a novice researcher I also realized that research is time consuming at every stage; reviewing the literature, gathering the data, analyzing the data and writing the findings and discussion. Time constraints at the school added another level of difficulty throughout this process. Student timetables, special events, examination schedules,

teacher professional development days, and school vacations had to be considered when scheduling focus group and photovoice sessions. I had to reschedule many meetings at each school as some students did not show up to drop off their cameras, had not had a chance to complete the activity, or were absent (on field trip, in detention or were sick) during the time of the meetings. Having a flexible schedule to accommodate additional meetings at the school was important to be able to complete all of my data collection.

The process of data analysis and writing the results was arduous and challenging for me. I knew that this stage in the research would be time consuming because I had six focus group transcripts and 32 photos with narratives to analyze but I was not prepared for the amount of time it actually took me. I originally wrote up my results looking at focus group data and photovoice data separately. These findings seemed artificial because keeping the data separate was only telling half of the story. It was not until I worked through that process that I realized that my findings needed to be presented together. The focus group and photovoice participants were the same people answering the same questions, just using a different medium to express them. When I combined the focus group data and photovoice data together I could see how the findings complemented each other and provided an additional explanation and deeper meaning to students' perspectives that could not be achieved with presenting the findings independently of each other. This struggle enhanced my experience and understanding of data analysis and I can better appreciate the complexity of reporting findings.

Overall my experience with research has been on an uphill learning curve with and I have found it to be personally and professionally gratifying. This research study has provided me with valuable insight into the use of focus group and photovoice

approach with youth and I have gained considerable knowledge about the factors impacting students' choices around healthy eating and physical activity at school. I look forward to continuing on with further research in this area.

My participation with this study has changed my understanding of the power of youth's voice and the importance of gaining their perspectives rather than making assumptions about their knowledge. I came to this research topic because of my interest in school nutrition policy and healthy school environments. As a registered dietitian I facilitated the promotion of healthy eating and physical activity in school communities and have provided nutrition education to students of all ages from grades K to 12. I also had experience working with school boards, administration, principals, teachers, and parents towards developing and implementing school nutrition policy. A key stakeholder missing in this process, however, was the student and that was the critical factor for my choice of thesis topic. I have learned a great deal about the sophistication of knowledge that students have about factors that impact their health behaviors. It was a realization for me that the current generation of students have grown up in a culture that is saturated by media and health messages about obesity and chronic disease. They are very aware of factors in their environment that contribute to good or poor health and express frustration with trying to make healthy choices in an unsupportive environment. I have learned that multiple approaches, persistence, friendliness and a listening ear are important to provide students with the opportunity to share their voice. If you don't ask, they won't tell. I will be forever grateful for the experience this research has provided me and will take forward my lessons learned from students to inform future planning in the area of school nutrition policy.

Conclusion

The purpose of this study was to explore grade nine student perspectives regarding: supports and barriers to healthy eating and physical activity at school; strategies for improving the school nutrition and physical activity environments; and potential student contribution to the development, implementation, and evaluation of school based policies. Barriers to healthy eating and physical activity within the school environment must be further explored to help create supportive environments to impact individual behavior to make healthy choices (Story et al., 2008). The findings from this study demonstrate the valuable insights and contributions students can provide when developing, implementing and evaluating school nutrition and physical activity policy. The findings also highlighted a number of areas for teachers, school administration, and other decision makers to consider when developing school policy. Exploring avenues to actively engage high school students in this process can lead to more effective interventions addressing the nutrition and physical activity environments in schools.

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Appendix A

SECTION 600

POLICY 680

MEDICINE HAT SCHOOL DISTRICT NO. 76

HEALTHY NUTRITIONAL CHOICES

BACKGROUND

Schools play an important role in improving the health of students and their ability to learn by reinforcing sound nutrition principles through its food services and its education programs.

POLICY

The board directs that schools establish practices and procedures that set healthy standards for the provision of food in schools.

GUIDELINES

1. Food selection shall be guided by the principles of regional, provincial and federal health documents.
2. Teachers should be encouraged to incorporate concepts of healthy nutritional choices into the curriculum.
3. Where and as appropriate, students should be involved in decisions regarding the food choices available in schools.

