

School Beverage Contracts & Childhood Obesity: A Case Study

by

Alissa Raphael

A thesis
presented to the University of Waterloo
in fulfillment of the
thesis requirement for the degree of
Master of Science
in
Health Studies and Gerontology

Waterloo, Ontario, Canada, 2006

© Alissa Raphael 2006

AUTHOR'S DECLARATION

I hereby declare that I am the sole author of this thesis. This a true copy of the thesis, including any final required revisions, as accepted by my examiners.

I understand that my thesis may be made electronically available to the public.

ABSTRACT

The objective of this study was to describe the issue of school beverage contracts and childhood obesity from the perspectives of a broad group of stakeholders. Specifically, the perspectives concerning contracts in two Ontario school boards in Canada's 2004-2006 sociopolitical environment were studied. This qualitative study utilized a case study approach to capture the opinions of many stakeholders. Open ended interviews with individuals representing twelve stakeholder groups resulted in five major interrelated themes: "Awareness & Knowledge," "Influences of Obesity & Co-morbidities," "Perceived Value of Beverage Contracts," "Accountability" and "Future Directions (For Shifting Norms)." Stakeholders suggested the use of multidisciplinary and comprehensive strategies to promote healthy choices in the school environment, which is thought to have positive implications for childhood obesity. This study is unique in that it looks at a common issue from a number of different perspectives and reports all viewpoints in an unbiased and clear way showing the similarities and differences of opinions. Information from this study has potential importance in informing future directions to prevent and reduce childhood obesity, especially as this issue relates to the creation of school beverage contracts.

ACKNOWLEDGEMENTS

I would like to dedicate this thesis to my family. Thank you for all your support, guidance and unconditional love throughout my long and still continuing post secondary education. Mom and Dad, thanks for being there when I needed to talk and providing encouragement at all hours of the night. David, congratulations on the completion of your Masters. Steven, I am so proud of your accomplishments and look forward to challenging you on your legal knowledge. Michael, I can't believe you are in university and how smart you are!! Eden, thank you for always keeping me organized! I love you all so much!

I would especially like to acknowledge my thesis supervisor, Dr. Rhona Hanning. You have no idea how much your constant support and encouragement have meant to me. I value your knowledge, your guidance and your incredible ability to really listen to students and work with them to meet their goals.

A big thank you to all my friends who have provided me with so much support! To my friends at Waterloo – your support and encouragement were instrumental to my completion of this degree. To my “new” friend Irene Lambraki – I am so grateful for all of your help, and guidance through the final stages of this thesis. You kept me cheerful and positive when I thought my analysis was never going to end. You truly are a Qualitative Queen.

A final thank you goes to Dr. John Frank and Erica Diruggiero of CIHR and to Jack Dodds. Your continued support and encouragement throughout this project was very much appreciated.

TABLE OF CONTENTS

INTRODUCTION	1
CHAPTER 1: PRESENTING SITUATION (CASE STUDY)	2
<i>Contract Details</i>	3
<i>J. Dodd's View of the Process</i>	5
<i>N. Dodd's View of the Process</i>	6
<i>School Board Members' Views of Beverage Contracts</i>	7
CHAPTER 2: LITERATURE REVIEW	10
2.1 <i>Diets of Canadian Children</i>	10
2.1.1 <i>Obesity in Canada and the United States</i>	10
2.1.2 <i>Definition of Obesity</i>	11
2.2 <i>Reasons for Weight Gain</i>	12
2.3 <i>Concerns with Soft Drinks</i>	14
2.4 <i>Costs of Sugar Added Beverage Consumption</i>	15
2.5 <i>What is Sugar?</i>	15
2.5.1 <i>Added Sugars vs. Natural Sugars</i>	16
2.5.2 <i>Soft Drinks as a Source of Added Sugars</i>	17
2.6 <i>Sugar Consumption and Energy Intake</i>	18
2.7 <i>Sugar and Nutrients within the Diet</i>	22
2.7.1 <i>Increased consumption of added sugars</i>	22
2.8 <i>Health Consequences of High Soda Consumption in Children</i>	25
2.8.1 <i>Osteoporosis & Bone Health</i>	26
2.9 <i>Adverse Effects of Caffeine Consumption</i>	29
2.9.1 <i>Dental Caries</i>	29
2.10 <i>Children's Beverage Consumption Facts & Recent Trends</i>	30
2.10.1 <i>Where are Beverages Purchased?</i>	30
2.10.2 <i>Changes in the Types of Beverages Consumed</i>	30
2.10.3 <i>Change in the Amount/Quantity of Beverages consumed</i>	32
2.11 <i>Beverage Consumption Trends</i>	33
2.11.1 <i>Trends Based on Age</i>	33
2.11.2 <i>Trends Based on Gender</i>	34
2.12 <i>Food in Schools</i>	34
2.12.1 <i>Importance of a Healthy School Environment</i>	34

2.12.2 Mixed Messages with Junk Food.....	36
2.12.3 Policy 135	37
2.12.4 Access to Foods	39
2.12.5 Social Modeling.....	40
2.13 <i>Commercialization in Schools</i>	41
2.13.1 Forms of Commercialization within Schools	41
2.13.2 “Pouring Rights” Contracts.....	43
2.14 <i>Controversy Surrounding Exclusive Beverage Contracts</i>	46
2.14.1 Importance of Beverage Contracts within Schools.....	46
2.14.2 Detrimental Effects of the Contract	47
2.14.2.1 Health.....	47
2.14.2.2 Advertising and Promotion of Beverage Products in Schools.....	47
2.14.2.3 Loss of School Control	49
2.14.2.4 Undemocratic Process.....	50
2.15 <i>Municipal FOI and Protection of Privacy Act</i>	51
2.15.1 How to Submit an FOI Request and Appeal to the Information & Privacy Commissioner of Ontario	52
2.16 <i>Vending Policies of the Ontario Secondary School Teachers Federation</i>	53
CHAPTER 3: STUDY RATIONALE, GOAL AND OBJECTIVES	54
3.1 <i>Study Rationale</i>	54
3.2 <i>Goal of the Study</i>	54
3.3 <i>Objectives of the Study</i>	54
CHAPTER 4: METHODOLOGY	56
4.1 <i>Methods</i>	56
4.2 <i>Qualitative Approach & Rationale</i>	56
4.2.1 Rationale for Qualitative Approach Exclusively	57
4.3 <i>Case Study</i>	58
4.4 <i>Study Sample</i>	58
4.4.1 Sample Recruitment.....	58
4.4.2 Sample Size.....	60
4.5 <i>Data Collection Procedures</i>	60
4.5.1 Documentation Review.....	60
4.5.2 In-Depth (Open-Ended) Interviewing.....	61
4.6 <i>Data Collection Tool</i>	62

4.7 Audio taping of the Interview.....	63
4.8 Establishing Trustworthiness of Interview Data.....	63
4.8.1 Credibility (Internal Validity)	63
4.8.2 Dependability (Reliability)	65
4.8.3 Confirmability (Objectivity)	65
4.9 Data Analysis	66
4.9.1 Coding of Qualitative Data	66
4.9.1.1 Open Coding	67
4.9.1.2 Axial Coding	68
4.9.1.3 Selective Coding	69
CHAPTER 5: RESULTS	70
5.1 Profile of Participants.....	70
5.2 Interview Themes	71
5.3 AWARENESS & KNOWLEDGE.....	75
5.3.1 What Is Healthy?.....	76
5.3.2 How Are Children Making Food Choices?	76
5.3.3 Unknowns Relating to Beverage School Contracts/ Vending in the School.....	77
5.3.3.1 Entering Into Contracts	77
5.3.3.2 Advertising.....	77
5.3.3.3 Contents of Beverages & Snacks Offered In Vending Contracts	78
5.3.4 Health Promoting Activities at School	79
5.3.4.1 Child’s Consumption Patterns At School	80
5.4 INFLUENCES OF OBESITY AND CO-MORBIDITIES	80
5.4.1 Social Influences	81
5.4.1.1 Relationship between Social Influences; At Home and School.....	81
5.4.1.2 Importance of Parental Modeling of Healthy Behaviour.....	82
5.4.1.3 Barriers to Healthy Eating	82
5.4.1.3.1 Lack of Knowledge/Awareness	82
5.4.1.3.2 Socioeconomics of Family.....	83
5.4.1.3.3 Modeling of Healthy Behaviour in School	84
5.4.2 Environmental Influences	85
5.4.2.1 Environmental Conditioning At School.....	86
5.4.2.2 Vending Machines	86
5.4.2.3 Other Food Sources Available at School.....	89
5.4.2.3.1 Cafeterias, Fundraising & Classroom Rewards	89
5.4.2.3.2 Classroom Rewards	89
5.4.2.3.3 Advertising at School (& Other Corporate Influences)	90

5.4.2.3.4 Community Environment (Outside of School & Home)	93
5.4.3 Political Surrounding Influences.....	94
5.4.3.1 School Curriculum	94
5.4.3.2 Policy 135	95
5.4.3.3 Funding	98
5.4.3.4 Democratic Rights	99
5.4.4 Norms Influence Childhood Obesity	100
<i>5.5 PERCEIVED VALUE OF BEVERAGE CONTRACTS</i>	101
5.5.1 Advantages of Contracts	102
5.5.1.1 Increased Funds Are A Primary Motivation to Enter into Beverage Contracts	102
5.5.1.2 Beverage Contracts Fill a Need	105
5.5.1.2.1 Drinking Purposes/ Keep Students on Campus	105
5.5.1.3 Vending Contracts As A Public Topic of Conversation.....	106
5.5.1.4 Traceability	108
5.5.2 Disadvantages of Contracts.....	109
5.5.2.1 Contract Transparency	110
5.5.3 Positive Value of Beverage Contract after Contract Modifications	113
5.5.4 Paradoxes	114
5.5.4.1 Ethical Behaviour vs. Child Exploitation	115
5.5.4.1.1 Taking Students Money	115
5.5.4.1.2 Advertising in the School.....	116
5.5.4.1.3 Unhealthy Food Products As A Bribe	117
5.5.4.2 Health Promotion vs. Money Matters.....	118
5.5.4.2.1 Mixed Messages at School.....	121
5.5.4.2.2 Classroom Rewards	123
<i>5.6 ACCOUNTABILITY</i>	124
5.6.1 Schools & School Boards	124
5.6.2 Joint Accountability: Schools & Parents	127
5.6.3 Government.....	128
5.6.4 Industry’s Accountability is Linked to Others (Government & School).....	130
<i>5.7 FUTURE DIRECTIONS</i>	131
5.7.1 Need to shift norms	131
5.7.2 Information Required to Shift Norms	132

5.7.2.1 More Research Needed	133
5.7.2.2 Value of Education	134
5.7.3 Barriers to Obtaining and Using Information Required (To Shift Norms).....	135
5.7.3.1 Barriers to Education At School	135
5.7.4 Vending Contracts As A Teaching Tool.....	138
5.7.5 Multidisciplinary & Comprehensive Approaches	139
5.7.5.1 Government.....	140
5.7.5.1.1 Policy	140
5.7.5.1.2 Curriculum	143
5.7.5.2 Industry	144
5.7.5.3 Schools/ School Boards	145
5.7.5.3.1 Fundraising	146
5.7.5.3.2 Formation of Vending Contracts	147
5.7.6 Importance of a Healthy School Environment.....	148
5.7.7 Tobacco Control Best Practices as a Solution to Childhood Obesity	149
CHAPTER 6: DISCUSSION, SUMMARY & FUTURE DIRECTIONS	151
6.1 Discussion	151
6.2 Limitations	156
6.3 Summary & Future Directions.....	157
REFERENCES	158

LIST OF TABLES

Table 1: Number of Participants Interview by Stakeholder Group.....	72
Table 2: Familiarity of Stakeholders with School Vending Contracts & Childhood Obesity.....	73

INTRODUCTION

Recent Canadian trends indicate a rise in childhood obesity and a decrease in total nutrients consumed by same aged children. Sugar sweetened beverages have been implicated as a major factor contributing to such trends, adding a source of “empty calories” to the diet of children and adolescents and displacing other beverage choices.

The school has the difficult task of both teaching children the skills necessary to lead healthier lives, while at the same time providing a healthy environment in which children can practice these skills. For this reason, the decision of the York Region District School Board (YRDSB) and the Peel Region District School Board (PDSB) to enter into exclusive beverage contracts with the Pepsi Bottling Group (PBG) and the Coca-Coca Bottling Company (CCB), respectively, in 2000, as exposed by the student, Nicholas Dodds three years later, received tremendous media attention. The varying perspectives from a number of stakeholders who see both strengths and weaknesses that can occur from these contracts have never been explored. This qualitative study utilizing a case study approach was the ideal way to capture the opinions of all the stakeholders.

The Public Health Agency of Canada requested assistance from the Department of Health Studies and Gerontology in looking at the broad context of school beverage contracts and their health implications. Not only does this study serve to inform their needs, but also acts as the first stage of a two part study, providing the detailed qualitative groundwork for a large scale quantitative evaluation of student beverage consumption that occurred simultaneously.

CHAPTER 1: PRESENTING SITUATION (CASE STUDY)

Unable to get any information about the exclusivity of Pepsi vending machines for an article in his online magazine, Nicholas Dodds wanted some answers. In 2001 Nicholas Dodds who at the time was a Grade 8 student, with the assistance of his father Jack Dodds, made a freedom of information request to obtain a copy of the beverage vending contract between Pepsi and the York Region District School board, his local school board. Soon after, Jack Dodds made a similar request seeking the beverage vending contract between Coca Cola and the Peel District School board. When the school boards did not provide them with full copies of the contract, the Dodds filed appeals to the Information and Privacy Commissioner of Ontario (IFPPC) to receive the complete documents. It was the success of Ubysey (the University of British Columbia student newspaper) in getting the university's Coke contract made public after an appeal to the BC Information and Privacy Commissioner that gave the Dodds the idea of going through a similar process in Ontario.

In early November 2003 the appeal was successful and the school boards were ordered by the IFPCC to make available the full contracts to Nicholas and Jack Dodds by the end of the month. Before this time, the contracts were only made available to the school board and the beverage company, and any announcements concerning the contract were subjected to the beverage company's approval. The IFPCC process was completed without any external help from professionals (i.e. lawyers). Though the process was long, the Dodds did experience some support along the way. Of particular importance when seeking the beverage contracts was knowledge that similar contracts had recently been released within the United States.

The Dodds' success resulted in much media attention, especially for Nicholas Dodds who was only 13 years old when filing the Freedom of Information (FOI) request. Nicholas had many radio and television interviews including one with then Ontario Minister of Education Gerard Kennedy and many newspaper articles reported the Dodds' accomplishment. The contracts revealed similar "exclusive supplier" arrangements and funding bonuses for school boards if schools reached sale targets; providing a higher financial payout for higher sales and thus consumption of vended drinks. Of particular concern to the Dodds' were the confidentiality clauses in each of the contracts which forbid school boards from speaking about the contract or even acknowledging the contracts' existence without prior permission from the beverage company.

Contract Details

Pepsi Bottling Group (Canada) Co. and YRDSB

The contract is a five year agreement that provides Pepsi Bottling Group (Canada) Co. with the "exclusive right to sell and distribute soft drinks and other beverage products" (p.1) for all facilities owned or operated by the YRDSB. For allowing PBG to be the exclusive provider the board receives a yearly "Exclusive Beverage Rights Fee" of \$138,000.00. The contract also names PBG as the exclusive provider of snack vending machines. All secondary schools in the YRDSB are to participate in this contract. Elementary schools, however, can choose to opt out and not provide vending services at the school. Monetary incentives are provided by PBG (to the elementary school) for each beverage or snack vending machine placed within elementary schools.

The contract also includes a "Volume Incentive Program" where "bonus" payments are made to the board upon schools meeting a certain (pre-determined) level of sales. This

contract component was highly criticized by the public because it was considered to be “selling the student” and promoting unhealthy products to raise extra school funds.

Of primary concern to Jack and Nicholas Dodds is the confidentiality clause in the contract. Contract terms are “not to be disclosed in any manner whatsoever...unless required to do so by force of law” (p.14). The board must obtain permission from PBG prior to discussing any terms of the contract – even with students, their parents or other members of the school community.

Coca-Cola Bottling Company (CCB) and PDSB

This ten year contract names CCB as the “sole and exclusive supplier of soft drink beverages for sale or distribution in and about the premises and concessions” (p.3) in the PDSB. The contract also includes a “Minimum Volume Commitment;” this indicates a minimum volume of beverages that must be purchased during the term of the contract. Schools are encouraged to promote beverage sales because a “Performance Bonus” valued at \$10,000 is provided to each secondary school that participates in the contract for at least 12 months.

Secondary schools can choose from one of two funding options: a “Commission Option” or a “Non-Commission Option.” The first option provides schools with a quarterly commission of 57% of the net revenue of vending machine sales. Under this option, bonuses are provided to schools after meeting a pre-determined sales target. A “Commissioner Vending Placement Bonus” is also provided for each vending machine (up to a certain maximum) placed in a school.

The “Non-Commission Option” also provides a “Vending Machine Placement Bonus” which is based upon both the number of machines and the time when the machine

was placed in the school. Bonuses are also provided for “Cafeteria Points of Availability”. Additional funds are also provided after a “Full Execution Bonus” has been met. Elementary and middle schools are also provided with similar funding options.

Similar to the YRDSB contract with PBG, contract terms are to be kept confidential and not disclosed because disclosure “could reasonably be expected to harm significantly the competitive position and/ or interfere significantly with the negotiating position of CCB” (p.23). PDSB must obtain permission from CCB prior to disclosing any parts of the contract (even as required by law) to enable CCB to challenge such disclosure. Any other announcements made regarding the contract (i.e. press releases) must first receive written approval from CCB.

J. Dodd’s View of the Process

Though many people expressed a lot of verbal support, Jack Dodds got very little support from the school boards. It was the Municipal Freedom of Information and Protection of Privacy Act (MFIPPA) and the mechanisms set up by the Privacy Commissioner under that Act that ultimately proved to be the most useful in making the contracts public. His continued investigation of the contracts was due to his belief that the contracts should be readily available for viewing upon request. “I am disturbed by the fact there were two rulings by the Privacy Commissioner which pretty much said the contract ought to be public and yet they continued to be secret.”

Control of schools is supposed to come from elected school trustees (members of the board). It is, however, impossible for the trustees to make decisions that are representative of the community members (who voted them on to the board) if information such as the vending Request for Proposals and the contracts are kept hidden from the public at large.

This lack of information prevents the public from forming any educated opinion at all. While acknowledging there are health issues that result from such contracts Jack Dodd's main concern arises with the large scale commercialization of schools that results from the contracts.

N. Dodd's View of the Process

Originally Nicholas' main interest in the contracts was not the vending machines or their contents, but rather the beverage contracts themselves and their relation to student rights. He was particularly interested in the contract clauses which prevented the school board from disclosing contract details. He felt it was unethical for school boards and schools which are publicly funded institutions to keep the contracts secret from students. "Even though you have many people who have vested interests in the school system and you have many people who have ideas about how the school system should operate, the people who benefit or conversely do not benefit the most from what goes on in a school are, in fact, the students and I believe the responsibility towards the students should trump all else." Until corporations can provide proof that releasing contract details hinders business, there is no reason to keep the contracts private.

It wasn't until the school board went over Nicholas' head and contacted his father Jack Dodds that Mr. Dodds publicly became involved. The school board asked Jack via a letter addressed only to him to stop his son from making information requests. Up until that time Jack was assisting his son in making the formal request to release the documents, but had been silent as to his involvement. "The school board was going over my head to my parents and expecting them to ask me to stop when, in fact, I had been doing nothing illegal, nothing wrong, my motivations were for the betterment of my fellow students' environment."

Although appealing to the Information and Privacy Commissioner was a long process, Nicholas Dodds found it to be a rewarding and successful one for him and his father. All legal and administrative fees were covered for the Freedom of Information requests, both the initial request and the appeal. “It is slow, it’s very slow, again I think it took two years or something like that; however, considering what you’re getting I’m willing to wait two years. It’s a lot better than hiring a high paid lawyer.”

School Board Members’ Views of Beverage Contracts

Bill Crothers, York Region District School Board (YRDSB) Chair

Beverage contract secrecy is due entirely to the vendors who want to protect product price. A degree of secrecy allows vendors to remain competitive in future transactions. Keeping the contract secret is “irrelevant” to the school board. Their primary concern is obtaining the best return from the contract “from our perspective we don’t care what or how much of the contract becomes public knowledge.”

Beverage contract negotiations in the YRDSB occur between the Purchasing Department and the vendor via a Request for Proposal Process. Bill Crothers felt that neither teachers nor students or community members have a role in contract decision making because “for them it would be strictly an emotional thing and there’s no value.” The Director of Education must be “comfortable” with the contract and sign it before the contract can pass. Beverage contracts are considered akin to any other product contract at the school. Similar to other contracts, beverage contracts are not reviewed by trustees. Board trustee members are only concerned with whether trustee created policies are complied with. The board however, does want to encourage the development of healthy, active living. It is the responsibility of the Superintendent of Finance and the Director of Education to see that the purchasing

department follows policies set by the school board. The trustees do not provide approval of all decisions and “don’t second guess” the purchasing department.

Concerns that were discussed prior to contract formation at the YRDSB included consistency of revenue, assurance of revenue and maximization of revenue. Health concerns were not discussed prior to contract creation. Upon further questioning about dietary concerns, the stakeholder mentioned that dietary concerns “would not have been a major issue” because of the ability of large companies like Coca Cola or Pepsi to provide a range of “non offensive” drinks.

Janet McDougald, Peel District School Board (PDSB) Chair

The beverage contract is “clearly a business deal” which is contrasted from corporate partnerships which are reciprocal relationships that benefit both the industry and the school by enhancing a student’s learning. The contract was originally signed because all the schools already had pre-existing contracts with various beverage providers. A board wide contract was a way to centralize this activity and thus maximize contract revenue. Revenues generated within a particular school stay within those schools. The revenue does not replace government funding, it creates additional revenue.

The process of beverage contract formation occurs after the board of trustees agrees that schools should pursue a vending contract. Business and administrative staff from the central board office hire a committee to create the request for proposals, review them and choose the winning bid. The final contract goes to the school board for their consideration and approval. While no dietitians are consulted during contract formation, this is seen to be the responsibility of corporations submitting contract tenders.

Each individual school is able to choose whether or not they want vending machines – a “school decision” involves more than school staff, administration and students.

According to the stakeholder “this is totally voluntary and, as well, they make the decisions on where the money goes...how many machines are within the schools, what is in those machines and how often the students have access to those machines.” The stakeholder interviewed understands the concerns surrounding advertising and marketing to the student within the school, but rationalizes this by the fact that schools were already participating in their own beverage contracts.

CHAPTER 2: LITERATURE REVIEW

The following literature review combines information from peer reviewed journals, government and non-governmental websites, manuals and reports to describe the sociopolitical environment and information on childhood obesity and school beverage contracts available in Canada in 2000, when the Dodds' Freedom of Information request regarding school beverage contracts took place, and subsequently to 2006. (This addresses Study Objective # 1 which is further discussed in section 3.3.)

2.1 Diets of Canadian Children

2.1.1 Obesity in Canada and the United States

Childhood obesity has become a major issue over the past few decades and is at the forefront of public health concern regarding the younger population. Over the past thirty years, the prevalence of childhood obesity within the United States has more than doubled for children 2 to 5 years of age and adolescents 12 to 19 years old (Committee of Prevention of Obesity in Children and Youth, 2005). Obesity has struck children 6 to 11 years of age particularly hard, tripling within this age group (Committee of Prevention of Obesity in Children and Youth, 2005). Similar trends exist in Canada where 26% percent of children (aged 6 to 11) and 29% of adolescents (aged 12 to 17) were overweight or obese in 2004, up from 13% and 14% respectively in 1978-79. These rates indicate at least a doubling of overweight/obesity for both age groups, with a tripling of the adolescent obesity rate from 3% to 9% (Shields, 2006). In total the percentage of boys and girls (aged 2 to 17) in 2004 considered to be overweight was 17.9% and 18.3% respectively, while same aged boys and girls considered obese reached 9.1% and 7.2 percent respectively (Shields, 2006).

Obesity in itself can lead to societal marginalization (Strauss & Pollack, 2003) stigmatization and increased health care costs (Committee of Prevention of Obesity in Children and Youth, 2005). Obese girls when compared to average weight counterparts were 1.49 times more likely to report emotional problems, and 1.73 times more likely to report suicide attempts within the past year. Obese boys were 1.38 times more likely to report emotional problems and 2.18 times more likely to quit school in the future (Faulkner et al. 2001). Just as important, however, are the numerous chronic conditions often resulting from obesity. Childhood obesity has been associated with type II diabetes, a disease found predominantly in adults in the past (Klein et al., 2004; Gregg et al., 2005), cardiovascular diseases and high blood pressure (Gregg et al., 2005). A large study of over 91,000 women showed that women consuming one or more sugar sweetened soft drinks a day were a 1.98 (Relative Risk) more likely to be at risk of type two diabetes compared to women who consumed less than one such drink per month (Schulze et al., 2004). Such conditions may not only remain throughout a child's entire life, but also worsen as the affected individual ages.

2.1.2 Definition of Obesity

A child is considered obese when they reach a body mass index (BMI) that is equal to or greater than the 95th percentile of the age and gender specific BMI charts provided by the Centers for Disease Control and Prevention. A child is considered to be at risk for being overweight when they reach a BMI greater than or equal to the 85th percentile, but less than the 95th percentile (CDC, 2005). From 1973 to 1994 the percentage of U.S. children at risk for being overweight doubled, while the percentage of children considered obese increased from 4% to 20% (Nicklas et al., 2003). American nationally representative data from the National Health and Nutrition Examination Survey (NHANES) indicates an increasing

prevalence of overweight children from the NHANES III (1988-1994) to the NHANES IV (1999-2000). There was a 15% increase in the number of children aged 16 to 19 years old who were overweight, and a 10% increase in children between the ages of 2 to 5 years. The increases observed between these two surveys are similar to the changes witnessed between the NHANES II (1976-1980) and NHANES III (1988-1994) (Ogden et al., 2002).

Canadian data report that BMI has increased at an average rate of 0.1 kg/m² per year since 1981, a trend that has been witnessed for both genders and most age groups. From 1981 to 1996 the prevalence of boys (7-13 years) classified as overweight (BMI >85th percentile) increased from 15% to 35.4%, while the prevalence of same aged girls classified as overweight also increased from 15% to 29.2% (Tremblay & Willms, 2000; Tremblay & Willms, 2001). A study by Guo & Chumlea (1999) found that the predictability of overweight at 35 years of age (representing adulthood) was excellent at age 18 (representing post puberty), good at age 13 (representing puberty) years and moderate for kids less than age 13 (representing early and late childhood). The study looking at a group of 35 year olds found that males and females in the (high) risk categories had higher BMI values in childhood compared to participants in the low risk group.

2.2 Reasons for Weight Gain

Weight gain occurs due to an energy imbalance, when the amount of energy consumed in the form of calories is in excess of what is required or utilized throughout the day. This excess energy is stored within the body as fat resulting in weight gain. To prevent weight gain, the calories (energy) consumed through food and beverages must be balanced by the calories (energy) expended through daily activities (IOM, 2002; Committee of Prevention of Obesity in Children and Youth, 2005).

The literature attributes the increased weight gain of children to a number of major trends. First, some studies indicate increased consumption of energy in their diet (Morton & Guthrie, 1998). Second, is the general observation of a decrease in children's physical activity, affecting the amount of energy used each day. Both of these trends are influenced by the presence and interaction of a number of factors within a child's social, environmental and political surroundings (Committee of Prevention of Obesity in Children and Youth, 2005). Canadian data show a significant relationship between physical activity levels of boys (aged 12 to 17 years) with overweight and physical activity. Sedentary boys are more likely to be obese than active boys (16% vs. 9% respectively) (Shields, 2005).

These changes have occurred parallel to environmental changes such as reduced time for physical and leisure activity at school, longer work hours for parents, increased consumption of meals outside of the home, and the quality and quantity of these meals (Committee of Prevention of Obesity in Children and Youth, 2005). The school environment has a large impact on the external environment of children. Any changes made within the school are certain to in some way affect the lives of its' students.

A study looking at the dietary intake of a nationally representative sample of American students found that on average adolescent students consumed approximately 11% more energy than the Recommended Daily Allowance (RDA), with male students consuming 16-18% more, and females 4% more than the RDA (Devaney et al., 1995). As the RDA of energy reflects average needs based on a child's age and size, an excess in consumption may result in weight gain.

Clearly, there are numerous causes to obesity including both genetic and environmental influences. Recently, however, in the face of this epidemic, environmental

factors influencing childhood obesity have received much more attention. This literature review will focus on the influence of added sugars in the form of sugar-added or sugar-sweetened beverages to the diets of children.

2.3 Concerns with Soft Drinks

Increasing consumption of sugar-sweetened beverages has been implicated as a major contributing factor to childhood overweight (Ludwig et al., 2001; Berkey et al., 2004). These beverages provide a source of “empty calories” to the diet of children and adolescents. Sugar added beverages, especially soft drinks, are low nutrient density foods which provide a “low overall ratio of nutrients to energy content” (Murphy & Johnson, 2003 p. 827s) and displace healthy beverage choices that provide key sources of essential vitamins and nutrients to a child’s or adolescent’s daily diet. The consumption of sugar sweetened beverages reduces the likelihood that a child will meet the Dietary Recommended Intakes of essential micronutrients such as calcium, iron and folate (Frary et al., 2004). Increasingly, the diets of Canadian children are a cause for concern as they are not getting enough of their energy from the recommended food groups of Canada’s Food Guide to Healthy Eating. The “other foods” category is the second largest energy provider, providing an average of 22% of both children’s (4 to 18 years) and adult’s (19 years and older) daily calories. This value rises to a high of on average 25% for children aged 14 to 18, the ages of students in secondary schools (Garriguet, 2006). This category includes foods and beverages not part of the other food groups such as soft drinks. Soft drinks actually rank first among the 10 most common “other foods” consumed representing 11.3% of calories. These top ten foods represent two-thirds of all calories consumed from this category (Garriguet, 2006). The resulting nutrient poor diets

are consistently observed among both boys and girls (Hanning & Jessup, 2002 in Kennedy, 2004a).

2.4 Costs of Sugar Added Beverage Consumption

Sugar is a relatively inexpensive form of energy and therefore is plentiful in the food supply. The tendency to “supersize” packaging, for example for soft drinks sold at fast food outlets and snack bars, leads “bargain” seekers to increased consumption (Drewnowski & Specter, 2004). In 1997, Americans spent in excess of \$54 billion on 14 billion gallons of soft drinks (Jacobson, 1998). This increased to \$61 billion in 2001, for 15 billion gallons of soft drinks (CSPI, Liquid Candy Highlights, 2001). In 2003, spending increased to \$64 billion. In this same year each American was said to have consumed over 52 gallons of soft drinks (American Beverage Association, 2005). Not only are the health costs of sugar added beverage consumption great, but the financial costs to the health care system are significant as well. Compare the money spent on beverage consumption to the \$4.3 billion (\$1.6 billion direct, and \$2.7 billion indirect) cost of obesity within Canada in 2001, representing 2.2% of total health care costs for that year, a value that increases annually (Katzmarzyk & Janssen, 2004).

2.5 What is Sugar?

Sugar is a carbohydrate. The consumption of soft drinks has played a major role in the increasing consumption of carbohydrates within the diet, especially among adolescent males (Morton & Guthrie, 1998). The Institute of Medicine recommends that carbohydrates should supply children with 45% to 65% of total daily calories, with a minimum of approximately 130 grams per day for both adults and children. Of the energy intake, no more

than 25% is to come from added sugars (IOM, 2002). Although there is no upper intake level defined for the consumption of added sugars, this level was set because of concerns that if sugar accounted for more than this percentage, it would be difficult for people to attain certain micronutrients such as calcium, vitamin A, iron and zinc from food alone, while keeping energy intake in balance (Murphy & Johnson, 2003; Johnson & Frary, 2001). For individuals affected by type II diabetes, the Canadian Diabetes Association recommends that 10% or less of energy intake come from added sugars (Canadian Diabetes Association, 2000).

2.5.1 Added Sugars vs. Natural Sugars

Added sugars are a health concern rather than total sugar intake, because added sugars are often found in high energy, low nutrient dense foods such as candies and soft drinks. Added sugars are “sugars that are eaten separately at the table or used as ingredients in processed or prepared foods” (Johnson & Frary, 2001, p. 2766s). Added sugars do not include naturally occurring sugars like those found in milk (lactose) or fruit (fructose) and are consumed along with the other important micronutrients contained in these foods (Murphy & Johnson, 2003). Though the body cannot tell the difference between the two types of sugars, added sugars raise a person’s energy intake, but provide little or any nutrients for the calories they provide (Johnson & Frary, 2001). Added sugars most likely lead to obesity because the high consumption of total energy contributed by the added sugars is in excess of what is expended. Some have suggested an obesogenic impact of added sugars in the form of high fructose corn syrup independent of total energy (Bray et al., 2004) but this is controversial.

2.5.2 Soft Drinks as a Source of Added Sugars

Carbonated soft drinks are the major source of added sugar in the diet of U.S. residents (two years of age and older), on average accounting for 33% of the added sugar intake in the diet (Krebs-Smith, 2001; Johnson & Frary, 2001). This accounts for 82g of carbohydrates per day, which is equivalent to 16% of total daily energy intake. This value was found to reach as high as 37.1 % and 40.7% of for adolescent females and males (12 to 17 years) respectively from 1994-1996 (Guthrie & Morton, 2000).

From 1977 to 1998 total added sugars in the diet increased (for the average American resident two years of age and older) from 235 kcal per day, representing 29.5% of total carbohydrates within the diet to 318 kcal per day, representing 31.5% of total carbohydrates. The average contribution of soft drinks increased from representing 6.5% of total carbohydrates in 1977 to 10.4% in 1998 (Bray et al., 2004). Of the total increase of 83 kcal, 54 kcal come from soft drinks and 13 kcal come from other sugar sweetened beverages. This represented approximately an 81% increase in added sugar intake for Americans 2 years of age and older (Popkin & Nielsen, 2003). Students in grades 4 to 6 in an American parochial school had an average daily intake of total beverages of 20 (\pm 9.6) ounces. Sweetened beverages (soft drinks and fruit-flavoured drinks) comprised 51% of this amount (Cullen et al., 2002). In 2003, 66.3% of California adolescents (aged 12 to 17 years) consumed at least one soft drink per day, with 35.7% of them consuming two or more daily (Hastert, 2005).

Annual consumption of soft drinks in Canada has increased from 48.96 litres per person in 1971 to 97.61 liters in 2004 (Statistics Canada, 2005). In a Canadian sample of adolescent girls and boys, males on average consumed 429 mL per day of low nutrient dense beverages, and females 240 mL per day. Low nutrient dense beverages included both

carbonated soft drinks and non carbonated drinks such as iced tea, Kool-Aid, tea and coffee (Whiting et al., 2001). One 12 ounce can of a regular soft drink contains approximately 160 calories, 40 grams of added sugar (equivalent to 8 teaspoons of sugar) and no other nutritional value (Nestle, 2000).

2.6 Sugar Consumption and Energy Intake

Sweetened beverage intake has increased as a percentage of total daily energy. Data from the NHANES III conducted in 1988-1994 and the NHANES 1999-2000 indicated that regular (sugar-sweetened) soft drinks, as a single food category, were the largest contributor of energy in the diets of Americans from 1988 to 2000, accounting for 6.0% and 7.1% of total energy intake in the two studies, respectively. Fruit drinks accounted for another 2% of total energy intake in 1999-2000 (Block, 2004). Nielsen and Popkin (2004) observed a similar trend, noting that from 1977 to 2001 Americans increased their soft drink consumption from 2.0% to 7.0% of total daily energy intake. In calories, this translates from 50 kcals to 144 kcals (Nielsen & Popkin, 2004).

In an earlier study, Popkin and Nielsen (2003) reported a 22% increase in energy intake from added sugars from 1962 to 2000 for U.S. residents 2 years of age and older. Sugar added beverages contributed 80% of this amount of added sugars (Popkin & Nielsen, 2003). Data from the Bogalusa Health Study indicated that while the proportion of children consuming sugar added beverages decreased from 1973-1994, the children who continued to consume such drinks were doing so in much higher quantities, increasing the average amount from 402 grams per day to 463 grams per day (Nicklas, 2004).

