

**Developing a more effective school-level feedback report based on the needs of
school stakeholders: Improving the SHAPES knowledge exchange tool**

by

Patricia Rios

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, 2014

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Author's Declaration

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners. I understand that my thesis may be made electronically available to the public.

Abstract

Objective: The primary goal of this study is to understand what factors contribute to teachers and administrators involved in these projects viewing the YSS feedback reports as effective and useable in order to continue improving the design and content of the reports to encourage knowledge utilization and integration at the school level.

Methods: This study employed a mixed methods approach that included both qualitative and quantitative methods of data analysis. Specifically this study employed a concurrent nested design wherein quantitative data analysis was performed concurrently within a predominantly qualitative study. The qualitative portion consisted of telephone interviews with YSS participants that had viewed their School Profile. The quantitative portion was a secondary data analysis that examined the relationship between a downloading behaviour outcome and various school characteristics and contextual factors.

Results: Of the 57 eligible participants that were identified from the 2010-11 YSS sample, 8 participated in telephone interviews; in the quantitative analysis data from 448 of the schools that participated in the 2010-11 YSS were used. Overall interview respondents rated the School Profile as a valuable and utile KTA tool for them and their school communities. Aspects of the profile that contributed to its value were the tailored and quantitative information it provides; the clarity and readability of its design; the ease of accessing and sharing the profile in an electronic format; and the broad range of health topics covered in the Profile. Participants were also asked to discuss their use and sharing of the profile with almost all respondents indicating that they had shared the profile within their school and/or community. Instrumental and conceptual knowledge use were the most common forms described by participants. Participants also commonly expressed a desire for more resources to support the continued use and uptake of the Profile in their school and community. The quantitative analysis revealed a statistical relationship between location in certain provinces and downloading behaviour but no other predictor variables proved significant in the full logistic model.

Conclusion: The findings have contributed to understanding what facets of the School Profile contribute to its value as perceived by the individuals using it and point to a few avenues of further investigation regarding the Profile and its function within the YSS. The positive response by interview participants indicates that the Profile in its current state is a valuable and useful tool, however the use of additional strategies to support its uptake and utilization could be improved. The findings that location in certain provinces, some of which have collaborative projects with the YSS, may influence Profile downloading and health outcomes within schools is a potentially important avenue for further investigation and refinement of YSS KE systems.

Acknowledgement

Over the course of my graduate studies I have been blessed to have the support of numerous individuals. First and foremost my supervisor Dr. Scott Leatherdale, whose endless support and patience was instrumental in helping me complete my studies. Also, to my committee members Dr. David Hammond and Dr. Steve Manske who freely provided their expertise and guidance throughout the development of my thesis. I must also thank the staff at Propel, particularly Tammy Cumming, for providing access to anything I needed and always being available to answer my questions. Finally, I would not be here without the love and support of countless family and friends who never let me give up, you all have my sincerest gratitude.

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Chapter 1: Introduction

The physical and mental development that occurs during adolescence in many ways influences an individual's health throughout their lifespan, not only in terms of physical health but also in the behaviours, habits, and beliefs related to health that develop during this time (Ritchie, Crawford, Hoelscher & Sothorn 2006; Rehm, Taylor, & Room, 2006). However research projects like the Canadian Fitness Survey (CFS) and the Canadian Health Measures Survey (CHMS) show that the general health and fitness of Canadian children and youth has been declining over the past three decades and that many youth today are failing to meet recommended guidelines for nutrition, physical activity, and sedentary behaviour (Hanning et al., 2007; Tremblay et. al., 2010; Mark, Boyce & Janssen, 2006; Active Healthy Kids Canada, 2013). Taken together this paints an unhappy picture for the future health of the Canadian population, and points to a need for intervention with Canadian youth, especially during the critical period of adolescence. The current body of evidence strongly suggests that interventions aimed at improving youth health and encouraging the development of positive habits and behaviours should take into account a number of modifiable health characteristics and account for the ways in which they interact (Anderson & Butcher, 2006; Wong & Leatherdale, 2009; Iannotti et al., 2009; Leatherdale et al., 2008a). This creates a complex situation for the researchers, public health workers, parents, and many other agencies and stakeholders that wish to engage with youth and create positive environments that encourage healthy development. The use of schools as a health promotion setting where individuals are empowered to create the conditions that lead to their best health is a promising approach to this issue (Rowling & Jeffreys, 2000).

Underpinning this approach to health is the need for a deep and comprehensive understanding of the health challenges facing youth, the behaviours they are engaging in, and the most promising practices that can be used to develop effective interventions. Though seemingly a tall order, the considered and effective use of Knowledge-to-action (KTA) strategies to bring relevant and useful research into school communities and encourage its implementation is an important first step (Cameron, Manske, Brown, Jolin, Murnaghan & Lovato, 2007). The goal of this study is to contribute to this first step by exploring and examining the needs and preferences of school staff engaged in KTA through the use of tailored feedback reports. The information gathered and knowledge gained in this research will then hopefully be applied to produce more effective KTA tools and strategies to assist in improving youth health research in Canada.

Chapter 2: Literature Review

Chapter 2.1: Youth Health

Chapter 2.1.1: Obesity and Health Behaviours

A comparison of body mass index (BMI) data collected in the 1981 Canadian Fitness Survey (CFS) to data collected in the 2007-09 Canadian Health Measure Survey (CHMS) showed significant increases in rates of both overweight and obesity in Canadian adolescents (Tremblay et. al., 2010). The data showed that the prevalence of overweight and obese boys aged 15 to 19 had risen to 31% and the prevalence in girls 15 to 19 had reached 25%; an increase of 17% and 11% respectively (Tremblay et. al., 2010). This rapid and consistent increase strongly suggests that environmental and lifestyle factors play a major role in this trend (Anderson & Butcher, 2006). Though the rising prevalence of obesity and overweight (as measured by BMI) seems to have levelled off among children and youth according to a recent analysis that compared CCHS data from 2004 as well as the two most recent cycles of the CHMS, the overall estimates of obesity among 5 to 17 year olds remain high (Roberts, Shields, de Groh, Aziz & Gilbert, 2012). While the environmental, social, and behavioural factors related to obesity are numerous and complex, research conducted with Canadian youth populations has revealed a number of modifiable behavioural correlates with obesity and overweight, including physical activity levels, sedentary behaviour and eating habits (Anderson & Butcher, 2006; Wong & Leatherdale, 2009). These relationships are further complicated by their interaction with other behaviours such as smoking, alcohol consumption, and marijuana use. A number of studies carried out among Canadian and American youth have found that regular physical activity has a protective effect against alcohol and illicit substance use later in life and reduces rates of cigarette smoking and

smoking susceptibility (Iannotti et al., 2009; Leatherdale et al., 2008a). On the other hand youth who are considered sedentary, especially those engaging in high rates of screen or phone time, were found to be more likely to engage in consistent patterns of negative, risky behaviour; be more susceptible to smoking; and use more alcohol and illicit substances than their non-sedentary counter parts (Nelson & Gordon-Larsen, 2006; Leatherdale et al., 2008a; Iannotti et al., 2009). Though causal relationships between these factors cannot be determined based on the data collected thus far, the current evidence strongly indicates that interventions addressing youth health behaviour must take into account a number of modifiable behavioural characteristics. This also points to a strong need for better understanding not only the factors that relate directly to issues like obesity but also how risky behaviours like tobacco use and illicit substance use contribute to the larger picture of youth health.

Chapter 2.1.2.: Physical Activity, Inactivity, and Fitness

In January of 2011 the Canadian Society for Exercise Physiology (CSEP) released updated guidelines for physical activity and sedentary behaviour for youth between the ages of 12 and 17. These guidelines indicate that youth should be participating in 60 minutes of “moderate- to vigorous-intensity physical activity daily that includes vigorous-intensity and muscle strengthening exercise at least 3 times per week (CSEP, 2011). Youth are also encouraged to pursue forms of active transport such as walking or biking as well as seeking opportunities to exercise during their recreational time (CSEP, 2011). The guidelines for sedentary behaviour encourage youth to limit their recreational screen time to no more than 2 hours per day, limit the use of sedentary transport, and “swap sedentary time with active time” (CSEP, 2011a). However, recent fitness studies show that approximately half of

youth 15 to 19 years old need improvement in their musculoskeletal health and that the overall fitness of Canadian youth has declined from 1981 until 2009 while, over the same time period, BMI, waist circumference, and skinfold thickness increased (Tremblay et al., 2010). The data revealed an overall decrease in global fitness that could not be explained solely by the increase in adiposity, suggesting that decreases in physical activity levels are also partly responsible (Tremblay et al., 2010). On the other hand, a study of approximately 7,000 Canadian youth in grades 6-10 found that only 18% of boys and 14% of girls met the recommended guidelines for total “screen time”, a measure of sedentary behaviour (Mark et al., 2006). On average, youth in this study were in front of the TV for 2.29-2.71 hours per day and used the computer for 1-1.57 hours per day (Mark et al., 2006). Additionally, a 2007 study conducted among Ontario high school students examined the relationship between physical activity levels and sedentary behaviour and found that highly active females and inactive males were the groups that reported the highest levels of sedentary screen time and that males were more likely to report 2 or more hours per day of screen time (Leatherdale & Wong, 2008). Males that reported low activity levels and high sedentary behaviour were more likely to be overweight compared to their peers, and females in both the highly active/highly sedentary and low active/high sedentary groups were more likely to be overweight (Leatherdale & Wong, 2008). These findings illustrate two important points: high levels of activity and high levels of sedentary behaviour are not mutually exclusive; and high levels of physical activity may not be enough to compensate for excessive screen time and sedentary behaviour (Leatherdale & Wong, 2008). Taken together, these studies on physical activity, sedentary behaviour, and physical fitness/body weight demonstrate the complicated relationships between these three factors and the

importance of considering sedentary behaviour as more than a lack of physical activity as these findings suggest it can have its own moderating effect on the risk of overweight and obesity (Leatherdale & Wong, 2008).