**Approved & Adopted:
September 7, 2004**

MEDICINE HAT SCHOOL DISTRICT NO. 76

ADMINISTRATIVE PROCEDURES

TITLE: Promoting Nutrition Education and Healthy Eating in School Communities	POLICY REFERENCE: 680 Healthy Nutritional Choices
PROCEDURE CODE: 680 P 001	EXHIBIT: 680 E 001: Food Choices

PROCEDURES

Promoting Nutrition Education and Healthy Eating in School Communities

1. Healthy foods include foods found in the categories “choose and serve most often” and “serve sometimes”.
2. The principal of each school will ensure that strategies are in place to foster the knowledge, skills and attitudes that promote healthy eating. In fulfilling this expectation schools will:
 - establish linkages between health education and foods available at the school,
 - promote nutrition education and positive food messages provided by the District,
 - schedule lunch breaks that provide time for eating and recreation,
 - limit the use of food items as rewards,
 - include foods from the “choose and serve most often” and “serve sometimes” categories on special occasion days.
3. Schools will promote healthy, reasonably priced food choices when food is sold or otherwise offered. In fulfilling this expectation, principals, in consultation with the school community, will plan to:
 - access expertise in the community through partnerships, programs, referrals etc.,
 - offer healthy foods in meal combinations,
 - offer healthy foods in all vending machines and site locations,
 - offer foods that are in the “choose and serve most often” and “serve sometimes” categories
4. All school communities will examine their nutrition practices and provide opportunities, support and encouragement for staff and students to eat healthy foods. In fulfilling this expectation staff may do things such as:
 - create their own health and wellness team that includes staff, parents and students,

- choose healthy fundraising options,
 - create an environment where healthy foods are available, affordable and promoted as the best choice,
 - review options with food suppliers to maximize the nutritional value of the items,
 - define the frequency of special food days in yearly calendars and ensure that healthy food items are available on those days.
5. Central Office will support nutrition education and healthy eating by any or all of the following:
- linking with Alberta Health and Education on initiatives, updates, and resources regarding nutrition and healthy living,
 - coordinating information and in-services for District staff on food use in schools relating to cafeterias, stores and vending machines,
 - coordinating information and in-services for District staff on cross-curricular connections with health outcomes
 - providing positive food messages,
 - disseminating research on nutrition education, and other information related to healthy eating,
 - participating in research projects and disseminating findings, such as promoting the best practices in healthy eating and obesity prevention gleaned from the research done such as the School of Public Health, University of Alberta, and other research agencies.
 - seeking and maintaining partnerships that reduce hunger across the District by increasing access to food programs to be provided in a non-stigmatizing manner,
 - meeting regularly with District food suppliers.

Nutritional Needs of Students

1. Schools will work with parents/guardians, School Councils and the community to address the nutritional needs of students, including students whose days are extended due to transportation, student activities, or after school care.

Food Services in Schools

1. Food Services includes vending machine services, meal programs, cafeteria services, food served at school activities, during school-sponsored activities and food served as a reward.

Schools will ensure that by September 2009, the following procedures are implemented:

- 1.1 Vending Machine Services when vending machines are in schools:

The pictures on the vending machines shall portray healthy food choices.

Renewal of contracts with vending machine companies must honour the Healthy Nutritional Choices Policy.

Schools must work with the vending companies to convert food available in the vending machines to ensure that all choices will be from the “choose and serve most often” and “serve sometimes” categories, with an emphasis on food from the “choose and serve most often” category.

100% of beverages in vending machines will be in the “choose and serve most often” category.

- 1.2 Cafeteria and School Lunch Programs

Food and beverage choices shall be from the “choose and serve most often” and “serve sometimes” categories with an emphasis on the “choose and serve most often” category.

- 1.3 Special Events, Celebrations and Fundraising

A broader range of food options is acceptable provided such activities are of an intermittent nature. Nevertheless, schools should consider the above guidelines. Student bake sales which are of an intermittent nature may be recognized as special events.

Food items sold by students and schools as special events, celebrations and fundraisers will be consistent with the “choose and serve most often” and “serve sometimes” categories with an emphasis on the “choose and

serve most often” and the understanding that there are many options for fundraising that do not involve food rewards.

Reward is an item used conditionally for behaviour. This does not include celebration, tradition or routine events.

The decision to use food rewards in schools and classrooms can undermine the above guidelines. Before food rewards are offered, schools should consider student health issues, nutritional value, frequency and quantity of such rewards, healthy role modeling and long-term behavioural impact when arriving at a decision. An alternative to food rewards should be offered whenever a reward is considered.

2. Principals or administrators of each site shall review this policy with staff and School Council annually to ensure that practices are consistent with the Policy and the Procedures.
3. By 2010 it is expected that schools will be in compliance with the guidelines for food and beverages in Medicine Hat School District No. 76 schools. The goal of the procedures is to maximize student access to “choose and serve most often” and “serve sometimes” options, minimize access to “serve least often” options.

Approved and Adopted:
(in principle only)
January 13, 2009

Revised:
April 21, 2009

MEDICINE HAT SCHOOL DISTRICT NO. 76

ADMINISTRATIVE PROCEDURES

TITLE: Food Choices	POLICY REFERENCE: 680 Healthy Nutritional Choices
EXHIBIT CODE: 680 E 001	PROCEDURE CODE: 680 P 001

EXHIBIT

See attached exhibit **Alberta Nutrition Guidelines for Children and Youth – An Overview**.