Consumption of sugar-sweetened beverages often leads to the consumption of excess calories as children do not appear to reduce the consumption of solid foods to compensate for

the increase in calories from these beverages: compared to children who are non-consumers of regular soft drinks, consumers have higher energy levels that increase according to the amount of beverage consumed (Harnack et al., 1999). Soft drink consumers have been found to intake an average 188 kcal per day more compared to non-consumers (St-Onge et al., 2003). Students in the highest level of sweetened beverage consumption among a study of children in grades four and six consumed 330 more calories than similar aged classmates who did not consume such drinks (Cullen et al., 2002). A study by Beridot-Therond and Fantino (1998) on the consumption of flavoured drinks and ingestive behaviour, found that fluid intake which contributed an extra 2672 kJ of energy to a participant's diet did not have any effect on food (energy) consumption at later meals. Therefore they concluded that those who drink sweetened beverages are likely to fail to compensate for the intake of extra calories from such beverages at other meals over the day. Similar findings were observed when study participants were given solid (jelly beans) and liquid food (soft drink) of similar energy and macronutrient content. When subjects consumed the solid food they compensated for the energy by a reduction in free feeding. Alternatively during the liquid load consumption there was no compensation for the energy resulting in a positive energy balance (DiMeglio & Mattes, 2000). In another study, the caloric intake of individuals who consumed a solid meal versus a liquid meal was compared. Specifically, participants were provided with either a solid meal or a liquid meal that were similar in calories, volume, weight and temperature (and differing only in their physical form). Calories consumed in the 24 hours following this meal were found to be higher among individuals who consumed the liquid meal (Tournier & Louis-Sylvestre, 1991).

Increases in children's BMI, (Ludwig et al., 2001; Rajeshwari et al., 2005; Berkey et al., 2004; Phillips et al., 2004; Giammattei et al., 2003) body fat (Giammattei et al., 2003) and weight (Ludwig et al., 2001; Berkey et al., 2004) have all been linked to their sugar added beverage consumption. In a study sponsored by the American Beverage Association, however, Forshee & Storey (2004) failed to find a "strong relationship" between consumption of regular carbonated soft drinks with BMI.

What is not clear, however, is whether total energy intake has increased or not. Some surveys of food consumption such as the Continuing Survey of Food Intakes by Individuals (CSFII) have shown a steady increase in the energy consumption per day in children over the past few years, while other surveys such as the Bogalusa Heart Study and the NHANES suggest that no significant change in energy intake has occurred. Utilizing the CSFII survey, Morton and Guthrie (1998) found that caloric intake has steadily increased for all age groups, especially male adolescents. In contrast, the NHANES (1971 to 1994) showed little increase in the mean energy consumed over the past few decades, with the exception of adolescent females (Troiano et al., 2000). Niklas et al. (2004), utilizing data from the Bogalusa Heart Study, found that although energy has remained constant, there has been a decrease in the percentage of energy from total fat and saturated fat, and an increase in energy intake from protein and carbohydrates.

Difficulty in measuring energy has caused varying levels of energy to be reported. Obtaining accurate intake data in a naturalistic environment is difficult, especially from overweight or obese individuals. According to Blundell and Gillett (2001) "habitual food intake in obese individuals is greater than it is normally assumed to be and is often erratic and apparently dysregulated" (p.264s), with as many as 70% of obese participants in

nationally representative surveys reporting “physiologically implausible” food intake amounts. Macdiarmid et al. (1998) found that a greater proportion of women in the higher BMI groupings were Low Energy Reporters (LER) compared to women in lower BMI groups. Only 27% of women were considered LER in the lowest BMI group compared to 69% of women grouped in the BMI category indicating obesity. Consequently, it is difficult to understand both the pattern and quantity of food consumed by obese individuals. Blundell & Gillet (2001) are confident that the total amount of energy consumed by overweight or obese individuals is often underestimated. Not only are their disorganized and irregular eating patterns (Blundell & Gillett, 2001) contributors to inaccurate intake collection, but so is their tendency to under-report food intake (Macdiarmid & Blundell, 1997). Close to half, (46%) of a randomized sample of individuals of all weights admitted to altering their dietary intake in food diaries. This was done for a number of reasons, including embarrassment or guilt about actual amounts of foods consumed, or inconvenience of recording the correct amount consumed (Macdiarmid & Blundell, 1997).

If increased sweetened beverage consumption is not causing an increase in total energy intake, there must be some other event prompting increased obesity. Consuming an excessive amount of added sugars will not lead to obesity if the energy expended is greater than the energy consumed (Krebs-Smith, 2001). Since it appears that energy intake has not increased markedly (Troiano et al., 2000), if at all, (Niklas et al., 2004), a likely explanation for the increasing prevalence of obesity is a reduction in the physical activity among this age group (Forshee & Storey, 2003; Giammattei et al., 2003; Gillis et al., 2001; Troiano et al., 2000).

2.7 Sugar and Nutrients within the Diet

Twenty five percent of the average American's daily energy intake comes from high calorie, low nutrient foods such as candies, pastries and soft drinks (Block, 2004). This is not only problematic for the amount of energy consumed per day leading to potential weight gain, but also because of the quality of the diet regarding the adequacy of nutrients consumed. Well nourished children are better able to focus in class, learn more effectively, score higher grades (Alaimo et al., 2001) and are better able to fend off and prevent chronic diseases. Alternatively, poor nourishment causes a child to struggle in their daily surroundings with a decreased ability to learn, increased behavioural problems in school (Alaimo et al., 2001) coupled with decreased motivation and alertness. There are also many physical implications of poor nourishment including dental caries, impaired and potentially reduced physical growth and health status.

2.7.1 Increased consumption of added sugars

Sugar-added beverages are thought to decrease the nutrient value of a child's diet for two reasons. The first is due to the high source of energy that sugar-added beverages contribute to the diet, but little else in the way of nutrition (Ballew et al., 2000). The second surrounds the issue of sweetened-beverages as a displacement for healthy beverage choices such as 100% fruit juice or milk in the diet. It is not only the energy consumed that plays a role in child health, but also the quality of the food, in terms of its ability to provide nutrients crucial for child development. Consumption of sugar-sweetened beverages not only displaces the consumption of healthy beverage choices such as milk and 100% fruit juice, but also reduces the intake of fruits, vegetables and dairy products in the diets of children and adolescents (Frary et al., 2004). Fruit consumption in children in the highest tertile of

sweetened-beverage consumption (19.3 oz/d) compared to children who do not consume such beverages was 57% less (Cullen et al., 2002). Research suggests that consumption of sweetened-beverages is a “marker for poor dietary habits or reflects meal sources with few drinks, few fruit selections and many high-fat food selections” (Cullen et al., 2002).

Although the literature on changes in the energy content of the diet is equivocal, there is strong indication that nutrients within the diet are increasingly deficient (Morton & Guthrie, 1998). As discussed previously, sugar-added beverages, especially soft drinks, do not add much to the diet in the way of essential nutrients. Children who choose to drink soft drinks and subsequently reduce their intake of milk, are often found to have difficulty meeting the daily recommendations for a number of micronutrients (Harnack et al., 1999), including Vitamin A, folate, Vitamin B12, calcium, magnesium (Ballew et al., 2000) Vitamin C and phosphorus (Whiting et al., 2001). Consumption of over 12 oz. per day of sugar-added beverages resulted in lower daily intakes of protein, calcium, magnesium, phosphorus and vitamin A than children who consumed less than this amount (Mrdjenovic & Levitsky, 2003). More specifically, Ballew et al. (2000) determined that an 8 oz. serving of soda consumed by 2 to 5 year old girls would decrease the likelihood of meeting daily recommended calcium intakes by 40%, however, by substituting 8 oz. of milk for the soda, the likelihood that the calcium recommendation would be met increased by 296%. Consumption of sugar sweetened soft drinks was also found to be negatively related to a child’s calcium intake in a study of 8 year old children (Skinner et al., 2003).

Similarly, in a study that grouped individuals based on their consumption of added sugars, the highest consumers (over 18% of their calories from added sugar) had the lowest mean intake of all the micronutrients and fewer met the Recommended Daily Allowances for

the micronutrients, compared to the other two groups (less than 10% and between 10% to 18% of calories from added sugars) (Bowman, 1999). Individuals in the group with the highest consumption of added sugars had the highest consumption of soft drinks and fruit drinks, and the lowest consumption of milk (Bowman, 1999).

Oftentimes, milk intake is inversely associated with intakes of soft drinks and juice drinks (Marshall et al., 2005; Nicklas et al., 2004; Whiting et al., 2001; Whatley Blum et al., 2005) leading to suggestions that sugar added beverages are displacing these healthier beverage options from the diet. Unfortunately, because of the cross-sectional nature of the data in many of the studies, it is not possible to determine whether or not displacement of these beverages has occurred (Rampersaud et al., 2003). This opinion, however, is strongly suggested because milk consumption is often lower on days when sweetened beverages have been consumed. Children with medium to high levels of sweetened beverage intake were found to drink significantly less milk than those who drank little or no sweetened beverages (Rajeshwari et al., 2005). This was also confirmed in another study where children drank less milk when they consumed 16 oz. per day of sweetened beverages compared to kids who did not have any of those drinks (Mrdjenovic & Levitsky, 2003). These authors felt confident in stating that soft drink consumption greater than 12 oz .per day displaced milk from a child's diet from the results of their short (4 to 8 weeks) longitudinal study (Mrdjenovic & Levitsky, 2003). An increase in one year of age (between ages 6 to 19) is associated with consumption of 7g and 12g less of milk for boys and girls respectively. Alternatively a year of age is associated with consumption of 51g (1.6 oz) and 23g (0.7oz) more of regular (non diet) carbonated soft drinks for boys and girls respectively (Forshee & Storey, 2003). Although associations do not prove causation, clearly the preponderance of studies support the concept

of sweetened-beverages displacing more nutritious choices. A recent Canadian report of statistics from 2004 found that by ages 10 to 16, 61% of boys and 83% of girls do not meet the recommended minimum servings of milk products (Garriguet, 2006).

Other studies, however, have failed to observe a displacement of milk with unhealthier beverages. Even a prospective study which could theoretically observe an increase in soft drink consumption and the subsequent decrease in milk consumption failed to find that sugar added beverage intake actually displaces milk consumption within the diet (Fisher et al., 2004). For these reasons, it is very difficult to say definitively that one beverage is replacing another. Storey et al. (2004) doubt the displacement of milk by soft drinks because the drinks are “not close substitutes.” They further state that if the two beverages replace one another the substitution ratio would be 1:1, a much lower ratio than the 10:1 (soft drink: milk) ratio observed. They found that one ounce of regular carbonated soft drink reduces the consumption of milk and its related products by 0.28 oz., 0.25 oz. and 0.07oz. per day among 2 to 3 year olds, 4 to 8 year olds, and 9 to 18 year olds, respectively, but explains little of the variance in the consumption of milk products. Whatever the causal pathway, it remains that on a population basis energy intakes are above expenditure of children at a time when nutrient intakes are low.

2.8 Health Consequences of High Soda Consumption in Children

Obesity is not due to the consumption of sugar-added beverages themselves, but from the excess calories that may result in positive energy balance and subsequent weight gain (Coulson & Johnson, 2002). There are, however, a number of other chronic health conditions that occur directly and indirectly from the consumption of sugar-added beverages and their ingredients.

2.8.1 Osteoporosis & Bone Health

A healthy diet is especially important during adolescence as this is the time when bones achieve much of their peak bone mass (McGartland et al., 2003). The time of maximal velocity in bone mineral accrual was calculated by Whiting et al. (2004) to be at approximately age 14 for boys and age 12.5 for girls. To prevent osteoporosis and reduce risk of future fracture it is necessary to reach optimal bone mass at this critical time of development in adolescence. Deficiencies cannot be made up at a later time (Whiting et al., 2004). Bailey et al. (2000) estimate that 26% of adult calcium is accumulated during the 2 years of adolescent peak skeletal growth (ages above). High accretion rates of calcium can be enhanced through the consumption and thus retention of dietary calcium (Bailey et al. 2000).

To maximize bone health and prevent osteoporosis, adolescents, and pre-adolescents need to consume adequate amounts of calcium, phosphorus and Vitamin D (McGartland et al., 2003; Storey et al., 2004). This is particularly important for girls due to their lower bone mass and anticipated heightened post-menopausal bone loss. However, girls generally have lower nutrient intakes than boys.

The consumption of milk products is strongly associated with calcium consumption (Storey et al., 2004; Whiting et al., 2001) and should be encouraged in children to increase calcium within the diet. Girls 5 to 9 years of age who met the daily Adequate Intake (AI) of calcium consumed almost two times as much milk and 18% less sweetened beverages than same aged girls who did not meet the daily AI. The girls who met the AI consumed 50% of all beverages from milk, compared to the other girls who consumed close to the same proportion as sweetened beverages. Perhaps the fact that these girls were served milk more frequently and had mothers who also drank milk played a role in their consumption (Fisher et

al., 2004). In another study only children who avoided sugar added beverages were able to meet the AI requirements of calcium (Frary et al., 2004).

Calcium intake is positively related to both bone mineral density (BMD), and to a lesser yet still significant extent bone mineral content. Girls meeting the AI for calcium have higher BMD values than those who do not (Fisher et al., 2004). Higher intakes of soft drinks or other low nutrient drinks are associated with lower BMD in the heels of adolescent girls (McGartland et al., 2003) and lower bone mineral content in adolescent girls (Whiting et al., 2001), but not consistently (McGartland et al., 2003) or at all (Whiting et al., 2001) observed for same aged boys. The reason for this may be due to the fact that boys often exceed the recommended calcium intake, whereas girls fall short of their calcium requirement (Whiting et al., 2004). It is not surprising then to find that any replacement of milk with the consumption of soft drinks has more negative implications on bone accrual for girls compared to boys (Whiting et al., 2004). Teenaged girls who consume soft drinks are 3.14 times more likely to have experienced a bone fracture compared to non drinkers of such beverages (Wyshak, 2000).

Another study failed to observe that soft drink consumption resulted in decreased calcium intake among adolescent girls (Storey et al., 2004). However, these authors still recommended that products containing calcium be made more available to adolescent girls, because regardless of whether or not there is consensus that soda is responsible for low calcium levels, these researchers still concur that adolescent girls are way below recommend levels of calcium intake with only 54.1% of girls aged 14 to 18 meeting the AI of calcium for their age (Storey et al., 2004).

Whiting et al. (2001) actually found the strongest negative relationship to exist between the consumption of noncarbonated drinks (Kool-Aid, iced tea, tea and coffee) and bone mineral accrual. Only a weak, yet still significant inverse relationship was observed between total body bone mineral accrual and cola soft drinks. There may be explanations for this effect in addition to any influence of calcium intake on coffee, tea, and cola containing caffeine.

Caffeine is thought to reduce bone mineral density by increasing the amount of calcium excreted in the urine. Conlisk and Galuska (2000) observed that the amount of caffeine consumed by young women aged 19 to 26 was too low to be considered a risk factor for low bone mineral density. Heaney and Rafferty (2001) observed increases in calciuria to be associated with consumption of caffeinated drinks only. Calciuria from caffeine, however, was found to be compensated for by the body by excreting less calcium throughout the day, resulting in little or no effects of calcium excretion on bone health from the consumption of such beverages.

The relationship of bone mineral density and bone mineral content go beyond the excretion of calcium within the urine. Teegarden et al. (1998) observed a complex relationship between calcium, phosphorus and both bone mineral density and content. Phosphorus (phosphoric acid) limits the ability of bones to absorb calcium; the higher the amount of phosphorus in a food, the more calcium that is excreted in the urine. Carbonated beverages which have high phosphorus content can therefore interfere with calcium absorption.

2.9 Adverse Effects of Caffeine Consumption

The caffeine content of soft drinks may increasingly be causing disrupted sleep for school aged children. Soft drinks are the main source of caffeine for children and teens accounting for 50% to 64% of their intakes, respectively (Frary et al., 2005). Health Canada (2003) recommends that children 4 to 6 years, 7 to 9 years, and 10 to 12 years do not exceed caffeine levels of 45 mg, 62.5 mg, and 85 mg, respectively per day. One 12 ounce can of soft drink contains anywhere from 36 to 46 mg of caffeine (Health Canada, 2003). Modestly caffeinated soft drinks accounted for over half of the caffeine consumed in a study of students in grades 7 through 9. Their caffeine consumption, however, did not increase from one year to the next (Pollak & Bright, 2003).

Higher caffeine consumption in grade 7 to 9 students is associated with shorter duration of night time sleep, longer “wake time after sleep onset,” more interrupted sleep, and increased naps during the daytime (Pollak & Bright, 2003). Caffeine intake in children should therefore be limited (Pollak & Bright, 2003). Frary et al. (2005) directly attribute such caffeine effects to the changes in beverage consumption trends among children. It may be necessary to restrict the types of beverages made available to students within the school or set limits on the amount or the time when soft drinks can be purchased.

2.9.1 Dental Caries

When fructose from sweetened beverages comes into contact with bacteria in the mouth, a reaction occurs producing an acid that is left on the teeth. This acid breaks away at the teeth for at least twenty minutes and may eventually cause tooth decay (ADA, 2003). The low pH of soft drinks, especially fruit based carbonated beverages, is likely to erode teeth because the prolonged drop of pH in the mouth cannot be adequately buffered by saliva

(which normally regulates the pH) (Edwards et al., 1999). With the increasing use of bottles in vending machines, children are able to consume a portion of their drink, recap the bottle, and save the rest for another time, allowing their teeth to repeatedly come into contact with the sugary, acidic liquid. Soft drinks in particular also contain phosphoric and citric acids that may dissolve tooth enamel and erode the tooth surface (ADA, 2003).

2.10 Children's Beverage Consumption Facts & Recent Trends

2.10.1 Where are Beverages Purchased?

Recent evidence suggests that children are obtaining most of their soft drinks from home, however, increasingly children are also accessing these beverages outside of the home from vending machines, school cafeterias, restaurants and convenience stores. From 1977 to 1998 in the US, there was a 200% increase in children receiving their soft drinks from school cafeterias and a 200% increase in children who obtained these beverages from vending machines (French et al., 2003).

2.10.2 Changes in the Types of Beverages Consumed

As previously mentioned, milk consumption is often inversely associated with intakes of soft drinks and juice drinks, leading to suggestions that sugar-added beverages are displacing healthier beverage options from the diet. This opinion is supported by studies that show lower milk consumption on days when sweetened beverages have been consumed. Over the past couple of decades, the daily consumption of milk has declined, coupled with an increase in daily soda intake and a decrease in the nutrients and vitamins, especially calcium that is provided by milk (Frary et al., 2004). French et al. (2003), looking at US national trends in soft drink consumption from 1977 to 1998, determined that the prevalence of soft

drink consumption among children 6 to 17 years of age increased to 48%, up from 37% in 1977. Over the past three decades the mean intake of sugar added beverages has doubled for girls (12 to 19 years of age), and the proportion of girls consuming these beverages has also increased. Conversely, of these same girls, the proportion of them who consumed milk decreased by 31% and the mean intake of milk consumption decreased by 36% (Bowman, 2002). Similarly, a study of adolescents from 1965 to 1996 showed a decline of over 30% in total milk consumption, a decline that was not compensated by increasing other dairy products, resulting in a decrease of calcium intake from a mean of 1100 mg. per day in 1965 to 960 mg. per day in 1996. The reduction in milk consumption in this study was paralleled by an increase in the intake of soft drinks and some fruit juices (Cavadini et al., 2000). Nielsen and Popkin (2004) observed a similar trend. From 1977 to 2001, Americans increased their soft drink consumption from 2.0% to 7.0% of their total daily energy intake. Milk as a percentage of total energy decreased in this same period from 8.0% to 5.0% for all Americans (two years of age and older), with the biggest reduction occurring for children between 2 to 18 years of age from 13.2% to 8.3% of total energy (Nielsen & Popkin, 2004). Soft drink consumption in this same age group increased from 3.0% to 6.9% of total daily energy intake.

While total milk consumption may (Nielsen & Popkin, 2004) or may not (Park et al., 2002) have declined, it is clear that the types of milk consumed have changed. Whole milk consumption has declined (Morton & Guthrie, 1998; Evers et al., 2001) in favour of 2%, (Evers et al., 2001) 1% or skim milk (Park et al., 2002; Cavadini et al., 2000). A study of Trends in the Health of Canadian Youth revealed that more males than females across grades 6, 8 and 10 consumed whole milk, however, the proportion of males (and females) who did

so declined from 1990 to 1998 (Public Health Agency of Canada, 2004). This shift may explain some of the decrease in percent of energy intake from milk. Adolescent girls were below the recommended daily milk intake a decade ago and remain so (Park et al., 2002).

2.10.3 Change in the Amount/Quantity of Beverages consumed

Not only have children started to consume sugar-added beverages more frequently, but the amount they are consuming per serving has also increased. Portion sizes of sugar added beverages have increased from 1977 to 1996 from a mean of 13.6 oz to 21oz per serving for all age groups; a trend that is true both at home and at restaurants. For children 2 to 18 years of age portion sizes of sugar-added beverages have increased from 13.1 oz to 18.9 oz per serving. On the other hand, the portion size of milk within this age group had the greatest decline of all age groups with a reduction from 15.4 oz to 13.6 oz per serving (Nielsen & Popkin, 2004).

Another study by the same authors focusing primarily on the patterns and trends in the size of food portions determined that the average soft drink consumed for the total U.S. population two years of age and over, increased from 13.1oz (387.4 mL) per serving in 1977-78 to 19.9 oz per serving (588.4 ml) in 1994-96. This is equal to an average increased energy intake of 49 kcal, the difference of the average 193 kcals consumed in 1994-96 and the 144 kcals consumed in 1977-78. This value is far in excess of the recommended 250 mL to 375 mL serving size of soft drinks (Canadian Food Inspection Agency, 2003). Fruit drinks also showed a similar increase of 50 kcals, corresponding to a portion size change of 11.3 oz. per serving in 1977-78 to 15.1 oz. per serving in 1994-96 for the average drink consumed (Nielsen & Popkin, 2003). These increases are significant considering that an increase of

only 10 excess calories per day, if not compensated for, equals one extra pound of weight gained per year (Nielsen & Popkin, 2003).

2.11 Beverage Consumption Trends

The types and amounts of beverages consumed also vary based on a child's age, and gender. Total beverage consumption increases with age, with boys ages 6-19 consuming more than same aged girls (Forshee & Storey, 2003). While milk consumption decreases with age, sugar-sweetened beverage consumption increases.

2.11.1 Trends Based on Age

The consumption of added sugar in ones diet increases with age (Bowman, 1999) which is parallel to an increasing consumption of soft drinks (Grimm et al., 2004) and a reduction in milk intake (Berkey et al., 2004, Bowman, 2002; Demory-Luce et al., 2004; Forshee & Storey, 2003). At one year old, children consume on average 2 cups of milk a day. This decreases to $\frac{3}{4}$ a cup per day by age 18. Conversely, soda consumption increases with age and exceeds the intake of fruit juices by five years of age and milk by 13 years of age (Rampersaud et al., 2003). According to Forshee and Storey (2003), an increase in one year of age (between ages 6 to 19) is associated with a reduced consumption of 7 grams of milk for boys and 12 grams for girls. This same age is also associated with a 51 gram (1.6 oz.) increase in regular soft drinks for males and 23 grams (0.7 oz.) for females. Students in sixth grade showed a greater consumption of soft drinks and other sweetened beverages than children in grade four (Cullen et al., 2002). Similar trends exist within Canada: the amount of soda consumed increased steadily for boys as they got older, yet leveled off for girls as they entered grade 10 (Public Health Agency of Canada, 2004).

2.11.2 Trends Based on Gender

Boys consume higher quantities of soda (Grimm et al., 2004; Forshee & Storey, 2003), fruit drinks, fruit juice and milk than girls (Berkey et al., 2004). Canadian boys in grades 6, 8 and 10 consistently consumed more soft drinks than females (Public Health Agency of Canada, 2004).

The proportion of Canadian boys drinking regular soft drinks containing caffeine at least five days a week increased from 34% in grade 6 to 56% in grade 8. The increase was not as large for girls and ranged from 28% in grade 6 to 32% in grade 10, peaking at 37% in grade 8 (WHO, 2004). A study of Canadian children in Grades 6 through 10 indicated that two thirds of them consumed lower fat milk products at least five days a week. Although the actual quantity consumed was unreported, the proportion of males and females did not change much from one year to the next (WHO, 2004).

2.12 Food in Schools

2.12.1 Importance of a Healthy School Environment

According to the Dietitians of Canada, “Schools play an important role in promoting healthy eating in children. They are responsible for providing education to children about the benefits of healthy eating in the formal curricula. They should also be responsible for providing an environment that supports healthy eating” (Dietitians of Canada, 2004a, p.10). Schools also provide “the most effective and efficient way to reach large portions of the population” (WHO, 1998, p.2) There are four levels of influence on the eating behaviours of adolescents: individual or intrapersonal influences; social environmental influences; physical environmental influences and macrosystem influences (Story et al., 2002). Many of these influences are at work within the school environment. Social environmental influences

include fellow students, and teachers. It is therefore important that teachers model healthy behaviours.

Physical environmental influences include the school itself, the cafeteria and the availability of vending machines within the school. The placement of healthy items in vending machines, and the locking of machines at certain times of day (so they can't be used) influences the type and amount of foods a student can consume while at school.

Macrosystem influences include advertising of sugar-sweetened beverages and corporate logos that students are exposed to within the school. Corporations seek to brand the student and create lifetime users through the placement of advertisements on vending machines, sports uniforms and signs. As a captive audience within the school setting children are consciously aware of all advertising within the school.

It is during school aged years that many children develop the poor lifestyle habits and unhealthy food choices that make them more susceptible to obesity. Therefore, it is important for schools to create a supportive environment (taking into account the above mentioned influences) whereby children are taught nutrition education within the classroom and have the opportunity to practice these skills in school with the availability of healthy food choices, participation in daily physical activities and through the modeling of such behaviors by teachers and principals (OSNPPH, 2004). "The school should be an environment where healthful eating behavior is normative, modeled and reinforced" (Story et al., 1996, p.126).

Schools can offer support to students in a number of ways by creating policies that support healthy eating, providing athletic programs that support active lifestyles and a commitment of school administration, staff and board members to make decisions that promote health and wellbeing that are consistent with nutrition and health lessons taught in

class (Wechsler et al., 2000). To do so, a school needs to provide an environment that not only teaches nutrition, but also provides an opportunity for children to practice learned skills.

2.12.2 Mixed Messages with Junk Food

The school has the difficult task of both teaching children the skills necessary to lead healthier lives, while at the same time providing a healthy environment in which children can practice them. The sale of junk food and sugar sweetened beverages at school is said to undermine nutrition lessons, providing mixed messages to the students. There are an increasing number of opportunities for children to obtain unhealthy food options within the school. They are provided in the cafeteria, at tuck shops or snack bars and vending machines. Junk foods are often used as rewards or incentives for good work within the classroom and sold for school fundraising. On a regular basis there are special food days at schools where the featured foods are less nutritious lunch options such as hotdogs or pizza.

With the introduction of exclusive beverage contracts, soft drinks have become very accessible to children through many different channels at schools. These contracts between the school board and beverage corporations provide exclusive beverage rights to the company, with the ultimate goal of generating increased revenue for both themselves and the school board through the students' increased beverage consumption, many of which are of the carbonated, sugar-added varieties. Serving unhealthy foods within the cafeteria and in vending machines contradicts healthy messages taught within the classroom. The Ontario Society of Nutritional Professionals in Public Health (OSNPPH) School Nutrition Workgroup recommend that school boards “ensure all foods available in the school settings are consistent with classroom teaching, reinforce healthy eating messages and are culturally acceptable” (OSSNPH, 2004, p. 2). The presence of soft drinks in school, more specifically

in vending machines at schools was found to be associated with child soft drink consumption (Grimm et al., 2004). Parents and teachers generally support the focus on nutrition and healthy eating within the school. Kubik et al. (2005) found that 90% of teachers and parents sampled felt that vending machines and snack bars in schools should contain healthier food options. In an earlier study Kubik et al., (2003) found that snack vending machines in schools were negatively related to an adolescent's mean daily servings of fruit. In a sample of parents and teachers from the United States, only 18% of parents and 31% of teachers believed that schools were paying enough attention to this issue (Kubik et al., 2005).

2.12.3 Policy 135

The Ontario provincial government, in recognition of the declining state of nutrition within its public schools and that the “school environment can profoundly influence student’s attitudes, preferences, and behaviours” (Ministry of Education, 2004), implemented Policy/Program 135 on October 20th, 2004. This policy specifies standards regarding the sale of all foods and beverages from vending machines within elementary schools. School policies and rules that restrict the consumption of low nutrient dense foods such as soft drinks and soda beverages are associated with a lower consumption of such items (Vereecken et al., 2005).

Policy 135 orders all publicly funded elementary schools (Junior Kindergarten to Grade 8) to restrict the sale of products in vending machines to healthier options recommended by the Dietitians of Canada. Suggested beverages include low fat and skim milk, 100% fruit juice and water (Dietitians of Canada, 2004b). Schools were required to report their progress in meeting Policy 135 by January 14th, 2005, and make this information publicly available.

Refreshments Canada, a trade association, representing brands and companies that manufacture and distribute a majority of non-alcoholic beverage in Canada as a response to Policy 135 created a report entitled “Making Schools Healthier Places to Learn...Best practices to really make a difference; A Broader Perspective and Assessment of the Ontario Ministry of Education’s Policy on Food and Beverages in Elementary School Vending Machines.” This document was created “to bring to light some shortcomings and assumptions on which the guidelines are based” (Refreshments Canada, 2004, p.3). In this report, Refreshments Canada expressed their disapproval on the government creating the policy with only minimal or no input from “two key stakeholders”: the companies who provide the foods and beverages sold at school and the schools themselves. The government’s failure to do so resulted in the policy having a number of “implementation challenges” and leaving industry, schools and other stakeholders to resolve them (Refreshments Canada, 2004).

Eight months before the implementation of Policy 135, Refreshments Canada implemented their own voluntary guidelines for schools teaching up to grade 8. The guidelines recommended that soft drinks be removed from vending machines in elementary schools and that at least 50% of products offered in vending machines be 100% fruit juices and water. Refreshments Canada reported “virtually 100% compliance” of their members with the guidelines (Refreshments Canada, 2004). In May, 2006 Refreshments Canada further evolved these guidelines “to ensure that Canadian students have greater access to lower-calorie and nutritious beverage choices” (Refreshments Canada, 2006). These guidelines reduce the number of calories in beverages available to children at schools. Nutritious beverage choices at schools are also increased. In addition to the previous

guidelines which only included elementary schools, middle schools will now only provide water, 100% fruit juices and low-fat or non-fat milk. High schools are also included in the recent Refreshments Canada changes and are encouraged to sell calorie-free and low-calories beverages, juice drinks and sports drinks that contain at most 100 calories per container (Refreshments Canada, 2006). The new guidelines also place restrictions on container sizes of some beverages in order to limit the number of calories consumed. The purpose of such guidelines is to “accelerate the shift to lower calorie and nutritious beverages for children during the school and extended day” (Refreshments Canada, 2006). It is hoped that these guidelines will also “strengthen the industry’s ability to counter the perception by critics that some beverages don’t fit into a balanced diet” (Refreshments Canada, 2006).

2.12.4 Access to Foods

The availability and a child’s access to unhealthy food and beverage options at school definitely have an effect on the foods they choose to eat. Students have difficulty picking the healthier food options such as healthier beverage choices when tempted by the availability of nutrient poor foods such as soft drinks that are often perceived as better tasting than water or milk (Grimm et al., 2004). Removing unhealthier food options within the school will make choosing healthy products easier for children. When children have access to unhealthy foods from school snack bars and vending machines, they are more likely to consume less healthy choices. U.S. data from 2000 indicate that vending machines and school snack bars/stores were available in 43% of elementary, 73.9% of middle schools and 98.2 % of high schools (Wechsler et al., 2001). Sugar added beverages comprised 58.1% of elementary schools’, 40.3% of middle schools’, and 93.6% of senior schools’ beverages provided in these concessions (Wechsler et al., 2001). A study of over 700 female students between 13 and 18

years of age, found that they believed that the availability of soft drinks at school and access to vending machines facilitated their consumption of soft drinks (Kassem et al., 2003). In a California based study, adolescents with soft drink vending machines at school reported drinking 25% more soft drinks and other sugar sweetened beverages than students who did not have access to these machines at school (Hastert et al., 2005).

Vending machines selling both beverages and snacks are available in 26.3% of elementary schools, 62% of middle schools and 94% of high schools in the United States (Wechsler et al., 2001). When the diets of students who did not have access to unhealthy food choices in elementary school were compared to their diets one year later when they gained access to these foods in middle school, their consumption of sweetened beverages increased by 62% and consumption of milk dropped by 35% (Cullen & Zaken, 2004). Similar data are currently unavailable for a Canadian sample.

2.12.5 Social Modeling

As previously mentioned, it is necessary for the school environment to reinforce what is taught in the classroom to avoid providing conflicting messages from material taught in nutrition class and the types of foods that are increasingly available at school (Burke, 2002). A majority of middle school teachers in one U.S. metropolitan city felt that the school does influence students' food choices (Kubik et al., 2003). In fact, students were 2.4 times more likely to consume soft drinks when it was available to them at school compared with students who did not have such beverages available to them in this environment (Grimm et al., 2004).

Not only schools, but also the personnel within schools, provide exposure to role models. Of a study of teachers in 16 metropolitan area schools in the United States, despite the fact that 93% considered themselves to be in excellent health, only 66% were satisfied

with their eating habits and only 72% of them limit the amount of high-sugar items they consume (Kubik et al., 2002). Of the total sample of teachers surveyed, 34% of them had a “high” fat intake (>35% calories), 35% of them had “very high” fat intake (40-50% of calories), and only 24% had an average fat intake (30-35% of calories) (Kubik et al., 2002).

It is important for teachers and principals within the school to model healthy behaviours and serve food that is consistent with this message. Children are also more likely to consume a specific beverage if their parents do as well. Daughters of mothers who consumed milk were more likely to also consume this drink (Fisher et al., 2004). It was also determined that children whose parents drank soft drinks three or more times a week, were 2.9 times more likely to also consume soft drinks five or more times per week, compared to those children whose parents did not drink that many soft drinks (Grimm et al., 2004).

A study by Fisher et al. (2004) found that the availability of milk at meal and snack times was a predictor of higher milk consumption among young girls; suggesting that increasing the availability of milk or healthier beverages within the school environment may result in increased consumption. However, a study by Mrdjenovic and Levitsky (2003) found that when sweetened drinks were served with milk, milk was only chosen 42% of the time, suggesting a combination of education, social modeling and environmental change may be needed.

2.13 Commercialization in Schools

2.13.1 Forms of Commercialization within Schools

There are many forms of commercialism within the school including promotions of products, corporate giveaways, partnerships, exclusive vending contracts, equipment donation, partnership agreements or sponsorship of various programs, teams or entire schools

(OSSTF, 2001a). Some companies choose to place advertisements in school newspapers or yearbooks and corporate logos cover everything from free book covers, signs on the walls, scoreboards to school buses. There are corporate sponsored education and curriculum materials and sponsored contests for good work within the classroom. A corporation representing many companies may provide computer labs and audio visual equipment to schools in exchange for running mandatory commercials to the students, and tracking sites used on the internet (OSSTF, 2001a). In a nationally representative U.S. survey, only 16% of all states and 22.6% of school districts discouraged the use of food items or coupons for food items as rewards or incentives within the classroom (Wechsler et al., 2001). A 2004 Canadian study called, “Commercialization in Canadian Schools-A National Survey”, was the first national survey that attempted to determine how much funding schools receive from external sources. These sources were found to be largely from corporate involvement in the schools. Findings indicate that close to 60% of Ontario public secondary schools surveyed have corporate advertising, with close to 20% of secondary schools selling advertising space in their schools. Advertisements are often located in a high traffic area. Approximately 34% of advertising comes from vending machines and another 30% is found in hallways or the cafeteria. Students therefore view such advertisements on a daily basis. Two of the biggest corporations involved include Pepsi and Coca-Cola (Briggs, 2005).

The remainder of this review will focus on the increasing trend of school boards to enter into exclusive beverage contracts, also known as “Pouring Rights” contracts, with major beverage corporations as a means to increase school funding at a time when the government has made cuts to the education budget.