Chapter 2.1.3: Nutrition and Diet

To properly tackle the problem of increasing obesity in children and adolescents it is also essential to address issues related to energy intake and nutrition. Though there are few recent studies of diet and nutrition among Canadian youth, what information there is points to a potentially serious problem. The Canadian Food Guide recommends that a diet based around the consumption of fruits, vegetables, and grains supplemented by meat, dairy and alternatives as sources of proteins and other nutrients necessary for development (Health Canada, 2007). The Guide also recommends limiting sweetened beverages as well as those foods high in salt, sugar, and fat and encourages youth to eat a variety of foods from each of the food groups to ensure dietary needs are being met (Health Canada, 2007). The available studies suggest that few children are meeting the dietary recommendations in the Canadian Food Guide and age-related declines in diet quality and the rate of breakfast consumption do exist (Storey, et al., 2009; Hanning et al., 2007; Taylor, Evers & McKenna, 2005). A 2009 study of approximately 2000 youth aged 14-17 found that the diets of 43% of youth met zero or one food group recommendation published in the Food Guide (i.e. appropriate number of servings of fruits and vegetables; dairy; grains; etc.) and 47% met two to three recommendations from the Guide (Storey, et al., 2009). Knowledge of nutrition is also low among adolescents and many demonstrate difficulties in making the connection between diet, exercise, and overall health (Taylor et al., 2005).

Long-term studies of children and youth examining the relationship between energy intake, diet composition and overweight have had fairly mixed results. Though logic dictates that children who eat energy dense foods like fast foods or 'junk' foods would have a higher energy (caloric) intake than their peers and thus be more likely to be overweight, a study conducted among youth in the United States found that both overweight and lean adolescents overate when consuming fast food, consuming an average of 1600 kcal in one sitting (Ebbeling et. al., 2004). However overweight youth were less likely to compensate for the extra caloric intake (e.g. by skipping subsequent meals) than their lean counterparts (Ebbeling et. al., 2004). The available data on the dietary habits of Canadian and American youth suggest that many young people have low intakes of fruits and vegetables, high intakes of sugar and high-salt, high-fat foods and are often lacking in essential nutrients like calcium (Hanning, et al., 2007; Taylor et al., 2005). This suggests that youth who consume calorie dense foods like fast food and other processed goods (i.e., 'junk' foods) are not necessarily consuming more calories than their peers but are replacing the foods that should be in their diet (i.e. those recommended by the Food Guide) with less healthy snack foods and soft drinks that are high in fat, sugar, and salt (Storey, et al., 2009; Taylor et al., 2005). The development of poor eating habits in childhood and adolescence has been implicated in the rise of childhood obesity and has many long term implications for the future health of the population as poor nutrition during child and adolescent development can impact health throughout the lifespan (Taylor et al., 2005).

Chapter 2.1.4.: Alcohol, Tobacco, and Drug Use

Along with the problem of child and youth obesity and the many behavioural factors associated with it, the influence of alcohol, tobacco, and illicit drug use on the health of Canadian youth must also be considered. Despite widespread education and prevention efforts, data collected from the 2008-09 Canadian Youth Smoking Survey (YSS) showed that 8.9% of youth in grades 7 to 12 reported current tobacco use (Leatherdale & Burkhalter, 2012). Among this same age group 27% of youth reported current alcohol use (defined as ≥ 5 drinks on one occasion in the past 12 months), 18.8% reported current marijuana use, and 8.2% reported illicit drug use (i.e., amphetamines, hallucinogens, MDMA, heroin, or cocaine) (Leatherdale & Burkhalter, 2012). Males were found more likely than females to be current tobacco, alcohol and marijuana users, while rates of current illicit drug use were similar between males and females (Leatherdale & Burkhalter, 2012). Rates of use for both males and females increased consistently with age, with the largest increases between grade 7 and 12 occurring for alcohol (3.4% to 50.8%) and marijuana (3.3% to 29.1%); increases for current tobacco and illicit drug use were much smaller by comparison (Leatherdale & Burkhalter, 2012). On the other hand approximately half of the youth in the study (55.4%) reported not using alcohol, marijuana, tobacco, or illicit drugs, however by grade 12 this number dropped to only 36% (Leatherdale & Burkhalter, 2012). Though seemingly comprehensive it is important to note that this data is drawn from one sample of the YSS which is a cross-sectional self-report survey and as such these numbers can only provide a brief snapshot of the issue.

Analysis of the data from the 2002 YSS survey showed that the largest subpopulation of youth were those who had never experimented with alcohol, tobacco, or marijuana however in the 2004 YSS the majority were youth who had experimented with alcohol only (Leatherdale et al., 2008). The prevalence of youth who used only alcohol increased by 35% from 2002 to 2004, however it is important to note that in both 2002 and 2004 only 0.3% and 0.4% of youth reported having smoked a whole cigarette without also having tried alcohol and marijuana (Leatherdale et al., 2008). The data from the 2008-09 survey show that the largest subgroup continues to be youth who only use alcohol (8.8%), however the comorbid use of alcohol and marijuana has grown to 4.1% and the comorbid use of alcohol and illicit drugs has reached 2.3%, while 2% of youth report use of all four substances (Leatherdale & Burkhalter, 2012). This indicates that multi-substance use must also be addressed when dealing with this particular issue as it is very common, especially among students in grades 10 to 12 where 93% of current smokers had also experimented with alcohol and 83% had used marijuana (Health Canada, 2010). Compared to the fact that only 17% of non-smokers in the same age range had tried cannabis, there is evidence of a synergistic effect between the use of tobacco, alcohol, and marijuana (Health Canada, 2010). In addition to concerns with multi-substance use and the long-term negative health effects of initiating tobacco, alcohol, and marijuana use at a young age, youth that engage in these behaviours suffer the harmful short-term effects of illegal substance use (e.g., accidental injury associated with alcohol use) at a disproportionately high rate (Rehm et al., 2006).

Chapter 2.1.5.: Health Promotion in the School Environment

The overall picture of youth health in Canada suggests that the current generation are significantly less fit than those of two decades ago and that many are failing to meet the recommended guidelines for physical activity, sedentary behaviour, and nutrition.

Additionally, although youth smoking levels have declined significantly, a substantial portion of youth continue to use tobacco and the use of other substances such as alcohol, marijuana, and illicit drugs is on the rise. Considering that adolescence is such an important time for physical, mental, and behavioural development it is all too clear that a better understanding of the health challenges youth face and how more effective interventions can be developed is necessary.

Schools represent an ideal setting to develop population level interventions, as youth spend approximately twenty-five hours per week in this environment and are also heavily influenced by peer and teacher modelling (Taylor et al., 2005). The health promotion approach is based on the principle that health is a positive thing that is created by individuals, environments, and society and that these three factors all contribute to the health status of individuals and groups (Rowling & Jeffreys, 2000; Rowling & Jeffreys, 2006; Whitelaw et al., 2001). This framework for practice acknowledges the ability and importance of individuals developing the knowledge and habits that lead to good health but places a special emphasis on the participation and empowerment of the community to take ownership of their own health (Rowlings & Jeffreys, 2006). In this way school communities can become proactive agents for their own positive change rather than being reactive to the agendas of outside agencies or government ministries. The establishment of a school as a setting for health promotion requires the participation of all members of the

community including parents, staff, teachers, and students in order to create policies and programs that are sustainable and can address health issues in a meaningful and comprehensive way (Rowling & Jeffreys, 2000). At the core of this approach to health lies the fact that school communities must be part of an infrastructure that supports and enables their participation in developing and implementing more effective intervention and prevention programs to address the myriad health issues facing Canadian youth today. For schools and communities to be meaningfully engaged in the process of health promotion they must have on going access to timely, relevant, and context appropriate information and research evidence that can be used to support their participation and develop appropriate interventions for the problems they face (Cameron et al., 2007). Although there are a number of KTA theories and frameworks that exist to inform knowledge sharing efforts, there is growing recognition that in the context of school-based health promotion models are needed that ensure there is a focus on the creation of timely and relevant research evidence as well as finding ways to effectively and appropriately share that information with individuals and groups that are interested in using it.

Chapter 2.2: Knowledge to Action

One of the first challenges individuals and organizations engaging in KTA activities must face is the diverse nature of the field. A review of KTA terms conducted among research funding agencies found 29 different terms that referred to various aspects of the process being used in 9 different countries (Graham et al., 2006). Some of the most common terms included diffusion; dissemination; knowledge transfer, translation, or exchange; and research utilization or implementation (Graham et al., 2006). While these terms represent

very disparate approaches to KTA and cannot be used interchangeably, there is a certain degree of overlap, which has led to some paradigms gaining prominence over others throughout different time periods. As an aside, it must also be noted that although the word knowledge can carry many meanings it is understood in the context of this research project to be something that assists individuals in making decisions and then acting on them (Best, Hiatt, Norman, et al., 2008). Knowledge can also come in forms ranging from the explicit and actionable to the tacit (or implicit) and experiential but again, in the context of this study it will usually refer to explicit knowledge derived from research evidence unless otherwise specified (Best et al., 2008).

Underlying the many and varied approaches to KTA is the understanding that their primary concern is bridging the perceived divide between how and where knowledge is produced and how and where this knowledge is applied and used (Green et al., 2009). Traditionally knowledge producers, in this case scientists conducting health research, are viewed as part of a centralized network where research is carried out and the results are then synthesized, indexed, and archived within a system of research institutions (Green et al., 2009). On the other side of the gap knowledge users, in this case individuals working in a public health or health promotion capacity in school communities, are considered to function in a decentralized, varied environment where contextual and situational influences have a profound effect on how scientific and research evidence can be applied (Green et al., 2009). The challenge then, for current and future health researchers, is finding and continuing to develop KTA models and research traditions that are more inclusive of and sensitive to the specific requirements of settings based health promotion interventions.