For further information and most current guidelines, refer to website www.healthyalberta.com

Approved:
(in principle only)
January 13, 2009

Revised:
April 21, 2009

Appendix B

Basic Demographic Information for Focus Group and Photovoice Participants

Age:_____ Male:_____ Female:_____ Postal Code:_____

Do you identify with an ethnic group Yes_____ No_____

If yes please list the ethnic group(s) you identify with._____

Do you walk or ride your bike to school? Yes_____ No_____

If no, what method of transportation do you use to get to school?_____

Are you involved with sports teams or organized sports at school? Yes_____ No_____

If yes, can you please list or describe what sport teams or organized sports you are involved with.

Are you involved with sports teams or organized sports outside of school? Yes ___ No__

If yes, can you please list or describe what sports team or organized sports you are involved with._____

Are you involved with any other type of physical activity? Physical activity can be defined as any body movement that works your muscles and uses more energy than you use when your are resting. Please describe the type of activity you do

How many days during the week are you physically active for at least 30 minutes?

Daily_____ 5-6 days _____ 3-4 days _____ 1-2 days _____ Less than once a week_____

How often do you purchase food or beverages at school?

Daily _____ 3-4 times per week _____ 1-2 times per week _____ 1-2 times per month_____

Less than once per month _____ Never _____

Can you please describe the types of food or beverages that you purchase at school?

Appendix C



Faculty of Health Sciences

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University of Lethbridge
4401 University Drive
Lethbridge, AB T1K 3M4

Sept 9, 2010

Ms. Sherri Fedor
Associate Superintendent Student Services
Medicine Hat School District #76
601 1st Avenue S.W.
Medicine Hat, AB T1A 4Y7

Dear Ms. Sherri Fedor,

I am graduate student at the University of Lethbridge. I have worked with your school district in my role as a Health Promotion Facilitator with Alberta Health Services. Through my involvement with the school district I know that your district nutrition policy was recently revised and the “Living in a Healthy School Community Project” was implemented to help elementary schools align with the policy. The project is continuing in its second year with focus being placed on supporting secondary schools in aligning with the district nutrition policy and supporting physical activity initiatives. Evaluation from the first year of the project focused on feedback from stakeholders with an emphasis from teachers and administrators. During the fall of this school year, I would like to gather feedback from the students on how the school environment supports or discourages healthy behaviours. I believe that understanding students’ perspectives of healthy eating and physical activity will help provide direction on how the school district can continue to support healthy choices and more effectively implement the district nutrition policy. This research will be conducted for academic purposes as part of my masters thesis.

I wish to conduct a study in October 2010, using focus groups (n=4-6) and photovoice (n=8-12 students), with grade 9 students from the two high schools. Focus group questions will center on how easy or how hard it is to make healthy eating and physical activity choices at school. Focus groups will take place in the classroom as part of a class activity. Students who express interest in participating for photovoice will be asked to

submit their name into a container. Two students will be randomly selected at each focus group to take part in photovoice. The goal of photovoice is to empower students to become more aware of their surroundings. Photovoice is a method where cameras are provided to people to record and describe their everyday realities. Students will receive disposable cameras and be shown how to take pictures. Students will be asked to take photos around their school to show how they are supported or challenged to make healthy eating or physical activity choices. Pictures will not contain identifying information of any person..

The Human Subject Research Committee of the University of Lethbridge has provided approval for this research proposal. I have attached a copy of the Ethics Certificate (Attachment A). A letter to parents of students in the target classes describing the study and a consent form will be sent home with students (Attachment B). An assent form will be provided and reviewed for students participating in the focus groups (Attachment C) and for those students participating in photovoice (Attachment D).

The time needed to complete the focus groups will be 50 minutes. Photovoice participants (4-6 students in each school) will be asked to attend three meetings. The first session is orientation for the group on use of the cameras; discussing acceptable picture taking procedures, and brainstorming themes they wish to photograph (~30 minutes). An individual interview will also be completed with each participant to obtain a verbal description of their pictures and to collect cameras (~10 minutes). Once pictures are developed, I will meet with the group of students in each school to review photographs and descriptions. All students will pick out one or two key photographs and will share their story of what their picture represents. (~45 minutes).

A presentation of the findings will be shared with Medicine Hat School District # 76 School Board, Administrators, Principals, and the Council of School Councils. A one page summary will also be provided to the student participants and their parents who have indicated they would like to receive a copy.

If you have any questions or concerns, please do not hesitate to contact me or my thesis supervisors. I will call to confirm your district’s approval for this research and to obtain written approval for your district’s participation. I look forward to working with you on this project.