2.13.2 “Pouring Rights” Contracts

Pouring Rights contracts also known as exclusive beverage contracts are agreements made between schools (usually agreed upon by school boards) and beverage companies. “Exclusive marketing arrangements” are defined as occurring “when the school grants one company sole marketing rights within the school or within a specific area of the school, often in exchange for additional funding or promotional materials of some sort” (Briggs, 2005). A survey of 425 secondary schools within Ontario indicated that 48.2% of them were involved in exclusive beverage contracts; 27% with Coke and 15.3% with Pepsi (OSSTF, 2001b). A more recent study showed that such contracts are increasing, with Pepsi and Coca-Cola having arrangements in 35% and 25% of schools respectively in 2004 (Briggs, 2005). In exchange for commissions and other benefits that oftentimes value millions of dollars and can last for as long as ten years, schools allow beverage companies to be the exclusive provider of beverages, and market their products within the school through a number of medium.

Information from 50 states collected by the 2000 School Health Policies and Programs Study in the U.S., showed that 49.9% of school districts had exclusive beverage contracts, with over 60% of them receiving additional bonuses (cash, equipment or supplies) after selling a predetermined amount of product. Another U.S. study determined that advertisements were permitted in 35.3% of school buildings, on 43% of the school grounds (both inside and outside the building) and 2.2% on school buses (Wechsler et al., 2001). Exclusive contracts not only covered the vending rights of current elementary and secondary schools of the school board, but also future schools to be built during the term of the contract!

2.13.2.1 Financial Gains from the Contract

Obviously the details of each contract vary within each corporation and school board's agreement, however, there are some standard contract items that tend to be offered in a majority of exclusive beverage contracts. A portion of the contract payment is received as a lump sum at the start of the contract, while other payments that are dependent on beverage sales, the number of schools involved or the number of vending machines are distributed on a yearly basis, sometimes prorated at a proportion of the expected commission.

The funding is usually based on the following contract components:

1) Exclusivity (payment) Beverage Rights

School boards receive extra funding for providing the beverage company with exclusive vending rights. Individual contracts will specify whether this includes products sold in school stores, snack bars, cafeterias, even for fundraising purposes or class parties. This is often a large one time lump sum payment made at the beginning of the contract (Purcell, 2002), but may also be divided up and provided annually (Pepsi Bottling Group, 2000).

2) Vending Commission

Vending commission is the amount of commission earned based on the volume, e.g. number of cases, of soft drinks sold per year. Usually this money is provided to the schools upfront, prorated to a specific percentage of the expected annual commission, and reconciled on a yearly basis against actual sales (Pepsi Bottling Group, 2003). Bottles have a higher commission than cans per case.

3) Volume Bonus Rebates

This part of the contract is dependent on the amount of beverages purchased by the students. Additional revenue is received by the school board after meeting selling quotas. This is also the component of the contract that often raises controversy, as schools may be tempted to encourage students to increase consumption to receive more money. This payment is provided on a yearly basis and is not cumulative, so the students must maintain a high level of consumption for a school to notice increased funding.

4) Vendor Placement Incentive

Money is provided to schools annually, as a payment per vendor (vending machine), based on the number of vending machines placed within each school.

5) Cafeteria Exclusivity and Equipment

Should cafeterias within the school also decide to provide exclusive beverage rights to one company, additional revenue is provided on an annual basis. This is dependent on a number of factors including cafeteria ownership and prior beverage arrangements. Beverage companies also invest a lot by way of equipment that is provided free of charge to the schools to facilitate beverage sales. All provided equipment is marked in logos and serves as advertising and promotional pieces for the beverages. Cafeteria equipment includes cooler equipment, menu boards, fountain machines, cups and displays to market and provide easy access to the product within a cafeteria setting.

6) Marketing Fund

As part of the agreement the beverage company assists schools in marketing beverages through a number of promotions and contests. These marketing schemes attempt to increase sales on campus by providing free product sampling, free products and logo

merchandise as prizes. Product promotions can be targeted to specific events (i.e. sporting beverages are advertised at sporting events).

7) Complimentary Products

A certain amount of product is provided to the school free of charge to support various events. Products may be used for school dances, school meetings, or large sports competitions.

8) Scholarship Fund

Beverage companies provide scholarships to students for school involvement or academic achievement. Scholarships come to the students in the form of money or summer or intern positions at the beverage company.

2.14 Controversy Surrounding Exclusive Beverage Contracts

2.14.1 Importance of Beverage Contracts within Schools

With previous government funding cuts to Ontario's public school education, it often is necessary for schools to seek external sources of funding. Beverage contracts offer an opportunity for schools to make a large sum of money, without a lot of extra effort required by school staff or school board members. Schools enter into exclusive beverage contracts to generate funds to support classroom education, not simply for extracurricular purposes. Items that are purchased were traditionally covered by government funds. These items include computers, audiovisual equipment, art supplies, sports and music equipment, textbooks and library books (OSSTF, 2001a) and are required for the daily operation of the school program. "Continued cutbacks-or at least insufficient funding in education budgets-are only likely to exacerbate the growing corporate presence or the reliance of schools on alternative funding

sources to help keep the schools open and all their programs operating” (Briggs, 2005, p.23). An Ontario study found that 35% of Ontario secondary schools relied on corporate sponsorship to keep programs running (Briggs, 2005).

Former Ontario Minister of Education, Gerard Kennedy, recognizing the reliance of school boards on these contracts to provide extra funding for schools, has increased yearly funding in an attempt to “rebuild our publicly funded education system” (Kennedy, 2004b) noting an \$854 million increase in 2004 alone, and an investment of over \$1.1 billion since the Liberals have come into office (Kennedy, 2004b).

2.14.2 Detrimental Effects of the Contract

2.14.2.1 Health

Ultimately the contract is in place to make money for both contract partners. The way to maximize profits is by increasing the sales of beverages, hence student beverage consumption, with a strong focus on the sales of sugar added beverages. Many of the financial incentives within the contract are offered in exchange for allowing an aggressive marketing campaign on school property, with the intent of bringing recognition to their brand and higher consumption. As previously mentioned in the literature review, increased consumption of these beverages has caused much concern over childhood obesity and subsequent chronic conditions due to increased weight gain. Also, soft drinks themselves have been directly linked to health consequences.

2.14.2.2 Advertising and Promotion of Beverage Products in Schools

Children are targeted aggressively by marketers in many areas of their lives. Annually in the United States, food and beverage companies spend approximately \$1 billion

advertising to children (Story & French, 2004). It is estimated that American teenagers themselves spend over \$140 annually, while children under 12 contribute another \$25 billion (Strasburger, 2001). Companies recognize the incredible spending power of kids. Not only do they have large disposable incomes, but the power to influence the purchases of their family, influencing another \$200 billion in spending annually (Horgen et al., 2001). Referred to as “cradle to the grave” marketing, reaching kids at a young age creates brand loyalty and captures them as consumers for many years, hopefully (for the company) for the rest of their life. Children are young and impressionable. Wide spread advertising through television, magazines and other popular culture media makes children believe that the product is “cool.” Use of products by the younger generation has an influence on social trends (OSSTF, 2001b).

Marketing to children within the school is a controversial issue. From an advertiser’s point of view the school setting is the ideal place to reach the potential child consumer. Within this uncluttered environment students are a captive audience that can be reached in large numbers. Exclusive deals made with the school mean that students will be focusing on the ads of only one company, and not disrupted by the messages offered by others. Children have been taught by their parents to trust their teachers and listen to messages portrayed at school and not question them (OSSTF, 2001a). Opponents of these contracts equate such deals with the school as “selling” the student, and question the appropriateness of such tactics even in the desperate need to raise funds for the school. Marketing at the level of the school not only increases product desirability and enhances consumption within the schools, but within environments external to the school as well.

2.14.2.3 Loss of School Control

Many of the beverage contract's details are controlled by the beverage company, not the school. The beverage company often has control over *product placement* and specifies that vending machines are to be placed in specific locations. High traffic areas which are visible to both students during the school day, and school visitors after hours, are often chosen. Contracts hope to increase vendor (vending machine) placement based on a "vendor index" or a student to vendor ratio that considers the number of students per vending machine in different areas of the school.

Sizing of beverages are also determined by beverage companies, often favoring a higher bottle unit to can unit ratio in all vending machines, as bottles not only increase product consumption but also bring in higher profits (Pepsi Bottling Group, 2000). The 12 oz., 160 calorie cans typically found in vending machines are slowly being replaced by 20 oz., 266 calorie bottles.

When not dictated by law as in Ontario elementary schools, beverage companies favor the selling of sugar added beverages such as soft drinks which are cheap to produce and comparatively cheaper to sell than healthier beverage options such as 100% fruit juices. Therefore, the company's *product selection* favours relatively inexpensive, unhealthy beverages. The price of a product heavily weighs into a child's decision whether or not to make a specific purchase, more so than the knowledge that a food is better for you. Price reductions of healthier options in vending machines of 10%, 25% and 50% caused sales to increase 9%, 39% and 93%, respectively, in a high school setting (French, 2003). Pricing of beverages can be used to increase sales of healthier beverages within schools. Lowering the prices of products does not necessarily mean that the school will lose money. French (2003)

discovered that the reduced prices also increased the volume of healthier food that was sold, keeping vending machine profits consistent.

The *duration of a contract* is often for 5 or 10 years. Should the school decide that the contract does not fit with their need, schools are responsible for paying back all costs incurred to the beverage company. These costs would include the price of vending machines, all advance payments, products and promotions given to the school. This makes it very difficult for a contract to be terminated.

Companies often specify the *times* that the vending machines are to remain *operational* during, before, and after the school day and especially during the lunch time break. Some schools have attempted to limit soft drink consumption by locking vending machines with the use of automatic timers before classes start and during lunch periods.

Though *vending promotions* are opportunities for the school to obtain free merchandise, free products, student scholarships and even extra money for the beverage contracts, the beverage companies may specify specific locations where advertisement signage is to appear. Usual locations include scoreboards, on soft drink machines, cups, and cafeteria notice boards.

2.14.2.4 Undemocratic Process

As a result of the controversy surrounding marketing practices, health concerns, and the desire of the beverage company to remain competitive in other school contracts, contracts are not readily publicly accessible. Schools boards lose control of their ability to share contract details with students, parents, and even school staff, as they are bound to secrecy clauses within the contract. Contracts with beverage companies are usually arranged and

discussed in private, completely opposite to the democratic process under which the elected school board representative trustees usually work.

The beverage companies require that contract details be kept secret because they contain commercial and financial information that has been “supplied in confidence” (Pepsi Bottling Group, 2003, p.14) and disclosure of the agreement could “reasonably be expected to harm significantly the competitive position and/or interfere significantly with the negotiating position” (Pepsi Bottling Group, 2003, p. 14) of the company. The beverage company must first approve all statements made by the school board regarding the contract. Schools and school boards who enter into these contracts also do not want contracts details to be made public because often the deals require students to purchase a specific quota of drinks in order for the school to receive maximum financial benefits from the contract (Briggs, 2005). “This creates a potential conflict of interest where, when the contracts are with junk food companies or soft drink companies, schools are in the position of promoting and encouraging the purchase of these products by students” (Briggs, 2005).

2.15 Municipal FOI and Protection of Privacy Act

To gain access to the details of an exclusive beverage contract it is necessary to file a Freedom of Information (FOI) request to the government. Each attempt to make public a school beverage contract must be submitted independently, as decisions are made on a per case basis. Based on past experiences, however, an FOI request is not enough to make schools reveal their contracts. It is often necessary to appeal to the Information and Privacy Commissioner (IPC) of Ontario. Mediation by the IPC Commissioner usually results in the schools revealing their contracts without further intervention required.

The Municipal FOI and Privacy Act which began in 1991 applies to a number of local boards, agencies, municipalities and commissions, covering information discussed within schools boards. Freedom of Information legislation in Canada grants its' citizens a number of rights including access to government held records, with a limited number of exemptions to this right. Under this act, an individual is permitted to request that access to either personal or general information from a government institution be made public (Government of Canada, 2002).

2.15.1 How to Submit an FOI Request and Appeal to the Information & Privacy Commissioner of Ontario

To submit an FOI request, \$5 and a letter (addressed to the FOI Officer) must be sent to the school board from whom you are requesting information. Additional costs may be applied to pay for the preparation and searching of such documents. If these steps do not generate a satisfactory response or a complete copy of the requested documents within 30 days of the request, it is necessary to file an appeal with the Information and Privacy Commissioner of Ontario.

To access general records, such as information from a school board, the appeal process will cost \$25. It is the Information and Privacy Commissioner who investigates the appeal as an independent ombudsman appointed by Parliament. Through mediation and persuasion he attempts to solve all disagreements outside of court. On the rare occasion when a negotiation cannot be reached, the Federal court reviews the case. School boards (and other public institutions) are required to provide a response to this appeal within 30 days (Office of the Information Commissioner of Canada, 2003).

2.16 Vending Policies of the Ontario Secondary School Teachers Federation

While there are no policies that ban beverage contracts from occurring within school boards, the Ontario Secondary School Teachers Federation (OSSTF) has issued a report stating: “The OSSTF is opposed to the commercialization of Ontario’s classrooms, particularly when our students become a captive audience for commercial predators” (OSSTF, 2001c, p.1). The OSSTF has also established a number of recommendations in an attempt to “eliminate the exploitation by commercial interests of young people in our public schools” (Manners, 2001). The resolutions include policies to eliminate foods of minimal nutritional value within school settings, banning commercial advertising, the requirement of school boards to publicly discuss exclusive beverage contracts before any final decisions are made, the prohibition of commercial signs, and policies that schools should not sign contracts that attempt to create brand loyalty in students. The policies also recommend that before any decisions are made on “privatization, outsourcing or commercialization” at the school, public discussions at school board meetings should take place (OSSTF, 2001c).

Secondary schools with, versus without, policies regarding the type of snacks sold in vending machines have reduced frequency of snacks purchased by students; students of schools with policies purchased snack food vending items on average 0.5 days per week compared to students at schools without policies who made vending purchases on average 0.9 days per week. Interestingly there were similar, yet non significant trends for purchases of soft drinks. However, purchases of soft drinks were significantly lower when there were policies restricting beverage vending machines from operating over lunchtime (Neumark-Sztainer et al., 2005).

CHAPTER 3: STUDY RATIONALE, GOAL AND OBJECTIVES

3.1 Study Rationale

The purpose of this case study was to describe the perspectives surrounding the issue of school beverage contracts (and consequently child health) from a broad group of stakeholders. Specifically, the perspectives concerning beverage contracts in two Ontario school boards in Canada's 2004-2006 sociopolitical environment were studied.

3.1 Goal of the Study

With the overall goal of supporting healthy eating for students, this study assists in further understanding the environmental influences on a child's food selection within a school environment and strategies to facilitate the selection of healthy food in this environment.

3.3 Objectives of the Study

1. To describe the sociopolitical environment in Canada 2000, at the point at which the Dodds' Freedom of Information request regarding school beverage contracts took place, and subsequently to 2006.
2. To describe the Dodds' case. Specifically, the process they went through to gain access to the beverage contracts of both the Peel and York Region District School Boards.
3. To summarize the issue of school beverage contracts from the perspectives of Nicholas and Jack Dodds.

4. To use qualitative research methods to explore the vending issue from the perspectives of a range of stakeholders representing the following jurisdictions: government policy, school boards, beverage and related food industries, public health, nutrition experts and community members including parents and students.
5. To discuss implications for change of beverage contracts within Ontario (public) school boards and strategies which promote a child's healthy vending (food) selection within a school environment.

CHAPTER 4: METHODOLOGY

4.1 Methods

A description of Canada's sociopolitical environment (Objective #1) and an exploration of stakeholders' perspectives of school beverage vending issues (Objective #4) emerged from information gathered via open-ended interviews with multiple stakeholders. The second and third objectives, a description of the Dodds' case, and their views of school contracts, respectively, was achieved by interviews with Jack and Nicholas Dodds and through a review of the information presented on their personal website¹. On this website, the Dodds outline their involvement and interest in school beverage contracts. The fifth objective, a discussion of implications for change and strategies to promote a child's healthy vending selection within schools, was based on both documentation review and open-ended interviews. The documentation review utilized a number of sources (See Section 4.5.1 Documentation Review) to generate informed solutions.

4.2 Qualitative Approach & Rationale

This study describes the perspectives of a broad group of stakeholders through a qualitative research approach utilizing the case study methodology. "Qualitative research is an inquiry process of understanding based on distinct methodological traditions of inquiry that explore a social or human problem" (Creswell, 1998p. 15).

Traditionally, the qualitative approach has served a contextual, descriptive, or exploratory function (Snape & Spencer, 2003; Marshall & Rossman, 1999), interested in describing or "identifying *what* exists in the social world and the way it manifests itself"

¹ <http://www.aci.on.ca/~saublent/school/vending.html>

(Ritchie, 2003, p.27). The purpose of qualitative research is to “explore and describe the participants’ understanding and interpretations of social phenomenon in a way that captures their inherent nature” (Ritchie, 2003, p. 28). The social phenomenon studied in this thesis was school beverage contracts within a Canadian context, from the perspectives of a broad group of stakeholders.

An important characteristic of qualitative research that was desired for this study was the richness of detail the researcher was able to collect concerning a specific phenomenon. Utilizing this method, it was possible to describe the event in the respondents’ own terms, and allow the phenomenon to be explored directly from the unique view of each individual (Ritchie, 2003). To fully grasp the understanding of the stakeholder group, it was essential to look at school beverage contracts from their individual position, using their terminology and particular area of expertise.

4.2.1 Rationale for Qualitative Approach Exclusively

While it is possible for case studies to employ both quantitative and qualitative procedures to obtain information, this study utilized only qualitative data. The qualitative approach was desirable because of the “need to present a detailed view of the topic” (Creswell, 1998, p.17). It was the detailed, in-depth responses that could not have been obtained by quantitative means that provided the clear perspectives of stakeholders that the research sought to describe. Such detailed descriptions, allowed common or diverging themes to be recognized across study participants (Snape & Spencer, 2003).

4.3 Case Study

When there is no “in-depth perspective” on an event, a case study should be performed. A case study permits a full exploration of the case (Creswell, 1998). Case studies offer a “more global or comprehensive form than do other methods of inquiry” (Bromley, 1986, p.14). The term “case study” can refer to either or both a “process” of qualitative analysis or a “product” (Patton, 2002; Stake, 1995). The case study “process” or “strategy of inquiry” (Denzin and Lincoln, 1994) refers to a specific way of collecting, organizing and analyzing qualitative data, consisting of the study research questions, theoretical perspective, findings, interpretations and conclusions (Eisenhardt, 2002; Yin, 2004; Patton, 2002; Denzin and Lincoln, 1994). Through this process detailed information is collected on the specific case. The “product” of this “process” is also known as a case study (Patton, 2002).

Within a case study, the “case” is the unit of analysis, and can be a group, an individual, a region, a program, or a critical incident (Patton, 2002). It is the “real-life set of events from which data is drawn” (Yin, 2004, p. xiv). This study identified a case as a stakeholder affected by and/ or knowledgeable about the issue of school beverage contracts. Collectively, the opinions of all the stakeholders formed the case study of the issue (Creswell, 1998).

4.4 Study Sample

4.4.1 Sample Recruitment

The study sample was selected through purposeful sampling. “Purposeful sampling involves studying information-rich cases in depth and detail to understand and illuminate important cases rather than generalizing from a sample to a population” (Patton, 2002, p. 563). This strategy enabled the researcher to specifically choose to study particular

“information-rich cases” who had a lot of information to share on the specific issue (Patton, 2002). In the current study, the researcher purposely selected individuals who could provide informed and wide range perspectives on school beverage contracts and the contracts’ relationship to child health. Specifically, a combination of purposeful sampling strategies was utilized in this study. The intensity sampling strategy was combined with a maximum variation sampling strategy (Patton, 2002). In the current study, individuals with prior knowledge of school beverage contracts and child nutrition were asked to participate. These individuals were purposefully selected for their knowledge of beverage contracts, school environments or child health (intensity sampling strategy). Exceptions were the participating parents, students and some teachers who only had minimal knowledge of the contracts. These participants were chosen because of the researcher’s ultimate goal to obtain a wide description of stakeholder perspectives on school beverage contracts. Hence, participants who were chosen based on their diverse employment background, community involvement and political interests, were not always aware of or familiar with school beverage contracts, but still contributed to a wide range of perspectives from a heterogeneous group of stakeholders (maximum variation, heterogeneity sampling strategy).

The student investigator recruited all participants. Participants were initially contacted via email or telephone and informed about the study and invited to participate (See Appendix I for Email and Telephone Recruitment Scripts). An information package (containing a Letter of Information and an Informed Consent Form) was emailed to all individuals interested in participating or who had requested more information on the study. A follow-up telephone call occurred approximately one week after the information package was sent to set up an interview.

4.4.2 Sample Size

In total 25 interviews took place. This accounted for 26 stakeholders being interviewed.² Stakeholders interviewed represented a broad range of organizations, including student groups, parents of students, school boards, government agencies, vending companies, researchers and dietitians (For complete description see “Profile of Participants” in Chapter 5). All stakeholders interviewed were adults, with the exception of two participants under the age of 18 who represented the “student” stakeholder group.

There are so many key informants who could provide invaluable perspectives into the area of beverage contracts and child health. The sample size of 26 individuals provided the breadth of information desired to describe a wide range of perspectives in great detail. Not only had saturation been achieved in terms of the facets of the issue being adequately explored with 26 participants, but a wide representation of stakeholders were also represented in this sample size.

4.5 Data Collection Procedures

4.5.1 Documentation Review

Case studies usually combine data collection methods (Eisenhardt, 2002). Initially, a documentation review was performed to gain an overall understanding of two school beverage contracts within Ontario, the York Region District School Board and the Coca-Cola Bottling Company and the Peel District School Board and the Pepsi Bottling Group.

A literature review about soft drinks, schools and student health was also conducted. This review allowed the researcher to develop an understanding of the factors affecting the study issue and informed the creation of interview probes and questions. Documents that

² For one interview two stakeholders requested to be interviewed at the same time.

provided insight into potential key informants to be interviewed were also reviewed and assisted in the creation of personalized questions based on their experience, knowledge or expertise. Documentation review was the second form of data collection (along with interviews) to be used within the study.

Documents reviewed included request for proposals for vending contracts from the school boards, request for proposal winning bids, beverage contracts between the school board and beverage corporations and peer reviewed literature. The review of such documents permitted the triangulation of data sources, increasing the credibility of the information obtained from the interviews (Lincoln & Guba, 1985). According to Patton (2002) “different kinds of data can be brought together in a case study to illuminate various aspects of a phenomenon (p.559)”.

4.5.2 In-Depth (Open-Ended) Interviewing

In-depth interviewing is “the major way in which qualitative researchers seek to understand the perceptions, feelings and knowledge of people” (Patton, 2002, p. 21) and allows researchers to “enter into the other person’s perspective” (Patton, 2002, p. 341) to receive an “in-depth understanding of the personal context within which the research phenomenon are located” (Snape & Spencer, 2003, p.37). It is through this type of interviewing that the stakeholders shared their viewpoints regarding school beverage contracts.

According to Yin (2003), there are two guidelines to follow when interviewing for case studies. First, it is necessary to follow the protocol the researcher has set out in advance and secondly, to ask questions in an unbiased way. This allows the researcher to obtain the information they are seeking in a non-threatening way. Creswell (1998) recommends placing

open-ended questions on paper with large spaces between them, allowing the researcher to write comments based on interviewee responses.

4.6 Data Collection Tool

The open ended interviews consisted of approximately 15 open-ended questions (See Appendix II for Final Interview Questions). The use of open-ended questions allowed the perspectives and view points of all stakeholders regarding school beverage contracts to be expressed in their own words, without limitation or bias through the use of predetermined questionnaire categories (Patton, 2002). The interviews used in case studies are more “guided conversations rather than structured interviews” (Yin, 2003, p.89). A set of general questions, prompts, probes and follow-up questions were created in advance to ensure there was some similarity among the questions asked to interviewees and to ensure that all participants were asked some standard questions of similar wording (Patton, 2002). This approach was also time efficient; the questions indicated to the interviewee important points to be covered during the brief interview (Patton, 2002).

Questions that were specific to the individuals’ role within or knowledge of beverage contracts and child health were also created. The sequence in which the questions were asked was unimportant, and was determined by the natural flow of topics between the researcher and the interviewee. Though some of the questions were pre-determined, they were open-ended, and the participants were free to respond in any way they chose. If a specific topic was brought up while answering a research question that the researcher was interested in exploring further, probes were used.

A majority of the interviews occurred over the telephone at a time appropriate for both the researcher and the interviewee. Others occurred at a mutually convenient location

and time. Many of the participants were only able to participate in a phone interview due to work scheduling and prior commitments. Other interviews occurred with participants from around Canada and it was not feasible for the researcher to travel the long distance.

4.7 Audio taping of the Interview

The interviews provided information on interviewees' specific terminology, perceptions and personal judgments on issues (Patton, 2002). To accurately recapture this information outside of the interview, all interviews were audio taped and transcribed verbatim upon consent. Consent for transcription was received for all interviews. Using a tape recorder also permitted the interviewer to pay more attention to the interviewee (Patton, 2002), making the interviewee more comfortable by focusing on them and their thoughts, rather than copying down what they were saying.

4.8 Establishing Trustworthiness of Interview Data

When looking to establish the "trustworthiness" of qualitative data, Lincoln and Guba (1985) propose the use of the terms "credibility," "transferability," "dependability," and "confirmability" instead of the quantitative terms used, respectively, "internal validity," "external validity," "reliability" and "objectivity." Trustworthiness of the data from this study is displayed in the following ways:

4.8.1 Credibility (Internal Validity)

To increase the probability that credible findings were produced, triangulation of qualitative data was performed. Specifically, this was done through the triangulation of data sources, triangulation of researchers and triangulation of interviewees.

1) Triangulation of Data Sources

Interviews were checked against written documents to confirm information reported in the interviews (Patton, 2002). As this study describes the personal perspectives of various individuals, triangulation of multiple data sources only occurred to verify statements made by interviewees regarding the terms of the YRDSB or the PDSB beverage contracts or proposals. The researcher obtained copies of all these documents.

2) Triangulation of Researchers

A limitation of this study was the inability to compare the views of multiple researchers. Due to the random scheduling time of interviews, it was not possible for two researchers to be present at the interviews. This is an ideal situation which allows for the comparison of viewpoints and notes recorded at each interview. Triangulation of observers is used to reduce the “potential bias” that may occur when only one individual collects all the data (Patton, 2002). To reduce, or eliminate the potential of such bias, all interviews were audio taped and transcribed verbatim, permitting the researcher ample time to review the information after the interview.

3) Triangulation of Interviewees (Member Checks)

The transcribed interviews were returned to half of the study participants for review to ascertain whether the information collected served as adequate representation of information discussed within the interview. At that time, participants had the opportunity to modify or clarify thoughts, or provide additional views that were missed or forgotten at the time of the interview. This process put the interviewee “on the record” as being aware of saying certain things, and ultimately agreeing to the truthfulness and the accuracy of all the

information contained within the interview transcription (Lincoln & Guba, 1985). Moreover, it ensured that the participants' thoughts and views were accurately portrayed in the interview.

4.8.2 Dependability (Reliability)

Researchers external to the project were consulted to examine both the process (establishing dependability) and product of data collection (establishing confirmability) (Guba & Lincoln, 1985). The format of the interview questions were reviewed by a number of external researchers familiar with qualitative research and open-ended interviews and the question content was reviewed by three individuals familiar with the main issues surrounding beverage contracts within the media, community and the literature. These steps were taken to ensure the questions were not biased, and composed in a way to maximize the range of data received on the topic area.

4.8.3 Confirmability (Objectivity)

Due to ethics regulations, only the student researcher, research assistant and the graduate supervisor had access to the interview transcripts. To confirm study findings, the research assistant reviewed the analysis performed by the student researcher, and verified the findings against information provided in the transcripts and other "raw records" (Lincoln & Guba, 1985) to determine whether the study findings, interpretations and conclusions could logically be drawn and supported from the gathered materials. "Raw records" included all field notes recorded at interviews, audio taped interviews, transcribed interviews, interviews coded for themes, methodological notes and interview protocols (Lincoln & Guba, 1985).

To confirm transcripts were coded properly, the research assistant (with graduate training in qualitative methods) provided training sessions on the coding process, and coded a sub-sample of transcripts (4 of 25 interviews = 16%) which were compared against the coding the student researcher had performed on the same transcripts. This ensured that the codes observed within the interviews were in agreement. Any differences were discussed until agreement on the transcript coding was achieved. Coding agreement reached 90%.

4.9 Data Analysis

Upon gaining consent, all interviews were audio taped and later transcribed verbatim. All procedures received approval by the Office of Research (See Appendix VII for Ethics Approval). A copy of the transcribed interview was sent to half of the interviewees. This provided participants with the opportunity to review (their own interview only) and confirm the information discussed. Participants had two weeks to make revisions or comments on the transcripts and have them returned to the student researcher. This provided participants with the opportunity to verify that the information discussed at the interview properly represented their views. This was also a chance for participants to make note of important points that were forgotten during the interview and to clarify other points. A Feedback Letter to Participants was also mailed with the copy of the transcripts. (See Appendix III for Feedback Letter)

4.9.1 Coding of Qualitative Data

Data from interview transcripts was organized through the use of QSR NVivo[®] computer software (NVivo, version 2.0; Doncaster Australia: Sage Publications Software, 2002). Interviews were scrutinized by the student researcher both by hand and with the use of

QSR NVivo[®] to identify patterns in the data. This was done because a combination of both methods is “likely to achieve the best results” (Welsh, 2002, p.1). In doing this, the data were coded in three different ways: open coding, axial coding and selective coding. By coding the transcripts “units of meaning” (Miles & Huberman, 1994) were assigned to the data. Through this process the data were reduced into the main points, and the main points then organized into categories. The data labeled and from which the themes arose were statements that “occurred more frequently or were repeated” by stakeholders (Luborsky, 1994, p.196). Information that was found to be important to the stakeholder was also labeled. There were three predominant stages involved in the analysis of the data (open, axial, selective). Within each of these stages the data were reviewed a number of times.

4.9.1.1 Open Coding

Open Coding was the first step of coding. Open coding is the part of data analysis where “the naming, and categorizing of phenomena through a close examination of the data” occurs (Strauss & Corbin, 1990). During the first pass through of the data, the data were reduced and the transcript text organized into categories. Data were categorized based on “themes, concepts or similar features” presented in the transcripts (Neuman, 1997, p.420). These categories were later used in the formation of themes. “Open coding brings themes to the surface from deep inside the data” (Neuman, 1997, p.422).

To perform open coding each sentence and paragraph of the interview transcript was examined individually and labeled (coded) with a short phrase or word that reflected its content. Examination of the data at this stage consisted of asking questions about what this small portion of data meant, and a comparison of the data with other small parts of data. This was done to limit the number of labels created (Strauss & Corbin, 1990). All passages from

transcripts that reflected the same theme were coded with an identical label. Some transcript sentences or paragraphs were coded under more than one label showing the relationship between the different categories.

After all phenomena (unique concepts) in the data were labeled, labels were further reduced into categories. Similar events (phenomena) with common properties were grouped into categories (Strauss & Corbin, 1990; Kirby & McKenna, 1989). Categories created were based on themes presented in the data. Whenever possible, a category label came from a participant's own words (Strauss & Corbin, 1990). After the open coding process, similarly coded categories were combined to create "analytical themes" (Kirby & McKenna, 1989). This process was further facilitated through axial coding.

4.9.1.2 Axial Coding

Axial coding occurred during the second pass-through of the data. Axial coding "stimulates thinking about linkages between concepts or themes" (Neuman, 1997, p.423). In this stage of analysis connections were made between different categories; initially coded categories and quotes placed under them were reviewed (Strauss & Corbin, 1997). This stage of analysis consisted of noting similarities and differences between the categories. Such analysis allowed categories to be (1) expanded; clustered together based on "closely related concepts" among the categories or (2) collapsed. Initially coded themes were further analyzed at this stage to determine if the themes really were distinct topics, or whether they could be collapsed into one theme.

Categories may be clustered together based on sequences, physical location, or relationship to a particular topic (Neuman, 1997). This process "reinforces connections" between the themes and enhances support for the themes based on evidence found in the

qualitative (raw) data (Neuman, 1997). At this stage of analysis, sub-themes were also identified. Any data that were originally categorized under a particular theme and that no longer “fit” were re-categorized.

4.9.1.3 Selective Coding

During the third stage of analysis, all codes and data were again scanned. Cases that discussed similar themes were identified and compared and contrasted (i.e., differences between groups of stakeholders). Codes were reorganized and elaborated (Neuman,1997). The purpose of this was step was to identify how people of different stakeholder groups viewed school beverage contracts and their influence upon childhood obesity.

CHAPTER 5: RESULTS

The following section addresses the fourth study objective of exploring vending issues from the perspectives of a range of stakeholders representing a number of jurisdictions. For clarity of the case study, the perspectives' of Nicholas and Jack Dodds and their process to gain access to school beverage contracts (second and third study objectives) were previously discussed on pages 5-6. Further perspectives of the Dodds' have also been integrated into the results section.

5.1 Profile of Participants

Sixty stakeholders were contacted to participate in the study. Ultimately 25 interviews representing 12 stakeholder groups and 26 participants were conducted by the same interviewer. Interviews ranged in length from 25 minutes to 90 minutes, with 40 minutes as the average duration of the interviews.

The interviewer attempted to interview at least two representatives from each stakeholder group participating in the study. For a variety of reasons this was not possible at times. A majority of study participants were from the greater Toronto area, and one was from another province. Government agency representatives and industry member representatives were particularly difficult to arrange interviews with. Government workers often flat out refused to be interviewed. Beverage companies stated it is against company policy to participate in any "academic projects" because of the large number of requests received each year. Other industry workers were more helpful and despite their refusal to be interviewed, provided the interviewer with a large and informative media package. One industry member after learning about this study themselves sought out participation in this study.

5.2 Interview Themes

Five themes emerged from stakeholder interviews: “Awareness & Knowledge,” “Influences of Obesity & Co-morbidities,” “Perceived Value of Beverage Contracts,” “Accountability” and “Future Directions (For Shifting Norms).” All themes were interrelated with the theme “Awareness & Knowledge” encompassing all other themes. The following write up identifies sub-themes and topics of the five dominant themes that were informed by stakeholder interviews. Varying stakeholder perceptions are identified within the study write-up. For a more detailed view of the similarities and differences of stakeholder perspectives a summary table of findings has been included in the appendix (see Appendix VIII for Findings Summary Table). While the summary table attempts to further pull together key perspectives, it cannot fully capture the richness of the interviews.

A list of stakeholder groups can be viewed in Table 1. Table 2 provides a description of the sample’s familiarity of childhood obesity and school vending contracts, with a particular focus on school beverage contracts. Instead of using a participant’s name in the study write-up and diagrams, individual participant quotes and ideas are identified by both their representing stakeholder group and a corresponding number.

Table 1: Number of Participants Interviewed By Stakeholder Group

Stakeholder Group	# Contacted	# Participated	% Participation
Government*	13	5	38.5
Industry	13	2	15.4
Academic (Researchers)	5	1	20
Parents	3	3	100
Students	4	2	50
Dietitians*	2	2	100
Policy Analyst/ Lawyer	1	1	100
Community	1	1	100
Non Profit Organization	8	3	37.5
Teachers	5	2	40
Teachers Association*	4	2	50
School Board *	2	2	100
TOTAL	60	26	43.3

* representing different sectors, organizations, associations and boards

Table 2: Familiarity of Stakeholders with School Vending Contracts & Childhood Obesity

Stakeholder Group	Gender	Familiarity with Vending Machines	Familiarity with Beverage Contracts	Familiarity with Childhood Obesity	Familiarity Central Primarily to Work or Interests
	M/F	High/ Average/ Low/ None	High/ Average/ Low/ None	High/ Average/ Low/ None	Work/ Interest
Government					
1.	F	Average	Average	High	Work
2.	M	Average	Average	High	Work
3.	F	Average	Low	Average	Work
4.	F	Average	Average	High	Work
5.	F	Average	Average	High	Work
Industry					
1.	F	High	High	High	Work
2.	M	High	High	Average	Work
Academic (Researchers)					
1.	F	High	High	High	Work
Parents					
1.	F	Average	Average	High	Work
2.	F	Low	None	Low	Interest
3.	F	Low	None	Low	Interest
Students					
1.	M	High	High	Average	Interest
2.	F	Low	Low	Low	N/A
Dietitians					
1.	F	Average	Low	High	Work / Interest
2.	F	High	Average	High	Work / Interest
Policy Analyst/ Lawyer					
1.	M	Average	Low	High	Work/ Interest
Non Profit Organization					
1.	F	Average	Low	High	Work

2.	F	High	None	High	Work
3.	F	High	High	High	Work / Interest
Stakeholder Group	Gender	Familiarity with Vending Machines	Familiarity with Beverage Contracts	Familiarity with Childhood Obesity	Familiarity Central Primarily to Work or Interests
Community 1.	M	High	High	Average	Interest
Teachers 1.	M	Average	Average	Average	Work/ Interest
2.	F	Average	Average	High	Work
Teachers Association 1.	F	High	High	Average	Work
2.	F	Average	Average	Average	Work
School Board 1.	M	High	High	Average	Work
2.	F	High	High	Average	Work

5.3 AWARENESS & KNOWLEDGE

“Awareness & Knowledge” is the dominant theme and resonated throughout all other themes. Stakeholders identified a lack of awareness and gaps in knowledge on many topics surrounding childhood obesity and school beverage contracts. More information was desired on what it means to be healthy, the creation of school beverage contracts and how children make food choices. Stakeholder’s interest in learning about health promoting activities at the school is also discussed under this theme.