Chapter 2.2.1: Diffusion of Innovations

Commonly used in public health, health promotion, and lifestyle interventions since the 1970's, diffusion of innovations describes a process where technological innovations or information about innovations are passed through social systems over time leading to either adoption or rejection of the innovation and eventual change in the structure of social systems and the behaviour of its members (Rogers, 2003). It was one of the first attempts to formally codify this type of social change and the theories and models of Diffusion of Innovations continue to influence the field of knowledge to action research to this day. Central to the theory of Diffusion of Innovations is the concept of novelty, whether it is in relation to a true innovation being used for the first time or an existing idea being spread to a new audience or used in a new setting (Ashley, 2009; Rogers, 2003). Innovation in this case refers to something that is being experienced by its audience for the first time, broadening the potential applications for this model in health research. Much like the previous definition of the term, the process of acquiring knowledge in the Diffusion of Innovations model enables individuals to make a decision regarding an innovation and then act on their adoption or rejection of it. However, the way knowledge moves during the information-evaluation process is not necessarily consistent and heavily influenced by context. Contrary to the beliefs of early social scientists, individuals do not immediately gravitate towards information provided by objective experts but instead have a tendency to rely on more subjective valuations provided by peers, colleagues, and other member of their social circle (Rogers, 2003). Furthermore, much of the Diffusion model is based on the nature of growth in closed systems where one individual influences a few others and they influence a few more and so forth until saturation is reached and the majority of people

have been influenced (Greenalgh et al., 2008). However, this model loses its predictive value in situations where the population involved changes rapidly or the value of an innovation is liable to change, limiting its practical application. The utility of this model in applied research contexts such as public health or health promotion is also hampered by the fact that its definition of innovation must be assumed to be completely applicable to something like research evidence, an idea that has not been satisfactorily tested (Estabrooks et al., 2006). Furthermore, Diffusion theory does not deal in any meaningful way with the development of knowledge, in this case the research carried out by scientists, which as stated earlier is one of the major priorities for the future of KTA in public and population health (Graham et al., 2006). While the influence of Diffusion theory is apparent in much of the work that came after it, the changing face of health research and health care has rendered it applicable in very limited circumstances so alternatives must be sought.

Chapter 2.2.2: Beyond Diffusion: Knowledge Translation, Utilization, and Integration

In the time since the first publication of the theory of Diffusion of Innovations, the application and development of KTA theories and models has experienced exponential growth. Throughout these decades of divergence and evolution few constants have remained, among them the continuing focus on the practical application of new technologies and knowledge as the primary outcome of KTA activities. This can be seen in many of the more modern KTA paradigms, particularly those of knowledge translation (KT), knowledge utilization (KU), and knowledge integration (KI). While by no means interchangeable, these three paradigms do provide a useful framework to understand the various activities and stages of the KTA process and their relations to one another.

Just as there is a growing diversity of terms in the general KTA field, the same applies when dealing with specific paradigms. In any attempt to utilize these models it is important to have a clear definition to serve as a starting point for the exercise. Within the field of health research in Canada the Canadian Institutes for Health Research (CIHR) have been vocal advocates for the use of knowledge translation (KT) strategies they define thusly: “the exchange, synthesis, and ethically sound application of knowledge within a complex system of interactions among researchers and users to accelerate the capture of the benefits of research for Canadians” (CIHR, 2004). This particular definition strongly supports the idea that KT practices and strategies are a fundamental part of research and should be considered not only in how research findings are shared but also in the development of research questions and methods (CIHR, 2004). The dynamic nature of health research in general lends itself well to a paradigm like the approach to KT championed by the CIHR, but it is particularly useful in domains such as youth health and school based health promotion. The inherent complexity of tackling the numerous behavioural, physical, and environmental characteristics that can influence youth health, coupled with the way these factors can change rapidly, demands that both knowledge producers and knowledge users working within this field engage in a continual research, evaluation, and monitoring. Thus, the KT paradigm espoused by the CIHR that emphasizes the inclusion of KT concerns and practices at all phases of the research process could prove a particularly effective tool.

With the KT paradigm providing the foundation for understanding and engaging in the ‘knowledge’ portion of KTA, the same consideration must be given to the ‘action’ side of the proceedings. It is to this end that models like knowledge utilization (KU) were developed in

order understand and examine the outcomes of knowledge use and how those outcomes were achieved. Generally speaking KU can broadly be defined as the use of knowledge to solve “human problems” or instances where exposure to information results in learning that then influences thoughts and actions (Backer, 1991; Cousins & Leithwood, 1993). As KU is primarily an outcome oriented KTA model it is equally important to have a working definition of what those KU outcomes are. In this case KU outcomes can generally be classified in three categories: conceptual, instrumental, and symbolic (Cousins & Leithwood, 1993; Mitton et. al., 2007). Conceptual and instrumental knowledge use are viewed as opposite ends of the same continuum, where conceptual knowledge use is a form of learning that increases awareness or understanding but does not lead to action and instrumental knowledge use is the direct application of knowledge or research to planning and decision making (Mitton et. al., 2007). Thinking of conceptual and instrumental KU as opposite ends of a continuum allows for a more accurate reflection of the realities of KTA in practice as the application and utilization of research and knowledge can be a very dynamic process that requires adaptability. By its very nature a continuum of KU allows for gradual change and the existence of in-between states of KU that are not wholly one form or another. Symbolic knowledge use, on the other hand, is considered to be separate from the other two as it is a type of KU wherein knowledge is used to confirm or reinforce existing beliefs and norms, which is often viewed as a form of non-use and is not necessarily a desirable KU outcome (Mitton et. al., 2007).

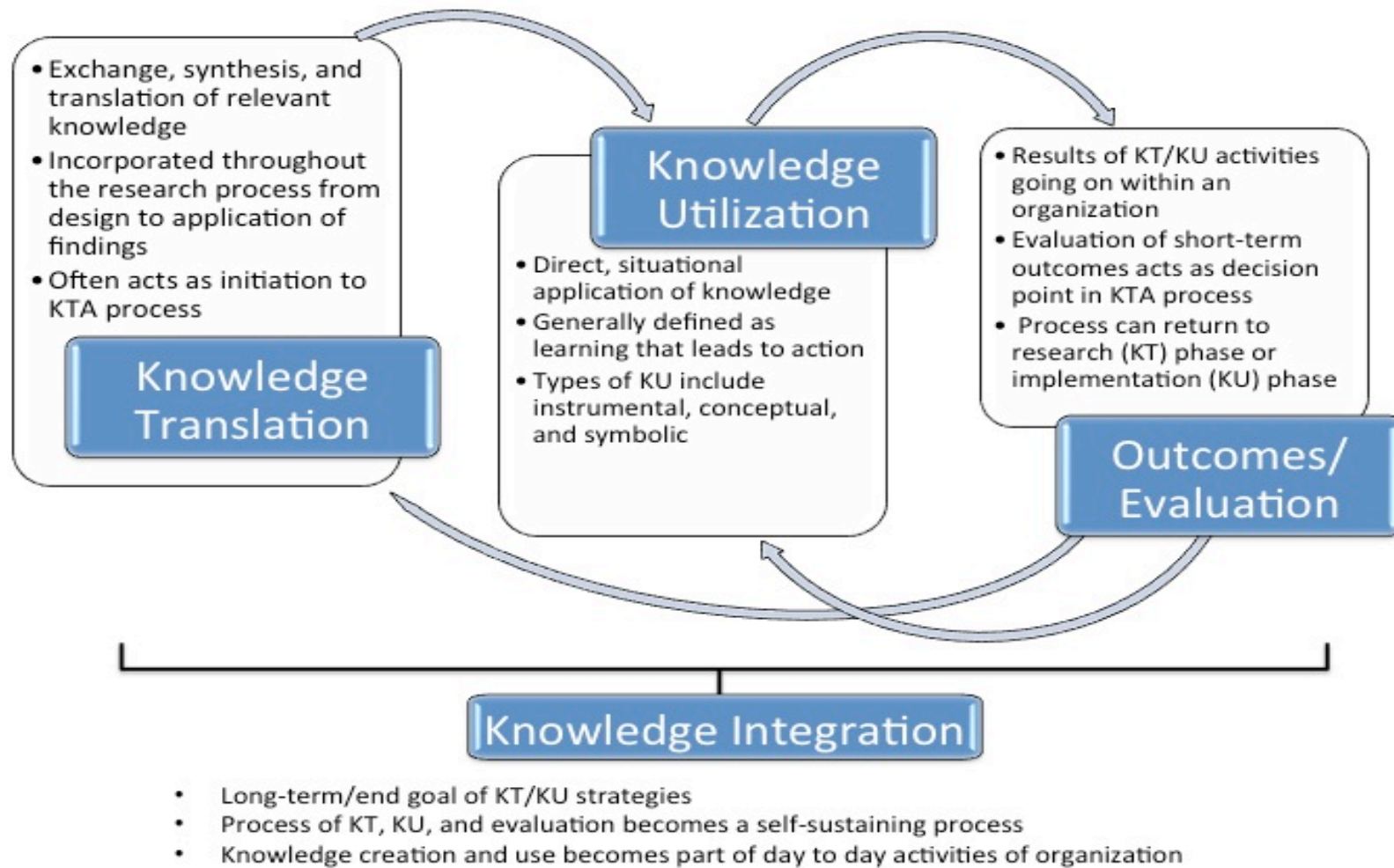
If KT and KU theories can be considered as representative of the ‘knowledge’ and ‘action’ portions of KTA respectively, then it stands to reason that knowledge integration (KI) is a

representation of the entire KTA process, a 'meta-model' so to speak that provides a framework for supporting and evaluating ongoing KT and KU activities, particularly in the long-term. In this context, Best et. al.'s (2008) definition of KI as the effective and ongoing incorporation of knowledge "into the decisions, practices, and policies of organizations and systems" seems especially appropriate. This understanding of KI in essence positions it as the ultimate goal for organizations engaging in KTA, the idea that the continual production, synthesis, evaluation, and application of various forms of knowledge is part of the day-to-day life of the organization. In a sense, the relationship of KI to that of KT and KU is one of long-term viability and sustainability. It is when the KI paradigm is implemented alongside existing KT and KU efforts that long-term planning and the achievement of long-term goals is realistically possible.