Researcher	Supervisor	Supervisor
Kimberlee Brooks	Dr. David Gregory	Dr. Jean Harrowing
403.528.0899	403.329.2432	403.394.3944
Kimberlee.brooks@uleth.ca	David.gregory@uleth.ca	harrjn@uleth.ca

Sincerely,

Kimberlee Brooks, RD, B.H.Ecol.
Masters of Science Student, Faculty of Health Sciences

Appendix D

Formal Research Approval from MHSD76



Medicine Hat School District No. 76

601 – 1st Avenue S.W., Medicine Hat, Alberta T1A 4Y7 Fax: (403) 529-5339 Phone: (403) 528-6701

November 9, 2010

Ms. Kimberlee Brooks
913 Eagle Ridge Drive
Dunmore, AB T1B 0J7

Re: Research study – letter of invitation

Dear Kimberlee,

Thank you for your letter of invitation to the District to participate in your research study entitled "Students and Policy: Perspectives of School Nutrition and Physical Activity Environments".

We are pleased to advise you that this project has been approved for implementation in the District. We look forward to working with you as we support our secondary schools in aligning with the district nutrition policy and physical activity initiatives.

Sincerely,



Sherrill Fedor
Associate Superintendent, Student Services

SAF/nd

Appendix E

Focus Group Interview Process

- Start both audio recording devices.
- Introduce self (researcher) and assistant. “Hi, my name is Kimberlee Brooks and I am a graduate student with the University of Lethbridge. This is RA’s Name and he/she will be helping me with the discussion today. Today you are invited to participate in a classroom discussion about your views around healthy eating and physical activity at your school. Your parents have provided consent for you to participate today.”
- Before getting started, read aloud to the class the Student Assent form that the assistant will hand out. Ask students to sign. If there are any students who do not wish to participate they may be excused from the focus group.
- Ask the group to think if there are any more ground rules (see Appendix N Student Assent form) that should be added before we begin discussion.
- Discuss with the group that if the discussion raises any uncomfortable feelings or if they need more support that they can talk to me at the end of the session and I will put them in contact with the school counselor.
- Provide each student with a pseudonym and request each student to identify themselves with the pseudonym (i.e. this is Ed) when they speak. Explain that this will assist in keeping track of contributions from each student while protecting their anonymity. Provide name tags for students to wear with their pseudonym to help students remember and to assist the researcher and research assistant when collecting data.

- Begin discussion using questions listed below as a guide. Use probes if students are having difficulty generating ideas and discussion.
- The assistant will write comments and themes on flip chart paper. To identify female and male comments, the assistant will put a period at the end of the female comments.
- Ensure that everyone has had an opportunity to answer all questions. If one side of the group is more silent than the others, probe for more discussion by asking “We haven’t heard much from this side of the room, what do you think?”
Towards the end of the discussion take a minute to review flipchart notes with participants and ask if there is anything else they would like to add.
- Thank students for participating and provide gifts as a token of appreciation for their time and participation.
- Thank teacher for providing time and space to conduct the focus group. Give the teacher a thank you card with the researcher’s name and contact information if he or she should have any questions.

Appendix F
Focus Group Questions and Probes
(probes developed to be used to generate discussion)

- How are you supported to make healthy eating choices at school?
 - What makes it easy to eat healthy at school?
 - lunch break
 - foods sold or provided at school
 - meal programs or special food days
 - milk programs

- What are barriers to eating healthy at school?
 - What makes it hard to eat healthy at school?
 - lunch break
 - foods sold or provided at school
 - meal programs or special food days
 - milk programs

- What would you recommend to improve healthy eating at school?
 - How can you help yourselves to eat healthy?
 - How can your school help you eat healthy?

- How are you supported to be physically active at school?
 - What makes it easy to be active at school?
 - phys ed
 - DPA
 - athletic teams
 - equipment
 - school activity programs

- What are barriers to being active at school?
 - What makes it hard to be active at school?
 - phys ed, equipment
 - school activity programs
 - active transportation

- What would you recommend to improve physical activity and being active at school?
 - How can you help yourselves to be more active?
 - How can your school help you to be more active?

- What contributions do you think you could make to the development, implementation of evaluation of healthy eating and physical activity policies?
 - Should students be involved with policy development? Why do you think this?
 - What changes would you make to healthy eating and physical activity policy.

- Is there anything else related to healthy eating or physical activity that we have not talked about but which you think is important?

Appendix G

Focus Group Debriefing

- Immediately after the focus group the researcher and the assistant will meet to ensure the tape recorder worked and that field notes are complete.
- The researcher and assistant will debrief by discussing the following questions:
 - What were the main ideas?
 - What were the particularly helpful/meaningful quotes?
 - What was surprising?
 - How was this group similar to or different from earlier groups?
 - Does anything need to be changed before the next group?