The majority of stakeholders acknowledged the importance of identifying and finding solutions to childhood obesity and co-morbidities. Stakeholders recognized that obesity is an important issue with many implications for public health. Stakeholders acknowledged the epidemic childhood obesity presents in several countries, and the relationship it has to a number of other chronic diseases and risk factors (Government¹, Government²). Multiple co-morbidities exist alongside obesity and the consumption of sugar-added products. Teachers interviewed noted a lack of energy in students after lunchtime, with some students even falling asleep in class. Another health concern was the nutrient quality of a student’s diet because sugar-added products often contain little or no nutritional value (Teachers’ Association¹).

The relationship of sugar sweetened beverages to childhood obesity was described as “an important part of the larger picture” (Teacher¹) with vending machines “just really the tip of the iceberg” (Dietitian¹). Specifically, “only one of those causes [of obesity] is excess caloric intake and only one of the substances of excess caloric intake is the use of sweetened beverages, and only one of the sources of sweetened beverages that is consumed at school related to the contracts” (Government²).

Stakeholder interviews also revealed a general lack of awareness and a need for more knowledge of a number of topics surrounding childhood obesity and school vending contracts. Such topics include: “what does it mean to be healthy?,” “how are children making food choices?,” healthy practices at the school and a number of unknowns relating to both the formation and contents of beverage contracts.

5.3.1 What Is Healthy?

Stakeholders were interested in learning about “what is healthy eating?” Stakeholders who offered suggestions of healthy eating provided varying viewpoints. Some stakeholders described healthy eating as the total absence of non-nutritious products from the diet, while others felt that unhealthy foods, such as sugar sweetened beverages could be consumed in moderation on occasion.

5.3.2 How Are Children Making Food Choices?

Further understanding was also desired by stakeholders on how children are making food choices: what is influencing them and how they can be encouraged to make better choices. “Just having parents educated or schools understand these issues is ultimately not the important thing... just making sure that vending machines have healthy foods is not a big thing. It has to be kids that buy into healthy things and have the resources and knowledge to make those healthy choices in the long term” (Industry¹).

Student Nicholas Dodds agrees that currently students are lacking knowledge on how to choose healthier products, but feels that if provided with the correct information to make the right choices “young people are completely capable of making the ‘right’ decisions for themselves with minimal guidance from their adult counterparts.” This is in contrast to the

view of a teacher who stated that even armed with the proper education, students still will not and currently do not choose healthy options (Teacher²).

5.3.3 Unknowns Relating to Beverage School Contracts/ Vending in the School

5.3.3.1 Entering Into Contracts

While many stakeholders agreed that entering into beverage contracts is beneficial for schools, a majority of stakeholders also felt that before entering into contracts there needs to be a lot of consultation and discussion in order to understand the “dilemma around privatization.” One school board member felt they are “at the call of the community” when choosing to enter into beverage contracts. “If the community believes that this [beverage contract] can be controlled properly and indeed provides some additional opportunity and benefits, then I think we have a responsibility to explore and access it” (School Board ²).

5.3.3.2 Advertising

Furthermore there is a lack of knowledge of the effects of advertising on children. The outright banning of all advertisements to children as in Quebec was seen to be both premature, without knowledge of the impacts of advertising on children (Government¹) and not feasible (Academic¹). “In Quebec they ban all advertising, but there is no clear evidence to suggest whether that has an impact” (Government¹). Contrasts were made by a majority of stakeholders between the advertising of tobacco and food products. An outright ban of all advertisements to children was considered appropriate only for the former. The reason for this is because of the wide understanding that all tobacco products are unhealthy and therefore should not be marketed to children. However, “with food, unlike the area of

tobacco there is such a range of ‘products’, when is advertising okay and when isn’t it?” (Government¹). This view further emphasizes the lack of awareness surrounding what foods are considered unhealthy for children and which ones are acceptable. This idea is related to the sub-theme “Norms That Influence Obesity” under the major theme “Influences of Obesity.” It is difficult to modify unhealthy behaviours thought to result in obesity if there is no general consensus among society of what these are. Advertisement banning is also not considered feasible because “everything seems to be an industry today – Milk is an industry” (Academic¹). Interviewees suggested that “finding the right balance” for acceptable food advertisements to children within the school environment is particularly challenging because of the need to “mitigate against all other advertising that is outside in the real world when they step out of the bubble called the school environment” (Government¹). The solution of some stakeholders was to educate students on the effects of advertising. “Product placement is everywhere, people just need to be aware of it, that it’s there and it’s not necessarily good” (Academic¹). Schools’ solutions to this issue have been to educate students on advertising through the implementation of a media literacy tactic with the goal of making children more aware of the messages they are seeing in the media (television, computers, internet) and to make them more discerning consumers (Government¹).

5.3.3.3 Contents of Beverages & Snacks Offered In Vending Contracts

There is a lack of knowledge of which beverages are healthy. The public is unaware that many fruit drinks don’t have any juice in them, and are no better than soft drinks because of their high sugar content and minimal nutritive value (Government¹). If a school wishes to provide sugar added beverages, they need to also provide education about healthy choices. “Either you just go back to [providing only] water or you have a variety [of drinks] and

provide some degree of education. It is not the one drink occasionally that's bad it's the many drinks all the time" (Academic¹). Though vending milk contracts at school were initially seen as a healthier option than sugar sweetened beverages, there was much concern among stakeholders about the sugar content of flavoured milks. One teacher remarked that students often chose the flavoured milks over the non flavoured options and these contracts "replaced the pacifier for the bottle" (Teacher²).

Awareness of unhealthy vending products within the school can make a large impact. An industry member who provides a "Healthier Options Program" of school vending products stated that the desire for this program "comes from the customers, from awareness...awareness that people have the opportunity to make different choices" (Industry²).

5.3.4 Health Promoting Activities at School

There was seen to be a lack of awareness of nutrition promoting practices or policies at the schools and school boards. Information was specifically sought on healthy foods promoted within the schools and nutrition education in the classroom. Many stakeholders were particularly interested in the number of hours nutrition is taught in the classroom because of a general awareness that such lessons are the first to get pushed aside when teachers are short of time (Dietitian¹, Teacher²). Stakeholders mentioned that a lot of schools are becoming more aware of the need to "promote healthier behaviour." Increasingly, Public Health Dietitians and Nutritionists are promoting themselves and taking the initiative to start working with the schools to promote such behaviour (Teachers' Association¹).

Parent groups are also increasingly vocal about nutrition education and the need for healthy fundraising because of the regular media attention on childhood obesity (Teachers'

Association¹). Even teachers themselves found it difficult to realize the extent of unhealthy food choices available at the school. It was only when one teacher was describing the school's weekly fast food fundraisers during the interview that she came to the realization of how unhealthy her school was. "The more I think about it, even though I thought our school is not that bad, all the fundraising lunches are served with pop instead of juice or milk" (Teacher²).

5.3.4.1 Child's Consumption Patterns At School

Parents were unaware of what their children were consuming while at school. One parent interviewed never really thought about the availability of food and vending machines in the school because her children left each day with a healthy lunch. It was therefore thought that her children were not consuming beverages at school and if they did purchase a vended drink it would be a bottle of water.

5.4 INFLUENCES OF OBESITY AND CO-MORBIDITIES

Stakeholders noted many influences of obesity. These are grouped into four specific types: social influences, environmental influences, political surrounding influences and norms. These influences are sub-themes of the second major theme "Influences of Obesity & Co-Morbidities." "Children will make choices based on influences they've had in their lives as to how they want to go forward as human beings" (Industry¹). The sub-theme of mixed messages was echoed in many study themes, but is particularly visible among the discussion of influences (social, environmental and political) under this theme.

5.4.1 Social Influences

For the purpose of this thesis social influences include individuals such as parents, teachers and friends who interact with a child daily or on a regular basis. Stakeholders all agreed on the importance of providing children with consistent messages in order to have the greatest effect on their healthy eating and behaviours. Individual social influences and their interaction will be discussed, with a particular focus on the effect of mixed messages on healthy eating. Barriers to healthy eating and the importance of social modeling are also included in this sub-theme.

5.4.1.1 Relationship between Social Influences; At Home and School

First parents and then teachers were described by stakeholders as having the biggest influence on children. Concerns were raised about the effects of healthy eating when teachers and parents provided mixed messages. In particular, about the effects of food choices made by students (at school) when parents were not promoting healthy eating in the home (Non-Profit Organization³). Regardless of the potential for varying messages at the school and home, and the resulting increased difficulty this causes in teaching children healthy eating, stakeholders agree on the importance of schools “doing whatever they can” to promote healthy food choices in the school (School board¹). “If the child is only served so-called healthy food at home, then they will use that opportunity at school to try something else, but in the end they’ll return to healthy food” (Non-Profit Organization³). In contrast, a student interviewed stated that foods consumed at home had no influence on the food choices made at school (Student²).

Even though the school has little control over healthy eating in the home, stakeholders stressed the importance of teaching nutrition in the school because of the belief

that “a child has a huge influence on what’s done at home.” It was believed that “if a child is taught healthy eating principles, and everything at the school setting contributes towards healthy eating, that’s going to have an impact on the home” (Non-Profit Organization²). Students would be compelled to share the healthy messages learned at school with parents, which would influence changes in the home. The impact, however, was thought to be a lot less for students in secondary compared to elementary school (School board¹). Children should be taught at an early age about healthy eating patterns that will become part of their lifestyle. “It’s the difference between the 35 year old and the 15 year old...the hope is that if you get the 15 year old, you can affect what they are going to do as an adult” (School board¹).

5.4.1.2 Importance of Parental Modeling of Healthy Behaviour

The importance of healthy eating in the home was stressed by many stakeholders. The mother was described as having a particularly greater influence on the children than the father. Reasons for this were because of the woman’s role in choosing the food in the house and as the primary cook for family meals. One stakeholder described the mother as being in charge of the “food patterns of the house” (School board¹). Stakeholders offered many reasons for unhealthy eating in the home. Two major barriers were a lack of time and lack of money.

5.4.1.3 Barriers to Healthy Eating

5.4.1.3.1 Lack of Knowledge/ Awareness

The overwhelming size of some of the students in one teacher’s class lead the teacher to make the following comment about healthy eating: “I don’t think parents have a clue, or if

they do, I'm not so sure" (Teacher²). It was difficult for the teacher to understand how parents could allow their children to reach such a large size. Because of this, although she recognized the products offered in the vending machines were unhealthy, she felt that having vending machines at school were not going to make a difference, because the children could just obtain the same products at home where healthy eating was not enforced (Teacher²). This relates back to the dominant theme of "Awareness & Knowledge." It was felt that if parents were aware of the high prevalence of childhood obesity and the many health complications that could result, parents would not let their children become so large. At issue was the lack of parental knowledge on healthy eating and ways to work with their children to prevent obesity.

5.4.1.3.2 Socioeconomics of Family

The current lifestyle of families was found to contribute to unhealthy eating in the home. Inability to afford nutritious foods and lack of time to prepare healthy meals were the two reasons most often provided by stakeholders. "With so many parents both working and single parent home families, we have kids going to school without much food in their stomachs and sometimes not much money" (Government², Government^{4,5}, Parent²). Another interviewee indicated that parents give their children junk food because they "feel guilty" that they need to work so much (Non-Profit Organization³). Stakeholders with children agreed that lunches they made for their kids were healthier than food provided at the school. Lunches are less frequently made in households where both parents are working full-time which requires children to purchase "unhealthier" meals at school (Community Member¹). Stakeholders mentioned that schools feel the need to provide food on premise for children who are hungry, and are not able to bring lunch from home (Government¹).

5.4.1.4 Modeling of Healthy Behaviour in School

“With 80% of all households in non-traditional relationships, double working families, kids in daycare and babysitters...the school is probably the greatest influence on the health and well being of students” (Industry¹). Children are taught to trust the school; the same way they trust what the teacher says is correct, they trust that when the school serves food (even unhealthy food) that it is good for them (Non-Profit Organization¹). Teachers also recognize their responsibility: “it’s important that we [teachers] make sure as part of the role that what we teach we set by example” (Teacher¹). It is this same reasoning that lead all stakeholders to support the notion that teachers should not be using sugar candies or beverages as classroom rewards. While teachers interviewed also agreed with this they “feel at the mercy of the sugar industry” and provide unhealthy rewards to students in exchange for class cooperation (Teacher¹). “I don’t think it’s right, but it’s done, and probably done because it’s the cheapest way to get what you want” (Teacher²). Another teacher ultimately felt that the long term payoff of having the students learn something was more important. “I really don’t want to give these kids sugar, but if I can get their attention in that first three minutes while they are sucking on this sugar, whatever, I’m going to do it” (Teacher¹). Using candy as class rewards was considered by stakeholders akin to parents sending chocolate bars in a child’s lunch. A partnership of both parents and teachers is required in order to create a healthy environment (School board¹).

Healthy eating even at the school is sometimes influenced by parents’ choices. The introduction of a healthy snack program at school (for a small fee) was not supported by some parents. These parents opted to send their children with a “healthy” snack instead of having one purchased for their child. At times the snacks provided by parents were just as

healthy as the school provided snacks, but at other instances parents sent chocolate or marshmallows as healthy snacks for their children (Teachers' Association²). Reasons suggested for this behaviour was a lack of knowledge/ awareness of healthy foods, or lack of money in the home to afford healthy snacks. This relates back to the theme of "Awareness & Knowledge."

5.4.2 Environmental Influences

"The school environment is very important in fostering a healthy environment and healthy practices. Really obesity is such an enormous problem right now, we can't just leave it up to individuals and families alone to come up with a solution, so schools do have a role in providing healthy options and choices" (Government^{4,5}).

Environmental influences for the purpose of this research include the physical surroundings (such as the school, or home) where children spend a large portion of their time daily or on a regular basis. The use of vending machines and other potential sources of unhealthy foods within the schools such as classroom rewards and fundraisers, and sources outside of the school are discussed in this sub-theme. The importance of providing consistent messages in these places was underscored by stakeholders.

Healthy eating taught within the classroom should be replicated in the school environment (Government³). Of major concern to stakeholders was the mixed messaging that occurs in the school when children learn of healthy eating within the classroom, and then are surrounded by vending machines containing unhealthy snack foods. "The most powerful method of teaching is by example" (Community Member¹). Vending machines are thought to send a message that it is okay to eat these products, and this undermines what has just been taught within the class (Community Member¹, Policy Analyst¹). "If you keep seeing in your

environment that it's okay to eat the junk, they [the students] will" (Teacher²). The presence of unhealthy food in a child's environment was thought to encourage increased consumption; children would buy foods even when they were not hungry as "impulse buys." "Out of sight, out of mind; if you don't see it you'll do without it" (Teacher²). If unhealthy beverage products are not so readily available in the school then the children will do without them. "If you didn't have the vending machine, they couldn't make those choices" (Industry²).

5.4.2.1 Environmental Conditioning At School

Another concern was that children would associate the learning and trust in a school with products available in the environment. Specifically, having vending and beverage contracts in the school, sends a message that they are things that children should have access to all the time (Academic¹). "If kids see vending machines there, they see that's the food they should be eating, and there is a desire for those kinds of things" (Teachers' Association²). When a student is in an environment where they are required by law to be for a large part of their day they are a captive audience. It is unfair to subject the students to advertising in an environment such as school where the child has no choice but in viewing them. "You have vending machines in the cafeteria and students have to go there to eat lunch" (Student¹, Government¹). "Schools and school boards goal should be to create healthy children" (Government¹).

5.4.2.2 Vending Machines

The *placement* of vending machines was a concern for stakeholders. "Vending Machines are attractive, they excite us and so we want to buy something from the machine. We love it when we put the money into the machine and the thing turns around and the

chocolate bar drops down; this is what attracts us. But, putting healthy food in there, no one seems to make that leap...I find that really very challenging” (Non-Profit Organization³).

Vending machines were described as a symbol, a symbol of “oh you’re hungry – here’s something you can have right away” (Academic¹). Another stakeholder stated that a Coke machine in the hallway sends a message (to consume the product) and enables consumption (Policy Analyst¹). One teacher mentioned that vending machines are highly visible and located in high traffic areas. There is “peer pressure” to want to purchase product from the vending machines, even if the child doesn’t have the money. “I often hear the kids say ‘I want something, do you have any money?’ they’ll even ask the teachers; so not all of them have the money, but they will ask if they want it” (Teacher², Academic¹, Policy Analyst¹).

The *products offered* by vending machines were also noted by stakeholders. Of primary concern to a number of stakeholders was not that products were being offered in vending machines at the school, but rather the unhealthy choices that were presented in them (Industry¹, Government^{4,5}, Community Member¹, Dietitian¹). Unhealthy snack foods are those considered to be high in sugar and energy but low in nutrient benefit and served at portion sizes that are larger than recommended. “Vending machines tend to be very one sided; they only provide colas or those sorts of drinks; there is never any juice or milk nearby” (Academic¹). The portion sizes of the drinks sold in vending machines is also a concern. Many of the beverage vending machines exclusively sell 600 mL carbonated beverages and fruit drinks. “When you provide this [portion] to the student you’re teaching them the normal way to drink orange juice is 600 mL at a time.” (Community Member¹, Government³). It was noted, however, that though good guidelines for vending products

currently exist in Ontario, the challenge now rests on the ability of manufacturers to find healthy products that are able to both fit into the machine and remain fresh (Government³).

Other stakeholders, however, argue that the main issue of vending machines in the schools is that items are being sold to students to raise money in a publicly funded system. This was seen to be inappropriate. Stakeholders all agreed that vending machines containing sugar sweetened beverages should not be located in elementary schools, but varied in opinions as to whether the machines (containing all types of beverages) should be available in secondary schools. “High school is tricky because those students have their own money” (Academic¹). Stakeholders had mixed views whether the availability of sugar sweetened beverages in secondary schools would make a difference in consumption because children could choose to leave campus and purchase these drinks at the corner store (Teacher², School board² = YES, Teachers’ Association² = NO).

If similar product as are offered off campus is offered on school property stakeholders felt the school at least had the opportunity to control some aspects of the students purchasing activities. The school could also use healthier products offered on campus as a learning experience to teach students which beverages are healthier than others, and the frequency at which each drink can be consumed. Providing a range of products in the school allows students to make educated choices more readily (School board²). One stakeholder felt that if students had to go out of their way to purchase “unhealthy” drinks they might be too lazy to do that “because that means getting up and doing some exercise” (Teacher²).

Another solution suggested by many stakeholders was to provide only healthy beverage options in vending machines at school. “At least we can limit what they have in front of them in those eight hours” (Teacher²). Other stakeholders believed there was no role

for vending machines at all in the school (Community Member¹). The idea of limiting product types and access to sugar added beverages relates to “Political Influences,” specifically the democratic rights of students.

5.4.2.3 Other Food Sources Available at School

5.4.2.3.1 Cafeteria, Fundraising & Classroom Rewards

Just altering vending machines is not enough. It is important to also address the type of food served in the cafeterias (Government¹). Many stakeholders were concerned about the quality of cafeteria foods. One stakeholder described the school cafeteria as a “travesty” (Non-Profit Organization³). A teacher interviewed works at a school where there is no cafeteria, but every Friday fast foods such as hamburgers from Harvey’s, pizza and hotdogs are sold to students as a form of fundraising (Teacher²). When asked why the school insisted on offering these unhealthy foods she replied that the kids bought it, and it raised a lot of money. The meals are always served with a cookie and a soft drink. Juice and milk are not offered as choices (Teacher²). Teachers mentioned that bake sales at the school were also common because “You run a bake sale and the money comes in” (Teacher¹). Fundraising with unhealthy food products especially within the school environment provides mixed messages to the students.

5.4.2.3.2 Classroom Rewards

Despite the fact that teachers interviewed recognized the importance of schools promoting healthy foods at schools, they also recognized the importance of using sugar filled products such as chocolates and candies as classroom rewards to promote classroom learning. “The schools need to be a model. There is a place for foods we would not consider

particularly healthy in the way of snacks and drinks and this should be [served] periodically” (Dietitian²). A majority of stakeholders agreed that unhealthy snacks should not be given as rewards for classroom work. Unhealthy snacks distributed in the class on a limited basis (for example once a month), however, was found acceptable by some study participants (Parent²).

A teacher interviewed described the weekly in-class rewards provided by teachers at her school. The teacher interviewed handed out pencils as rewards, not for the nutrition aspects but because kids need pencils. The teacher next door however, hands out full size chocolate bars. Teachers recognize this is not right: “I don’t think it’s right, but it’s done, and probably done because it’s the cheapest way to get what you want” (Teacher²). The long term payoff of having students learning something was considered to be more important. When desirable rewards are offered in the class children are willing to listen to classroom instruction. Similar student behaviour does not occur when undesirable rewards (often healthy foods) are offered (Teacher¹). The use of rewards in the class and the types of rewards provided is related to the previously discussed sub-theme of “modeling of healthy behaviours in the school” under “Social Influences.”

5.4.2.3.3 Advertising at School & (Other Corporate Influences)

The real influencers of human behaviour are the national advertisers. Stakeholders agreed there were both peer pressures for schools to enter into contracts, and peer pressures for students to drink the soft drinks. Corporations who make beverage contracts available “have a lot of power and ability to influence and to devise very interesting and lucrative contracts, not just for themselves, but obviously to try and influence schools, and so it puts the schools and school boards I think in an awkward position to have to resist temptation, especially in the face of cuts that they [schools] have experienced over the last many years”

(Government¹). Stakeholders were generally sympathetic towards the school board.

Stakeholders recognize the need for schools to obtain external funding. “I think they [school boards] are forced out of necessity, to sometimes put the best needs of their students second” (Teacher¹). School boards were seen as being held accountable on both ends, financially, and morally accountable to the public. The effects of advertising on children were of particular concern because of their lack of knowledge on the effects of advertising and the impact upon their food choices. This notion relates back to the dominant theme of “Awareness & Knowledge.”

Advertising was seen to be the norm in society. All stakeholders agreed that the best protection against advertising was for people to become aware of its existence and that it is not necessarily good (Academic¹). There is uncertainty among stakeholders as to whether advertising could actually be banned because it is everywhere. “Milk is an industry. I hand out little pencils with cows on them courtesy of the Milk Board, so I can’t be naïve to say it’s only the soft drink beverage industry that is the problem” (Academic¹). This way of thinking is also discussed under the upcoming sub-theme “Paradoxes” of beverage contracts under the next theme “Perceived Value of Contracts.”

While a majority of stakeholders agreed that advertising to a child, especially in the school was not acceptable, advertising of healthy products –like milk, was considered to be more acceptable than sugar-sweetened beverages like soft drinks. Differences were drawn between tobacco advertising and the advertising of unhealthy foods. The latter was found not to be “crossing the line” and did not cause harm to the child (Teacher²). Milk advertisements were thought to encourage increased consumption among children resulting in healthier eating habits. Other stakeholders don’t “look at it [product placement in schools] as

advertising because if they [students] don't see it at the school, they're going to see it at every place they stop along the way home" (Teacher²).

Stakeholders are unsure whether the presence of advertisements and vending machines in the school has any affect on the consumption patterns of students because they are going to see similar advertisements and products everywhere else. Banning advertisements was not seen by stakeholders to be the answer. A better solution was found to be limiting the amount of advertisements allowed in schools. "Advertising is a problem, but it's a societal problem, it's everywhere. Schools should decide to try to limit it and not be naïve" (Academic¹).

The advertisers are willing the consumer to change their consumption behaviours (to their product – healthy or unhealthy). "The consumer is willing because they haven't established an internal model against which to bounce that advertising off. So if a national advertiser is touting the benefits of coffee with two large shots of cream and two heaping tablespoons of sugar, and they do that effectively enough...they'll create an image that it feels nice and patriotic...and convince people to line up in their cars for 20 minutes to drink 12 ounces of a sugary, creamy beverage" (Industry²). For this reason education on advertising and media literacy is crucial within a student's education (Industry). "Unless you change the hearts and minds of students and get them to actually think about what it means to purchase these [unhealthy] products for themselves physically and economically, you're never going to have that real change" (Teacher¹). A lack of knowledge as described in the primary theme "Awareness & Knowledge" resulted in the creation of unhealthy norms which influence childhood obesity. The sub-theme "Norms Influence Childhood Obesity" will be

discussed in section 5.4.4. The need to shift norms in order to prevent and decrease the prevalence of childhood obesity is discussed in the final theme “Future Directions.”

5.4.2.3.4 Community Environment (Outside of School & Home)

Once children enter secondary school their options for obtaining food increase. Elementary students can't leave school, so they arrive for the day and are supervised throughout their stay. Secondary students, however, are able to leave the school grounds and have more opportunities as young adults to do so with greater freedom. They are able to leave school property and go to the corner variety store or fast food restaurant and purchase the unhealthy foods or drinks anyways (Government^{1,4,5}). As long as the children are at school, however, there is thought to be an opportunity to control unhealthy student consumption through the provision of healthier food options combined with classroom education. Stakeholders agreed that a student's unhealthy food choices could not be controlled by the banning of unhealthy foods on campus, because the (unhealthy) foods will just be accessed elsewhere, but instead could be limited at the school through the provision of foods varying in nutrition so that unhealthier choices could be supplemented by healthier choices. As an example “maybe they drink one soft drink a day and supplement their other choice with water; by providing more access to these kinds of things they are able to make those choices more readily” (School board²). A high school student interviewed disagreed with these views and felt that a student would not buy food unless it was readily available on campus. Having asked a number of classmates, “if soft drinks or pizza was not sold in the main hall or cafeteria respectively, would you go off campus to purchase such items and bring them back to school?” the students responded: “No way, I wouldn't spend money on it if it weren't right in the school” (Student¹). Restricting unhealthy food choices in a school

community where students are bused in to school and there are no other options except to eat in the school cafeteria or pack a lunch was reported to likely have a greater impact on such students, compared to students of urban area schools with fast food restaurants located down the road from the school (Teachers Association¹). Such control over the products permitted in schools which affects a student's ability to make their choices free of coercion was a concern to a minority of stakeholders. This act was thought to violate a student's democratic rights. Further discussion of this concern occurs under the next sub-theme of "Political Surrounding Influences."

5.4.3 Political Surrounding Influences

Based on stakeholder interviews, for the purpose of this research political influences include government acts such as the creation and implementation of policy, funding provisions and the setting of curriculum. Democratic rights of Canadians, specifically of students are also included. The government was reported to have three main roles in the promotion of children's healthy eating: setting the curriculum including all nutrition classes, creation of policy that promotes healthy eating and the provision of funding for schools. A thorough discussion of stakeholders' view of Policy 135 is also included in this discussion.

5.4.3.1 School Curriculum

The provincial government has a role in setting curriculum expectations in the school. This includes classes that deal with nutrition, healthy eating and active living (School board¹, Non-Profit Organization²). Many stakeholders concur that the school's relationship with public health needs to be strengthened. Currently, any such relationship takes a lot of work on the part of public health to be established. Although these relationships are not mandated,

public health has shown success in working with the schools (Government¹). A recommendation provided by one stakeholder was the involvement of public health in assisting in the implementation of policy 135 (Dietitian²).

5.4.3.2 Policy 135

In particular, the interviewer asked stakeholders to comment on Policy 135. (For more information on policy 135 see section 2.13.3). Stakeholders reported a number of problems with policy 135. Many stakeholders shared the view that “policy 135 is a very soft policy” (Non-Profit Organization³). Policy 135 was considered an afterthought, a “reactive rather than a proactive stance” (Academic¹) because most elementary schools already were not providing sugar sweetened beverages (Government¹, Community Member¹). While it is hard to disagree with the message the policy promotes, it had little effect on changes in the food delivered at school (Community Member¹).

The policy only covered vending machines and failed to account for other venues selling or providing these beverages at the school such as tuck shops, cafeterias, special food days and classroom rewards and celebrations (Non-Profit Organization², Dietitian¹). The policy applied to vending machines in elementary schools exclusively which was not a major issue as many such schools had already banned sugar sweetened beverages, and not secondary schools where the policy could have made a difference (Community Member¹, Dietitian¹). The questionable result a similar policy would have on secondary schools was noted by stakeholders. The success of such a policy would be dependent on a number of factors including the proximity of the school to other food outlets. Secondary students, unlike elementary students are able to leave school and purchase sugar-filled products anyways. Therefore, restricting unhealthy foods at a school isolated from other food venues, and where

students have no option but to eat in the cafeteria or pack a lunch, would have a much greater impact on these students, compared to students of urban area schools (Teachers' Association¹). Other issues concern the rights of students (as they approach 18 years of age) to purchase any product they choose (Dietitian¹, Community Member¹). This shows the relationship between the sub-theme "Environmental Influences" and the effect of political influences.

Policy 135 does not say that schools *need to* restrict the sale of all foods, it only says they *should* (Non-Profit Organization³, Government²). The policy was considered to be very passive; the policy tells schools to do something but does not provide any incentive or reward for following it. It is important that the policy is translated into something for the schools, or else it is an empty policy (Academic¹).

Policy 135 was seen to be a political move by the government, an election promise to demonstrate their concern about childhood obesity (Government¹, Industry¹). "The government got a lot of mileage out of it [policy 135]" (Non-Profit Organization²). Another stakeholder felt that Policy 135 was not a health motivated move at all, but was "something that was meant to appeal to the parents and their constituency" (Industry¹). This policy was also seen as a government tactic to offload responsibility. "The provincial government issues this pious edict banning this but they really don't have to face the cost consequences of the ban" (Policy Analyst¹). For instance, the government in creating the policy did not offer any support in implementation. "It gives the guidelines but it doesn't say how the school will go about this. It doesn't give any clear assistance" (Dietitian²). The creation of a policy was not enough, the government also needs to implement it and take responsibility of all positive and negative consequences of the ban (School board¹).

Other stakeholders, however, felt that Policy 135 was a step in the right direction and that it was “working fine” (Academic¹, Non-Profit Organization², Dietitian¹). The actual value of the policy, however, was hard to determine because of the difficulty in obtaining follow up results from the government. One stakeholder observed the beneficial effect of the policy through increased requests by schools to meet with dietitians to ensure school nourishment programs complied with the policy (Dietitian²).

Stakeholders agreed that the province should have a role in affecting or encouraging change. It is not enough to create policy telling people to change, but also necessary for the government to provide programs that encourage and support change (School board¹). Stakeholders agreed that helping students make healthier choices was going to be more effective in promoting healthy eating than restricting unhealthy choices through policy. This was found to be especially true among older teens who are increasingly mobile, have more access to money and the freedom to come and go from school as they get older (Teachers’ Association¹). There was much disagreement among stakeholders about the effectiveness of policy to shift norms of healthy eating. Further discussion of norms and how they can be modified will be discussed under the sub-theme “Norms Influencing Obesity” and the final theme “Future Directions.”

“There are many effective programs that have been shown to say that if you combine curriculum with school food policies and other things, in theory it would actually go a long way, but at the end of the day how does all that fit into a school’s order of business, especially when in the face of cuts and other pressures” (Government¹). Government actions were thought to be self-limiting. The impact of government policies on schools were ultimately limited by the scarce government funding allotted to schools.

5.4.3.3 Funding

“The education system has suffered a great deal under our previous [Conservative] government, and so the schools have gone to look for means of actually covering their costs and this [beverage contracts] is just one of the many ways they are doing that” (Government¹, Government²). School boards seek extra sources of funding through beverage contracts because it is considered an easy, low effort method to raise funds for already overworked school staff.

The government ensures that schools have “the resources to provide the basic elements for an education” (School board¹). Beverage contracts, however, create some “much needed revenue for schools that are looking do some enhancement or extraordinary things that the provincial government just does not account for” (School board²). Both school board members interviewed made it very clear that contract funds are used for extra things not covered by the government; the “additional things, but not the stuff that is required” (School board¹). For this reason increased government funding to schools would still not eliminate the need or temptation of schools to enter into beverage contracts (School board^{1,2}). If the government provides extra funding the money goes to support extra staff, not to support students’ extra curricular programs. School boards, however, don’t have enough funds to provide the resources necessary for sports teams such as uniforms, paying referees or even traveling to inter school competitions (School board^{1,2}). These programs are known to be beneficial to the students. Contract funds may also be used to provide extra support for students in the classroom to assist the teacher or pay for field trips (School board¹).

One teacher interviewed mentioned the vicious cycle that occurs in the school environment when beverage contracts (and other fundraising activities) are used to

supplement government funding. Students, team coaches or captains seek money from the school to purchase new team uniforms. The school says there are no available funds. This leads students to request money from their parents to purchase soft drinks (or other fundraising items) to raise these funds. Sugar-filled foods and beverages are going to raise a lot more funds than the selling of healthy food items. So the children learn that they need to purchase these sugary foods in order to obtain new team uniforms. When more money is required this cycle will reoccur (Teacher¹). This dilemma is further discussed under the sub-theme “Paradoxes” under the major theme of “Perceived Value of Contracts.”

Praise has been given to the current Liberal government for putting money into the education system. Of concern is how the hundreds of millions of dollars removed by the previous (Conservative) government can ever be repaid to the schools (Teachers’ Association², School board²). A number of stakeholders, however, commented that no matter how much funding is provided by the government, schools will still seek to raise funds. “There will never be enough [money]. We will always require and want and advocate for more funding” (School board², Teacher¹). Schools do have a right to seek these extra funds for special events or activities they wish to provide for the student (Dietitian²).

5.4.3.4 Democratic Rights

Approximately one quarter of stakeholders were concerned with the democratic rights of students. These concerns included a school board’s control over contract making decisions and control over the types of beverages sold in school. Stakeholders thought it was very important for youth to be included in as many ways as possible in some school decision making processes. This was found to be particularly true for decisions that would directly affect them. It was important for students to feel empowered by making real world decisions

that affect them (Teachers' Association², Community Member¹, Teacher¹). Stakeholders felt that student involvement and the type and amount of rights are dependent on the age of the student. Specifically, the rights of students to demand vending machines containing sugar-added beverages varied between elementary and secondary schools. One stakeholder (School board¹) observed that vending machines primarily benefit the older students. Younger students are content using the water fountain to obtain drinks. Many stakeholders also agreed that vending machines do not have a role in elementary schools. Middle and high school aged children are young adults who are considered old enough to make their own decisions.

It was the types of products made available in the machines that were considered to restrict a student's right to choose. "They [schools] need to provide access to foods, regardless of their nutritious content to people because it is the right of a consumer to have access" (Government¹, Community Member¹). Control over products permitted in schools affects a student's ability to make their choices free of coercion and was a concern to a minority of stakeholders. This act was thought to violate a student's democratic rights.

5.4.4 Norms Influence Childhood Obesity

A treat is not associated with being healthy; junk food is a treat (Non-Profit Organization³). "No one is going to come and take an apple [for a treat] our brains have been programmed to associate certain foods with treats" (Teacher²). For this reason the use of sugary foods and beverages are effective when used as classroom rewards. Students enjoy the treats and will listen to the teacher if bribed with them (Teacher¹). Despite the fact that many stakeholders disagree with this practice, (Teachers' Association²) teachers look to the short term benefit of providing the rewards, having the students listen, and are not interested in

providing healthier alternatives which would not garner the same student response. This practice further ingrains in the minds of students that good behaviour deserves a treat, often the sugar-filled kind. Stakeholders recognized the tight time constraints under which teachers must work in order to teach the government provided curriculum and the need for classes to run efficiently. The sub-theme “Funding” under the theme “Political Influences” is thus linked to the need for teachers to bribe children with rewards. Such child exploitation will further be discussed under the sub-theme “Paradoxes.”

Schools are motivated to offer beverage vending contracts and unhealthy foods in schools in part because of “our culture of convenience and the need to provide access to foods, regardless of their nutritious content because it is the right of the consumer to have access” (Government¹). There is also the notion that schools might as well sell the products, because the students are going to buy them anyways (School board², Policy Analyst¹). According to an industry member interviewed, moderate price differences of healthy and unhealthy vended items does little to deter students from purchasing unhealthy products (Industry²). “No one is going to pay money to eat something they don’t like. Why don’t they like it, because we live in a society that has been raised on sugar. What do you expect now, they are going to reach deep in their pocket and pay for spinach or broccoli? No, they’re going to pay money, and probably good money if you start baking stuff like cookies” (Teacher¹).