Taken together these three paradigms form part of a larger conceptual model (Figure 1) of how KTA develops and progresses within an organization. It is important to note that this model is not dependent on an organization's level of experience regarding KTA; much like the definition of innovation used earlier the key concept is novelty, whether it is the application of existing strategies to a new case or a naïve organization entering the process for the first time. The theoretical 'entry point' for the process in this model is the knowledge translation or research phase where the initial development, synthesis, exchange, and/or translation of relevant knowledge occurs. The organization then moves through to the knowledge utilization or 'implementation' phase where learning from and application of the knowledge synthesized in the prior phase. Part of the process of implementation also includes evaluation of the organization's progress and the short-term

outcomes of their KTA activities thus far. This evaluation should also give due consideration to organizational characteristics and external factors that can act as barriers or facilitators to effective KTA practice. The outcomes determined by the evaluation also mark a decision point where, dependent on the results, the organization can return to the KT or KU phases of the process as needed. As an organization moves through iterative cycles of learning and refinement of KT/KU strategies the long-term goal is to reach a point of organizational knowledge integration. Knowledge integration occurs when the process of KT, KU, and evaluation becomes a self-sustaining cycle that is part of the organization's day-to-day activities.

Figure 1: Rios Conceptual KTA Model



Chapter 2.3: KTA in Youth Health Research

Chapter 2.3.1: SHAPES Overview

As discussed previously, one of the necessities for effective health promotion in schools is an infrastructure that enables members of the school community to understand the issues they are facing and provide them with resources to take action. In Canada, the School Health Planning and Evaluation System (SHAPES - shapes.uwaterloo.ca) is a research platform intended to take on this kind of role. The primary purpose of SHAPES is to collect high quality school- and student-level data that can then be used to engage schools and community agencies in planning and implementing tailored health interventions (Leatherdale, Manske, Wong & Cameron, 2009; Cameron et al., 2007). Data collection is primarily taken up by means of surveys administered to students and staff of participant schools that is then linked to census and mapping data that provide supplemental information. A key component of this system is the transfer of the collected information back to participating schools so that it can be put to use. The SHAPES program uses two primary methods to communicate research information to schools. The first is a school-specific feedback report that uses data from the student questionnaires administered as part of SHAPES to provide stakeholders with an overall picture of what is happening in their school (Leatherdale et al., 2009). Secondly, participating schools are provided with a 'report card' that reflects the physical environment and current policies of the school (Leatherdale et al., 2009).

This research platform can be used to engage researchers in more 'practice-based' investigations as well as provide opportunities to study the strategies and initiatives that

lead to effective knowledge exchange (KE) (Leatherdale et al., 2009). By engaging in KE practices that directly target schools as users of information the SHAPES program closes the gap between research and practice by aiming to provide school and community stakeholders with relevant, accessible, and timely evidence (Leatherdale et al., 2009). In many cases the evidence available to school stakeholders when making planning decisions is based on research that is conducted under artificially controlled conditions that may not accurately reflect the school environment (Leatherdale et al., 2009). This gap between the available evidence and the needs of school stakeholders may be responsible for the fact that very few schools employ evidence-based interventions when planning programs to address youth health issues (Leatherdale et al., 2009). Thus, focusing on strategies that attempt to adapt research to local contexts can assist community agencies in improving their decision making and create a culture more supportive of evidence-informed practice (Kothari & Armstrong, 2011). The design of the SHAPES platform intends for it to be applied to answer many kinds of research questions and to date it has been use to implement a number of youth health projects across Canada. One such example is the Youth Smoking Study (YSS) that is funded by Health Canada and is the only national survey of youth smoking habits.

Chapter 2.3.2: YSS Overview

The YSS is intended to collect data from a nationally representative sample of Canadian youth as a means of both tracking the prevalence of smoking and other health behaviours as well as providing a benchmark to help evaluate the effectiveness of tobacco control and other youth health interventions (University of Waterloo, 2011). The school-based survey collects cross-sectional data on smoking and other health behaviours among youth and was

administered with support from Health Canada in participation with the Propel Centre for Population Impact based at the University of Waterloo. A detailed description of the sampling design, recruitment rate and methods of the survey are available at yss.uwaterloo.ca.

Data collection for the 2010-11 YSS was completed with two instruments: Module A questionnaire and Module B questionnaire. The Module A questionnaire was administered only to students in grade 6 and included 58 questions dealing with tobacco use behaviours, physical activity, healthy eating, factors relating to or predictive of tobacco use, and the school environment (University of Waterloo, 2011). The Module B questionnaire was administered to students in grades 7 through 12 and contained all the questions in Module A along with additional questions relating to drug and alcohol use. Due to ongoing collaborative projects in certain provinces distribution of the questionnaires varied. In provinces with existing provincial youth health programs participating students completed a YSS questionnaire and/or completed the survey for their province's program (i.e. the Quebec EN-FORME, SHAPES-PEI questionnaire, Nova-Scotia Health Behaviour Survey, or Alberta Supplement questionnaire). Detailed descriptions of the collaborative projects can be found in the YSS Microdata User Guide (University of Waterloo, 2011).

Once the YSS questionnaires have been completed they are scanned into a database where the data is cleaned and then used to create the tailored School Profiles and Summaries (Appendix A) that are delivered to participating schools within eight to ten weeks of data collection and are available in print or online. The School Profiles are individualized

reports that present the prevalence of health behaviours measured in the YSS along with comparisons to provincial and national averages of those behaviours and information regarding resources that can be used to plan interventions. In provinces with collaborative projects (i.e. Quebec, PEI, Nova Scotia, and Alberta) the School profiles also contained supplemental pages containing data from the questionnaires provided by the partner projects. Schools participating in both provincial projects and the YSS also had the option of receiving their Profile through the provincial partner or the YSS. The School and Parent Summaries are one-page fact sheets that present the most relevant data from the YSS intended to facilitate the sharing and distribution of YSS data in the school community (University of Waterloo, 2011).

Chapter 3: Rationale and Research Questions

Chapter 3.1: Rationale

A growing body of evidence suggests that prevention strategies developed and implemented at the population-level that seek to change the environment rather than individuals may be more effective at preventing or changing health risk behaviours. In the case of youth health the prevention or cessation of risk behaviours becomes critically important as it is during this phase of development that many behaviours become deeply established. Projects that use the SHAPES platform, like the YSS, seek to address this issue by monitoring youth health through population-level school based studies but also by implementing a KE system that provides participating schools with tailored feedback reports delivered to an administrator or teacher that is acting as the study contact. The primary goal of this study is to understand what factors contribute to teachers and administrators involved in these projects viewing the YSS feedback reports as effective and useable in order to continue improving the design and content of the reports to encourage knowledge utilization and integration at the school level.

Chapter 3.2: Research Questions

- I. How can the content, design, format, and/or delivery of the 2010 YSS School Profiles be improved to facilitate knowledge translation and utilization among recipients?
- II. How can additional KE strategies (e.g., knowledge brokers) be used to facilitate knowledge translation and utilization of the Profile among profile recipients?
- III. How do school characteristics (i.e., location, type, socioeconomic status, student health behaviours) affect use of the School Profiles?

Chapter 4: Methodology

Chapter 4.1: Design

This study employed a mixed methods approach that included both qualitative and quantitative methods of data analysis. Specifically this study employed a concurrent nested design wherein quantitative data analysis was performed concurrently within a predominantly qualitative study. By combining both qualitative and quantitative data sources and analytical methods study findings were able to be cross-checked and validated through means of triangulation; a research approach which enables the strengths of one method to compensate for the weaknesses in the other and vice-versa (Patton, 2002). In this particular study the qualitative data were collected through open-ended interviews with study participants and supplemented by a secondary analysis of quantitative data collected as part of the 2010-2011 YSS.

Chapter 4.2: Qualitative Methods – Research Questions 1 & 2

Chapter 4.2.1: Sample Selection

In the 2010-2011 implementation of the YSS 448 schools from across Canada participated in data collection except for those in the provinces of New Brunswick and Nunavut and the Northwest and Yukon Territories (University of Waterloo, 2011). The sub-sample used for qualitative data collection specifically represented participating secondary schools that viewed or downloaded their School Profile. Interview subjects were recruited from school staff that had acted as the contact for the 2010-11 YSS and/or played a significant role in the survey implementation. Participants from the provinces of Quebec, Manitoba, and PEI were unable to be included in the sample due to ongoing research projects, schools that were recruited for the 2012-13 YSS were also excluded from the sample. A total of 57

eligible schools from six provinces were identified and used as the recruitment pool for interviews.