Appendix H

Outline for Photovoice Session One

- Welcome participants and re-introduce self (researcher) and assistant.
- Read the student assent form that the RA will hand out aloud to the participants. Ask students to sign. If there are any students who do not wish to participate, the assistant will walk them back to their regular class session.
- Ask participants to introduce themselves and name their favorite food and their favorite physical activity.
- Review the purpose of the meeting:
 - This meeting is expected to take 30 minutes.
 - They will be participating in a photography activity known as photovoice
 - Photovoice involves using photographs as a communication tool for students to capture images in their school environment that speak to how they perceive nutrition and physical activity.
 - We will discuss the ethics of picture taking and the responsibility students have in taking pictures.
 - We will discuss ideas around the school to help focus on photography
 - Towards the end of our discussion, we will distribute cameras and practice using them once to make sure everyone knows how to use them.
- The ethics of photovoice include protecting privacy and not intruding into personal space. We don't want to take someone's picture without asking. Because the photos you take will be used for research purposes you will need to get permission from every student who can be identified and their parents before you take their picture.

- Since getting this permission is a lot of work and because we want to make sure that this activity is fun and easy for you to complete we are asking you to only take pictures of inanimate objects, school areas, or equipment without people in the picture. What are some ways we could take photographs without people in them at school? Brainstorm with participants different strategies to take pictures without people in them e.g. locations, time of the day, how to ask people to step out of the picture frame. Also discuss ways to include people without identifying them such as taking pictures of the back of people's heads, or of hands, legs, or feet.
- Review research questions with participants by writing them down on flip chart paper, the chalk board, or the white board.
 - How are you supported to make healthy eating choices at school?
 - What are barriers to eating healthy at school?
 - How are you supported to be physically active at school?
 - What are barriers to being active at school?
 - What would you recommend to improve healthy eating at school?
 - What would you recommend to improve physical activity and being active at school?
 - After reviewing the questions, discuss what kind of ideas come to mind that they could focus on photographing. Write ideas out on the flipchart paper, chalk board or white board. Ask students to individually select what they would like to photograph in and around the school.
 - Once all participants have an idea of what they would like to photograph, distribute cameras and notepads to all participants. Cameras and notepads will be coded and

- only the researcher will know the coded information that matches the name of the photographer. A notepad is provided to the participants to write down the picture number and describe what the photograph represented.
- Ask students to watch as researcher and assistant demonstrate how to use the camera.
 - Provide technical advice for taking pictures
 - keep fingers out of the camera's eye
 - if taking pictures outside place the sun at your back as often as possible to avoid the glare of the sun in your picture
 - avoid putting the center of interest in the middle of the photograph every time
 - be sure to advance the camera after every picture by winding the dial.
 - on your note pad, be sure to write down the description of the photo with the corresponding number of the picture on the camera.
 - Provide an instruction sheet that includes the research questions to guide picture taking, instructions on how to use the camera, and technical advice for taking pictures.
 - Recommend that participants keep the camera at school to ensure they have access to it when they see something they want to take a picture of. However, provide permission for students to take camera home but reminding them to bring it back the next day. Discuss that students will receive a disposable camera for their own personal use at the end of the study, so to try and refrain from taking too many personal pictures with the photovoice camera.
 - Ask participants if they have any questions or need any assistance. Direct students to the teacher who has volunteered at their school to assist youth photographers over the week if they have any questions or concerns.

- Discuss the date on which youth photographers will agree to turn in their cameras and meet briefly with the researcher (usually in one week). Date will be previously determined with approval from principal and teachers

Appendix J

Youth Photographers Tip Sheet



Thank you for joining as a youth photographer! I would like to find out what you think about healthy eating and physical activity in your school. Your job is to take pictures at school of what healthy eating and physical activity mean to you. Think about these questions when you are taking pictures.

- What makes it easy to eat healthy at school?
- What makes it hard to eat healthy at school?
- What makes it easy to be physically active at school?
- What makes it hard to be active?
- What are some ideas to improve healthy eating at school?
- What are some ideas to improve physical activity and being active at school?

Tips for taking pictures

- Keep fingers out of the camera's eye.
- When you are outside, take pictures with the sun behind you.
- Be sure to advance the film after every picture by winding the dial.
- Be sure to write down a description of the picture you took on your note pad. Don't forget to write down the number of the picture above your description.

If you have any questions or concerns with any part of this activity please call, text or email me at 403.528.0899 or kimberlee.brooks@uleth.ca.