5.5 PERCEIVED VALUE OF BEVERAGE CONTRACTS

Stakeholders had varying perceptions of beverage contracts. The value of such contracts is segregated into three groups: stakeholders who saw a positive value (advantages) to the contracts, others who saw a negative value (disadvantages) and the remaining

stakeholders who saw a positive value to vending machines in the schools after contract modifications. A number of paradoxes regarding beverage contracts, and unhealthy foods, in general, were also observed by stakeholders. While stakeholders recognized the disadvantages of providing access to unhealthy foods in the school environment, the benefits of doing so often times outweighed any negative implications.

5.5.1 Advantages of Contracts

Advantages of the contract included: an increased source of funding, beverage contracts fill a number of needs, including convenience and a source of food, stimulate conversation and promote traceability of funds raised from the selling of beverages.

5.5.1.1 Increased Funds Are A Primary Motivation to Enter into Beverage Contracts

The majority of stakeholders agreed the financial benefits are the primary motivator of schools for entering into beverage contracts and are the “first and foremost important aspects of the beverage contract” (School board², Non-Profit Organization³, Dietitian², Government^{1,4,5}). Even a teacher commented “I know for a fact that schools put the machines in not so much to encourage the kids [to consume the beverages] but because they get a kick back from the company” (Teacher²).

The need for funds was recognized. Schools are strapped for funds in so many different ways, the schools have so many competing priorities and so much that needs to be funded due to the decreased funding to Ontario schools (Government^{4,5}). “The education system has suffered a great deal under our previous [Conservative] government, and so the schools have gone to look for means of actually covering their costs. This is just one of many

ways they are doing that” (Government¹). The need for extra funding, which according to stakeholders is the primary motivation for contracts is therefore related to “Political Surrounding Influences,” specifically the sub-theme “Funding.”

Despite this, one stakeholder felt that “the financial rewards do not merit the tone that is set having machines; machines set a negative commercial tone” (Non-Profit Organization³) and that public schools should not be supported by private business. There are tax dollars to support public education. “The responsibility of the school is to turn out healthy children” (Non-Profit Organization³). Another stakeholder disagrees with this statement and believes that the community and school boards also have a responsibility to contribute to public education; beverage contracts provide this opportunity (School board³).

Other stakeholders recognize that no matter the amount of increased funds provided to the schools, schools will still seek to raise funds for special school events or activities (Dietitian²). One stakeholder felt that the schools had a right to do this. However, even with the increased funding recently provided by Gerard Kennedy of the recent government, funding has not increased to the degree where money from private contracts is not required. According to one teacher “there is never going to be enough funding because the role of schools is not considered as important as it is in other countries as it should be or could be here” (Teacher¹). Both school board members interviewed recognize that beverage contracts do create revenue for schools, however, the revenue “will provide additional opportunities to students; it is not the primary and should never ever be the primary source of funding” (School board²). The funding from vending contracts is in no way meant to replace government funding. Money from contracts create additional funding so that schools can address local needs; it is only used to fund “extra stuff” (School board^{1,2}). Beverage contracts

“create some revenue, some much needed revenue for schools, who look to do some enhancement or extraordinary things that the provincial funding just does not account for” (School board²). A teacher interviewed stated that there is always money for certain things: “As teachers all we hear is ‘there’s no money, there’s no money, but it seems to show up for certain things...like for the AV equipment, and that’s not cheap, but then we’re not getting money for books” (Teacher²). Other stakeholders, not involved in schools or schools boards felt that funds from vending machines are increasingly used for core funding and not for the “extras.” Vending machines used to be seen as a means to fundraise, but have recently become institutionalized. “Instead of someone seeing a few dollars to buy a few t-shirts, gradually it has become part of the overall school funding formula, and that’s really what the role is at present” (Community Member¹).

Other stakeholders felt differently and questioned how much support the money from vending contracts could provide. Of issue with J. Dodds is the small percentage of the school board budget that funding from beverage contracts amounts to. According to Mr. Dodds all money raised from vending contracts at the YRDSB equals only 0.1% of the total budget. He feels that in the total funding picture, the extra money received from the contracts is “irrelevant.” However, he also recognizes that the money is so attractive to principals because it is not earmarked money. “I have a strong suspicion ... that the reason why the principals feel they need the money is because they are so hamstrung by the bureaucratic requirement to account for the money they are given, that sometimes they need money that doesn’t have strings attached to it” (J. Dodds).

A school board member understands the concerns of advertising within the schools and possibly creating a monopoly for particular organizations and the students would thus be

exposed to that commercial venture. However, at the same time it was recognized that many schools already had contracts and/or vending machines in the school anyways. Therefore, the school board felt it was their responsibility to try to ensure that the financial returns from the machines back to the schools was as good as possible. Centralizing the contract was thought to be a way to do this (School board²).

An industry member interviewed noted the problems that arise with vending contracts when the machines are looked at as a profitable operation for the school, which creates conflicts of interest. When schools get into the vending business all of a sudden they get used to this extra source of funding. “How keen are they now to have no pop and no snacks in his school and get no commission?” (Industry²)

In promoting beverage contracts (containing sugar added beverages) as a way to raise funds a norm is created that drinking such drinks are acceptable because the money raised from them goes to a good cause. This relates to the theme “Future Directions” and its’ sub-theme “Need to Shift Norms.” In this case the negative norms that vending contracts have created in children.

5.5.1.2 Beverage Contracts Fill a Need

Not only do beverage contracts fill a need for increased funding but they also serve to fill a number of other needs such as drinking purposes, convenience, discussion generation and traceability of funds.

5.5.1.2.1 Drinking Purposes / Keep Students on Campus

Vending machines are viewed by a majority of stakeholders as a legitimate way to offer beverages to students at lunch and at breaks; to fill a need in the school environment.

Vending machines are a vehicle to get beverages to the students (School board¹, Teacher^{1,2}, Government^{4,5}). A school board member indicated that vending machines are on campus to provide the same services as cafeterias in schools; to provide services to keep students on schools grounds.

Vending machines were viewed by some stakeholders as a “convenient source of refreshment for the faculty and students” (Industry², Academic¹) and were found to be acceptable if recognized as a convenience for students who would rather purchase food from them rather than bringing food from home (Academic¹). Along similar needs vending machines are available when parents don’t have enough time to prepare meals for their children, or when kids have missed breakfast or lunch. Parents can be comforted knowing that these foods and beverages are available (Dietitian^{1,2}). This relates back to the previous discussion in “Social Influences” where both parent these days are required to work long hours and don’t have time to prepare meals. One stakeholder felt that that the beverage industry does not have any role in the school environment. Contracts were seen to be for the convenience of beverage companies, not for the convenience of the school or school board (Non-Profit Organization³).

5.5.1.3 Vending Contracts As A Public Topic of Conversation

Vending contracts, particularly beverage machines have generated a lot of discussion regarding the formation of beverage contracts, the importance of healthy eating in the school and healthy lifestyles of children.

As this topic of *vending machines* and childhood obesity has become a public topic of conversation similar discussions are now occurring within the classroom. Teachers can use the “Coke machine down the hall” as a visible example, one that students can easily identify

with when discussing healthy choices in the classroom (School board²). “Vending machines should exist, and I think vending machines in schools are a good idea and I think they can be a good teaching tool too” (Dietitian²). This is particularly true if vending machines include good food choices and beverage choices which are consistent with lessons taught in the class. Increased discussion leads to increased awareness of issues surrounding vending contracts and their relationship to childhood obesity, which relates back to the dominant theme of “Awareness & Knowledge.”

The discussion of *vending contracts* initially painted a very negative picture of school boards and school trustees as individuals who were hiding information and inappropriately making decisions. Through interviews with school board trustees it was observed that they understand why some accusations were initially made, but are very open to discussing what they know of contract details and especially the contract decision making process (School board¹).

Bringing awareness to the contracts allows students to play a much greater role in future decisions. Discussions have taken place within schools and school councils allowing people to look at both sides of the issue and make up their own mind. When the government became involved through the creation of policy banning sugar sweetened beverages in elementary schools this created even more discussion. School beverage contracts are considered to be a great educational opportunity that exposes students to “real-life education” that ultimately affects their future health and well-being (Industry²). “When schools are discussing students and their well-being, that is very positive (School board²). Especially important is that this topic has brought people together; the community of parents, school staff and administrators all discussing the welfare of children (School board²). Increasing

student awareness and knowledge is linked to the theme “Future Directions.” Educating the student is considered an important step in reducing childhood obesity.

5.5.1.4 Traceability

The issue of lack of audit procedures was mentioned by two stakeholders; a school board member and an industry member. Interestingly the school board member noted the lack of traceability of beverage profits when in the past beverages were sold by school department teachers, while the industry member mentioned the lack of traceability of funds at the level of industry under the current system of beverage contracts.

A major reason for one school board interviewed to become involved with beverage contracts was revenue generation. In the past, generation of funds from beverage machines rested on the interest of individuals within secondary schools or sometimes between a principal or department head and a vendor. Upon the realization that profits could be increased by cutting out the vendor role and instead shopping at wholesalers or stores like Costco individual teachers in the school volunteered to take on this role. While teachers who volunteer to do this are expected to turn over all revenue to the school “there is no guarantee that that is going to happen, because there is no way of tracing it” (Industry²). Entering into board wide vending contracts was done in part to eliminate this issue, and as a result has seen increased returns to the school (School board¹). One stakeholder further stated that “no publicly paid employee should have any part in operating the vending machine in a publicly funded facility” (Industry²).

An industry member, however, commented on the “tremendous lack of audit procedures from the schools back to the vendors” existing in the current beverage contracts.

Specifically, “there is a lack of audit procedures, both for the financial aspect of it and for the product and pricing aspect of it” (Industry²).

The vendors send in a sales report and commission cheque that according to the interviewed stakeholder – he has never seen nor heard of it being audited by the recipients (the schools). The lack of audit procedures and “the pressure of high commissions [on vended product] that are unsustainable creates even more temptation [from the industry] to beat the system” (Industry²). “Some of the commission rates that are being paid in Canada are not sustainable, and the only way they’re sustainable is when it forces people to do the wrong thing” (Industry²). According to this stakeholder, proper audit procedures “would bring some reasonability back into the industry that has driven these commissions so incredibly high” (Industry²). This relates to the next theme “Accountability,” specifically, the accountability of industry in childhood obesity.

5.5.2 Disadvantages of Contracts

Many of the disadvantages that arise with school beverage contracts all depict a lack of power and control at many levels of contract involvement. The decision to not make contracts transparent shows a lack of control of school boards in negotiating the contracts and the immense power afforded to beverage companies in such negotiations. Student power is also severely limited when they are excluded from any contract negotiations. Corporatization of schools, the final disadvantage mentioned by stakeholders empowers industry within the school environment, while removing control of school activities from the school and school board, and ultimately a student’s right to learn in an advertisement free community.

5.5.2.1 Contract Transparency

The primary concern of the contract decision making process was transparency and its effect on the democratic control of the school (Community Member¹). Contract secrecy was seen to be unnecessary, and transparency of the contract as something that all parties involved in the contract could benefit from (Government², Dietitians¹).

It is seen to be in the public's or the school community's best interest to be able to create the contracts, to determine for themselves the terms, and to discuss the motivating factors for entering into such contracts. The school is a public institution whose purpose is to provide students with the education to become good citizens. The school's role is not as a service to industry, but as a service to society. "One of the pillars of democracy is we [society] can demand some transparency from the public institutions that we support with our tax dollars" (Government¹). The fact that school boards need to be pushed to be more transparent about the corporate relationships is therefore "shocking, but not surprising."

The public through the elected trustee is to help inform decisions made at school board meetings. In fulfilling this role citizens need to know what is being done in schools. If the beverage contracts are kept secret then those in control, the citizens, are uninformed. "The citizens ought to be in control; you can't be in control of something if you have no idea what is going on" (Community Member¹). None of these decisions should be made behind closed doors. Parents and teachers have to be involved in the discussion because it has implications (Dietitian¹, Government²). This relates to two other themes: "Awareness & Knowledge" because information is being denied and "Accountability" of schools and school boards in allowing contracts to be kept private from the public.

Vending machine contracts are the most dangerous in that regard because teachers are too busy to question what is happening (Teacher¹). One teacher interviewed acknowledged that teachers neither got involved in contract creation, nor even discussed it. This was not because it was taboo, it just wasn't thought of. This was attributed to teachers being too overworked, and discussion or involvement into the issue of vending contracts "was above and beyond the day to day duties." There was simply no time to become involved. "You could have a conversation about it [beverage contracts] but when you're in the thick of it, unless you're going to design a lesson plan around it, it doesn't help you with the stack of marking, three class preps, the sports team, or the kid with problems, and you need to answer for this, and for that..." This stakeholder felt that the inability of teachers to become involved "is not by accident" and somebody benefits from this lack of attention. "There are lots of reasons beyond the school why these things seldom get attention. Somebody benefits from people being so busy" (Teacher¹). Lack of "Awareness & Knowledge" is felt to be denied because of "Political Influences." Teachers are under so much pressure to meet curriculum and teaching needs, they do not have time to become involved in school issues occurring outside of the classroom.

An industry member interviewed also acknowledged that contracts are kept secret from students and faculty. The industry member felt there should be more openness and disclosure of the contract and students could and should play a greater role in the contract. This is a great educational opportunity to understand how contracts work, a contract that plays a role in a student's health and wellbeing (Industry²).

Stakeholders who were not involved with contract formation felt that corporations who make these contracts available have a lot of power and ability to influence people and to

devise lucrative contracts both for themselves, and the school boards. This places the schools in an awkward position of having to resist that temptation which is especially difficult considering the budget cuts that schools have experienced in the recent past (Government¹). Funding of schools which was previously discussed under “Political Influences” is seen to force schools to seek out external funding from beverage contracts.

Board members interviewed maintain that keeping the contract confidential is consistent with their practices. Other contracts made between the school board and industry are kept private (School board²). Further, the school board members interviewed stated that it was the beverage companies, and not the school boards who required that the contract be kept confidential. From the school boards’ perspective it is “irrelevant” if the contract is kept secret. Contract secrecy was done to allow the industry to maintain “some degree of control” (School board¹). “When we sign contracts with any organization, even if it is the procurement of land, it is always confidential, so from our perspective as a school board, it was not us that wanted to keep the contract confidential, it was the provider, because of the competitive nature of their business” (School board²). School board members explained the desire for the beverage companies to want to “protect their price” so they are able to negotiate for different commissions and remain competitive in future contracts. According to school board members, there was nothing to hide. When asked to make the contract documents public they did so “immediately” (School board^{1,2}). This only becomes an issue of wanting to hide something “when there is one or two people in the community who seem to think this is a philosophical thing, and that somebody’s hiding something and wants to make a big issue of it; by the school board not making it [the contract] public, the board appears to be wanting to be secretive” (School board¹). All the board is concerned with is obtaining the

best return possible from the vended product and “from our [the school boards] perspective we don’t care what or how much of the contract becomes public knowledge” (School board¹).

Stakeholders who do not work in the vending industry found it difficult to comprehend the need to keep contracts private. Before industry can validly claim that making contracts publicly available hinders industry competition, one stakeholder would like evidence that shows a loss of profits would occur if the contracts were to become transparent (Student¹). Until then the question remains as to why the contracts needed to be “shrouded in secrecy” if the companies are “operating ethically and with due diligence to law and public opinion” (Student¹). Students recognize their alienation from the decision making process and the tactics employed to keep the contracts private from them and the public at large (Teacher¹, Student¹). Other students however, did not recognize that a board-wide vending contract even existed, nor cared as long as vending products were made available in the school (Student²).

5.5.3 Positive Value of Beverage Contract after Contract Modifications

While a number of stakeholders focused solely on the negative aspects of vending contracts in deciding they should not be available in schools, the rest of the stakeholders, though recognizing deficiencies in beverage contracts, found contracts to ultimately be a positive endeavour for schools as long as certain modifications were made to the contract. “There certainly is a role for vending machines if used in the right way” (Dietitian¹). A number of stakeholders mentioned that they had no problems with school beverage contracts as long as “good beverages” were sold. “The main issue [surrounding beverage contracts] is that the vendor needs to provide the appropriate product.” Appropriate products are those

which are consistent with school health guidelines and provide students with the option of purchasing healthy snacks (Dietitian²). Specifically, milk contracts were repeatedly mentioned as a much healthier choice and one that was enjoyed by children when offered to them (Non-Profit Organization², Teacher², Teachers' Association², Parent²). The motivation of school administrators for providing milk vending contracts and other beverage contracts are different. Milk is a food that children require daily anyways and when schools offer these products "it is because they [schools] want to make sure milk is available to their kids at lunch or breaks." When schools, however, enter into different kinds of beverage contracts "It's not for the same reason. Usually it's because they [schools] want to do a bit of fundraising" (Industry¹).

The main goal of contracts should be to provide beverages to students, not to convert the school into a commercial forum. Contracts were seen to be acceptable if advertising in the school was eliminated or reduced. (Non-Profit Organization², Teacher²). Providing "appropriate" beverages gives students the opportunity to purchase for themselves foods that they enjoy and are healthy for them (Dietitian²).

5.5.4 Paradoxes

While the majority of stakeholders recognized the deficiencies (disadvantages) of having vending contracts within the school which included the promotion of inconsistent messages to the students (mixed messages), corporatization of the school environment and a generalized loss of power and control, many stakeholders also found vending contracts in the school to be beneficial to students. Such views resulted in a number of paradoxes emerging from the stakeholder interviews. Paradoxes were segregated into three categories: Ethical

Behaviour vs. Child Exploitation, Health Promotion vs. Money Matters and Mixed Messages Regarding Health in the School.

5.5.4.1 Ethical Behaviour vs. Child Exploitation

There is a fine line between schools being ethical and exploiting the child. Schools attempt to provide students with the best facilities, equipment and classrooms, however, in doing so schools often exploit students by taking their money during numerous fundraisers designed to tempt them, or through the use of bribes to promote classroom learning.

School board members, teachers, and industry members want to act ethically, though the realization of the benefits (such as increased funding for the schools, increased industry sales and increased learning) that can result with the availability of vending contracts and unhealthy foods in the schools, makes many such individuals give into temptation and act in a seemingly less than ethical way to reap these benefits which ultimately may not be in the best interests of the students.

5.5.4.1.1 Taking Students' Money

Contracts were praised by a majority of stakeholders as a viable option to raise much needed extra funding to benefit the students through extra curricular activities, despite the fact that the funds used to pay for these extra resources often come out of the pockets of students who themselves have little money. There is only one source of money from these vending contracts, “it’s the money that goes into the coin chute...the money comes from the students” (Industry²). Vending contracts are considered to be an inappropriate way to raise funds, there is no “free money” all of it comes from the pockets of students (Academic¹). Stakeholders agree that students of a public institution should not be relied upon to fund

anything in the school, including the “extras” that are not covered by government funding. This is akin to “double taxing” (Industry²). Governments have a moral imperative to protect and promote the health of their citizens. Children are the most vulnerable members of society and must be protected (Government¹).

Stakeholders did not suggest the complete removal of vending contracts from the schools but rather “finding the right balance or policy to keep industry and other players in check in the interest of the people, not stakeholders” (Government¹, Community Member¹).

5.5.4.1.2 Advertising in the School

Children are required by law to go to school and are taught at a young age to trust teachers and the importance of learning in the school environment. They are thus a very captive audience that is open to the messages portrayed in the school environment.

Corporations view school advertising as a way to create life long consumers; exclusive beverage contracts give the company sole rights to promote their products which are viewed daily by students. While a majority of stakeholders agree that corporatization has no place in the school, they feel powerless to eliminate it and see beverage contracts as a way to control marketing in the school while reaping contract benefits. This relates to the sub-theme “Environmental Influences.”

Stakeholders agreed that the role of vending contracts was two-fold. Not only, as previously discussed, do vending machines fill a need for another source of food and beverage at school, but they also fill a need of industry to create future consumers through product placement and advertisements (Teacher¹). Research has shown that it is in the industry’s interest to brand consumers from a very young age to promote a lifelong consumer and preference for their products.

Most stakeholders do not think children should be targeted by advertising and thus have a real concern about vending contracts and the related advertising in the school environment. “The whole philosophical approach that schools should not be used as sites for developing consumerism and particularly brand loyalties, but for education... is a real concern; children may be exploited in these ways without realizing it” (Teachers’ Association¹). Stakeholders are concerned that “sometimes with the contracts we may be selling our souls; I feel as if kids are being too aggressively marketed” (Teachers’ Association²). This is especially true in the school where children are required to attend and thus view the school’s advertisements without choice on a daily basis.

Stakeholders however also recognize that some degree of advertising within the schools is always going to be present, and instead are concerned with ways not of eliminating advertising completely from school grounds, but instead containing advertising and ensuring it is properly used (Teachers’ Association²). Differences were drawn between textbooks and notebooks labeled with a publisher’s or company logo and the labeling of school athletic team clothing with company logos. The latter was considered to be inappropriate product placement within the school.

5.5.4.1.3 Unhealthy Food Products As A Bribe

In providing unhealthy treats as a bribe, teachers model inconsistent messages from nutrition lessons taught within the class, providing mixed messages to the student. The role of one stakeholder as a dietitian working in industry was to “facilitate and encourage teachers to not only be good teachers, but teachers within the realm of healthy eating.” In doing so teachers are expected to act as good role models and employ tactics that facilitate student learning. Bribery is seen by this stakeholder as a tactic employed by teachers that is effective

in promoting classroom learning. It is difficult for this stakeholder despite his/ her role to enforce a perspective on another adult (the teacher) that while unhealthy snacks may work in the short term to quiet children, the long term effects of this activity are not favourable (Industry¹).

Teachers interviewed “feel at the mercy of the sugar industry” (Teacher¹). One teacher interviewed mentioned that once in a while he would bring apples for the students, but “they never went as quick as the chocolate bars or suckers” (Teacher¹). Instead as a supply teacher he chose to bring in lollipops for students which he described as a “good kind of pacifier that you can actually get some silence.” This allows him to give some actual instruction.” Wanting to be a good teacher and have students participate in a learning environment he needs a few moments of silence to give instruction. Providing lollipops is a “clever trick” for doing this. While he does not want to “load students up with empty calories” he ultimately feels that the long term payoff of having the students learn something is more important. “I really don’t want to give these kids sugar, but if I can get their attention in that first three minutes while they are sucking on this sugar, whatever, I’m going to do it” (Teacher¹). The sub-theme “Political Influences” and the government’s role in curriculum creation is related to this sub-theme. Teachers are already taxed with their compact schedule and are willing to compromise their belief in healthy eating and the promotion of unhealthy messages in order to “be a good teacher” and make the students listen.

5.5.4.2 Health Promotion vs. Money Matters

“Why is it when so many children are becoming obese at such an intense rate that we are promoting junk food in the schools” (Student¹).

Stakeholders recognized the health implications of increased sugar consumption in children of which sugar sweetened beverages has been implicated as an attributing factor in children, but nevertheless chose to disregard such issues in favour of the financial benefits which will benefit the school as a whole. This issue can be summarized by a stakeholder comment. “The whole concept of making profits for the school board off vending machines should be eliminated because it puts the school board into conflict with a nutritional situation where they do things which are not in the interests of students” (Community Member¹). An example provided by another stakeholder: “The principal is used to getting a \$10,000 a year commission from his chocolate bar and Coke machine, how keen is he now to have no pop and no snacks in his school and get no commission? So now he’s got a conflict of interest” (Industry Member²). Stakeholders recognize the conundrum schools are in. It is important for schools to provide a supportive and healthy environment for children, but this requires extra funding (Government¹).

While stakeholders are aware of the difficult position recent budget cuts have placed schools in, in providing an environment free of vending contracts, they also recognize the need for schools to do outside or internal fundraising (which includes vending machines) in order to recover from the loss (Teachers’ Association^{1,2}, Student¹). Schools are both financially and morally accountable to the public, and for that reason one stakeholder interviewed is “a little more sympathetic to the school boards; they have to straddle the fence on both sides, and its difficult” (Teacher¹). Schools are many times forced out of necessity to enter into vending contracts.

Many stakeholders, however, still feel that selling unhealthy products is the wrong way to raise money (Government^{2,4,5}, Teachers’ Association¹). The beverage contracts

“create a dependency on a product that is very unhealthy for students” (Teachers’ Association¹). The desire of school boards to make decisions that benefit both students’ health and a school’s financial need is recognized, but the “child’s health often becomes a second priority” (Teacher¹). This is related to the theme “Future Directions” and the need to shift unhealthy norms.

Some stakeholders felt that unhealthy foods should be restricted within the school environment because allowing such foods to enter in the school is akin to endorsing or encouraging the consumption of the products (Government¹, Academic¹). Schools, however, feel beverage contracts are the only way they can afford to pay for “extra” student programming and services (Government^{1,2}). Sugary foods have always been the easiest products to sell for fundraisers. Even if government funding was increased “no government could ever compete with the advertising budgets of food companies or any company” (Government¹). A teacher interviewed stated that during school dances pizza and chocolate bars are sold because “the kids buy it and we will make money” (Teacher²). School boards noted that most schools already had beverage contracts, and centralizing the contracts maximized the financial benefits.

Another stakeholder (Teachers’ Association¹) commented on the danger of schools relying on beverage contracts for even funding activities not covered by the government. Schools and school boards who have come to depend on contracts as an added source of revenue may be left struggling to make up for lost revenue, should commercial interests of the beverage contracts change, and the contracts are no longer available to them

Of issue with beverage contracts in particular is that oftentimes they are volume dependent, and in order for schools to seek maximum revenues, a certain amount of

beverages must be sold. This makes the contracts “complicit in over-consumption.” This volume is based upon “unnatural and unhealthy consumption levels” (Government²).

Beverage contracts are considered an “immoral way to raise funds” and were compared to the selling of cigarettes in schools in the past (Government³).

To combat this paradox, stakeholders suggested the implementation of school policies created jointly by school boards and public health that state “unhealthy” products such as chocolate bars and sugar sweetened beverages are not to be used for fundraising.

Stakeholders recognize that for such a policy to be effective it is not sufficient to only create the policy, but present the schools with acceptable options that will both meet fundraising and health objectives (Government¹). Currently there is a “big disconnect” between these issues, despite the fact that they are related (Teachers’ Association²). “We have to start presenting some alternatives if we want to encourage healthier options being considered for fundraising.” If the provincial government is to create policies that prohibit vending contracts and this extra source of funding, the provincial government needs to provide some financial backing to the schools in the form of compensation for loss of revenue. Further solutions suggested by stakeholders are discussed under the theme “Future Directions.”

5.5.4.2.1 Mixed Messages at School

The promotion of consistent healthy messages in school is important in rooting long-term, healthy behaviour and choices in the minds of students. Often this desire is overshadowed by the use of inconsistent messages which are seen to benefit both students and the school in the short run. “The role of both the school and school boards are to promote, support and role model eating behavior that optimizes learning potential. There is a

definite link between learning and health, and we need to role model and advocate for what we are teaching” (Dietitian¹).

It is necessary to reinforce healthy eating and healthy choices at the schools. This includes matching products provided in school with messages taught in the classroom. (Government^{3,4,5}) “What happens is that students are taught about Canada’s Food Guide to Healthy Eating... and then go out in the hall and see vending machines selling drinks which have no nutritional value, other than sugar, and that undermines what is being taught in the classroom” (Community Member¹). A number of stakeholders felt that having vending machines in schools which contain unhealthy foods sends a message to students that they these are products to which students should have access to all the time (Academic¹). Such machines are considered to enable consumption (Policy Analyst¹). The greater prominence of unhealthy foods in the school is “a form of education by example, which is very powerful and undermines the message that is being promoted in the classroom” (Community Member¹).

Vending contracts cannot be targeted in isolation of other sources of unhealthy foods at school (Government¹). It is necessary to focus on comprehensive school health and integrating all components of the school (Government^{4,5}). “You’re teaching nutrition in the classroom; you want to have the same message everywhere that the child goes to access food within the school environment – so you want healthy foods there” (Non-Profit Organization²). Foods sold as fundraisers, used for classroom rewards and class parties must also be targeted (Non-Profit Organization²). “It doesn’t make sense to put in foods within a school environment that are not healthy” (Non-Profit Organization²). Teachers also play a key role and it is important that they lead by example (Teachers’ Association²).

According to the Ottawa Charter For Health Promotion (WHO, 1986) resources and equal opportunities are required to "enable all people achieve their fullest health potential." Such opportunities include a supportive environment that provides students with the "opportunity for making healthy choices." Without sufficient resources, in this case money for the proper funding of public schools, schools are required to acquire beverage/vending contracts to raise much needed funds. This places students in the awkward position of having to make food choices that are not healthy, like buying soft drinks, in order to see increased revenue come into the school. In attempt for schools to reduce operating costs, many schools no longer have full kitchens to prepare school lunches, but instead use heating units to prepare frozen, often prepackaged foods (Non-Profit Organization³). There is a need to provide lunch for the student, and this is seen to be more economically viable than the preparation of fresh foods. The school in both these instances in an attempt to make/ save money due to a lack of financial resources becomes an environment that is unsupportive of health promotion.

5.5.4.2.2 Classroom Rewards

Unhealthy foods used for fundraising and classroom rewards not only send mixed messages to students (Government³, Dietitian²) but also label food as good vs. bad. When sugar filled foods are used as rewards this discourages the message that healthy foods can also be rewarding (Government^{4,5}). Teachers recognize that classroom rewards can be healthy, but often provide sugar filled treats because of their increased ability to make students listen and convenience (Teacher²). "It's [chocolate bars] easy, very little mess, no liquid, no sticky and they eat them" (Teacher²). "Kids aren't going to listen for an apple the same as they're going to listen for a chocolate bar...and that's just the way it is" (Teacher²).

Schools need to model appropriate behaviour; the periodic use of foods not considered particularly healthy is seen as acceptable by a number of stakeholders (Parent², Dietitian²). Providing both healthy and unhealthy options at school mimics choices students will need to make in the real world, and can be used as a learning opportunity to make healthy choices within a controlled school environment (Dietitian², School board²). The provision of such choices is seen to be particularly important in secondary schools. “In high school we’re starting to prepare students for the bigger world...we want to model the good behaviour but we might also want to introduce the concept that there is choice in the world” (Dietitian²). The prior sub-theme “Social Influences” indicated the importance of teachers modeling healthy behaviour, and the resulting negative impact if they do not.

5.6 ACCOUNTABILITY

Many groups of people were named accountable for unhealthy food choices, childhood obesity and the need for schools to obtain beverage contracts. These include Schools & School Boards, Government and Industry. These three groups found to be most accountable will be discussed. Joint accountability was also commonly discussed among stakeholders.

5.6.1 Schools & School Boards

The mixed messages communicated in schools lead many stakeholders to find schools primarily accountable for unhealthy food choices, consumption and the resulting increase in childhood obesity. “Given what is happening in society generally as far as obesity and unhealthy behaviours when it comes to nutrition – there likely needs to be a little more emphasis in schools” (Dietitian²). Schools are seen to be responsible for promoting healthy

eating because: “if schools don’t do it...no one’s going to” (Non-Profit Organization³, Academic¹). Parents don’t have time to teach their children because of their busy work schedule (Non-Profit Organization³, Parent²). Schools are therefore considered to be responsible not only for the intellectual growth of children, but also their physical growth. The school needs to educate the whole child, because “[they] children don’t go home and do their physical growing” (Teacher¹). The school is also an important place for such learning because of the inability of some families to afford nutritious foods for children (Parent²).

Schools are seen to be particularly important in shaping a child’s healthy lifestyle choices and habits because of the large amount of time spent in the school environment especially during their formative years: “certainly the philosophy is that it’s much easier to create kids with good eating habits than it is to try and change them later in life” (Non-Profit Organization²). Schools and school boards are thought to “lay the groundwork for being overweight over the next 20 or 30 years” but are not “seeing their responsibility there at all...they don’t see any lifelong responsibility for the health of their children; they are shortsighted” (Government²). Schools and school boards are seen to be rebelling and not wanting to accept this responsibility: “the whole idea of health within the school environment in terms of what services are offered and what foods and programs are offered are relatively a new thing, and I think schools are rebelling, to some extent against that because its adding responsibilities that some may feel is the role of the parent” (Industry¹). Others feel the lack of responsibility for a student’s health is due to the lack of research suggesting that sugar sweetened beverage consumption will lead to health problems in the short term (Government¹).

Despite these reasons stakeholders strongly disagree with this lack of responsibility: “Education has been a very fickle source of norm creation in this society whether its in terms of what constitutes a good citizen, respect for human rights, tolerance, whatever, all these good things that Canadians most of the time try to align themselves with. So for the schools to just say not only do we have no role in terms of healthy lifestyles...its strikes me as truly shocking” (Policy Analyst¹). This idea links back to a number of themes and sub-themes. The school does have a role in norm creation. Norms as previously discussed in the sub-theme “Norms as Influences” have effects on a child’s healthy food choices and thus childhood obesity. Teachers, school staff, and parents as discussed in the sub-theme “Social Influences” also have an impact on childhood obesity. Based on stakeholder interviews it is evident that the traditional roles of schools as educators and the family as a model of life skills which includes making healthy choices have not yet been redefined to embrace the new social structure of the family. With both parents needing to work to support the increasing costs of living, the family has largely abandoned their role in teaching life skills. The school has not yet modified their role to fill this need, leaving many children without the knowledge and skills to make healthy lifestyle choices which include healthy eating.

Educators see the role of schools and school boards as teaching what it means to eat a healthy diet through classroom education, support and role-modeling such actions in the school environment (Government³, Dietitian^{1,2}). School board members interviewed indicated there was a large amount of responsibility placed on them to ensure that policies created at the board level are followed in practice by individual schools (School board¹). Other stakeholders interviewed felt this large amount of responsibility is rightly placed on the school board, along with their unique opportunity to develop important policies about foods

acceptable in schools (Teachers' Association¹). "Schools have to recognize in this day and age, they have to be a little bit more responsible in terms of health and health goals. No, it's not their role primarily, but they need to think about how they can be supportive at a secondary level" (Industry¹). Another stakeholder stated that "unless it [healthy eating] becomes a public issue, schools are never going to be held accountable" (Teacher¹).

The government can send messages of healthy eating in the form of policies and curriculum, but ultimately it is the individual school or school board that is responsible for implementing such activities and putting the messages into action (Academic¹). Specifically, what is taught in the classroom is dictated by the Minister of Education, but stakeholders recognize that teachers do not cover all the material provided to them (Non-Profit Organization³). Ultimately some of the downfalls of schools were attributed to the government, and the lack of public health training and funding provided to schools by the government (Government²).

5.6.2 Joint Accountability: Schools & Parents

Healthy eating is a shared responsibility. "The school can accomplish absolutely zero unless what they do is done in concert with other parts of society." The value of parents promoting nutritious eating and a healthy lifestyle was noted by a number of stakeholders (Policy Analyst¹). In order for the school to be successful in having any effect on the eating patterns of students, parents need to provide students with consistent messages and healthy options at the home (School board¹). Parents who send unhealthy treats in lunches have just as great an impact on a teacher providing unhealthy classroom rewards. Teaching healthy choices is a "partnership" that comes from many sources (School board¹). A number of stakeholders noted the potential for healthy messages taught in the school to carry over into

the home (School board¹). As numerous groups are found to be accountable for childhood obesity, stakeholders recognize the need for multidisciplinary interventions. The value of such interventions is discussed under the final theme “Future Directions.”

Awareness of childhood obesity and the availability of unhealthy choices in the schools must occur at “every level.” “If it [awareness] only happens at the provincial level, the students never feel it. If it only happens at the level of the school, that’s great – but if we want to imagine something larger than our own community or other communities, pistons have to be firing at the local level, the school level, the school board level and the provincial level” (Teacher¹). This statement is directly related to the final theme. Stakeholders in the theme “Future Directions” stressed the importance of interventions not only being multidisciplinary, but also comprehensive.

5.6.3 Government

Government accountability was mainly based on two issues: the lack of funding provided to schools and a failure to implement or assist in promoting policies within the schools.