Chapter 4.2.2: Data Collection

Once a pool of eligible schools was identified, information consent packages (Appendix B) were sent to respective school boards in order to obtain permission to begin recruitment for interviews in the selected schools. If permission from the school board was given potential interview subjects were contacted first by e-mail (Appendix C), then received an information letter (Appendix D) in the mail asking for their participation. In an attempt to encourage response each information letter was personally addressed to the individual being recruited as well as containing specific reference to the YSS project and recognizable logos of both the University of Waterloo and the YSS. A \$2 Tim Horton's gift card was also enclosed based on recommendations provided by Dillman et. al. (2009). If no response was received within two weeks of the original e-mail a follow-up e-mail (Appendix E) was sent again requesting participation. Individuals who consented to participate were asked to schedule an interview at their convenience. A reminder e-mail with instructions for participation was sent one day before the scheduled interview time. Interviews were between 20-30 minutes long and conducted over the phone and through an online meeting room (www.adobeconnect.com). The purpose of the online meeting room was to allow the researcher to share visual materials (Appendix F) used to supplement the questions in the interview guide (Appendix G). At the start of the session participants were informed that the interview would be recorded and that they could withdraw or refuse to respond at any time. Consent was also obtained to anonymously quote from the interview in future work. The interview consisted of a mix of structured and open-ended questions intended to

probe how individuals had used the Profile in their school and community as well as their perceptions of the value and utility of the Profile and how it could be improved. A number of interview questions were drawn from the existing feedback form used by the YSS (Appendix H) with follow up questions written by the researcher. The YSS feedback from was used as a basis for the interview in order to build an evaluation of the School Profile in line with the existing priorities of the YSS/SHAPES program. Following the completion of the interview the recordings were transcribed by the primary researcher and sent to participants to ensure accuracy and allow for participants to clarify their responses if they wished.

Chapter 4.2.3 Data Analysis

Prior to analysis transcripts were cleaned of any identifying information and each participant was assigned a randomly generated identification number to ensure privacy. Transcribed interview data were imported into NVivo 10 qualitative analysis software (QSR International, 2012) and analyzed via a process that included coding, memoing, and review of notes taken during the interview process. The interviews were coded to look for examples of KTA as described by participants, potential avenues for further KTA described by participants, their perception of various characteristics of the Profile, and participant's views on how Profile characteristics influence their interaction with it.

Coding criteria were established to determine what constituted KTA activities: knowledge translation, knowledge utilization, and knowledge integration. The criteria for each were developed based on definitions drawn from the literature and used in the Rios Conceptual KTA Model. Criteria used to identify and code for examples of 'knowledge translation'

included any activities related to the synthesis, translation, exchange, and or dissemination of relevant research information. Criteria for KU included instances where research evidence or information was used within the school context. This was further broken down into instances of instrumental, conceptual, or symbolic, KU. Criteria used to code instances of KI included activities geared towards long-term use of research evidence in the school setting. The use of memoing allowed the researcher to annotate instances of emerging themes or ideas developing in the data as the coding was taking place. It allowed for reflection and examination of both the resulting findings and the research process itself to develop deeper insights into the data presented in the interviews.

Chapter 4.2.3.1 Validation Methods

The validity of the analysis process and its results was addressed with two major methods: validity checks that occurred during coding and external validation using inter-rater reliability. The method of constant comparative coding was applied throughout the analysis process to serve as an internal, ongoing assessment of the reliability of the open coding of interview transcripts (Glaser, 1965). This method basically states that while a researcher is coding a particular incident for a category they must compare it with previous incidents in the same category to both ensure confidence in the results and lead the researcher towards larger themes that can be used to later integrate categories. (Glaser, 1965). To determine the inter-rater reliability a second coder independently analyzed a subset of randomly selected transcripts: one complete transcript and portions of two other transcripts. The coding criteria established for the KT, KU, and KI categories were also provided. The two coding sets were compared using NVivo 10 software and the agreement between them was calculated, resulting in an average agreement of 92%. Any

disagreements between the coders were resolved through comparison and discussion with the goal of reaching consensus. The use of a second, independent coder was to ensure that the coding categories developed arose naturally from the text and that the resulting system was reliable, precise, and reproducible (Patton, 2003).

Chapter 4.2 Quantitative Methods – Research Question 3

Chapter 4.2.1: Data Sources

Chapter 4.2.1.1: Online Survey Implementation System

OSIS is a secure online database used to collect and manage relevant background information on the schools and school boards participating in the YSS. The information contained in the OSIS database includes school location, type, population and other relevant background information. The system is also used to track the communication with participating schools including whether schools download their School Profiles and Summaries. The data gathered from OSIS were used to calculate prevalence estimates of school demographic characteristics in the YSS sample as well as downloading rates to be used in a logistic regression analysis of the downloading behaviour of schools.

Chapter 4.2.1.2: 2010-11 Youth Smoking Survey

The 2010-2011 implementation of the Youth Smoking Survey represented a total of 50,949 students in grades 6-12 in 9 Canadian provinces. The school-based survey collects cross-sectional data on smoking and other health behaviours among youth and was administered with support from Health Canada in participation with the Propel Centre for Population Impact based at the University of Waterloo. Detailed descriptions of the sampling design, recruitment rate and methods of the survey are available at (yss.uwaterloo.ca). The school level prevalence estimates of the health behaviours measured by the YSS and reported in

the YSS School Profiles were used as predictors in a logistic analysis of downloading behaviours in YSS schools.

Chapter 4.2.1.3: 2006 Canadian Census

The Canadian census is a cross-sectional household survey that collects data regarding the demographic and socioeconomic characteristics of the population. A complete and detailed description of the 2006 census sampling and data collection procedures can be found on the Statistics Canada website (www12.statcan.ca/census-recensement/index-eng.cfm). In the 2006 iteration of the census basic demographic and socioeconomic data were collected from almost all residents of the country with 20% of homes receiving more in-depth questionnaires that addressed additional topics. The 2006 census received a 96.5% response rate and additional estimation measures were used to ensure that typically under-represented groups such as youth were appropriately weighted to ensure the data was properly representing the entire Canadian population. The 2006 census also included the creation of Community Profiles intended to collect and provide community-level data regarding social, economic, and physical characteristics of groups across Canada.

Chapter 4.2.2: Measures

Chapter 4.2.2.1: Outcome Measures

The outcome measure of interest in this study was whether participating schools downloaded their copies of the School Profile (Yes=1/No=0). Schools were classified as downloading or not downloading the Profile based on the downloading behaviour recorded in the OSIS database. This measure then provided the outcome response for the logistic model developed in this study.

Chapter 4.2.2.2: Descriptive Measures

School Characteristics

School Type

Schools were classified as either Elementary (1) or Secondary (2) based on the grade levels included in their student population as recorded in the OSIS database. This measure was included in the logistic model as a characteristic of the school and its community that could influence downloading behaviour. Elementary schools (1) were used as the reference group in the logistic model.

School Location

School location was determined by postal code and classified as either urban (1) or rural (2). This measure was included in the logistic model as a characteristic of the school and its community that could influence downloading behaviour. Schools with a zero in their postal code were identified as rural and all other schools were classified as urban. Urban schools (1) were used as the reference group in the logistic model.

Province

The school identification number assigned by OSIS was used to determine in which province each school was located. Schools were coded as a categorical variable in the model as follows: Newfoundland (1), Prince Edward Island (2), Nova Scotia (3), Quebec (4), Ontario (5), Manitoba (6), Saskatchewan (7), Alberta (8), British Columbia (9). The province of Newfoundland (1) was used as the reference group in the logistic model.

Healthy Schools Planner Completion

The Healthy Schools Planner (HSP) is an optional addition to the YSS provided to all participating schools. Only those participating schools recorded in the OSIS database as

completing and submitting the HSP were coded as Yes (1) while schools that did not complete or started but failed to finish the HSP were coded as No (0). The HSP is intended to be completed by staff or administrators at the school and collects data regarding school-level policies and environment relating to tobacco, physical activity, and other health behaviours. This measure was included in the study as a proxy for a school's level of participation in the YSS process where schools that completed the HSP were considered to have a higher level of participation. Schools that did not complete the HSP (No=0) were used as the reference group in the logistic model.

Socioeconomic status

The prevalence of low-income families in the communities surrounding participating schools was used a proxy measure for the socioeconomic status of the school population. This measure was included in the model as an external factor to the school that could influence downloading behaviour. In the Canadian census low-income is a relative measure based on how much of their income a family or individual spends on necessities (i.e. shelter, food, clothing) compared to an average family of the same size. Families or individuals are considered to be low-income when they spend 20% more of their after-tax income on necessities than the average family or individual living in similar circumstances (Statistics Canada, 2012). Table 1 presents the low income cut-offs based on family size and area of residence. The data was drawn from the Community Profiles produced as part of the 2006 census and the measure was treated as a continuous variable in the logistic model. The geographic area for the Community Profiles is based upon Census Metropolitan Areas (CMAs) that are determined by municipal delineations and population density in the area (Statistics Canada, 2012a)

Table 1: After tax cut-offs for low income families and individuals¹

		Size of Area of Residence				
		Rural (farm and non-farm)	Small Urban Regions	30,000 to 99,999 people	100,000 to 499,999 people	500,000 or more people
Family Size	1	11,264	12,890	14,380	14,562	17,219
	2	13,709	15,690	17,502	17,723	20,956
	3	17,071	19,535	21,794	22,069	26,095
	4	21,296	24,373	27,190	27,532	32,556
	5	24,251	27,754	30,962	31,351	37,071
	6	26,895	30,780	34,338	34,769	41,113
	7+	29,539	33,806	37,713	38,187	45,155

Health Behaviours

Smoking Prevalence

The levels of smoking for each participating school was measured as the percentage of student classified as current smokers. This variable was derived from responses to the questions:

- “Have you ever smoked 100 or more whole cigarettes in your life?” and
- “On how many of the last 30 days did you smoke one or more cigarettes”

Students who had smoked at least 100 cigarettes in his or her lifetime and who had smoked at least one whole cigarette in the past 30 days were classified as current smokers (University of Waterloo, 2011; Yang, Leatherdale & Ahmed, 2011). The prevalence of students in the school who currently smoke was then calculated based on survey data and the school population size. The variable was treated as a continuous measure in the logistic model.