Appendix K

Outline for Photovoice Session 3

- All participants will receive a copy of their pictures and their note pads where they wrote descriptions of the pictures they took. Provide a couple of minutes for them to look at their pictures.
- Ask students to select one or two of their photographs that they feel is most significant or that they like the best.
- Each student will be asked to describe the photograph he/she took, what it means to him/her and what is the story behind the picture. To assist with this, the following questions will be written out on a flip chart or white board or chalk board.
 - What did you want to show or describe when you took this picture?
 - What do you want people to know about this picture?
 - What does this picture have to do with nutrition/healthy eating or physical activity?
 - What can be done to improve this situation? (if applicable).
- After each student has had a chance to share his/her stories ask the group if they can identify any issues or themes that arose from the photographs. Were there similarities? Were there differences?
- Discuss with student how their pictures will be shared with the School Board, Principals, and the Council of Parent Councils. The researcher will present the photographs and the information collected from the focus groups to showcase

students' perspectives, insights, photographs, stories, and recommendations to school policy makers.

- Remind students that their names will not be attached to their pictures and that their identities will remain anonymous.
- Once the photographs are selected the researcher and assistant will write down the numbers of the pictures that were chosen in order to use them in a slide show presentation after consents are returned.
- Students will be given their photographs to keep and share with their parents.
- Congratulate and thank students for their participation in the photovoice project.
- Provide each student with a new disposable camera and photo album.

Appendix L

Human Ethics Research Approval



Office of
Research Services

4401 University Drive
Lethbridge, Alberta, Canada
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Phone 403.329.2431
Fax 403.382.7185

www.uleth.ca/rch

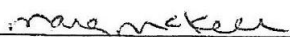
CERTIFICATE OF HUMAN SUBJECT RESEARCH
University of Lethbridge
Human Subject Research Committee

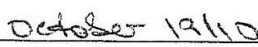
PRINCIPAL INVESTIGATOR: Kimberlee Brooks

ADDRESS: Faculty of Health Sciences
University of Lethbridge
4401 University Drive
Lethbridge, AB
T1K 3M4

PROJECT TITLE: Students and Policy: Perspectives of School Nutrition
and Physical Activity Environments
(Protocol #954)

The Human Subject Research Committee, having reviewed the above-named proposal on matters relating to the ethics of human subject research, approves the procedures proposed and certifies that the treatment of human subjects will be in accordance with the Tri-Council Policy Statement, and University policy.


Human Subject Research Committee


Date

Appendix M



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Phone 403.329.2699
Fax 403.329.2668

<http://www.uleth.ca/hlsc>

Student perspectives of nutrition and physical activity at school

Date

Dear Parent/Guardian(s),

I am a graduate student from the University of Lethbridge. I am doing research to understand student views on healthy eating and physical activity environments at their school. I wish to invite your child to participate in this study. Student views are important to implement healthy programs and policies. This research will add to the knowledge of how schools can support students to build healthy habits.

Your child's participation in this research will include a 50 minute focus group session (insert date - a time that has been negotiated with the school). I would like to find out their views on eating healthy and being active at school. The focus group will be audio taped.

Your child will also be invited to take part in a photograph activity called photovoice. Photovoice is a research method in which students take pictures of how they view their world. Students who express interest will enter their name in to a box. Two names will be picked from the box to participate. Students will be asked to take pictures at school that show how easy or hard it is to eat healthy or be active. There will be three meetings over the lunch hour that will take 30 minutes, 10 minutes and 30 minutes respectively. A separate letter will be sent home to let you know if your child was selected to take part in this activity.

Please read the attached forms for more details about each activity. If you agree that your child may join in the study, please sign the consent form. Participation is voluntary and your child may withdraw at any time, for any reason, without consequence.

The Human Subject Research Committee of the University of Lethbridge has approved this project. They make sure that research is done with the highest ethical standards. If you have any questions please contact me or my thesis supervisors. If you have any other questions regarding your child's rights as a participant in this research, you may also contact the Office of Research Services at the University of Lethbridge at 403-329-2747 or research.services@uleth.ca.

Researcher	Supervisor	Supervisor
Kimberlee Brooks	Dr. David Gregory	Dr. Jean Harrowing
403.528.0899	403.329.2432	403.394.3944
Kimberlee.brooks@uleth.ca	David.gregory@uleth.ca	harrjn@uleth.ca

Sincerely,

Kimberlee Brooks, Registered Dietitian, Bachelor of Human Ecology
Masters of Science Student, Faculty of Health Sciences
University of Lethbridge

Appendix N



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<http://www.uleth.ca/hlsc>

Parent Information Form - Focus Group Students' perspectives of nutrition and physical activity at school

Purpose: A focus group talk to understand students' perspectives on healthy eating and physical activity environments at their school. This research may contribute to understanding how schools can support children to build healthy habits. I wish to invite your child to participate in this study.