A key role of government is to set standards and expectations (via policy) regarding eating habits and healthy lifestyles. However, it is not sufficient for the government to tell students to change (through policy); it is necessary for the government to assist in policy implementation through the provision of school programs that encourage and support change (School board¹). Policies that have financial implications for schools (for example policy 135 which restricts the selling of certain vending products), need to provide some financial backing for them. If the government wants to ban certain items that have traditionally

brought in revenue for the school, then the government needs to provide funding for a loss in revenue (Policy Analyst¹)

The weaknesses of the government which have lead to claims of their accountability are not exclusively the fault of government. Stakeholders interviewed stated the community has been too “laissez faire” and have allowed the markets to dictate the selling of products. As a society it is important that some safeguards within the government are created surrounding the issue of public health. “As a society we need to expect from government that there be some minimum standards like this” (Government¹). An example provided by a number of stakeholders (Government^{1,2}) is the lack of public health staff assigned (by the government) to schools as compared to the past. There are no professionally trained health care workers who have access to the schools, and the ability to influence the way schools and school boards operate. This is considered a “big mistake!” (Government²). Ultimately, all these issues result because of a lack of available funding. There are no funds available to provide training to front line workers such as public health nurses or resources to send them into the schools (Government²).

The under funding of schools has been blamed for the need for schools to obtain vending contracts as external sources of funding (Non-Profit Organization³, Dietitian¹). “It’s a shame, if the school was funded appropriately we wouldn’t be in this situation” (Dietitian¹). Stakeholders believe that the more under funded the school, the greater the pressure on schools to invite corporate interests into the school or to make long term contracts with industry to secure financing (Teachers’ Association¹). In the past schools did not need to enter into beverage contracts. Funding is considered to be the responsibility of the government. “Its not the responsibility of the school board to go out and find out who’s going

to give them [schools] money” (Non-Profit Organization³). The theme “Political Influences” and the government’s role in school funding provision is again blamed for the need to negotiate beverage contracts.

However other stakeholders were of the view that the government is not responsible for fully funding schools’ needs. Rather, additional revenues to support the learning should be raised by the school and communities (School board¹). “I think they [government] have a role, but we have to be very careful about not dumping on them (Government¹).

5.6.4 Industry’s Accountability is Linked to Others (Government & School)

While a minority of stakeholders saw industry as accountable for healthy eating and healthy choices among students, patterns in the data revealed an underlying reason for industries involvement within the school. “Industry is part of the solution...industry has an important role to play and a responsibility” (Dietitian²). Regardless of the amount of policy created and all attempts to implement them within the schools, industries are often held accountable because of their inability to provide products that meet policy specifications (Dietitian²). Industries, however, are only part of the larger problem. They are in schools because of the lack of funding provided to the schools (Teacher¹). Of concern with industry was how insidious some of the approaches of industry are. It is very difficult for children to recognize especially within the school environment, what is and what is not an advertisement (Teachers Association¹). This is linked to stakeholders’ recommendation for future multidisciplinary interventions which is further discussed under the theme “Future Directions.”

Other stakeholders felt that industries' role in unhealthy eating was not their fault at all. Industry does not have a role in healthy eating. They are suppliers. If the school is in need of anything they look to industry to supply the product. There is not a predefined role for vending within schools. Schools require a supplier of beverages in the school and seek suppliers. "The need is defined by the schools or school boards" (Industry¹).

This confusion is understandable. A lot of blame was placed on both the government and the schools and school boards, but exactly who of the two options is accountable could not be determined. "I don't know if its government or school level, but I do know that we have got a bunch of obese children... and I teach a lot of them...something has to be done, otherwise we are going to have a population of obese kids, and this is going to snow ball later in healthcare, because these children are going to get sick...I don't know, I know it is a problem, but I don't know where it has to be fixed or at what level" (Teacher²).

5.7 FUTURE DIRECTIONS

Stakeholders were aware of the societal norms that have lead to unhealthy eating resulting in a high prevalence of childhood obesity. In order for society to fully embrace the importance of healthy eating, norms must be shifted. Stakeholders suggested a variety of methods to do this.

5.7.1 Need to shift norms

Norms will shift when activities become socially unacceptable. While the creation of policy and laws can prohibit undesirable activities from occurring, ultimately it is the social unacceptability factor that causes a shift in activities (Government¹, Policy Analyst¹). "It's

really about getting people to accept this notion of healthy eating” (Policy Analyst¹).

Interestingly, however, no consistent norm of healthy eating was found among stakeholders.

In order for norms to be shifted, the majority of stakeholders agreed that future interventions need to be both multidisciplinary and comprehensive. For the purpose of this study multidisciplinary means that sectors should work together to shift norms to ones of healthy eating. It is necessary for people to work together in order for an impact to be made (School board¹). “People all blame each other, the parents aren’t doing their job, the schools aren’t doing their job, the schools are pointing at government. I think we have to stop working in our silos and, truly if there is an issue that’s important to all of us put our heads together and solve it together” (Industry¹). For the purpose of this study comprehensive denotes that all parts of the environment should be targeted. Specifically, vending machines cannot be viewed in isolation of other interventions. This includes modifications in the school curriculum, professional development for parents and teachers, and the creation of new policies and guidelines.

5.7.2 Information Required to Shift Norms

Stakeholders recognized that their lack of awareness was due to a deficiency in information made available to the public. “There is a shortage of information; palatable, easy to digest information for everyone” (Non-Profit Organization³). Information can come in a number of forms: through increased research and educational opportunities. A number of stakeholders saw vending contracts as an opportunity to educate children about real-life choices and temptations. Of importance was increasing knowledge of the importance of healthy eating and the consequences of childhood obesity. This can be done through education. Vending contracts and vending machines in particular were seen as a unique

opportunity to teach students about healthy eating and making healthy choices. Stakeholders suggested different methods to tackle childhood obesity and future school beverage contract negotiations. Despite differences in solutions, all stakeholders agreed on the importance of interventions being both multidisciplinary and comprehensive.

5.7.2.1 More Research Needed

“You can count the number of studies on this topic [vending in schools] in Canada; you can count them on the fingers of one hand” (Government²).

As mentioned earlier, policies such as the ones prohibiting advertising to children in Quebec were implemented before the availability of clear evidence that such policies would have any effect on children’s activities. Further research is needed on this topic and others relating to the effects of advertising on children, especially within the school (Government¹). One stakeholder mentioned the need to do research on Policy 135 that is currently implemented in Ontario elementary schools. Questions posed by the researcher included: the extent to which schools were following this policy, and for those schools that were, to what extent does the policy actually discourage children from consuming junk food in vending machines. Also, are the children largely engaging in displacement activity and obtaining unhealthy food from the corner store? (Policy Analyst¹)

The lack of studies in this area indicates a “lack of research funding dedicated to policy/ programs that are contributing to our pandemic” (Government²). Despite the lack of funds, there has been an increasing interest in pursuing research “to look for practical solutions, including community level programs and policies to address the problem” (Government²).

5.7.2.2 Value of Education

Stakeholders have varying opinions of the value of education. Two stakeholder comments illustrated the importance of education on impacting policy. An industry² member stated that “if you have good education you don’t need policy.” A teacher¹ interviewed stated that “the only way you generate public opinion which eventually forms policy is through education.”.

A majority of stakeholders agreed there needs to be more nutrition education in the schools with a particular focus on the effects of healthy eating (Academic¹, Non-Profit Organization³). There also needs to be more school nutritionists (Academic¹). “If the student doesn’t know what healthy eating is, it is difficult for them to eat healthy. Schools do have an important role in educating students as to what is a balanced diet and what are appropriate foods and portion sizes” (Community Member¹).

“It is important to teach students to make healthy choices rather than avoid situations that they will come into contact with over their life” (School board²). This goes beyond vending contracts within the school. It is unreasonable to attempt to shield students from unhealthy foods in the school, including beverage contracts because they will instead access the foods off campus.

Stakeholders expressed that it is necessary to teach students about food products they will encounter daily “be it beverage machines or be it media, this is something they [students] need to consider seriously and they need to make good choices” (School board²). Students must be able to think critically about what it means to purchase unhealthy food items and what it is going to do to their health (Teacher¹). It is thought that as long as they understand what those choices mean to them, they will be able to make better decisions on

what they are eating and what they are drinking (School board²). Stakeholders commented on the importance of creating knowledge early on in the student's life to enable them to make educated decisions (Industry²).

It is, therefore, necessary to “change the eating or drinking habits of the kids through education and by making [healthy] things available to them.” This means providing a variety of good for you, and not so good for you options within the school. It is not possible to control human behaviour by just removing sugary food items (School board¹, Industry²). As noted by one educator (Teachers' Association²) “if it's between Coke and milk, they're going to choose Coke.” This was seen as an opportunity for teachers to educate children about the differences between the drink options offered at school.

Nutrition education at the school is thought to have the potential to influence healthy eating behaviours at the home. While schools have little power to control what happens within a home environment the student is considered to have a huge influence on home practices. “If a child is taught healthy eating principles, and everything at the school contributes towards healthy eating, the child is going to go home and say they need to have five servings of vegetables and fruits everyday (Non-Profit Organization²). Public Health Nutritionists are seen as the best sources with the proper training to educate about healthy eating in the school (Government²).

5.7.3 Barriers to Obtaining and Using Information Required (To Shift Norms)

5.7.3.1 Barriers to Education At School

“Education is the primary determinant of health.” While healthy eating is covered in the curriculum many stakeholders have realized that “teachers never get to it” because they

are often pressed for time (Non-Profit Organization³, Government¹, Teacher¹). The school is also responsible for educating students in other subjects that have traditionally been seen as more important than nutrition classes. Increasingly, the schools are also dealing with more social and behavioural problems that must be dealt with (Non-Profit Organization³, Government¹).

Teachers interviewed noted the importance of devoting “real time” in the curriculum towards healthy eating and health related practices. “The worst curriculum or the best curriculum can become teacher-proof if no discretion, no ideas and no creativity are brought in” (Teacher¹). Increased support and ideas is required from teachers, administrators and students in ways to promote education, healthy choices and healthy eating in the school. Another barrier is that teachers themselves are not particularly knowledgeable about nutrition. They already have a knowledge base in the other subjects that need to be covered. Nutrition programs such “Fuel to Xcel” which have had success within the classroom are usually taught by individuals with a background in nutrition. There is concern whether a teacher who does not have very much nutrition education could teach this program (Academic¹). Teachers therefore require some more training and orientation even in some of the basic principles of nutrition (Government¹).

Educating the teacher may not be enough to improve classroom nutrition education. A number of stakeholders noted that despite the fact that the Minister of Education provides the curriculum, there is often not enough time to cover all of the material. Teachers interviewed stated that nutrition is often one of the topics skipped by teachers when they need to eliminate some curriculum. One teacher interviewed commented “You can pick and choose [what you teach]...I like teaching health stuff, so I choose it, but unfortunately a lot

of people skip over it because we're so tied into other curriculum right now that we just don't have the time or chance to sneak it in" (Teacher¹).

Another teacher interviewed also recognized that healthy eating was in the curriculum but was uncertain as to what level it was being taught and then followed by the students. "I do teach [the material] but then the same minute I see the kids making poor choices in what they're eating" (Teacher²). One student² interviewed indicated that while health classes were offered, they were often uninteresting. The coordinator of "Fuel to Xcel," a program indicated by many study participants to be a model of effective nutrition education at the school also noted that "so little health education is directed at something they [the students] are interested in." The success of this program likely resulted because the learning material was interesting and reached students at their level while not preaching to them (Academic¹).

Parents are also seen to hinder nutrition education. When one school decided to offer a healthy snack program some parents refused to allow their children to participate, and instead opted to provide an equally healthy snack for their child. In some instances, however, the parents would send their children with chocolate bars or other sugar-filled foods. The teacher in this instance used this as a teaching opportunity (Teachers' Association²). The general consensus among other stakeholders was that no parent intentionally sends their children with unhealthy lunches or snacks to schools. It is more a lack of knowledge concerning nutrition matters that causes this to occur. Stakeholders' response to this was to facilitate the ability of parents to make healthier choices for their children through learning materials sent home with the child and other learning opportunities made available for parents (Industry², Dietitian¹).

5.7.4 Vending Contracts As A Teaching Tool

Vending machines and contracts in particular can be used as a teaching tool in the school. “I think vending machines in school are a good idea and I think they can be a good teaching tool if they include good food choices and good beverage choices, then I think children will see that, and that it is consistent with what they are being taught” (Dietitian²). Vending contracts also provide an opportunity to educate students on media and media literacy and advertising (Government^{4,5}). This creates awareness among students as to what advertising is, and how to be a cautious consumer of advertising (Government^{4,5}). As stated by a school board member, “if you think that our role is to help students learn to make good choices, then having the machine within the school can do that” (School board¹). This is thought to be especially true if the machines include good food and beverage choices that are consistent with healthy eating messages provided at the school and hopefully in the home (Dietitian², Government^{4,5}). The Ontario Fuel To Xcel program was mentioned by a number of stakeholders as an example of an education type role that vending machines currently have in the school. This program labels healthy vending choices with multi colored stickers placed directly on the product (Government^{4,5}).

Even vending machines that contain “unhealthy” products provide an opportunity for students to learn to make healthy choices, rather than avoiding situations students will come in contact with over their life. Nutrition education needs to take into account food influences encountered daily outside of the school as well. “Beverage machines exist, kids drink soft drinks as well as juices every single day; why not have the opportunity within the schools where we can control it [consumption] and where we can teach kids to make healthy choices everyday” (School board²).

An industry member interviewed stated “education has everything to do with it [shifting norms]” (Industry²). Trying to influence what foods children choose is considered to be particularly important for children to learn at a young age as because “it is much easier to create children with good eating habits than it is to try and change them later in life” (Government¹, Teachers’ Association¹). It is difficult to change the eating patterns of children later on in life “after they have already been created by parents, and/ or government or schools” (Teacher², Parent²). Stakeholders also felt that children should be targeted early to prevent obesity in the first place: “once somebody becomes obese it is difficult to become unobese – better to prevent obesity in the first place” (Policy Analyst¹). Creating knowledge early on in a student’s life allows them to make educated decisions about food choices and recognize the multiple influencers at play.

5.7.5 Multidisciplinary & Comprehensive Approaches

“Vending machines cannot be looked at in isolation of it being a problem or a solution in terms of healthy eating” it is necessary to position them within a broader context (Policy Analyst¹, Dietitian¹). Looking at vending machines in isolation of other interventions is misleading because it puts too much weight on just one of the ways in which the school environment can affect a student making healthy choices at the school. Comprehensive interventions are necessary. If healthy messages don’t get reinforced with parents or in the school than the message has the potential to fail (Government¹). Schools are already so busy dealing with many other issues such as bullying and self-esteem issues. In order for there to be an impact in terms of a student’s eating behaviour “a much more holistic, comprehensive approach” to deal with these issues is required (Government¹).

It is especially necessary for the community to become involved. Even the best crafted policy will have little effect if it is not publicly accepted. Therefore, the public needs to be made more aware of childhood obesity and the importance of healthy eating (Government¹). There must be a joint recognition of the importance of dealing with childhood obesity. If there is joint agreement of the value in this issue “we’re going to spend the things we don’t have a lot of – time and money, towards generating critical thinking and providing options to solve the problem” (Teacher¹).

5.7.5.1 Government

Difference sectors of the government such as the Ministry of Education, Ministry of Health and the new public health sectors are recommended to address healthy eating concerns and work together in solving issues. It is essential that community groups are also contacted to obtain broader level support which increases the likelihood of compliance (Government², Dietitian²).

5.7.5.1.1 Policy

“There is a role for law in resisting obesity, but as far as I can tell, nobody’s sure what that role ought to be” (Policy Analyst¹). A number of stakeholders agree that mandating does not work in the long term. People cannot in the long term be compelled to change their behaviours (Industry^{1,2}, School board¹, Student¹). Players involved in the legal system are aware of the creation of laws in attempts to regulate relevant norms that fail to acknowledge the implications of the law on the norm and vice versa (Policy Analyst¹). “People don’t respond positively to situations where they are forced to do certain things, when they feel they should have control over that; so you end up with a very negative situation and it

doesn't have a positive outcome" (Industry¹). What often is effective is the practice of aligning legal regulation with shifting norms. An example is the large number of recent anti-smoking laws and regulations that match the current norm of smoking as an unhealthy and unattractive habit. Such a regulation would not have been successful in the past where smoking was depicted as "powerful and sexy" (Policy Analyst¹).

A majority of stakeholders stressed the importance of a partnership between government, schools and school boards in order to achieve successful acceptance and implementation of government policy. Without such cooperation there is much uncertainty about the effectiveness of policy. "People comply with the rule or regulation or the norm in the sense they do the immediate task, but that doesn't necessarily mean that those who are subject to the regulation don't engage in behaviour that is objectionable from the perspective of regulatory goals. They just do it in some other way...So we mustn't be naive about this, just because the schools are banning the junk food, if in fact they are doing that" (Policy Analyst¹). In particular stakeholders are concerned about disconnect between the traditional roles of policy creation by government, and their implementation by the schools (Government³). The creation of government policies should take place in consultation with schools and school boards (Industry², Government^{3,4,5}, Dietitian¹). Schools and school boards need to support policy implementation; it is therefore important for individual schools to have some input regarding the policies that are to apply in their schools (Dietitian², Government^{4,5}). "Its extremely important that government consult with schools so that we understand how those policies will affect day-to-day operation of schools...and if you don't do that, sometimes you inhibit that operation when in fact you are trying to support and be helpful to that operation" (School board²).

It is also critical that schools are afforded some autonomy to make decisions and to provide input into decisions that will directly affect them; the school is where policy implementation occurs. This creates buy-in at the level of the school (Dietitian²). There is a lot of opportunity for policies to be created at the level of the school board and individual schools (Teachers' Association²). Stakeholders disagree on the potential impact and level of compliance of policies implemented in secondary schools. Implementation of policy similar to Policy 135 in secondary schools is a challenge because of the increased autonomy of students to go off campus and purchase products banned on campus. This illustrates the importance of creating policy in consultation with students (Dietitian², Government³).

Stakeholders agree that it is ultimately up to the student and not the school to decide to accept policy. "Often while people try to mandate accountability and mandate healthy eating... it is ultimately up to the students themselves on how they treat their bodies and how they eat and I think they have to be accountable to themselves" (Student¹). In order for this to be true students need to learn what it means to be healthy and how good they feel when they eat healthy (Non-Profit Organization³). Healthy eating policies within elementary schools are thought to have a great effect on students. The actions guided by these policies will eventually become a way of life for the students (Dietitian¹).

In contrast, a minority of stakeholders felt that healthy eating in the school environment is primarily the responsibility of the provincial government, and less a responsibility of the schools (Industry¹, Student¹). Governments should ensure that healthy foods are promoted at the schools because teaching, and not healthy eating, is the responsibility of the school.

Stakeholders also stressed the importance policy being supported through education. “It won’t work if you tell them to change...but if you provide programs and you encourage and you support the changes, then that’s the role that they [government and school systems] should be providing” (School board¹). Suggestions for education included professional development for school staff and parents, school curriculum for students of all ages and taking advantage of existing community resources (Non-Profit Organization¹).

Policy 135 as mentioned previously was found by a number of stakeholders to be insufficient to promote healthier eating in the school environment and is considered “one small piece of a very big puzzle” (Industry¹). “Children do not get their full meal from a vending machine within the school environment” (Industry¹). A “more comprehensive approach” that incorporates multiple strategies is required. Stakeholders recommended the creation of a policy which covers all competitive foods within the school. Looking exclusively at vending machines is not enough (Government^{4,5}).

5.7.5.1.2 Curriculum

“The school system and the province should [both] have a role in affecting or encouraging change” (School board¹). The provincial government has a role in setting curriculum expectations including the creation of classes that deal with nutrition, healthy living and active living. The school curriculum needs to encourage and support changes in students. The challenge of schools is to take the present situation of childhood obesity at schools and create policies or guidelines to address the current situation and help to prevent future epidemics. Teachers interviewed discussed a need for them to dialogue with government concerning the material taught in class (Teachers Association²).

5.7.5.2 Industry

There was disagreement among stakeholders as to whether it was appropriate or not for the schools to be involved with industry. Stakeholders who saw vending machines as providing a basic need for beverages within the school environment approved of industry working with the school, if certain guidelines (regarding advertisements and product availability) were abided by. Other stakeholders saw no need for industry to get involved with the school and felt industry had no place within a publicly funded system.

The Minister of Education created recommendations of foods found acceptable within the school. Of concern among stakeholders was whether industry members would be able to comply with the recommendations. Stakeholders were concerned that the healthier products could not fit into the traditional vending machine. Industry must work to meet these recommendations. Stakeholders agreed it was unacceptable to force vendors to use only products deemed healthy because there may not be a market for them (School board¹). An acceptable alternative suggested by stakeholders was the use of 355mL bottles of sugar-added beverages rather than 600mL bottles. It is hoped such a shift in products combined with education would encourage students to consume smaller quantities of the beverages (School board¹, Student¹).

This predicament above discussed by a number of stakeholders illustrates the need for guideline implementation to involve a number of community sectors including industry. As stated by one stakeholder, such discussions does not mean that guidelines necessarily need to be created by all stakeholders, but rather discussed “around the table” to promote an understanding of why guidelines are created, discuss policy limitations and implementation and create large-scale buy-in of the policy (Dietitian²). Other stakeholders suggested

nutritionists also become involved with discussions and work with industry to create healthier products in smaller portion sizes (Government^{4,5}).

5.7.5.3 Schools/ School Boards

The foods available within the schools are considered by a many stakeholders to affect the quality of a child's diet. "It [the school] can model good or bad behaviour, depending on what is offered" (Academic¹). "It [healthy eating in the school] is not going very well, but historically we're probably doing better than we used to" (Industry¹).

Stakeholders have mixed views on whether schools are responsible for the health of students. According to one stakeholder: " They [schools] are responsible for the health of our children and educating our children is linked to that...so therefore they [schools] should be encouraged to do everything possible to provide a healthy environment" (Government¹). The schools need to recognize there is no immediate fix to the current food availability and school consumption patterns. Schools need to modify food options available at the school and encourage healthier choices.

Some stakeholders felt that a lot of burden was placed exclusively on the schools to "correct" childhood obesity (Government^{4,5}, Industry¹). Schools cannot be expected to do everything. "On one hand I think we do have to be realistic about what the school can offer to the community and to their students...to teach kids about healthy eating. Do we expect them to be health promoters or health providers? No, I don't think that's the original intention of schools, but on the other hand they should support the basic tenets of health" (Industry¹).

5.7.5.3.1 Fundraising

According to stakeholders, it is not acceptable for the current methods of fundraising (e.g., the sale of chocolate bars or beverage contracts) to be deemed an inappropriate fundraising activity without suggesting alternative options that would meet both fundraising and health objectives (Government¹). Similarly, if the government is going to pass a policy similar to Policy 135 that bans potential sources of school fundraising, the government needs to work with schools and school boards to discuss acceptable fundraising alternatives (Dietitian^{1,2}, Government¹).

There is nothing particularly wrong with the school working with industry to raise money however, rules need to be created to determine what types of product are welcome in the school and the amount of advertising that can be done within the school (Non-Profit Organization²). A limited number of unhealthy options combined with a majority of nutritious options were found to be an acceptable compromise by stakeholders and a vast improvement from the current situation (School board², Teacher²). Another suggestion by stakeholders was competitive pricing of healthier products (Community Member¹, Dietitian²). Stakeholders recognized the often higher costs of nutritious products in comparison to the sugar-filled variety. Healthier products should be sold on a non-profit basis or supplemented by government funding to make prices more affordable to students. Lower pricing of sugar-added products is believed to entice students to opt for them despite their lower nutrition value.

Some stakeholders, however, didn't feel that schools would ever be able to look past the large sums of money provided through beverage contracts and recognize the potential harm the beverages are causing to the students (Teacher¹). Discussion that identifies sugar-

added beverages as a contributor to childhood obesity in Canada needs to first be generated in order for schools to recognize the health implications of the contracts. “Unless you have public opinion to support it [healthy eating in the school] and policy which requires administrators to consider the best interests of the students in terms of their healthy eating, than the schools will continue to be allotted extra money [from vending contracts] and assume that this additional money will equal better health for our students” (Teacher¹).

5.7.5.3.2 Formation of Vending Contracts

There are many components to vending contracts including political, marketing, education and health components. According to a school board member it is therefore very important to get input from parties representing all these components during contract formation. “A school board official who makes that decision without the input of the various experts is liable to make a bad decision” (School board¹). According to an interviewed school board member¹, however, these consulting parties have no role in the final decision making of the contract. Other stakeholders felt the entire decision making process needed to be carried out in an informed and transparent way; All interested stakeholders should be involved and the final decision of this open discussion should be a term of the contract (Government²). Representing parties to be included in contract decision making should include teachers, parents and students.

It is especially important that teachers are involved in contract decision making. Teachers are the front-line workers and observe what is happening in the classroom. Teachers are also thought to be aware of the community and the socioeconomic status of the students (Dietitian²). Students should get involved in contract formation through the creation of a task force or committee (Community Member¹, Non-Profit Organization²). Students

must have real decision making power and should be able to fully participate in all contract discussions. It was only upon triggering/ prompting the stakeholder in the interviews were dietitians also included in this group (Teacher¹).

5.7.6 Importance of a Healthy School Environment

A concept coined by a number of stakeholders was “Comprehensive School Health.” This was defined by stakeholders as a school environment that provides consistent healthy messages through the curriculum, healthy modeling of teachers which includes classroom rewards, healthy choices available in the cafeteria and vending machines and healthy fundraising options. Comprehensive school health is desirable especially for elementary schools and is seen to provide the greatest positive impact on lifelong healthy eating for students.

As previously mentioned, stakeholders disagreed with the level of accountability of schools in healthy eating for students. Nevertheless, all agreed that the school plays a very important role. Healthy eating cannot be dealt with by individuals and families alone. The school environment, where a child spends a majority of their day is important in fostering a healthy environment with healthy practices (Government^{4,5}). “Schools have a role to play in not just the intellectual growth of our children, but also the physical growth. Schools need to create knowledge early on in a student’s life enabling them to make educated decisions and inform them of the effects of their actions (Industry²). This can be done through classroom lessons, the modeling of healthy behaviour and the provision of consistent nutrition messages wherever food is sold at school. If this is done then it is believed that students will want to consume healthy products.

Stakeholders noted a number of differences in the way the promotion of healthy behaviour in secondary schools should occur compared to elementary and middle schools. A number of stakeholders felt more leeway and choice to eat healthy was appropriate in secondary schools. Healthy foods in secondary school cannot be forced upon the student by not permitting unhealthy foods within the school (Dietitian²). It is important that while the modeling of healthy behaviour at the secondary level promotes healthy choices, the school needs to also “introduce the concept that there is choice in the world” (Dietitian²). While it is hoped that students at this age have developed healthy eating habits they need to recognize the temptation they will face in purchasing “a can of pop and a bag of chips” versus “a carton of chocolate milk and salad” (Dietitian²).

5.7.7 Tobacco Control Best Practices as a Solution to Childhood Obesity

Stakeholders initially suggested the use of Tobacco control best practices as potential methods to control childhood obesity, but quickly came to the recognition that tobacco control best practices would not necessarily be appropriate for making changes to healthy eating because of crucial differences in the ability of individuals to modify the unhealthy habit of smoking and unhealthy consumption. “We should not become obsessed with the parallels between tobacco and consumption of non-nutritious foods. I am not saying there aren’t things that are relevant, I’m just saying I think they [health community] rely on the comparison too heavily” (Policy Analyst¹).

According to stakeholders there is limited information about how children learn best about nutrition, how they make healthy eating choices and how such choices can be supported. “It [healthy eating] is not that simple; smoking you either smoke or you don’t smoke. Eating everybody does and its variations or degrees of whether or not you’re

selecting healthier choices more of the time or less of the time, so it's a very, very difficult area to work within" (Industry¹). Therefore unlike tobacco control, best practices cannot encourage a total prohibition of a habit, but instead promote a message of moderation. As one stakeholder clearly pointed out "You don't have to smoke, but we all have to eat. So this is not about, light switch on light switch off, this is about consumption that is moderate and healthy and that's a much more complicated message [than tobacco control] to deliver and comply with." There were also financial benefits to quitting smoking. Money is saved when people stop purchasing cigarettes. However, people don't necessarily save money by eating healthy foods (Policy Analyst¹).

CHAPTER 6: DISCUSSION, SUMMARY & FUTURE DIRECTIONS

6.1 Discussion

Although this research examined school beverage contracts from two Canadian school boards, studies of beverage contracts within the United States can be used to support study findings. There is a real lack of awareness among stakeholders concerning both childhood obesity and the specifics of beverage contracts in schools. This was confirmed in a study by Hendel-Paterson et al. (2004) where 33 parents were interviewed to obtain their opinions and perspectives of soft drink vending machines in their children's high school. Similar to the stakeholders in this study, parents interviewed were unaware of the number or placement of vending machines in the schools and the types of products offered to the students. As in the current study, many parents were interested in obtaining more information on these issues, as well as any beverage contracts the schools were a part of. The lack of awareness surrounding childhood obesity and the need for awareness to be able to shift norms is also found within the literature. According to Botero & Wolfsdorf (2004), "Prevention will only succeed if governments and local communities recognize that childhood obesity is an important public health problem and provide an environment that promotes changes in lifestyle that prevent and reverse obesity" (p.281).

Stakeholders participating in the current study noted the value of education particularly in the schools in order to shift norms. An article by Carter (2002) supported this viewpoint and stated that "Nutrition education could give students the tools they need to make healthy choices regarding eating and physical activity" (p.2180).

Stakeholders' perspectives of the need for schools to provide consistent healthy messages within the school were also supported in a number of studies. Kubik et al. (2005) in a survey of parents and teachers views of the school food environments in middle schools found that 85% agreed that the school environment has the potential to influence a student's food choices and stressed the importance of a healthy school environment. Another study by Kubik et al. (2003) found a negative relationship between the consumption of healthy foods such as fruits and vegetables and snack vending machines in the school. This study found an association between a number of environmental influences (such as vending machines and a la carte options) at the school and a student's dietary consumption. Both studies also recognized, as did stakeholders in this study, the temptation for schools to enter into contracts to obtain extra funds, despite the apparent health consequences such fundraisers cause to students.

Interestingly, in the present study though stakeholders recognized the negative health consequences that can potentially result from the consumption of sugar-sweetened beverages contained in vending machines, the unhealthiness of such beverages was not mentioned as a primary disadvantage of contracts. As previously discussed, contract transparency and control issues were the main disadvantages of the contract. Stakeholders recognizing that the types of beverage provided in machines can be changed, and that children upon leaving the school campus will be tempted with unhealthy beverages, saw beverage vending machines as a learning opportunity. The provision of a variety of nutritious and sugar-added drinks was seen by stakeholders as a chance for students to make good choices, which means that both nutritious and on occasion unhealthy beverages can be consumed as part of a healthy diet. This idea is supported by Canada's Food Guide to Healthy Eating to, "Enjoy a variety of

foods from each group every day...Choose lower fat foods more often” (Minister of Public Works and Government Services Canada, 1997). A report by Refreshments Canada³ also supports the view that “children will be far better equipped now and in later life to develop healthy and positive attitudes to food and beverage options if they learn how to make sound and balanced choices, rather than being told what they can and cannot choose” (Refreshments Canada, 2006).

Of a much greater concern to stakeholders was the mixed messaging that students encountered through the modeling of teachers, household habits, classroom curriculum and school advertisements. The sub-theme of mixed messages presented itself in every theme. The need for consistent messages to be portrayed in the school as stressed by stakeholders was also demonstrated by Pilant & Skinner (2004). Their study of foods available in vending machines, school canteens and cafeterias of 20 middle schools led them to conclude that, “children receive a mixed message when the value of healthy food choices is taught within the classroom and students then encounter school vending machines, school stores or school cafeterias with a wide assortment of snack foods that are not based on nutrition standards” (Pliant & Skinner, 2004, p.24). A four session school based educational program whose main goal was to discourage the consumption of soft drinks and encourage the consumption of a healthy diet resulted in a “modest reduction” in the number of such drinks consumed. Specifically, consumption of the intervention group over three days was reduced by 0.6 glasses. Over twelve months this reduction lead to a 0.2% decrease in the percentage of overweight and obese children, compared to a 7.5% increase in the control group (James et al., 2004).

³ Refreshments Canada is a trade association that represents over 30 brands of non-alcoholic beverages, and the corporations that both manufacture and distribute such beverages within Canada (www.refreshments.ca, 2006).

The multiple influences of a child's food selection and their subsequent weight change was determined by stakeholders to include Social Influences, Environmental Influences, and Political Surrounding Influences. Of particular interest to stakeholders was the use of policy in regulating the types of vending products served at school at both the individual school and government level. A recent Canadian poll also supported the creation and use of such policies. A telephone poll (random sampling) conducted for FoodShare⁴ from the end of October to early November 2005 of over 600 adult Ontario residents found that over 66% of the sample "strongly supported" regulations similar to those implemented in Britain. These standards included a ban on junk food and the creation of nutritional standards for all schools (FoodShare, 2005).

These multiple influences and the importance of comprehensive and multidisciplinary interventions in attempting to prevent and improve the prevalence of childhood obesity were also recognized by Dietz & Gortmaker (2001). "Because obesity is likely a consequence of pervasive influences that operates across many settings, the development of effective preventative interventions likely requires strategies that affect multiple settings simultaneously. The most effective strategies are likely to be those that affect both energy intake and energy expenditure, and that include elements common to several environmental settings" (Dietz & Gortmaker, 2001 p. 341). Recommendations stemming from a California-based study stressed the importance of soliciting students, parents and community members in working together to improve the "food environment" at schools (Hastert, 2005).

⁴ FoodShare is a non profit agency located in Toronto that has developed many projects to promote healthy eating within local area schools. Such projects include the placement of a salad bar in the cafeteria, the maintenance of a garden growing fresh vegetables at schools, visits to local farms, a curriculum that includes healthy cooking, and healthy policy (www.foodshare.net, 2006).

In order to shift societal norms to promote childhood obesity, stakeholders suggested a comprehensive intervention, one which involves all sectors of society. An ecological approach to address obesity is recommended because of the many determinants of obesity. “Implementation of environment-based strategies to encourage and support behaviour change will probably require the involvement of people from relevant sectors outside the obesity field. Schools, worksites and local municipalities/ neighborhoods are likely settings for change” (CIHI, 2004, p.vi).

Stakeholders also indicated the need for interventions to be multidisciplinary. The importance of multidisciplinary interventions to prevent childhood obesity is stressed by Hill & Townbridge (1998). They recommend for childhood obesity to be addressed as a public health problem. This can be accomplished “through coordinated efforts among policy makers, business and community leaders, schools, parents and concerned individuals” (Hill & Townbridge, 1998, p. 573).

A Canadian pilot project called “Fuel To Xcell” is an example of a successful partnership program between a number of sectors, specifically the public health sector (Ottawa Public Health) and industry (Ventrex Vending Services of Ottawa). The program (1) provided students with healthy vending machine snack and drink options with competitive prices and (2) educated students about healthy and unhealthy snacks to enable students to independently choose healthier options. This was accomplished with a color coding system that identified healthier options in vending machines (Messier et al., 2004). A similar program was also conducted in the United States by French et al. (2001). After four months, sale volumes remained at the same pre-trial level, and the proportion of healthy snacks and drinks sold doubled. According to the study investigators “the pilot confirmed that the

inclusion of healthier snacks in the vending machines did not negatively impact sales revenues and the students consumed healthier products when they were more readily available” (Messier et al., 2004, p.9).

There was a lot of concern among stakeholders regarding the ability of policy both at the government and school board level to have positive effects on a child’s healthy choices. Stakeholders stressed the need for future policy to be created with the inclusion of community members, students and others community sectors to create buy-in of the policy. In order for policies to be effective they must first be accepted by individuals to whom the policy applies. “National policies, guidelines and support from ministries of health, education, food and agriculture can be of immense help to local schools. Efforts to promote healthy nutrition through schools are most successful with the will, attention and support and action of these authorities. “Collaborative relationships with other sectors and with local governments will also prove valuable” (WHO, 1999, p.14).

6.2 Limitations

There are a number of study limitations which must be considered. This study looked to describe the viewpoints of key stakeholders, as they exist in Ontario’s 2004-2006 socio-political environment with a focus on two beverage contracts in the Greater Toronto Area. For that reason the generalizability of some study findings are limited to this specific case study. However, based on the similarity of themes that emerged from study participants with those found in the current literature, many overarching study themes can be applied to inform school beverage/ vending contracts within a North American context.