¹ Source: <http://www12.statcan.gc.ca/census-recensement/2006/ref/dict/tables/table-tableau-17-eng.cfm>

Smoking Susceptibility

The prevalence of students susceptible to smoking was calculated based on the number of students who had never smoked and were classified as susceptible based on responses to three questions in the YSS questionnaire. Students that answered positively (i.e. definitely yes or probably yes) to the questions

- “Do you think in the future you might try smoking cigarettes”;
- “If one of your best friends was to offer you a cigarette would you smoke it”; and
- “At any time during the next year do you think you will smoke a cigarette?”

were classified as being susceptible to smoking. The variable was treated as a continuous measure in the logistic model (Yang, et. al., 2011).

Alcohol Use

The prevalence of alcohol use among students was calculated based on response to the question:

- “In the last 12 months how often did you have a drink of alcohol that was more than just a sip?”

Students who responded positively to the question (i.e. drank more than a sip on one or more occasion in the past 12 months) were considered to be current drinkers (University of Waterloo, 2011; Leatherdale & Burkhalter, 2012). This question was only asked of students in grades 7 to 12 as the low prevalence of this behaviour in younger students would produce unreliable data. These ‘missing’ data were dealt with in the analysis by excluding this factor from the main model that contained all of the schools and creating a sub-model of only secondary schools that included this variable and a second sub-model

that included only elementary schools that excluded this variable as well. The variable was treated as a continuous measure in the logistic model.

Marijuana Use

The prevalence of marijuana use among students was calculated based on response to the question:

- “In the last 12 months how often did you use marijuana or cannabis?”

Students that reported using marijuana once a month or more were classified as current users (University of Waterloo, 2011; Leatherdale & Burkhalter, 2012). This question was only asked of students in grades 7 to 12 as the low prevalence of this behaviour in younger students would produce unreliable data. These ‘missing’ data were dealt with in the analysis by excluding this factor from the main model that contained all of the schools and creating a sub-model of only secondary schools that included this variable and a second sub-model containing only elementary schools that excluded this variable as well. The variable was treated as a continuous measure in the logistic model.

Social Environment

The social environment at the school was determined using five ‘school connectedness’ questions that asked students to rate their agreement or disagreement with the following statements:

- “I feel close to people at my school”
- “I feel I am part of my school”
- “I am happy to be at my school”
- “I feel the teachers at my school treat me fairly”
- “I feel safe in my school”

The prevalence of students that responded positively (i.e., Agree/Strongly Agree) to the five statements was calculated and used as a measurement of the social environment of the school, consistent with the calculations done for the YSS School Profile (see Appendix A). Each of the five measures of school connectedness was used as an individual variable in the logistic model based on how they were calculated and reported in the YSS School Profile.

Body Mass Index

Survey respondents were asked to provide self-reported height and weight as well as their age and sex in order to calculate and classify their body mass index (BMI). BMI is calculated by dividing an individual's weight (in kilograms) by their height in meters squared. The resulting BMI is then categorized as underweight, healthy weight, overweight, or obese based on age and sex related cut-offs established by the World Health Organization (WHO, 2013). For the purposes of this study the prevalence of students in the healthy weight category was calculated and used as a descriptive variable in the logistic model.

Physical Activity Levels

Physical activity levels were determined based on how many minutes and hours of hard physical activity (e.g. jogging, team sports) students engaged in over the seven days preceding the survey. These data were then used to calculate the prevalence of students who's self-reported activity levels met the CSEP (2011) physical activity guidelines (i.e., at least one hour of hard physical activity every day over seven days). The variable was treated as a continuous measure in the logistic model.

Physical Inactivity Levels

The prevalence of students classified as physically inactive (i.e. 2 or more hours of sedentary behaviour per day) was determined using two particular measures representing

the amount of 'screen time' (i.e., watching tv/movies and surfing the internet/playing video games) youth engaged in over the seven days preceding the survey (Leatherdale, Manske & Rynard, n.d.). The two measures (tv/movie vs. computer/video games) were treated as individual descriptive variables in the logistic model based on how they were calculated for and reported in the YSS School Profiles.

Nutrition and Healthy Eating

The prevalence of students with a 'healthy diet' was calculated based on the number of students reporting consuming 6 or more servings of vegetables per day in response to this question:

- "On a usual day, how many servings of fruits and/or vegetables do you eat? (Include fresh, frozen, canned, and cooked items like apple, banana, carrot, salads, and 100% juice. Do not include chips, French fries, or other fried potatoes)" (University of Waterloo, 2011)

The variable was treated as a continuous variable in the logistic model.

Chapter 4.2.3: Data Analysis

Chapter 4.2.3.1: Descriptive Statistics and T-test

As a form of preliminary analysis a set of descriptive statistics of the outcome and explanatory variables was compiled using the SAS PROC MEANS procedure for the continuous variables and frequency tables for the categorical variables. Additionally a paired t-test using the outcome (i.e., School Profile downloading) as the sorting variable was conducted to compare the two groups on the health behaviour variables (e.g. smoking rate, BMI, etc.) used in the logistic model.

Chapter 4.2.3.2: Logistic Regression

The outcome variable of interest in this study was coded as a binary response variable (i.e., Yes=1/No=0), thus binary logistic regression was considered to be the most appropriate approach to analyzing the data. The purpose of using logistic regression in this study was to determine, at the school level, the relationship between the response variable (i.e., School Profile downloading) and the set of explanatory variables. A model was created for the outcome variable using the SAS procedure PROC LOGISTIC where the probability of downloading (Yes=1) was modeled. Due to the fact that students in grades 5 and 6 were not asked questions regarding alcohol and marijuana use, these two explanatory variables were excluded from the general models that contained all of the schools in the YSS sample. A sub-model containing only data from the secondary schools that participated in the YSS was created and included the alcohol and marijuana use variables. Additionally, a second sub-model containing only elementary schools that excluded the alcohol and marijuana use variables was created to provide comparisons for the secondary only sub-model. Due to the smaller sample size in each of the sub-models and the relatively large number of explanatory variables Firth's bias correction was applied to the two sub-models in an effort to ensure interpretable results.

Chapter 5: Results

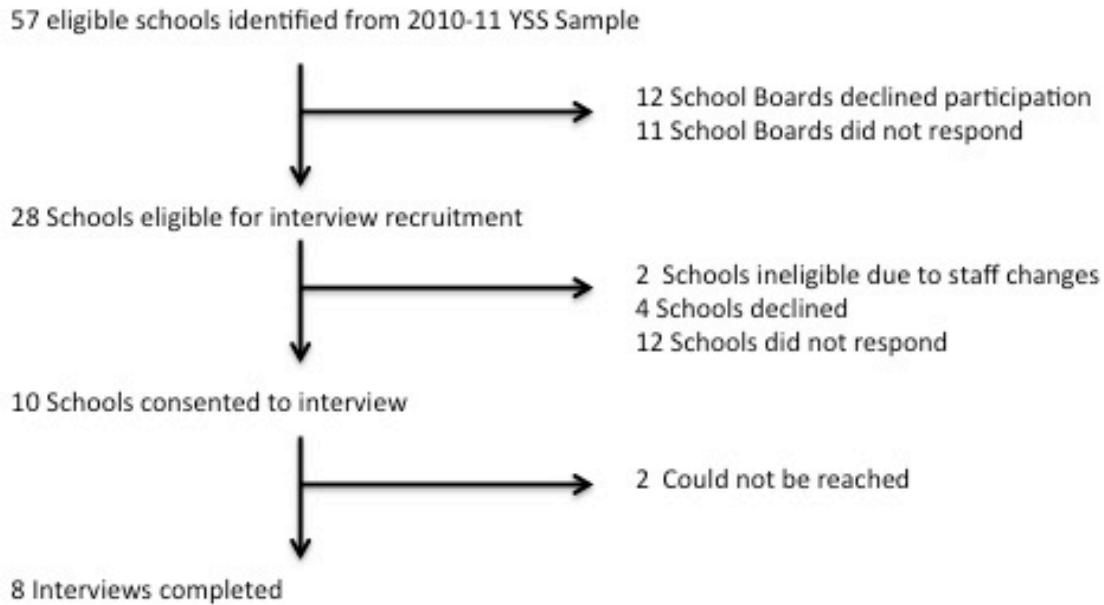
Chapter 5.1: Qualitative Results

In order to answer research questions I and II, interview data was analyzed to look for key themes related to participants' perceptions of the Profile and their engagement in KTA activities related to the Profile and the YSS. Emergent themes and concepts were also analyzed for their relationship to each research question as well as to each other. Due to the small sample size cross case comparisons were of limited use and the group of interviews was treated as a single set.

Chapter 5.1.1: Final Sample

As described previously, a pool of 57 eligible schools located in 39 different school boards were identified for participation in the qualitative data collection. As part of the recruitment process permission had to first be obtained from the school boards where the schools were located further reducing the eligible recruitment pool to 28 schools (see Figure 3 for complete flowchart). After two rounds of recruiting a total of 8 interview participants from 5 different provinces were secured for qualitative data collection.