Participation: In order for your child to take part I ask you to read and sign this consent form. I will only invite your child to take part in the focus group session if you provide consent. There is minimal risk or discomfort related to this research. This focus group will occur during (Insert date and time – as mutually agreed upon by teacher and school). Your child will not miss curricular content by taking part. Your child's participation is voluntary. Your child will be given a gift certificate for I-tunes or the mall at the end of the focus group. Your child may withdraw from the focus group at any time for any reason. If your child does this, all information from him/her will be destroyed. There will be no penalty for this and your child will still receive a gift certificate.

Confidentiality: I ask for your child's name so that I know who has consent to take part in the class talk. I will not use your child's name in any findings. A false name will be assigned to each student therefore no names will appear on the focus group transcripts. This data will be kept in a locked filing cabinet in my office. Only the research assistant (sworn to confidentiality), my thesis supervisors, and I will have access to this data. All information will be destroyed after 5 years time.

Results: The results will be presented to Medicine Hat School District #76 School Board and Administration. A one page summary of findings will be shared with all students and families who state that they would like to receive a copy.

If you have any questions please contact me or my thesis supervisors. If you have any other questions regarding your child's rights as a participant in this research, you may also contact the Office of Research Services at the University of Lethbridge at 403-329-2747 or research.services@uleth.ca.

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Appendix P



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Parent Information Form –Photovoice/Youth Photographer Students’ perspectives of nutrition and physical activity at school

Purpose: Photovoice is a research method where people are given a camera to record their real life. Students will be asked to take pictures at school that show how easy or hard it is to make healthy eating and physical activity choices. I wish to invite your child to participate in this study.

If your child submits their name and is selected to participate in photovoice, he/she will be given a disposable camera and note pad at no cost. The pictures your child takes will be used to help inform schools about healthy school environments. It will also help identify barriers to healthy eating and being active at school.

Participation: Your child will be asked to attend three meetings. The first meeting is a training session. This session will occur during school hours and will be 30 minutes long. We will talk about how to use the camera and take pictures. We will brainstorm about what types of things students can take pictures of around the school. Students will be asked to take pictures without identifying any other students in them.

The second meeting will occur one week later during school hours. Your child will meet with me to turn in his/her camera to be developed. We will also discuss the pictures that were taken (~5 minutes per youth photographer).

At the third meeting your child will receive a copy of his/her pictures. This meeting will occur during school hours at the school and will require about 30 minutes. All students who took pictures will pick out one or two key pictures that they like the best or mean the most. They will share their story of what the picture represents. Your child will receive a disposable camera and photo album at the third meeting to keep for their own personal use.

Your child may withdraw from the study at any time for any reason. If your child does this, all photos and information from him/her will be destroyed. There will be no penalty for this and your child will still receive a disposable camera and photo album for their own use.

Results: Photos and their stories as well as the focus group data will be put into a PowerPoint presentation. Findings will be shared with Medicine Hat School District #76 School Board, Principals and the Council of Parent Councils. The findings will identify how schools are supporting students to eat healthy and be active. A one page summary of findings will be shared with all students and families who state that they would like to receive a copy.

Confidentiality: Your child's name will not be used in any of the results or sharing of findings. The cameras and pictures will be coded by number rather than your child's name. Only the research assistant (sworn to confidentiality) and I will know the coded number that matches the name of the youth photographer. However, your child's identity may become known to other students and teachers from the school because he/she will be taking pictures within the context of the school. This is a low risk activity because it involves the student's perspective on his/her environments.

If you have any questions please contact me or my thesis supervisors. If you have any other questions regarding your child's rights as a participant in this research, you may also contact the Office of Research Services at the University of Lethbridge at 403-329-2747 or research.services@uleth.ca.

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Appendix Q



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**Parent Consent Form – Focus Group and Photovoice Participation
Students’ perspectives of nutrition and physical activity at school**

I have read the above information about focus groups and photovoice.

I understand that my child’s participation is voluntary. He/she may withdraw at any time.

I understand that the focus group discussion and photovoice sessions will be audio taped.

If chosen to participate in photovoice I give permission for the pictures submitted by my child to be published or disseminated. Pictures will be used as part of the project to promote healthy school environments.

There is no financial cost to participate. Cameras and development of pictures will be provided by the researcher

I understand that my child’s name will not be used in any study findings or attached to any pictures.

I give my consent for my child to take part in this research.

Yes No

My child’s name:

First: _____ Last: _____

Parent’s name (please print):

First: _____ Last: _____

Parents signature: _____ Date: _____

I am interested in receiving a one page summary of findings regarding this research

Yes No If yes please provide email address*:

STUDENTS AND POLICY

Or mailing
address _____

*Please note that your email or address will not be distributed and will only be used to disseminate a one page summary of findings.

Appendix R

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Focus Group Student Assent

You are being invited to take part in a research study on students' views of school nutrition and physical activity at school.