The sample size, though relatively small, should not be considered a limitation. The number of interviews (n=25) was adequate for saturation of study topics (based on a general

interview script) to be achieved. Though the researcher attempted to sample stakeholders of varying employment, knowledge and expertise, the researcher recognizes that there are many other individuals who could also have provided another perspective on the study topic. Resources such as project funding and time of both the researcher and other potential participants prevented further interviews from taking place. Great attempts were made to achieve equal representation of varying perspectives in this case study, and the researcher is confident this has been achieved based on similarities among international study findings, and the recurrence (and saturation) of similar themes throughout the interviews.

The commission of telephone interviews rather than face-to-face interviews might also be considered a study limitation. The majority of interviews were conducted over the phone because it facilitated the interviewing of stakeholders at far distances (Neuman, 1997) and with busy schedules. A disadvantage of this interview type is the inability of the researcher to observe the non verbal communication of participants and slight changes in tones of voice during the interview (Neuman, 1997). To minimize this disadvantage, the interviewer took notes during the interview and noted any hesitation or tone changes of the participant when answering interview questions. It should be noted that telephone interviews might also prevent any inadvertant non-verbal bias on the part of the interviewer.

6.3 Summary & Future Directions

There are very few Canadian studies on the issue of school beverage contracts and their relation to childhood obesity. There are even fewer studies, if any, that explore the perspectives of varying groups of stakeholders. This study, in the form of a case study, explored these perspectives through open-ended interviews. The themes identified from interviews provide insight into the varying viewpoints of individuals from many different

stakeholder groups that have different experiences, knowledge and awareness of childhood obesity and school beverage topics. These two areas have in the recent past received much media attention and the findings of this study will add to the growing body of academic literature on this topic. This study is unique in that it looks at a common issue from a number of different perspectives and reports all viewpoints in an unbiased and clear way showing the similarities and differences of opinions.

Information from this study can potentially inform future directions to prevent and reduce childhood obesity, especially as this issue relates to the creation of school beverage contracts. Any future venture requires wide stakeholder support. It is only through incorporating the ideas, unknowns and varying viewpoints of stakeholders, and hence real buy-in, that future interventions can be successful in the long run. Creating a sense of ownership in future interventions shows that everyone is involved in both the decision making and solving of the issues of childhood obesity and the availability of school vending contracts.

While this thesis explored the varying perspectives of a number of stakeholder groups, there are still many groups that were not represented in this study. Future investigation into stakeholder groups not represented in this study and a large sample of each stakeholder group will provide further insight. A majority of stakeholders found school beverage contracts to be an acceptable addition to the school environments and can be used as a learning tool for students in healthy eating and making healthy choices. Future studies should explore this viewpoint further.

REFERENCES

- Alaimo K, Olson CM, Frongillo EA. Food insufficiency and American school-aged children's cognitive, academic, and psychosocial development. *Pediatrics* 2001;108(1):44-53.
- American Beverage Association (ABA). Product Variety: Soft Drink Facts. 2005. Available at: <http://www.ameribev.org/variety/facts.asp> [Date of access: April 4, 2005].
- American Dental Association (ADA). News Releases, ADA Weighs In On School Vending Machines. 2003. Available at: http://www.ada.org/public/media/releases/0202_release02.asp [Date of access: April 4, 2005].
- Bailey DA, Martin AD, McKay HA, Whiting S, Mirwald R. Calcium accretion in girls and boys during puberty: A longitudinal analysis. *Journal of Bone and Mineral Research* 2000;15(11):2245-2250.
- Ballew C, Kuester S, Gillespie C. Beverage choices affect adequacy of children's nutrient intakes. *Archives of Pediatrics and Adolescents Health* 2000;154:1148-52.
- Basrur S. 2004 Chief Medical Officer of Health Report, Healthy Weights, Healthy Lives. Ontario Ministry of Health and Long Term Care 2004.
- Blundell JE, Gillett A. Control of food intake in the obese. *Obesity Research* 2001;9(4):263-270s.
- Beridot-Therond ME, Arts I, Fantino M. Short-term effects of the flavour of drinks on ingestive behaviours in man. *Appetite* 1998;31:67-81.
- Berkey CS, Rockett HRH, Field AE, Gillman MW, Colditz GA. Sugar-added beverages and adolescent weight change. *Obesity Research* 2004;12(5):778-88.
- Block G. Foods contributing to energy intake in the US: data from the NHANES III and NHANES 1999-2000. *Journal of Food Composition and Analysis* 2004;17:439-47.
- Botero D, Wolfsdorf JI. Diabetes mellitus in children and adolescents. *Archives of Medical Research* 2005;36:281-290.
- Bowman SA. Beverage choices of young females: changes and impact on nutrient intakes. *Journal of the American Dietetic Association* 2002;102(9):1234-38.
- Bowman SA. Diets of individuals based on energy intakes from added sugars. *Family Economics and Nutrition Review* 1999;12(2):31-38.

Bray GA, Nielsen SJ, Popkin BM. Consumption of high-fructose corn syrup in beverages may play a role in the epidemic of obesity. *American Journal of Clinical Nutrition* 2004;79:537-43.

Briggs C. Commercialization: Advertising and marketing in Ontario secondary schools. *Forum* 2005;31(2):20-23.

Bromley DB. *The Case-Study Method in Psychology and Related Disciplines*. Liverpool: John Wiley & Sons Ltd., 1986.

Burke L. Healthy eating in the school environment – a holistic approach. *International Journal of Consumer Studies* 2002;26(2):159-63.

Canadian Diabetes Association. Nutrition in the New Millennium. 2000. Available at: http://www.diabetes.ca/Section_About/nutrition2000.asp [Date of access: June 9, 2005].

Canadian Food Inspection Agency. Chapter 6 – The Elements Within the Nutrition Facts Table. 2003. <http://www.inspection.gc.ca/english/fssa/labeti/guide/ch6e.shtml>.

Cavadini C, Siega-Riz AM, Popkin BM. US adolescent food intake trends from 1965 to 1996. *Archives of Disease in Childhood* 2000;83:18-24.

Carter RC. The impact of public schools on childhood obesity. *JAMA* 2002;288(17):2180.

Center for Science in the Public Interest (CSPI). Liquid Candy: Highlights. 2001. Available at: <http://www.cspinet.org/sodapop/highlights.htm> [Date of access: April 6, 2005].

Centers for Disease Control and Prevention (CDC). BMI - Body Mass Index: BMI for Children and Teens. 2004. Available at: <http://www.cdc.gov/nccdphp/dnpa/bmi/bmi-for-age.htm> [Date of access: April 4, 2005].

Coca-Cola Bottling Company. Vending and Pouring Agreement. Ontario, Canada. March 20, 2000.

Committee on Prevention of Obesity in Children and Youth. preventing childhood obesity: health in the balance: executive summary. *Journal of the American Dietetic Association* 2005;105(1):131-38.

Conlisk AJ, Galuska DA. Is caffeine associated with bone mineral density in young adult women? *Preventative Medicine* 2000;31:562-68.

Coulson AM, Johnson RK. Sugar and sugars: myths and realities. *Journal of the American Dietetic Association* 2002;102(3):351-53.

Creswell JW. *Qualitative Inquiry and Research Design: Choosing Among Five Traditions*. California: Sage Publications Inc, 1998.

Cullen KW, Ash DM, Warneke C deMoor C. Intake of soft drinks, fruit-flavored beverages, and fruits and vegetables by children in grades 4 through 6. *American Journal of Public Health* 2002;92(9):1476-1478.

Cullen KW, Zakeri I. Fruits, vegetables, milk, and sweetened beverages consumption and access to a la carte/snack bar meals at school. *American Journal of Public Health* 2004;94(3):463-67.

Demory-Luce D, Morales M, Nicklas T, Baranowski T, Zakeri I, Berenson, G. Changes in food group consumption patterns from childhood to young adulthood: The Bogalusa Heart Study. *Journal of the American Dietetic Association* 2004;104:1684-91.

Denzin NK, Lincoln YS. Introduction: Entering the Field of Qualitative Research. In NK Denzin & YS Lincoln (Eds.), *Handbook of Qualitative Research*. (pp.1-22). Thousand Oaks, California: Sage Publications, Inc., 1994.

Devaney BL, Gordon AR, Burghardt JA. Dietary intakes of students. *American Journal of Clinical Nutrition* 1995;61 (suppl):205s-212s.

Dieticians of Canada. School Food and Nutrition Recommendations for Ontario Ministry of Education Regarding Snacks and Beverages Dispensed by Vending Machines. October 20, 2004a.

Dieticians of Canada. Recommendations for School Food and Nutrition for Ontario Ministry of Education. October 20, 2004b.

Dietz WH, Gortmaker SL. Preventing Obesity in Children and Adolescents. *Annual Review of Public Health* 2001;22:337-53.

DiMeglio DP, Mattes RD. Liquid versus solid carbohydrate: effects on food intake and body weight. *International Journal of Obesity* 2000;24:794-800.

Dodds J, Dodds N. Vending Machines in Ontario Schools. Available at: <http://www.aci.on.ca/~saublent/school/vending.html> [Date of Access: April 15, 2005].

Drewnowski A, Specter SE. Poverty and obesity: the role of energy density and energy costs. *American Journal of Clinical Nutrition* 2004; 79:6-16.

Edwards M, Creanor SL, Foye RH, Gilmour WH. Journal of Oral Rehabilitation. *Journal of Rehabilitation* 1999;26:923-927.

Eisenhardt KM. Building Theories From Case Study Research. In AM Huberman & MB Miles (Eds.), *The Qualitative Researcher's Companion*. (pp.5-35). Thousand Oaks, California: Sage Publications, Inc., 2002.

Evers S, Taylor J, Manske S, Midgett C. Eating and smoking behaviours of school children in southwestern Ontario and Charlottetown, PEI. *Canadian Journal of Public Health* 2001;92(6):433-36.

Faulkner NH, Neumark-Sztainer D, Story M, Jeffery RW, Beuhring T, Resnick MD. Social, educational, and psychological correlates of weight status in adolescents. *Obesity Research* 2001;9(1):33-42.

Fisher JO, Mitchell DC, Smiciklas-Wright H, Mannino ML, Birch LL. Meeting calcium recommendations during middle childhood reflects mother-daughter beverage choices and predicts bone mineral status. *American Journal of Clinical Nutrition* 2004;29:698-706.

FoodShare. Ontario Public Affairs Omnibus Survey: Report for FoodShare by STRATCOM Strategic Communications. November 16, 2005.

Forshee RA, Anderson PA, Storey ML. The role of beverage consumption, physical activity, sedentary behavior, and demographics on body mass index of adolescents. *International Journal of Food Sciences and Nutrition* 2004;55(6):463-478.

Forshee RA, Storey ML. Total beverage consumption and beverage choices among children and adolescents. *International Journal of Food Sciences and Nutrition* 2003;54(4):297-307.

Frary CD, Johnson RK, Wang MQ. Children and adolescents' choices of foods and beverages high in added sugars are associated with intakes of key nutrients and food groups. *Journal of Adolescent Health* 2004;34:56-63.

Frary CD, Johnson RK, Wang MQ. Food sources and intakes of caffeine in the diets of persons in the United States. *Journal of the American Dietetic Association* 2005;105:110-13.

French SA. Pricing effects on food choices. *Journal of Nutrition* 2003;133:841s-43s.

French SA, Biing-Hwan L, Guthrie JF. National trends in soft drink consumption among children and adolescents age 6 to 17 years: Prevalence, amounts, and sources, 1977/1978 to 1994/1998. *Journal of the American Dietetic Association* 2003;103:1326-31.

French SA, Jeffery RW, Story M, Breitlow KK, Baxter JS, Hannan P, Snyder P. Pricing and promotion effects on low-fat vending snack purchases: The CHIPS Study. *American Journal of Public Health* 2001;91(1):112-117.

Garriguet D. Overview of Canadians' eating habits 2004: Nutrition: Findings from the Canadian Community Health Survey. *Statistics Canada* July 2006; Cat No. 82-620-XIE.

Giammattei J, Blix G, Marshall HH, Wollitzer AO, Pettott DJ. Television watching and soft drink consumption, associations with obesity in 11- to 13-year-old schoolchildren. *Archives of Pediatric and Adolescents Medicine* 2003;157:882-86.

Gillis LJ, Kennedy LC, Gillis AM, Bar-Or O. Relationship between juvenile obesity, dietary energy and fat intake and physical activity. *International Journal of Obesity* 2002;26:458-63.

Government of Canada. Consultations of the Task Force with other Jurisdictions on their Access to Information Regimes. 2002. Available at: <http://www.atirtf-geai.gc.ca/consultation-ontario-e.html> [Date of access: April 11, 2005].

Gregg EW, Cheng YJ, Cadwell BL, Imperatore G, Williams DE, Flegal KM, Narayan KMV, Williamson DF. Secular trends in cardiovascular disease risk factors according to Body Mass Index in US adults. *JAMA* 2005;293(15):1868-1874.

Grimm GC, Harnack L, Story M. Factors associated with soft drink consumption in school-aged children. *Journal of the American Dietetic Association* 2004;104:1244-49.

Guo SS, Chumlea WC. Tracking of body mass index in children in relation to overweight in adulthood. *American Journal of Clinical Nutrition* 1999;70(suppl):145s-148s.

Guthrie JF, Morton JF. Food sources of added sweeteners in the diets of Americans. *Journal of the American Dietetic Association* 2000;100(1):43-51.

Harnack L, Stang J, Story M. Soft drink consumption among US children and adolescents: nutritional consequences. *Journal of the American Dietetic Association* 1999;99(4):436-41.

Hastert TA, Babey SH, Diamant AL, Brown ER. More California teens consume soda and fast food each day than five servings of fruits and vegetables. *UCLA Health Policy Research Brief* September 2005.

Health Canada. Fact Sheet Caffeine and Your Health. 2003. Available at: http://www.hc-sc.gc.ca/food-ailment/dg/e_caffeine.html [Date of access: May 24, 2005].

Heaney RP, Rafferty K. Carbonated beverages and urinary calcium excretion. *American Journal of Clinical Nutrition* 2001;74:343-47.

Hendel-Paterson M, French SA, Story M. Parental attitudes towards soft drink vending machines in high school. *Journal of the American Dietetic Association* 2004;104(10):1597-1600.

Hill JO, Trowbridge FL. Childhood obesity: Future directions and research priorities. *Pediatrics* 1998;101(3):570-574.

Horgen KB, Choate M, Brownell KD. Television Food Advertising. In DG Singer, JL Singer (Eds.), *Handbook of Children and Media*. (pp. 375-393). Thousand Oaks, California: Sage Publications, Inc., 2001.

Institute of Medicine. Dietary Reference Intakes for Energy, Carbohydrate, Fiber, Fat, Fatty Acids, Cholesterol, Protein, and Amino Acids. Washington, DC: The National Academies Press, 2002.

Jacobson MF. Liquid Candy: How Soft Drinks are Harming Americans' Health. 1998. Available at: http://www.cspinet.org/sodapop/liquid_candy.htm [Date of access: April 6, 2005].

James J, Thomas P, Cavan D, Kerr D. Preventing childhood obesity by reducing consumption of carbonated drinks: cluster randomized control trial. *BMJ* 2004; 328:1237-1241.

Johnson RK, Frary C. Choose beverages and foods to moderate your intake of sugars: the 2000 dietary guidelines for Americans – what's all the fuss about? *Journal of Nutrition* 2001;131:2766s-2771s.

Kassem NO, Lee JW, Modeste NN, Johnston PK. Understanding soft drink consumption among female adolescents using the Theory of Planned Behavior. *Health Education Research* 2003;18(3):278-91.

Katzmarzyk PT, Janssen I. The economic costs associated with physical inactivity and obesity in Canada. An update. *Canadian Society for Exercise Physiology* 2004;29(1):90-115.

Kennedy G. Making Ontario Schools Healthier Places to Learn. Ministry of Education, Ministry of Training, Colleges and Universities. October 20, 2004a.

Kennedy G. Minister of Education Statement to the Legislative Assembly. October 20, 2004b. Available at: <http://www.edu.gov.on.ca/eng/document/nr/04.10/st1020.html> [Date of access: March 11, 2005].

Kirby S, McKenna K. Experience, Research and Social Change: Methods from the Margins. Toronto: Garamond, 1989,

Klein S, Sheard NF, Pi-Sunyer X, Daly A, Wylie-Rosett J, Kulkarni K, Clark NG. Weight management through lifestyle modification for the prevention and management of type 2 diabetes: rationale and strategies. *Diabetes Care* 2004;27(8):2067-73.

Krebs-Smith SM. Choose beverages and foods to moderate your intake of sugars: measurement requires quantification. *Journal of Nutrition* 2001;131:527s-535s.

Kubik MY, Lytle LA, Hannan PJ, Perry CL, Story M. The association of the school food environment with dietary behaviors of young adolescents. *American Journal of Public Health* 2003;93(7):1168-73.

Kubik MY, Lytle LA, Hannan PJ, Story M, Perry CL. Food-related beliefs, eating behavior, and classroom food practices of middle school teachers. *Journal of School Health* 2002;72(8):339-345.

Kubik MY, Lytle L, Story M. Soft drinks, candy, and fast food: what parents and teachers think about the middle school food environment. *Journal of the American Dietetic Association* 2005;105:233-39.

Lincoln YS, Guba EG. *Naturalistic Enquiry*. Newbury Park, California: Sage Publications, Inc., 1985.

Ludwig DS, Peterson KE, Gortmaker SL. Relation between consumption of sugar-sweetened drinks and childhood obesity: a prospective, observational analysis. *Lancet* 2001;357:505-08.

Macdiarmid JI, Blundell JE. Dietary under-reporting: what people say about recording their food intake. *European Journal of Clinical Nutrition* 1997;51:199-200.

Macdiarmid JI, Vail A, Cade JE, Blundell JE. The sugar-fat relationship revisited: differences in consumption between men and women of varying BMI. *International Journal of Obesity Research*. 1998;22:1053-61.

Manners E. Ontario Secondary School Teachers' Federation Letter to Chair of York Region District School Board. May 31, 2001.

Marshall C, Rossman GB. *Designing Qualitative Research 3rd Edition*. Thousand Oaks, California: Sage Publications, Inc., 1999.

Marshall TA, Eichenberger Gilmore JM, Broffitt B, Stumbo PJ, Levy SM. Diet quality in young children is influenced by beverage consumption. *Journal of the American College of Nutrition* 2005;24(1):65-75.

Messier P, Cloutier G, Rowe S. Fuel to Xcell: Healthy Vending Machine Program. Ottawa Public Health, City of Ottawa, 2004.

Ministry of Education, Ministry of Training, Colleges and Universities. Policy/Program Memorandum No. 135. 2004. Available at: <http://www.edu.gov.on.ca/extra/eng/ppm/135.html> [Date of access: March 11, 2005].

Minister of Public Works. Canada's Food Guide to Healthy Eating For People Four Years and Older. 1997. Available at: http://www.hc-sc.gc.ca/fn-an/food-guide-aliment/fg_rainbow-arc_en_ciel_ga_e.html [Date of access: May 24, 2006].

McGartland C, Robson PJ, Murray L, Cran G, Savage MJ, Watkins D, Rooney M, Boreham C. Carbonated soft drink consumption and bone mineral density in adolescence: The Northern Ireland Young Hearts Project. *Journal of Bone and Mineral Research* 2003;18(9):1563-9.

Morton JF, Guthrie JF. Changes in children's total fat intakes and their food group sources of fat, 1989-91 versus 1994-95: implications for diet quality. *Family Economics and Nutrition Review* 1998;11(3):44-57.

Mrdjenovic G, Levitsky DA. Nutritional and energetic consequences of sweetened drink consumption in 6- to 13- year-old children. *Journal of Pediatrics* 2003;142:604-10.

Murphy SP, Johnson RK. The scientific basis of recent US guidance on sugars intake. *American Journal of Clinical Nutrition* 2003;78(suppl):827s-33s.

Neuman, L. Social research methods: Qualitative and quantitative approaches. Toronto: Allyn and Bacon, 1997.

Neumark-Sztainer D, French SA, Hannan PJ, Story M, Fulkerson JA. School lunch and snacking patterns among high school students: Associations with school food environment and policies. *International Journal of Behavioral Nutrition and Physical Activity* 2005; 2:14-20.

Nestle M. Soft drink "pouring rights": marketing empty calories. 2000. Available at: <http://www.asu.edu/educ/epsl/CERU/Documents/cace-00-03.htm> [Date of access: March 11, 2005].

Nicklas TA, Yang S, Baranowski T, Zakeri I, Berenson G. Eating patterns and obesity in children: The Bogalusa Heart Study. *American Journal of Preventative Medicine* 2003;25(1):9-16.

Nicklas TA, Demory-Luce D, Yang S, Baranowski T, Zakeri I, Berenson G. Children's food consumption patterns have changed over two decades (1973-1994): The Bogalusa Heart Study. *Journal of the American Dietetic Association* 2004;104:1127-40.

Nielsen SJ, Popkin BM. Changes in beverage intake between 1977-2001. *A Journal of Preventative Medicine* 2004;27(3):205-10.

Nielsen SJ, Popkin BM. Patterns and trends in food portion sizes, 1977-1998. *JAMA* 2003;289(4):450-53.

Office of the Information Commissioner of Canada. 2003. Available at: <http://www.infocom.gc.ca/menu-e.asp> [Date of access: April 11, 2005].

Ogden CL, Flegal KM, Carroll MG, Johnson CL. Prevalence and trends in overweight among US children and adolescents, 1999-2000. *JAMA* 2002;288(14):1728-32.

Ontario Secondary School Teachers' Federation (OSSTF). Commercialization in our schools: Trends in commercialism. 2001a. Available at:

<http://www.osstf.on.ca/www/abosstf/ampa01/commercialization/trends.html> [Date of access: March 11, 2005].

Ontario Secondary School Teachers' Federation (OSSTF). Commercialization in our schools. 2001b. Available at:
<http://www.osstf.on.ca/www/abosstf/ampa01/commercialization/commercialsinschools.htm>
[Date of access: March 11, 2005].

Ontario Secondary School Teachers' Federation (OSSTF). Commercialization in our schools: Executive Summary. 2001c. Available at:
<http://www.osstf.on.ca/www/abosstf/ampa01/commercialization/execsum.html> [Date of access: March 11, 2005].

Ontario Society of Nutrition Professionals in Public Health (OSNPPH) School Nutrition Workgroup Steering Committee. Call to Action: Creating a Healthy School Nutrition Environment. March, 2004.

Park YK, Meier ER, Bianchi P, Song WO. Trends in children's consumption of beverages: 1987 to 1998. *Family Economics and Nutrition Review* 2002;14(2):69-79.

Patton MQ. Qualitative Research and Evaluation Methods (3rd Ed.). Thousand Oaks, California: Sage Publications Inc., 2002.

Pepsi Bottling Group. York Region District School Board Exclusive Supply Arrangements (Contract). Ontario, Canada. March 20, 2003.

Pepsi Bottling Group. York Region District School Board Request for Proposal. Ontario, Canada. May 23, 2000.

Phillips SM, Bandini LG, Naumova EN, Cyr H, Colclough S, Dietz WH, Must A. Energy-dense snack food intake in adolescence: longitudinal relationship to weight and fatness. *Obesity Research* 2004;12(3):461-72.

Pilant VB, Skinner JD. Availability of competitive foods and beverages during lunch in middle schools. *Topics in Clinical Nutrition* 2004;19(1):20-27.

Pollak CP, Bright D. Caffeine consumption and weekly sleep patterns in US seventh-, eighth-, and ninth-graders. *Pediatrics* 2003;111:42-6.

Popkin BM, Nielsen SJ. The sweetening of the world's diet. *Obesity Research* 2003;11(11):1325-1332.

Public Health Agency of Canada. Trends in the Health of Canadian Youth. 2004. Available at: http://www.phac-aspc.gc.ca/dca-dea/7-18yrs-ans/trends_e.html [Date of Access: April 15, 2005].

Purcell A. Prevalence and Specifics of District-wide Beverage Contracts in California's Largest School Districts: Findings and Recommendations. April, 2002.

Rajeshwari R, Yang S, Nicklas TA, Berenson GS. Secular trends in children's sweetened-beverage consumption (1973-1994): The Bogalusa Heart Study. *Journal of the American Dietetic Association* 2005;105:208-214.

Rampersaud GC, Bailey LB, Kauwell GP. National survey beverage consumption data for children and adolescents indicate the need to encourage a shift toward more nutritive beverages. *Journal of the American Dietetic Association* 2003;103(1):97-100.

Refreshments Canada. Canadian beverage industry evolves guidelines to support healthy schools. May 3, 2006.

Refreshments Canada. *Making schools healthier places to learn...Best practices to really make a difference. A broader perspective and assessment of the Ontario Ministry of Education's policy on food and beverages in elementary school vending machines.* December 17, 2004.

Ritchie J. The Applications of Qualitative Methods and Social Research. In J. Ritchie & J. Lewis (Eds.), *Qualitative Research Practice: A Guide for Social Science Students and Researchers.* (pp. 24-46). London: Sage Publications Ltd., 2003.

Schulze MB, Manson JE, Ludwig DS, Cloditz GA, Stampfer MJ, Willett WC, Hu FB. Sugar-sweetened beverages, weight gain, and incidence of type 2 diabetes in young and middle-aged women. *JAMA* 2004;292(8):927-934.

Sheilds M. Measured obesity, Overweight Canadian children and adolescents; Nutrition: Findings from the Canadian Community Health Survey, Issue no.1 2006.*Statistics Canada:* Cat No. 82-620-MWE.

Skinner JD, Bounds W, Carruth BR, Ziegler P. Longitudinal calcium intake is negatively related to children's body fat indexes. *Journal of the American Dietetic Association* 2003;103(12):1626-1631.

Snape D, Spencer L. The Foundations of Qualitative Research. In J. Ritchie & J. Lewis (Eds.), *Qualitative Research Practice: A Guide for Social Science Students and Researchers.* (pp. 2-23). London: Sage Publications Ltd., 2003.

Statistics Canada. Food Statistics 2004, vol. 4, no.2 October, 2005.Cat no. 21-020-XIE.

Stake R. The Art of Case Study Research. Thousand Oaks, California: Sage Publications Inc., 1995.

St-Onge MP, Keller KL, Heymsfield SB. Changes in childhood food consumption patterns: a cause for concern in light of increasing body weights. *American Journal of Clinical Nutrition* 2003; 78:1068-73.

Storey ML, Forshee RA, Anderson PA. Associations of adequate intake of calcium with diet, beverage consumption, and demographic characteristics among children and adolescents. *Journal of the American College of Nutrition* 2004;23(1):18-33.

Story M, French S. Food advertising and marketing directed at children and adolescents in the US. *International Journal of Behavioral Nutrition and physical Activity* 2004;1(3). Available at: <http://www.ijbnpa.org/content/1/1/3> [Date of access: March 23, 2005].

Story M, Hayes M, Kalina B. Availability of foods in high schools: is their cause for concern? *Journal of the American Dietetic Association* 1996;96(2):123-26.

Strasburger VC. Children and TV advertising. *Developmental and Behavioral Pediatrics* 2001;22(3):185-87.

Strauss, A., Corbin, J. Basics of qualitative research: Grounded theory procedures and techniques. Newbury Park, California: Sage Publications Inc., 1990.

Strauss RS, Pollack HA. Social marginalization of overweight children. *Archive of Pediatrics and Adolescent Medicine* 2003;157:746-752.

Teegarden D, Roseann ML, McCabe GP, McCabe LD, Michon K, Knight AP, Johnston CC, Weaver CM. Dietary calcium, protein, and phosphorus are related to bone mineral density and content in young women. *American Journal of Clinical Nutrition* 1998;68:749-54.

Tournier A, Louis-Sylvestre. Effect of the physical state of food on subsequent intake in human subjects. *Appetite* 1991;16:17-24.

Tremblay MS, Wilms JD. Secular trends in the body mass index of Canadian children. *CMAJ* 2000;163(11):1429-33.

Tremblay MS, Wilms JD. Correction: Secular trends in the body mass index of Canadian children. *CMAJ* 2001;164(7):970.

Troiano RP, Briefel RR, Carroll MD, Bialostosky K. Energy and fat intakes of children and adolescents in the United States: data from the National Health and Nutrition Examination Surveys. *American Journal of Clinical Nutrition* 2000;72(suppl):1343s-53s.

Vereecken CA, Bobelijn K, Maes L. School food policy at primary and secondary schools in Belgium-Flanders: does it influence young people's food habits? *European Journal of Clinical Nutrition* 2005;59:271-77.

Wechsler H, Brener ND, Kuester S, Miller C. Food service and foods and beverages available at school: results from the school health policies and programs study 2000. *Journal of School Health* 2001;71(7):313-24.

Wechsler H, Devereaux RS, Davis M, Collins J. Using the school environment to promote physical activity and healthy eating. *Preventative Medicine* 2000;31:s121-s137.

Welsch, E. Dealing with data: using NVivo in the qualitative data analysis process. *Forum: Qualitative Social Research* 2000; 3(2).

Whately Blum J, Jacobsen DJ, Donnelly JE. Beverage consumption patterns in elementary school aged children across a two-year period. *Journal of the American College of Nutrition* 2005;24(2):93-98.

Whiting SJ, Vatanparast H, Baxter-Jones A, Faulkner RA, Mirwald R, Bailey DA. Factors that affect bone mineral accrual in the adolescent growth spurt. *Journal of Nutrition* 2004;134:696s-700s.

Whiting SJ, Healey A, Psiuk S, Mirwald R, Kowalski K, Bailey DA. Relationship between carbonated and other low nutrient dense beverages and bone mineral content of adolescents. *Nutrition Research* 2001;21:1107-15.

World Health Organization (WHO). Ottawa Charter for Health Promotion. WHO, Geneva, 1986

World Health Organization (WHO). Young people in Canada: their health and well-being. 2004. Available at: http://www.phac-aspc.gc.ca/dca-dea/publications/hbsc-2004/index_e.html [Date of access: April 4, 2004].

Wyshak G. Teenaged girls, carbonated beverage consumption, and bone fractures. *Archives of Pediatrics and Adolescent Medicine* 2000;154:610-13.

Yin RK. Case Study Research Design Methods, 3rd Edition. Thousand Oaks, California: Sage Publications, Inc., 2003.

APPENDICES

Appendix I:	Participant Recruitment.....	173
Appendix II:	Interview Script	178
Appendix III:	Participant Feedback Letter.....	185
Appendix IV:	Letter of Information.....	186
Appendix V:	Letter of Appreciation.....	190
Appendix VI:	Consent Forms.....	191
Appendix VII:	Ethics Approval.....	195
Appendix VIII:	Findings Summary Table.....	196

Appendix I: Participant Recruitment

School Beverage Contracts and Child Health: A Case Study Email Script – Participant Recruitment

Dear (name of potential participant),

My name is Alissa Raphael and I am a Masters student in the Department of Health Studies and Gerontology at the University of Waterloo. I am currently conducting research under the supervision of Dr. Rhona Hanning on schools contracting with beverage companies and child health. As part of the thesis research, I am conducting interviews with stakeholders to explore school beverage contracts from the perspective of a range of stakeholders representing a number of jurisdictions.

I am particularly interested in gaining further insight into your perspectives and would like to invite you to participate in this research study.

- I will be conducting interviews beginning mid-July. The interview will last for approximately one hour and will be arranged to fit in with your schedule. The interview will consist of 10-15 open-ended questions. You are free to answer only the questions you like, and can stop the interview at anytime.
- Your participation in this project is voluntary, and there are no known or anticipated risks to you from your participation.
- It is necessary for the interview to be audio taped to facilitate data collection and ensure the accuracy of recorded data. The tapes and transcripts collected will be kept in a secured location.
- All information you provide will be kept confidential, unless you grant explicit permission to be identified in the thesis or any reports.
- To this email I have attached an information letter containing more details about the study that may help you decide whether or not you would like to participate.

If you have any questions about your participation in this study, or would like any additional information, please feel free to contact me by email at afraphae@ahsmail.uwaterloo.ca You can also contact my supervisor Dr. Rhona Hanning at (519) 888-4567 ext. 5685 or email rhanning@healthy.uwaterloo.ca

Please note that this project has been reviewed by, and received ethics clearance through, the Office of Research Ethics. In the event you have any comments or concerns resulting from your participation in this study, please contact Dr. Susan Sykes at (519) 888-4567 ext. 6005.

I look forward to hearing from you and thank you in advance for your consideration of this project.

Sincerely,

Alissa Raphael
Student Investigator

School Beverage Contracts and Child Health: A Case Study Telephone Script – Participant Recruitment

P = Potential Participant I = Interviewer

I – May I please speak to (name of potential participant)?

P – Hello, (name of potential participant) speaking. How may I help you?

I – My name is Alissa Raphael and I am a Masters student in the Department of Health Studies and Gerontology at the University of Waterloo. I am currently conducting research under the supervision of Dr. Rhona Hanning on schools contracting with beverage companies and child health. As part of the thesis research, I am conducting interviews with stakeholders to explore school beverage contracts from the perspective of a range of stakeholders representing a number of jurisdictions.

I am particularly interested in gaining further insight into your perspectives and would like to invite you to participate in this research study. Is this a convenient time to give you further information about the interview?

P – No, could you please call back later (agree on a more convenient time to call person back).

OR

P – Yes, could you provide me with some more information regarding the interviews you will be conducting?

I – Sure!

- I will be conducting interviews beginning mid-July. The interview will last for approximately one hour and will be arranged to fit in with your schedule. The interview will consist of 10-15 open-ended questions. You are free to answer only the questions you like, and can stop the interview at anytime.
- Your participation in this project is voluntary, and there are no known or anticipated risks to you from your participation.
- It is necessary for the interview to be audio taped to facilitate data collection and ensure the accuracy of recorded data. The tapes and transcripts collected will be kept in a secured location.
- All information you provide will be kept confidential, unless you grant explicit permission to be identified in the thesis or any reports.

If you have any questions about your participation in this study, or would like any additional information, please feel free to contact me by email at afraphae@ahsmail.uwaterloo.ca You can also contact my supervisor Dr. Rhona Hanning at (519) 888-4567 ext. 5685 or email rhanning@healthy.uwaterloo.ca

Please note that this project has been reviewed by, and received ethics clearance through, the Office of Research Ethics. In the event you have any comments or concerns resulting from your participation in this study, please contact Dr. Susan Sykes at (519) 888-4567 ext. 6005.

- With your permission I would like to send you an information letter containing more details of the study that may help you decide whether or not you would like to participate in the study.

P – No thanks.

OR

P – Sure (Note: get email address, fax #, mailing address to send Letter of Information)

I – Thanks for your time. Please do not hesitate to contact me.

School Beverage Contracts and Child Health: A Case Study
Telephone Script – Setting Up Interview

P = Potential I = Interviewer

I – May I please speak to (name of potential participant)?

P – Hello, (name of potential participant) speaking. How may I help you?

I – My name is Alissa Raphael and I am a Masters student in the Department of Health Studies and Gerontology at the University of Waterloo. I contacted you earlier about my interest in having you participate in a research study on school beverage contracts. I was wondering if you were interested in being interviewed?

P – No thanks.

OR

P – Yes, I am interested.

I – That is great news. Thank you! Would you mind if we set up an interview time now? (Set up interview at location and time that is convenient for both researcher and interviewee).

If you have any questions before (date of interview) please feel free to contact me by email at afraphae@ahsmail.uwaterloo.ca You can also contact my supervisor Dr. Rhona Hanning at (519) 888-4567 ext. 5685 or email rhanning@healthy.uwaterloo.ca

Thanks again!

Appendix II: Interview Script

Interview Script Questions

Introduction

My name is Alissa Raphael and I am a Masters student in the Department of Health Studies and Gerontology at the University of Waterloo. I am currently conducting research under the supervision of Dr. Rhona Hanning. The study will explore school beverage contracts from the perspectives of a range of stakeholders representing a number of jurisdictions including government policy, school boards, beverage and related food industries, health care professionals and community members including parents and students. I am conducting interviews to gain insight into the different perspectives on this topic.

Perspective Questions for all Stakeholders

Topic Area: Knowledge of Beverage Contracts

- 1) What is your familiarity with:
 - a) Vending machines in school?
 - b) School beverage contracts?
 - c) The issue of YRDSB/Pepsi and PDSB/Coke beverage contracts?

Probe: How central is it to your work/interests?

Topic Area: Recommendations for Schools

- 1) In your opinion, what are the main issues surrounding a) vending in schools, b) school beverage contracts?

Probe: If your child went to a school that had a school beverage contract would you have concerns?

- 2a) What in your opinion should be the role of school/school boards (if any) in healthy eating for kids?

- b) What in your opinion should be the role of the provincial government (if any) in healthy eating for kids?

Probe: How might the government/school address the issue of healthy eating for children?