Figure 2: Flowchart of the recruitment process for qualitative data collection



Chapter 5.1.2: Profile Value

The subject of profile value was drawn from the YSS Feedback questionnaire and explored throughout the interview. Participants were first asked to rate their agreement with the statement “the Smoking Profile is a valuable resource for our school” and subsequently prompted to elaborate on their response if needed. All participants reported either agreement or strong agreement with the statement, indicating an overall positive perception of the Profile among participants. Initially, participants noted the quantitative nature of the information provided in the profile as particularly valuable:

“It’s one thing to either anecdotally or intuitively feel like you know something, but it’s another thing to have actual evidence to suggest it” [NL, Participant 109150]

“I think it was good just to give information to the people who are really cynical about the number of smokers we have in the school...some quantitative data that way was good” [BC, participant 506219]

“A lot of things, achievement, are connected to this survey, again, how students look at themselves, are they eating well are they taking care of their bodies. So the information that we gather from this, as a school, to me is invaluable.” [NL, Participant 109140]

Other respondents elaborated on the idea of what made the Profile valuable by commenting on the diverse number of issues the YSS survey covers, describing it as “hitting up pretty well everything that involves kids in school” [SK, Participant 406257].

Additionally, one participant noted that the Profile “supported...initiatives beyond the issue of smoking” [BC, Participant 507039] and that it “added to a greater picture” [BC, Participant 507039] of student health and well being in the school environment. Two participants from rural communities also noted that the localized information provided by the profile added an additional aspect of value for them. One participant noted that it was “part of the reason why this information was so valuable, was that it gave you local numbers...being a small northern community we often come out of the norm when it comes to thing like this” [ON, Participant 309195]. Another commented that “just the comparison” with local and provincial and national data and the ability to “find a place, you know, where your school sits” [BC, Participant 506219] also added to how they viewed the value of the profile. Participants also noted that the tailored information provided by the profile as well as the breadth of topics covered provided an insight beyond the health environment of their school into the broader community. One principal noted the importance of “the social implications. Some of those factors that as a school administrator I can’t control” [ON, Participant 306265] while another noted that the profile provided opportunities for discussion regarding “smoking rules at home...whether or not it’s appropriate for a parent to encourage behaviour that is illegal for some of these kids who are underage” [ON,

Participant 309195]. Another participant noted the insight the profile could give them into students' lives beyond the school

Breakfast consumption to me it would tell me a lot about the home situation of a student. If there's breakfast then there's probably somebody preparing that breakfast or there to have that breakfast. So it would give me insight into that. And same with the fruit and vegetable consumption I think it gives you insight into the presence of parents in the teenager's lives. [AB, Participant 410038]

The same participant also went on to note that the Profile could "give you a sense of the peers and the smoking but the household rules I think would be kind of insightful as to what the acceptance in the community is really" [AB, Participant 410038]. Taken as a whole the discussion of the value of the Profile that took place during interviews demonstrates a universally positive perception of the Profile that is heavily influenced by how individuals interacted with the information it provided. The analysis revealed four factors that participants identified as adding to or generating the value of the Profile for the school and community: the presence of quantitative information; the breadth of topics presented; the localized or tailored nature of the Profile; and the broader insight into the community the Profile provided. Mentions of these factors varied among participants, raising the question of how the value individuals place on the Profile can be influenced by the context in which they are operating.

Chapter 5.1.2.2: Profile Value Through Use

Analysis of the interview data related to the theme of Profile value revealed a sub-category of value adding factors centred on the concept of the direct utility or application of the

Profile. Three participants directly identified the inclusion of recommendations or potential strategies as useful feature of the Profile that made it valuable to them:

There's a shopping list, you can read down through it you can find out what you think will work right? Maybe it's something you're already trying, maybe it will validate that or you can say you know what? We should be doing that and it's easy to do you know what I'm saying? [NL, Participant 109140]

I would be prone to investigate [the web links provided]. I think this makes for a live link between the survey itself and the opportunity for how our school can benefit, it gives me a jumping off place to extend the results of the survey. [ON, Participant 306265]

Along with the recommended strategies participants also identified the inclusion of additional resources beyond the Profile as a useful feature:

I could easily cut and paste the websites and bookmark them for another time so I think, right down to having the free online tool, that's cool. [ON, Participant 306265]

[The] information about the school environment and what you can do with, you know accessing additional information for your school. [NL, Participant 110160]

I like that fact that there's websites so that I can, whether that's myself looking at the websites or for my staff, you know, here's some websites you might wanna check out. Like I could give them one like tobaccostinks.com [NL, Participant 109140]

Outside of specific features like the inclusion of recommendations or additional resources participants identified that the potential for the Profile to be used in course planning or to develop educational programs added significant value to its utility as a tool within the school community;

I did mention it to teachers that teach health and what not that it would be a good resource to use in the classroom and I told them where to find it...So I kind of like the idea of having it as a teaching tool, it's no longer a presentation it's now a teaching tool so you can get them from kind of a different angle. [ON, Participant 309195]

[We] have a course called Health and Living 1200, my health and living teacher that may well want to go in and look at that may not be aware of the website, you can find stuff to supplement the material that's being taught in that course [NL, Participant 109140]

I've passed it on to the planning department head. We have a course in British Columbia that's called planning 10...they talk about a lot of these health issues [BC, Participant 506219]

In total, five of the eight interview participants directly referenced the utility or potential application of the Profile as part of its intrinsic value as a tool. All participants were able to identify multiple factors that gave the Profile value. The quantitative information contained in the profile and its utility or potential applicability were most commonly identified as the factors that provided the most value for participants.

Chapter 5.1.3: Profile Design

In addition to examining the overall perceived value of the Profile, interview participants were asked to review selected pages of the Profile and prompted to provide feedback on the design and clarity. Additionally, participants were presented with a set of graphs displaying the same data in different configurations and asked to rank and provide feedback. Overall participants responded positively to the design of the current Profile, noting in particular the way the design made the information in the Profile easy to understand and allowed them to find and absorb the information they needed quickly:

It's easy to see, it's quick, when you've got 30 pages of information, and again, we're looking at the youth smoking survey in isolation here, again, whether you're a teacher, an administrator or a parent, or you're from and outside agency, you have jobs, you have lives, you have things to be doing. The information you get needs to be succinct. [NL, Participant 109140]

I do like the subheadings, the subtext, considering that it is a lot of graphics it's organized well. Just at a three minute glance at it...it is organized in a succinct way that draws me to see more [ON, Participant 306265]

It's very easy, the graphs are good, the write-ups are to the point, so very easy to read. [SK, Participant 406257]

More specifically, some participants commented that the well organized layout of the Profile and the use of colour and graphical elements to visually separate portions of the Profile greatly added to its clarity and readability:

I like that the heading is in bold, that there's a colour difference and so on. It draws my attention to that so it certainly makes me understand what this section is going to be about. I like the fact that there's some text to go along with the boxes. So the optics of it are attractive, it's well organized. [NL, Participant 109140]

I do like the subheadings, the subtext, considering that it is a lot of graphics it's organized well. Just at a three-minute glance at it...it is organized in a succinct way that draws me to see more. [ON, Participant 306265]

Along with the overall graphic design participants also noted that the emphasis on graphs and other visual representations of the quantitative data presented in the Profile were very appealing and again provided an accessible and rapid way for individuals to gain needed information from the Profile:

But if you can quickly look and say 50% are smoking in cars, I don't have to read it if I don't want to, the pie chart is pretty self-explanatory. I may have read it initially but if I'm going back then to look at it for a particular reason the pie chart is quick and easy. I like the little quick fact things too by the way, that's a neat little thing. [NL, Participant 109140]

Visuals are always very good to show information
[NL, Participant 110160]

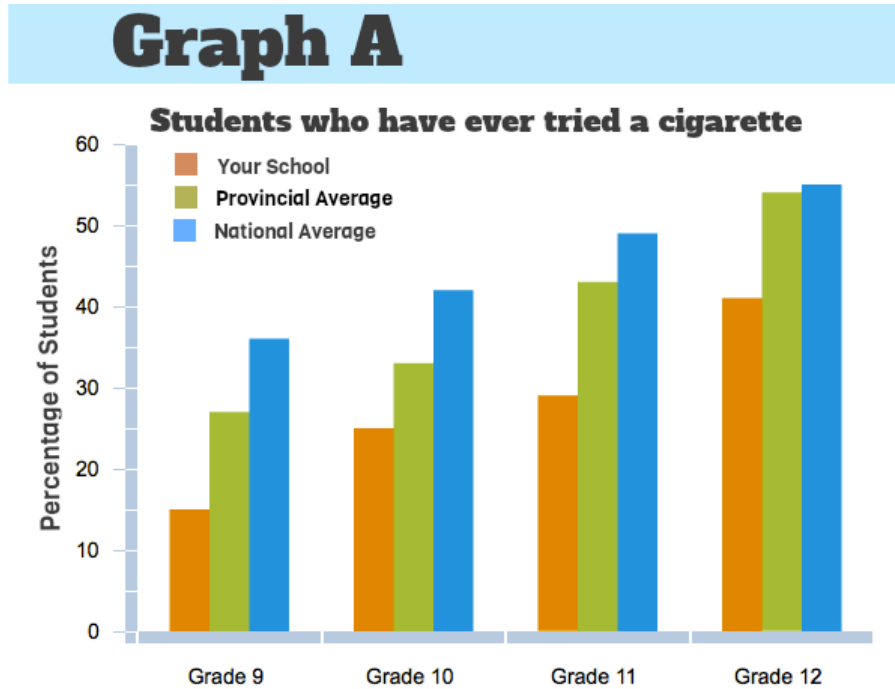
I found it was relatively easy to understand...I think you're, automatically I was drawn to the charts as a point of discussion [ON, Participant 309195]

Generally the analysis showed that participants' were satisfied with the current design of the profile and that future iterations must maintain their focus on visual clarity, ease of

understanding, and the ability to find and digest information quickly. In simpler terms, one participant summed up their desires for a Profile that is “quick and well organized and [makes] sense to me” and went on to note that when designing the profile “you should be thinking about someone like me...somebody that’s gonna get this information now and not know what to do with it or how to sift through it” [NL, Participant 109140].