In this discussion, we will ask you questions about how easy or how hard it is to eat healthy and be active at school. We will also be asking you for ideas on what would help you to eat better and be more active at school. Your answers will help us learn more about how schools can better support the health of children. This group talk will take about 50 minutes.

Your answers will be kept private and your name will not be identified to protect your privacy. Your participation is voluntary. You may withdraw from the talk at any time for any reason.

There are no right or wrong answers in this group. Different views are important. What is said in the group stays in the group. Everyone will have the chance to share ideas and comments. We will be taking notes on flip chart paper and audio taping this group talk so we can be sure that we don't miss anyone's input. Everyone's ideas are important.

In appreciation for your time you will receive a gift certificate for iTunes or the mall.

If you have any questions please contact me or my thesis supervisors. If you have any other questions regarding your rights as a participant in this research, you may also contact the Office of Research Services at the University of Lethbridge at 403-329-2747 or research.services@uleth.ca.

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Kimberlee Brooks	Dr. David Gregory	Dr. Jean Harrowing
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STUDENTS AND POLICY

I understand the information given to me about the **focus group discussion**.

I voluntarily agree to take part in this talk.

YES NO

Your signature: _____

Date: _____

Appendix S



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Youth Photographers Assent to Participate in Photograph Activity (Photovoice)

You are being invited to take part in a photography activity called Photovoice. You will get a disposable camera to take pictures at school that show how easy or hard it is to make healthy eating and physical activity choices. You will also receive a notepad to write notes about the pictures you take. Your pictures will be used to help schools understand how they can help you to eat well and be active.

You will attend 3 meetings. The first meeting is a training session with other youth photographers from your school. The training session will occur during school hours and will be about 30 minutes long. At the training session we will discuss how to use the camera and how to take pictures. We will talk about what types of things you can photograph around the school.

The second meeting will occur one week later during school hours. You will meet with me, Kimberlee, the researcher, for 5 minutes to turn in your cameras. You will describe the pictures you took.

At the third meeting, I will meet with all the youth photographers from your school. I will provide everyone with a copy of their pictures to keep. This meeting will occur during school hours and will take 30 minutes. You will be asked to pick one or two pictures that you like the best. You will share your story about the picture to the group. In appreciation for your time you will receive a disposable camera and photo album for your own personal use.

Your photo and story will be used in a PowerPoint presentation to share with teachers and principals. The findings will help inform how schools are supporting students to eat healthy and be active. A one page summary of findings will be shared with all students and families who indicate that they would like to receive a copy.

If you have any questions please contact me or my thesis supervisors. If you have any other questions regarding your rights as a participant in this research, you may also contact the Office of Research Services at the University of Lethbridge at 403-329-2747 or research.services@uleth.ca.

Researcher	Supervisor	Supervisor
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Youth Photographers Assent to Participate in Photograph Activity (Photovoice)

My participation as a photographer is voluntary. I may withdraw from participating at any time, for any reason, without penalty.

There is no cost to take part. The cameras and development of pictures will be provided by the researcher.

My information will be kept private. My name will not be used on any of the photos or stories.

I give permission for my pictures to be published or shared with others. My pictures will be used as a part of the project to promote healthy school environments.

I understand the above information about participating in this project.

I agree to take part in the project as a youth photographer

Student Name (Please Print) First: _____ Last: _____

Student Signature: _____ Date: _____

Appendix T



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Research Project: Students and Policy: Perspectives of the School Nutrition and Physical Activity Environment
University of Lethbridge
Faculty of Health Sciences
Principal Investigator: Kimberlee Brooks

CONFIDENTIALITY AGREEMENT

As a research assistant hired by Kimberlee Brooks, I understand that I may have access to confidential information about study participants. By signing this statement, I am indicating my understanding of my responsibilities to maintain confidentiality and agree to the following:

- I agree not to divulge, publish, or otherwise make known to unauthorized persons or to the public any information obtained in the course of this research project that could identify the persons who participated in the study.
- I understand that all information about study participants obtained or accessed by me in the course of my work is confidential. I agree not to divulge or otherwise make known to unauthorized persons any of this information, unless specifically authorized to do so by a supervisor acting in response to applicable law or court order, or public health or clinical need.
- I understand that I am not to read information and records concerning study participants, or any other confidential documents, nor ask questions of study participants for my own personal information but only to the extent and for the purpose of performing my assigned duties on this research project.
- I understand that a breach of confidentiality may be grounds for disciplinary action and may include termination of employment.
- I agree to notify my supervisor immediately should I become aware of an actual breach of confidentiality or a situation which could potentially result in a breach, whether this be on my part or on the part of another person.

STUDENTS AND POLICY

Signature _____

Date _____

Printed Name _____