Prompts: policy, education, financial

3) Melissa Sothern in her 2004 review article, Obesity Prevention in Children: Physical Activity and Nutrition, wrote:

“Schools should be encouraged to adopt vending machine policies that promote healthy drinks and food in appropriate portion sizes and discouraged from providing unhealthy food as rewards for positive behavior or academic accomplishment” (p. 704).

What is your opinion of this statement?

Prompts: agree, disagree

Topic Area: Effects of Beverage Contracts on Student Health & Consumption Patterns

4) What, in your opinion, is the role of vending machines in schools?

Prompts: should they exist? types of beverages consumed (healthy vs. non-healthy), quantity consumed, consumption frequency, student (long term) health

5) Do you think that school food services, including vending, affect the quality of children’s diet?

Probe: How could this be improved?

Topic Area: Food Industry/Advertising in the School

6) What in your opinion is the role of industry (like the beverage industry) in the school environment?

7) Do you have any concerns about advertising in the school environment?

Probe: For you, what constitutes advertising?

Prompt: company name of vending machine, company name on score board, company sponsorship of school team, free beverage products, product sampling

8) What, in your opinion, is the value (positive, negative, or both) of beverage contracts in a school environment?

9) What is your awareness/knowledge (if any) of school beverage contracts?

Probe: ONLY if awareness:

What is your view on the secrecy surrounding school beverage contracts?

Prompts: private contract negotiations, contract secrecy-control given to beverage companies

Probes: How could these situations be resolved or improved in the future?

10) What is your opinion on the school's use of sugar sweetened beverages for:

- Fundraising
- Classroom Rewards/Incentives

END OF COMMON QUESTIONS

Dodds' Family Questions

Topic Area: Process Questions

11) What was your motivation for investigating school beverage contracts?

12) What is your motivation for your continued investigation and advocacy of this issue?

13) What support (public and private) did you find available in your quest to make public the beverage contracts?

Topic Area: Perspective Questions

14) How do you feel about the substitution of brand name water (e.g. Nestle) or fruit juices with soft drinks in schools?

Probe: Is school marketing or child health your primary interest?

Principal/ Teachers/ School Board/ OSSTF Questions

Topic Area: Contract Decision Making

11) Who currently decides on the beverage contracts at your school?

Probes: Which individuals were involved in:

- (i) the creation of the RFP
- (ii) choosing the winning proposal bid

Were any individuals external to the "committee" mentioned above consulted during:

- (i) the creation of the RFP
- (ii) choosing the winning proposal bid? (e.g. dietitians, other school boards)

In your opinion are there other individuals who were not consulted, but should have been included in:

- (i) the creation of the RFP
- (ii) choosing the winning proposal bid

What could this/these individuals add to the processes?

Topic Area: Reasons for Contracts/Concerns

12) In your opinion what are some of the major factors/issues that make schools (or your school in particular) want to seek a beverage contract?

13) Do you know of any concerns that were discussed prior to awarding the beverage contract?

14a) What, if any, are the unexpected benefits of the beverage contract?

b) What, if any, are the unexpected negative consequences of the contract?

Topic Area: Policies

15) What guidelines/policies (if any) are implemented at your school to regulate the beverage contract?

Probes:

- When did these policies come into play?
- Are these guidelines developed from your school or directed from the local school board?
- Whose responsibility is it to create such policies? (Prompt: school, government)

Topic Area: Looking into the Future

16) Would you enter into a beverage contract today?
(Do the positive aspects outweigh the negative consequences?)

17) Gerard Kennedy (Minister of Education) has increased funding for schools. What kind of effect (if any) will this action have on schools entering into beverage contracts?

Student Questions

11) What is your favorite beverage? Why is it your favorite?

12) Are you aware that your school has a beverage contract with Pepsi/Coke?

13) Is it important for students to be involved in the awarding of beverage contracts at your school? *If yes*, what can students contribute to this situation?

Probe: If you were involved in the decision making process of the school board to enter into a beverage contract, what questions would you like to ask?

Public Health Agency of Canada / Dietitians of Canada Questions

11) What is your involvement/ interest in the school vending/beverage contract issue?

12) Are you aware of any members of the Dietitians of Canada who work for the soft drink/vending industry?

Probe: What is your opinion of this?

Topic Area: Looking into the Future
Policy 135

Role of School Boards Regarding Foods and Beverages in Vending Machines

Effective immediately, school boards should restrict the sale of all food and beverage items in elementary school vending machines to those that are healthy and nutritious, in accordance with the recommended standards set out in this memorandum. Boards should work with their vending-machine providers to achieve the recommended standards in elementary schools as soon as possible. Only foods and beverages that contribute to the nutritional well-being of students should be dispensed through school vending machines. Boards should review all current contracts with vending-machine providers, and ensure that all future contracts with vending-machine providers comply with the provisions in this memorandum.

(Ministry of Education, 2004)

13) What are your thoughts on the implementation of Policy 135 by the Minister of Education in an attempt to promote healthy eating among students in schools?

Probe: Is the implementation of this policy sufficient to promote healthy eating in schools? If no, what more should the *Ontario government* be doing?

What more should the *school/school board* be doing?

MOHLTC/Ministry of Education Questions

Topic Area: Policies

11) What are your thoughts on the implementation of Policy 135 by the Minister of Education in an attempt to promote healthy eating among students in schools?

Probe: Is the implementation of this policy sufficient to promote healthy eating in schools? If no, what more should the *Ontario government* be doing?

Probe: Whose responsibility is to create guidelines/policies to regulate beverage contracts within the school?

Topic Area: Looking into the Future

12) Schools are entering into school beverage contracts to supplement funding provided by the government, to make purchases essential for the daily operation of the school (e.g. text books, classroom materials, sports equipment). Do you think the Ministry of Education has a responsibility to adequately fund the schools?

13) What is the Ontario government going to do to reduce the need of schools to rely on external sources of funding?

14) In the 2004 Healthy Weights, Healthy Lives Report, the first Recommendation for Action for schools/school boards is to “assess school environments (e.g. cafeterias, vending machines, opportunities for physical activity, fund-raising and special food days), develop plans to create a healthy school environment, and monitor progress” (Basrur, 2004).

a) What are you planning to do to ensure that schools/school boards follow this recommendation?

b) How will you monitor “unhealthy school environments” and a school’s action/progress to correct this situation?

Probe: What are potential benchmarks/ goals to work towards?

Academic Questions

11) What is your interest in the school beverage contract/ school vending issue?

12) ****Specific questions to be created based on the interviewee’s areas of expertise and relevant research interests****

Industry Questions

Topic Area: Policies

11) What marketing guidelines/policies exist in your organization for advertising and marketing within schools?

Prompts: How do these policies/guidelines differ for elementary and secondary schools?

Topic Area: YRDSB and PDSB Contracts

12) Are you aware of the student Nicholas Dodds and the situation in the York Region District School Board and the Peel District School Board?

Probe: How did your organization respond to this situation?

13) How do you think that industry and schools can work together to support student health?

References

Basrur S. 2004 Chief Medical Officer of Health Report, Healthy Weights, Healthy Lives. Ontario Ministry of Health and Long Term Care 2004.

Sothorn MS. Obesity prevention in children: physical activity and nutrition. *Nutrition* 2004;20:704-8.

Appendix III: Participant Feedback Letter

School Beverage Contracts and Child Health: A Case Study Transcript Feedback Letter

Dear

Date

Enclosed is a copy of the transcribed interview that took place on (date).

I invite you to send me your comments on the information discussed at the interview. Reviewing the transcript will provide you with an opportunity to assess and confirm the information discussed, and clarify or add any points that were not mentioned during our time together.

I look forward to receiving your response via email within the next two weeks. Should the transcript meet your approval and no further comments are required please indicate this to me via email. At this time, please also indicate your interest in receiving a summary of the study findings.

This project has been reviewed by, and received ethics clearance through, the Office of Research Ethics. In the event you have any comments or concerns resulting from your participation in the study or the information presented in the transcripts, please contact Dr. Susan Sykes at (519) 888-4567 ext. 6005

Once again, I would appreciate a response via email within two weeks. I can be reached at afraphae@ahsmail.uwaterloo.ca

Sincerely,

Alissa Raphael
University of Waterloo
Department of Health Studies & Gerontology

Appendix IV: Letter of Information

School Beverage Contracts and Child Health: A Case Study Letter of Information - Adults

Date

Dear

This letter is an invitation to consider participating in a study I am conducting as part of my Masters degree in the Department of Health Studies and Gerontology at the University of Waterloo under the supervision of Dr. Rhona Hanning. This letter contains information about this project and what your involvement in the project would entail should you choose to participate.

Recent Canadian trends indicate a rise in childhood obesity and a decrease in total nutrients consumed by same aged children. Sugar sweetened beverages have been implicated as a major factor contributing to such trends, adding a source of “empty calories” to the diet of children and adolescents and displacing other beverage choices.

The school has the difficult task of both teaching children the skills necessary to lead healthier lives, while at the same time providing a healthy environment in which children can practice these skills. For this reason, the decision of the York Region District School Board (YRDSB) and the Peel District School Board (PDSB) to enter into exclusive beverage contracts with the Pepsi Bottling Group and the Coca-Cola Bottling Company respectively in 2000, as exposed by the student, Nicholas Dodds three years later, received much media attention. The varying perspectives from a number of stakeholders who see both strengths and weaknesses that can occur from these contracts have never been explored. The purpose of this study, therefore, is to describe the perspectives surrounding the issue of school beverage contracts (and consequently child health) from a broad group of stakeholders. Specifically, the perspectives concerning beverage contracts in two Ontario schools boards in Canada’s 2004-2005 sociopolitical environment will be studied.

The study will explore school beverage contracts from the perspective of a range of stakeholders representing a number of jurisdictions including government policy, school boards, beverage and related food industries, health care professionals and community members including parents and students. I would like to invite you to participate in this research study. Your knowledge and expertise of this topic is well known and I am interested in gaining further insight into the issue from your perspective.

Participation in this study is voluntary. It will consist of one interview with approximately 15 open ended questions and take approximately one hour of your time. The meeting will take place at a mutually agreed upon time and location. You may decline to answer any question

during the interview you don't want to answer, and are free to withdraw your consent to participate without any negative consequences by advising the researcher of this decision.

It is necessary for the interview to be audio taped to facilitate the collection of information and ensure accurate recording of responses. The interview will later be transcribed verbatim for analysis. Within one week to two weeks after the interview I will send you a copy of the transcribed interview. This will provide you with an opportunity to review and confirm the information discussed and to clarify or add any points. Information provided in the interviews is confidential unless you grant explicit permission to be identified.

As this study is looking to describe the perspectives of various stakeholders it is important that specific quotations and opinions be linked to a specific jurisdiction. Excerpts from the interview may be included in the thesis or any publications resulting from this research. Permission will be requested to disclose your identity through the use of your name, representing organization and executive title. Should you decide to remain anonymous, permission will be requested to use anonymous quotations.

Data collected during this study will be retained for five years after the completion of the research project in a locked cabinet in my supervisor's office. Only researchers associated with this project will have access to the data. There are no known or anticipated risks to you as a participant in this study.

If you have any questions about participation in this study, or would like any additional information on the study, please feel free to contact me by email at afraphae@ahsmaail.uwaterloo.ca You can also contact my supervisor Dr. Rhona Hanning at (519) 888-4567 ext. 5685 or email rhanning@healthy.uwaterloo.ca

This project has been reviewed by, and received ethics clearance through the Office of Research Ethics. In the event you have any comments or concerns resulting from your participation in this study, please contact Dr. Susan Sykes at (519) 888-4567 ext. 6005

I look forward to speaking with you and thank you in advance for your consideration of this project.

Sincerely,

Alissa Raphael
Student Investigator

School Beverage Contracts and Child Health: A Case Study Letter of Information to Parents and Students

Dear

Date

This letter is an invitation to consider allowing your child to participate in a study I am conducting as part of my Masters degree in the Department of Health Studies and Gerontology at the University of Waterloo under the supervision of Dr. Rhona Hanning. This letter contains information about this project and what your child's involvement in the project would entail.

Recent Canadian trends indicate a rise in childhood obesity and a decrease in total nutrients consumed by same aged children. Sugar sweetened beverages have been implicated as a major factor contributing to such trends, adding a source of "empty calories" to the diet of children and adolescents and displacing other beverage choices.

The school has the difficult task of both teaching children the skills necessary to lead healthier lives, while at the same time providing a healthy environment in which children can practice these skills. For this reason, the decision of the York Region District School Board (YRDSB) and the Peel District School Board (PDSB) to enter into exclusive beverage contracts with the Pepsi Bottling Group and the Coca-Cola Bottling Company respectively in 2000, as exposed by the student, Nicholas Dodds three years later, received tremendous media attention. The varying perspectives from a number of stakeholders who see both strengths and weaknesses that can occur from these contracts have never been explored. The purpose of this study, therefore, is to describe the perspectives surrounding the issue of school beverage contracts (and consequently child health) from a broad group of stakeholders. Specifically, the perspectives concerning beverage contracts in two Ontario schools boards in Canada's 2004-2005 sociopolitical environment will be studied.

The study will explore school beverage contracts from the perspective of a range of stakeholders representing a number of jurisdictions including government policy, school boards, beverage and related food industries, health care professionals and community members including parents and students. I would like to invite your child to participate in this research study. I am interested in gaining further insight into the issue from a student's perspective.

Participation in this study is voluntary. It will consist of one interview with 10-15 open ended questions and take approximately one hour of your son or daughter's time. The meeting will take place at a mutually agreed upon time at the Canadian Institute of Health Research building which is located at 100 College Street South, Toronto (Banting Building). The researchers are unable to provide transportation to or from the interviews.

Your son or daughter can decline to answer any question during the interview that he/she does not want to answer, and is free to withdraw their consent to participate without any negative consequences by advising the researcher of this decision.

It is necessary that the interview be audio taped to facilitate the collection of information and ensure accurate recording of responses. The interview will later be transcribed verbatim for analysis.

As this study is looking to describe the perspectives of various stakeholders it is important that specific quotations and opinions be linked to specific individuals. Excerpts from the interview may be included in the thesis and or any publications resulting from this research. Permission will be requested to: (1) identify your son or daughter through the use of their name and (2) disclose their school board. Should your child choose the second option exclusively, they will not be identified individually. There is no penalty should your child decide to not choose either of these options, and permission will be requested to use anonymous quotations.

Tapes and transcripts collected during this study will be retained for five years after the completion of this research project in a locked cabinet in my supervisor's office. Only researchers associated with this project will have access to the data. There are no known or anticipated risks to your child as a participant in this study.

If you have any questions about participation in this study, or would like any additional information on the study, please feel free to contact me by email at afraphae@ahsmaail.uwaterloo.ca You can also contact my supervisor Dr. Rhona Hanning at (519) 888-4567 ext. 5685 or email at rhanning@healthy.uwaterloo.ca

This project has been reviewed by, and received ethics clearance through the Office of Research Ethics. In the event you have any comments or concerns resulting from your participation in this study, please contact Dr. Susan Sykes at (519) 888-4567 ext. 6005.

I look forward to speaking with you and your child and thank you in advance for your consideration of this project.

Sincerely,

Alissa Raphael
Student Investigator

Appendix V: Letter of Appreciation

School Beverage Contracts and Child Health: A Case Study Letter of Appreciation

Date

Dear

I would like to thank you for your participation in this study. As you are aware, the purpose of this study is to describe the perspectives surrounding the issue of school beverage contracts (and consequently child health) from a broad group of stakeholders.

The data collected from this study will provide the qualitative, descriptive, groundwork for a quantitative analysis on the consumption of beverages and childhood health within a Canadian school context, as much of the current literature is from the United States. Knowledge of stakeholders' viewpoints also facilitates the process of possible future community level modifications to beverage availability to students, beverage contracts within school boards, or at the provincial level in the form of province wide policy amendments.

I plan on disseminating information learned throughout this study within the research community through my thesis presentation, school board presentations and journal articles. If you would like to receive more information regarding the results of this study, or if you have any questions or concerns, please do not hesitate to contact me. If you would like a summary of the findings, please let me know, and I will forward you a copy after the study is completed.

Within the next two weeks, I will be emailing you a copy of your transcribed interview. This will provide you with an opportunity to review and confirm the information discussed and to clarify or add any points. I look forward to your response (via email) within two weeks of receiving the transcripts. At this time please also indicate your interest in receiving a summary of the findings. This study will be completed by September, 2005.

Please remember that that this project has been reviewed by, and received ethics clearance through the Office of Research Ethics. In the event you have any comments or concerns resulting from your participation in this study, please contact Dr. Susan Sykes at (519) 888-4567 ext. 6005

Thank you for your participation,

Alissa Raphael
University of Waterloo
Department of Health Studies and Gerontology
afraphae@ahsmail.uwaterloo.ca

Appendix VI: Consent Forms

ID Code _____

School Beverage Contacts and Child Health: A Case Study Consent to Participate – Adults

I have read the information presented in the Letter of Information about the study being conducted by Alissa Raphael of the Department of Health Studies and Gerontology at the University of Waterloo under the Supervision of Dr. Rhona Hanning. This study has been explained to my satisfaction. I have had the opportunity to ask any questions related to this study and to receive any further details I require about the study. I am aware that I may withdraw from the study at any time without penalty by advising the researchers of this decision.

I was informed that the interview will be audio taped to facilitate the collection of information and ensure accurate recording of responses. Audiotapes will be transcribed verbatim for analysis. All audiotapes will be kept in a secured office, and will be destroyed at the conclusion of the study.

I am aware that excerpts from the interview may be included in the thesis and or any publications resulting from this research. It is my decision whether or not my quotations used in such reports are to remain anonymous or whether I agree to disclose my identity and by what identifying information (name, representing organization, executive title, other). I understand that there will be no penalty should I wish to remain anonymous.

I understand that I may withdraw this consent at any time without penalty by advising the researcher of this decision.

I understand that this project has been reviewed by and has received ethics clearance through the Office of Research Ethics at the University of Waterloo. I was informed that if I have any comments or concerns resulting from my participation in this study, I may contact Dr. Susan Sykes, the Director at the Office of Research Ethics at (519) 888-4567 ext. 6005.

With full knowledge of all foregoing, I agree, of my own free will, to participate in this study.

I agree to disclose my identity in the following way in any thesis or publication that comes of this research:

Full Name (first and last name)

YES

NO

Executive Title YES NO
Representing Organization YES NO
Other _____ YES NO

I would not like to disclose my identity in any thesis or publication that comes of this research, but I agree to the use of anonymous quotations in such works.

YES NO

Print Name

Signature of Participant

Date

Signature of Student Investigator

Date

Participant Contact Information: (To be used only by the student researcher to forward interview transcripts and Feedback Letter)

Address: _____

OR email address _____

ID Code _____

School Beverage Contracts and Child Health: A Case Study
Permission to Participate - Minors

I have read the information presented in the Letter of Information about the study being conducted by Alissa Raphael of the Department of Health Studies and Gerontology at the University of Waterloo under the Supervision of Dr. Rhona Hanning. This study has been explained to my satisfaction. I have had the opportunity to ask any questions related to this study and to receive any further details I require about the study.

I am aware that excerpts from my child's interview may be included in the thesis and or any publications resulting from this research. I am also aware that my son or daughter has the option of (1) disclosing their identity through the use of their first and last name and (2) disclosing the name of their school board. I understand that my child will not be identified individually should they only disclose the name of their school board. My child's identity will only be disclosed for the purpose of referencing information that he or she has provided. If my child prefers not to disclose any of this information, then consent to participate means that anonymous quotations may be used. I am also aware that consent may be withdrawn at any time by advising the researcher of this decision.

I was informed that the interview will be audio taped to facilitate the collection of information and ensure accurate recording of responses. Audiotapes will be transcribed verbatim for analysis. All audiotapes will be kept in a secured office, and will be destroyed at the conclusion of the study.

I understand that this project has been reviewed by and has received ethics clearance through the Office of Research Ethics at the University of Waterloo, and that I may contact Dr. Susan Sykes, the Director at the Office of Research Ethics at (519) 888-4567 ext. 6005 if I have any comments or concerns about my son or daughter's involvement in this study.

Parent's Permission

Child's Name: _____

Child's Birth date: _____

Gender of Child: **Male** **Female**

Permission Decision: **YES** – *I would like my child to participate in this study*

NO – *I would not like my child to participate in this study*

Signature of Parent or Guardian: _____

Date: _____

Student's Assent

I agree to disclose my identity through the use of my first and last name in any thesis or publication that comes out of this research for the purpose of referencing information that I have provided:

YES NO

I agree to disclose the identity of my school board in any thesis or publication that comes out of this research for the purpose of referencing information that I have provided:

YES NO

I agree to the use of anonymous quotations from my interview in any thesis or publication that comes of this research:

YES NO

Print Name: _____

Signature of Participant: _____

Date: _____

Appendix VII: Ethics Approval

Date: Tue, 14 Jun 2005 12:06:53 -0400
From: ORE Ethics Application System
Subject: Final Revisions Clearance (ORE # 12304)
Dear Researcher:

This note is to advise you that the final revisions of ORE application:

Title: School Beverage Contracts and Child Health: A Case Study
ORE #: 12304
Faculty Supervisor: Dr. Rhona Hanning (rhanning@healthy.uwaterloo.ca)
Student Investigator: Alissa Raphael (afraphae@ahsmail.uwaterloo.ca)

were received and have been reviewed. The revisions are fine. Best wishes for success with this study.

Note 1: This clearance is valid for four years from the date shown on the certificate and a new application must be submitted for on-going projects continuing beyond four years.

Note 2: This project must be conducted according to the application description and revised materials for which ethics clearance have been granted. All subsequent modifications to the protocol must receive prior ethics clearance through our office and must not begin until notification has been received.

Note 3: Researchers must submit a Progress Report on Continuing Human Research Projects (ORE Form 105) annually for all ongoing research projects. In addition, researchers must submit a Form 105 at the conclusion of the project if it continues for less than a year.

Note 4: Any events related to the procedures used that adversely affect participants must be reported immediately to the ORE using ORE Form 106.

Susanne Santi, M. Math.,
Manager, Research Ethics
Office of Research Ethics

	<ul style="list-style-type: none"> ▪ Effects of advertising? <ul style="list-style-type: none"> - Difference b/w tobacco and unhealthy foods ▪ Contents of contract? <ul style="list-style-type: none"> - Contents of beverages (both flavoured milks & sugar added beverages) <p>Are there health promoting activities at school?</p> <ul style="list-style-type: none"> ▪ Which healthy foods are promoted? ▪ Time spent on teaching nutrition <p>What do children eat while at school?</p>		<ul style="list-style-type: none"> ▪ Premature ▪ Not feasible <p>Media literacy</p> <p>Provide education (↑Awareness)</p>	<p>Government Academic</p> <p>Academic, Teachers, Government</p> <p>Academic, Industry</p>
Influences of Obesity & Co-morbidities	<p>SOCIAL</p> <p>Home & School</p> <ul style="list-style-type: none"> ▪ Parents → teachers have greatest influence ▪ Mixed messages <ul style="list-style-type: none"> - <i>Does food consumed at home influence school choices?</i> - YES - NO <p>Barriers to Healthy Eating</p> <p>1) Lack of Parents Awareness/</p>	<p>Non-profit Student</p> <p>Teacher, Teacher Association</p>	<p>Promote healthy food choices b/c that will change home practices</p> <p>Educate Parents</p>	<p>School board, Non-Profit</p>

	<p>Knowledge</p> <p>2) Socioeconomics of Family</p> <ul style="list-style-type: none"> - No time / No money - Guilt <p>Importance of Modeling Healthy Behaviours at School</p> <ul style="list-style-type: none"> ▪ Spend large part of the day ▪ Trust in school <p>ENVIRONMENTAL</p> <p>Mixed Messages</p> <ul style="list-style-type: none"> ▪ Healthy eating taught in class should be replicated in school <p>Environmental Conditioning</p> <ul style="list-style-type: none"> ▪ Associate trust at school with products <p><u>Vending Machines</u></p> <ul style="list-style-type: none"> ▪ Placement of machines <ul style="list-style-type: none"> - Difference b/w elementary & secondary - Where put in school ▪ Enable consumption 	<p>Government, Parent, community member Non-profit</p> <p>Industry Non-profit</p> <p>Government, community member, policy analyst, teacher</p> <p>Academic, Teachers association</p> <p>All stakeholders</p>	<ul style="list-style-type: none"> ▪ Teach by example ▪ No sugar sweetened products for classroom reward <p><i>*BUT: Teachers often cannot comply</i></p> <ul style="list-style-type: none"> - Class pays attention - Cheapest way to get quiet <ul style="list-style-type: none"> ▪ Partnership of parents & school <p>Don't have vending machines readily available</p>	<p>Teachers All stakeholders</p> <p>School board</p> <p>Industry, Teacher</p>
--	--	---	--	--

	<p>Advertising/ Corporate Influences at School</p> <ul style="list-style-type: none"> ▪ Peer pressure (for schools & students) ▪ Advertising the norm (in society) <p>- Differences b/w: milk vs. soft drink advertising , unhealthy food vs. tobacco</p> <p>POLITICAL</p> <p>Roles of Government in Healthy Eating</p> <p>1) Setting Curriculum (including nutrition, healthy living classes)</p> <p>2) Policy Creation</p> <ul style="list-style-type: none"> ▪ Policy 135 - Soft policy - Reactive vs. proactive - Exclusive vs. Including <ul style="list-style-type: none"> ▪ only vending machines ▪ only elementary school - Suggestive vs. Mandatory 	<p>Non-profit</p> <p>Academic, Government, Community member</p> <p>Non-profit, dietitian, community member</p> <p>Non-profit, government</p>	<ul style="list-style-type: none"> - Teach students to recognize advertising is all around, and not necessarily good (media literacy) - Limit advertisements at school <p>Strengthen school relationship with public health</p> <p>Effect of Policy 135 on secondary schools unknown b/c of increased freedom to leave campus, & democratic rights</p>	<p>All stakeholders</p> <p>Government, Dietitian</p> <p>Teachers association, dietitian, community member</p>
--	---	--	--	--

	<ul style="list-style-type: none"> - Passive, not translated to mean something for schools (ex. No incentive) - Political Move <p>3) School Funding</p> <ul style="list-style-type: none"> ▪ beverage contracts replace funds cut by government ▪ even if government increases funding, schools will still seek out beverage contracts <p>Democratic Rights (of Students)</p> <ul style="list-style-type: none"> ▪ control of school in contract making decisions ▪ right to have access (to both healthy and unhealthy products) <p>NORMS</p> <ul style="list-style-type: none"> ▪ healthy food is not considered a treat ▪ good behaviour deserves a treat (students don't listen for healthy foods) ▪ culture of convenience; need to provide access to foods ▪ students are going to eat unhealthy products, so might as well sell them at school and make a profit 	<p>Academic</p> <p>Government, Industry, Non-Profit</p> <p>Government, school board</p> <p>School board, teacher</p> <p>Government, community member</p> <p>Non-profit</p> <p>Teacher</p> <p>Government</p> <p>School board, policy analyst</p>	<p>**Combine policy with programs that support/encourage change.</p> <p>Include students in decision making</p>	<p>School board</p> <p>Teachers Association, community member, teacher</p>
--	---	--	---	--

<p>Perceived Value of Beverage Contracts</p>	<p>POSITIVE VALUE Increased Funds</p> <p>Mixed Views to where contract funds go:</p> <ul style="list-style-type: none"> ▪ Pay for core school activities ▪ Pay for “extras” not included in school funding formula <p>Contracts Fill Needs: Convenience /Source of Food</p> <p>Stimulate Conversation about:</p> <ul style="list-style-type: none"> ▪ vending machines @ school <ul style="list-style-type: none"> - ↑awareness about healthy options - making healthy choices - used as learning tool ▪ vending contracts <ul style="list-style-type: none"> - contract formation <p>Promote Traceability (of beverage profits)</p> <p>NEGATIVE VALUE</p>	<p>School board, non-profit, dietitian, government, Teacher</p> <p>Stakeholders outside of school board</p> <p>School board</p> <p>School board, teacher, government, industry, academic, dietitian</p> <p>Dietitian, school board</p> <p>School board</p> <p>Industry, school board</p>	<p>Don’t need the extra funds</p> <p>Schools already had contracts, centralizing contract maximizes profit</p>	<p>Community member</p> <p>School board</p>
--	--	---	--	---

	<p>Lack of Power & Control 1) School board lack control in contract negotiation 2) Students lack control in becoming involved in contract 3) Corporatization empowers industry</p> <p>Lack of Contract Transparency ▪ secrecy unnecessary</p> ▪ All school contracts are confidential ▪ Beverage companies decision to keep contract secret <p>POSITIVE AFTER CHANGES</p> <p>Contracts Positive if: ▪ Provide appropriate product</p> ▪ Provide healthy alternatives ▪ Limit advertising <p>PARADOXES 1) Ethical Behaviour vs. Child Exploitation ▪ Taking students money → Even though contracts bring in school funds (and give back to the student), this</p>	<p>Government, non-profit, community member, student</p> <p>School board “</p> <p>Dietitian</p> <p>Non-profit, teacher, teachers association, parent</p> <p>Non-profit, teacher</p> <p>Industry, Academic</p>	<ul style="list-style-type: none"> ▪ Involve parents & teachers in contract discussions. ▪ Increase openness & disclosure of contract. ▪ Increase student involvement <p>No solution needed!</p> <p>Provide products consistent with school health guidelines</p> <p>Obtain milk contract</p> <p>Don't remove contracts, need to find a balance</p>	<p>Dietitian, government, industry</p> <p>Government, community member</p>
--	---	--	--	---

	<p>is really taking away from the student – because the money comes out of their pockets</p> <ul style="list-style-type: none"> ▪ Advertising (from Contracts) in the School → Though stakeholders (including teachers and school board members) feel that advertising harms the student and thus has no place in the school - school beverage contracts (including advertisements rights within the school) are considered acceptable and to benefit the student ▪ Unhealthy Food Products As A Bribe → Though teachers recognize the benefit of teaching / modeling healthy behaviours on the students wellbeing, providing sugary rewards in class are also considered to enhance the wellbeing of students, because students listen and learn more when they are bribed with a sugary treat <p>2)Health Promotion vs. Money Matters</p> <ul style="list-style-type: none"> ▪ Schools are torn between the need to raise funds for the school (to create programs that will benefit the student) → and the easiest way of raising these funds which is through beverage contracts (which do not benefit the student’s health) 	<p>Government, teachers association, teacher</p>	<p>Don’t eliminate advertising, ensure it is properly used</p> <p>Encourage teachers that their role goes beyond classroom education, extends to the well-being of the student</p> <ul style="list-style-type: none"> ▪ Restrict unhealthy foods at school ▪ Restricting is not the answer: need the funds! ▪ Implement policies created jointly by school boards and public health. 	<p>Teachers Association</p> <p>Dietitian, Industry</p> <p>Government, Academic</p> <p>Government</p>
--	--	---	--	--

	<p>3) Mixed Messages Regarding Health in Schools</p> <ul style="list-style-type: none"> ▪ Consistent healthy messages desired → desire is overshadowed by short term goals (↑ student learning, ↑ school funds) ▪ Vending contracts cannot be targeted alone 	<p>All Stakeholders</p> <p>Government, non-profit, teachers association</p>	<p>Policies need to present acceptable options to raise funds.</p> <ul style="list-style-type: none"> ▪ Comprehensive school health (integrate all school components) <p>Period use of “unhealthy” products is fine</p> <p>Provide both healthy & unhealthy options to mimic real world decisions. (Use school environment as a learning opportunity)</p>	<p>Government, non-profit, teachers association</p> <p>Parent, Dietitian</p> <p>Dietitian, school board</p>
Accountability	<p>SCHOOLS & SCHOOL BOARDS</p> <p><i>Why are schools accountable?</i></p> <ul style="list-style-type: none"> ▪ Mixed messages (within school) ▪ Schools responsible for intellectual & physical growth of students ▪ Children spend large part of day at school ▪ Parents too busy (new social structure of the family) ▪ Policy either thrives or fails at level of 	<p>Academic, Non-profit, Parent, Teacher, Government, Industry</p>	<p>Increase emphasis on nutrition at school</p>	<p>Dietitian</p>

	<p>the school (schools need to implement)</p> <p>JOINT ACCOUNTABILITY (Schools & Parents) <i>Why is there joint accountability?</i></p> <ul style="list-style-type: none"> ▪Need consistent messages at home and school ▪Teaching children is a partnership <p>GOVERNMENT <i>Why is the government accountable?</i></p> <ul style="list-style-type: none"> ▪Lack of funding ▪Failure to promote and assist in policy implementation <p>▪Lack of public health staff assigned to schools</p> <p>INDUSTRY (Linked to others)</p> <ul style="list-style-type: none"> ▪Linked to government→inability to create products that meet policy specifications 	<p>School board, policy analyst</p> <p>Non-profit, dietitian, teacher association</p> <p>Government</p> <p>Dietitian</p>	<p>Multidisciplinary interventions</p> <p>Government to provide financial backing for policies that have financial implications (ex. Policy 135)</p> <p>Government to support policy implementation through the creation of programs that support</p> <p>** No solution needed: Industry has no role in healthy eating; they are suppliers (provide needed funds, and food)</p>	<p>All stakeholders</p> <p>Policy Analyst</p> <p>School board</p> <p>Industry, teacher</p>
Future Directions	<p>NEED TO SHIFT NORMS Social unacceptability of activity that shifts norms, NOT policy</p>	<p>Government, policy analyst</p>	<p>**How to shift norms?</p>	

	<p>VENDING CONTRACTS CAN BE USED AS A TEACHING TOOL</p> <p>MULTIDISCIPLINARY &</p>	<p>Dietitian, government, school board</p>	<ul style="list-style-type: none"> ▪Future interventions must be interdisciplinary and comprehensive ▪Information required (lack of awareness) <ul style="list-style-type: none"> - Increased research - Increased Educational opportunities <ul style="list-style-type: none"> ▪ Nutrition education <p>**Barriers to (Nutrition) Education @ school</p> <ul style="list-style-type: none"> ▪Curriculum too heavy – pressed for time ▪Increased student social & behavioural problems ▪Teachers not knowledgeable ▪Parents hinder education ▪Create programs similar to Fuel to Xcell 	<p>All stakeholders (see below)</p> <p>Government, policy analyst</p> <p>Academic, non-profit, community member, school board, teacher, industry</p> <p>Non-profit, government, teacher</p> <p>Teacher</p> <p>Government, Academic</p> <p>Teachers Association</p> <p>Academic, Government</p>
--	--	--	--	--

	<p>COMPREHENSIVE APPROACHES</p> <p>GOVERNMENT CHANGES</p> <ul style="list-style-type: none"> ▪Policy (General) ▪Policy 135 ▪Curriculum <p>INDUSTRY CHANGES</p> <p>SCHOOL/ SCHOOL BOARD CHANGES</p>	<p>Policy analyst, dietitian, government, teacher</p>	<ul style="list-style-type: none"> ▪Cannot look at vending machines in isolation ▪Parents & school must work together <p>Mixed views about the creation of laws having a positive impact. Majority feel this is not effective. (better to align legal regulations with shifting norms)</p> <p>Needs to be cooperation/ consultation among government, schools & society when creating policy</p> <p>Policy needs to apply to all sources of unhealthy foods at the school</p> <p>Curriculum needs to increasingly support and encourage healthy eating.</p> <p>Create products that meet policy specifications</p> <ul style="list-style-type: none"> ▪Schools increasingly need to model healthy behaviour 	<p>Policy analyst, dietitian, government</p> <p>Industry, school board, student, policy analyst</p> <p>Policy analyst, industry, government, dietitian, school board, non-profit organization</p> <p>Industry, government</p> <p>Teachers association</p> <p>School board</p> <p>Academic</p>
--	---	--	---	--

	<p>▪Fundraising at school</p> <p>▪Formation of vending contracts</p> <p>▪Tobacco control best practices as a solution to childhood obesity?? - Recognition of differences between smoking cessation and unhealthy eating (need to eat to live vs. don't need to smoke, financial benefits to not smoking)</p>	<p>Industry, Policy analyst</p>	<p>▪Modify food options available at School</p> <p>▪Government to provide/ suggest alternative fundraising opportunities if government wishes to eliminate vending contracts (major sources of fundraising)</p> <p>▪Guidelines created to determine which fundraising activities are permitted in schools</p> <p>▪Competitive pricing of healthier products</p> <p>Obtain input from various stakeholder group prior to contract formation NOTE: dietitians not included in this group</p>	<p>Dietitian, government</p> <p>Non-profit, school board, teacher</p> <p>Community member dietitian</p> <p>School board, community member, government, dietitian, non-profit</p>
--	--	---------------------------------	---	--