During the interview participants were also asked to assess four types of graphs that demonstrated different means for visualizing data (see Appendix F). The first two graphs were static visual presentations, while the second two were online web applets (infogr.am/Perceen-2146620431) that included an interactive component. The different graph types were also intended to provide a comparison and contrast between traditional forms of data visualization (i.e. a bar graph) and more innovative types (i.e. a pictogram). The first graph presented to participants (Graph A) was a typical bar graph modeled after the designs used in the Profile meant to be familiar to participants and act as a type of control for the other graphs. Reactions from participants were uniformly positive with the graph receiving either a 4 or 5 (on a 5-point scale) from all participants. Respondents in general found the design was easy to understand “it’s just simple...you have your school, province, national. Maintaining that order throughout the whole thing it just makes sense” [ON, Participant 309195]. Other participants noted that the graph was “simple and clear...it’s just easy” [BC, Participant 507039] and that “the comparison, provincially, nationally and your school...find a place you know where your school sits” [BC, Participant 506219] provided valuable information that was easily accessible.

Figure 3: Interview Visual Aid - Graph A



The second graph (Graph B) presented to participants used a series of overlapping circles to represent that data and was not as well received as the first. This graph was designed to contrast Graph A in a design that maximized the non-informational elements of the design (i.e. axes, labels, legends) while retaining the same ability to provide information (Tuft, 2001). The intention of this is to essentially make the graph more 'efficient' to maximize the amount of information that can be transmitted (Tuft, 2001). Three of the participants ranked the graph a 3 on a 5-point scale while one individual gave the graph a 4. The rest of the participants, five in total, gave the graph a 2 or lower ranking. The chief criticism of the graph was that it took much longer to interpret compared to a more traditional visualization

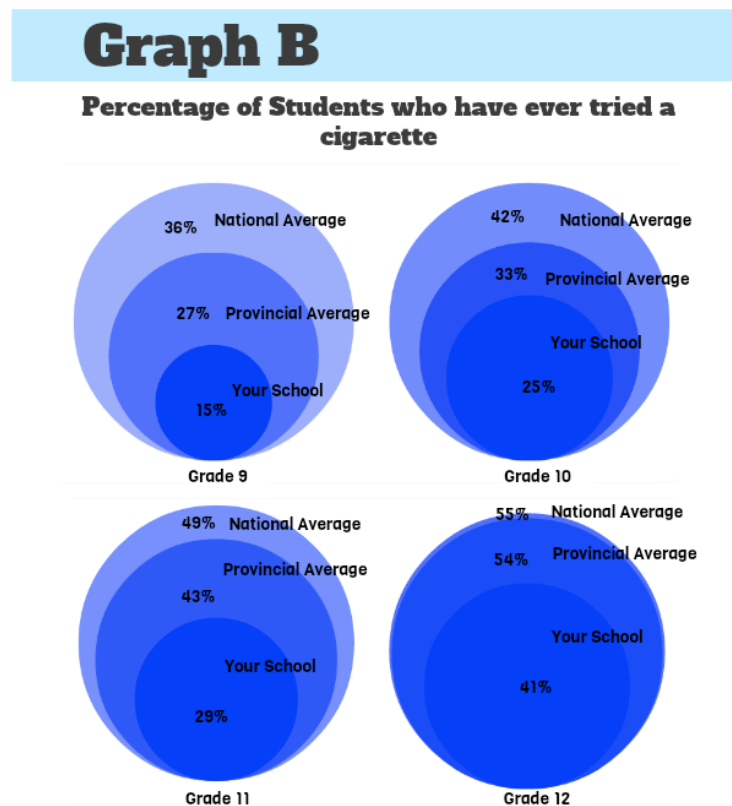
It takes me longer to figure out what [the graph] is trying to tell me...I can't sift through it the same as I guess what I'm saying. It takes longer. [NL, Participant 109140]

I can make sense of it but I like a graph that I can look at it really quick and that it's just, you know the comparison is very obvious whereas this is [not]. [SK, 410038]

I can interpret a bar graph, even a multi bar graph, at the drop of a hat. That I had to stop and read and see what it was talking [about]. [ON, Participant 306265]

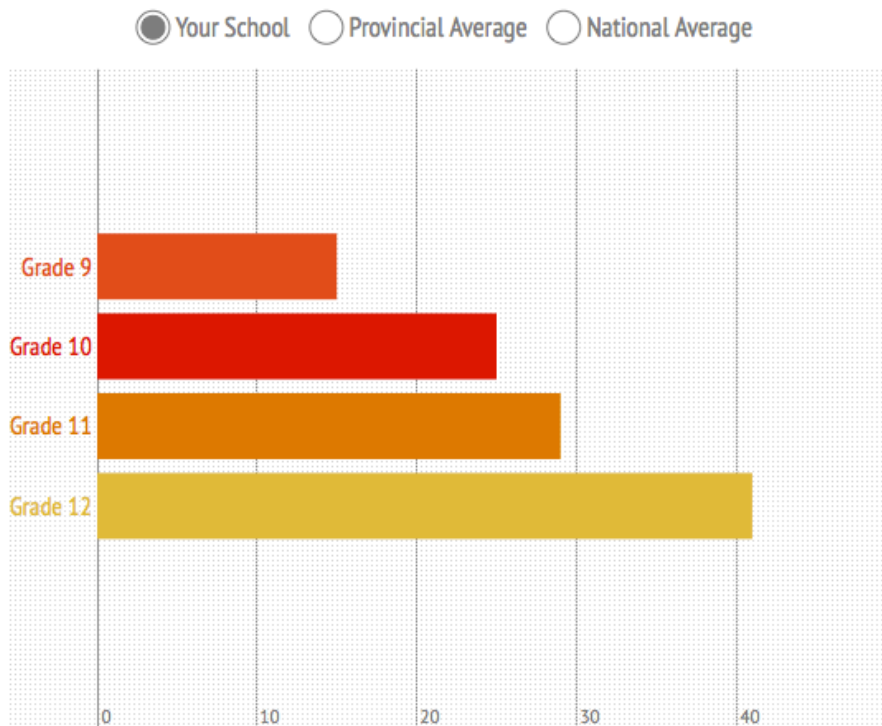
Other participants found that the “non-traditional” [ON, Participant 306265] nature of the graph and the fact that it was “not typical to the kinds of things that I’m used to seeing” [BC, Participant 507039] made the graph unappealing and inaccessible for them.

Figure 4: Interview Visual Aid - Graph B



The third (Graph C) and fourth (Graph D) graphs presented the same set of data in an interactive online web applet (infogr.am/Percen-2146620431) that allowed participants to view the data in different configurations. Once again, the overall design of this graph was meant to mimic the kind of graphs used in the YSS with the major difference being the ability to select which subset of data to see. Keeping the general design of Graph C similar to what was used in Graph A and what participants were familiar with was intended to ensure that individuals were reacting to the element of interaction introduced in the graph and not some other design change (Tufté, 2001). The addition of an interactive element to this data display was done to increase accessibility of the data for the user and allow them to create their own comparisons (Tufté, 2001). The third graph received positive feedback from 5 participants (rated 4 or higher) and neutral responses (rated 3) from three participants. Respondents found that being able to look at the different data “one at a time” [AB, Participant 410038] and being able to “play around with [the graph]” [BC, Participant 506219] made the applet intuitive to use and easy to understand. The primary criticism of the third graph was that “most people want to compare their school to others intuitively and you can’t do that easily, at one glance” [BC, Participant 507039].

Figure 5: Interview Visual Aid - Graph C
Graph C

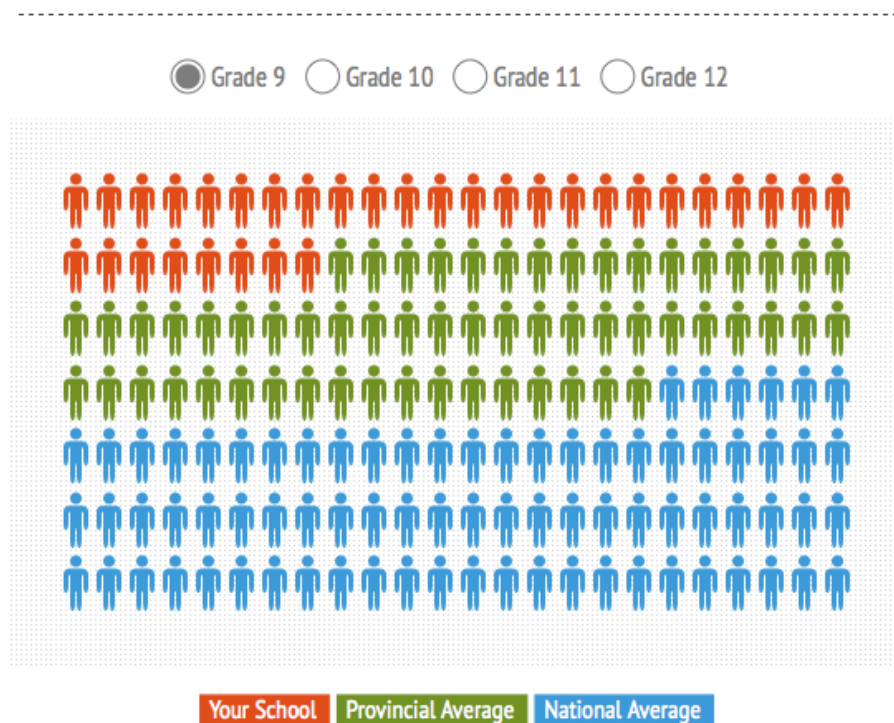


The fourth and final graph presented to participants presented the data using a pictogram and was generally not well received by respondents. This kept the interactive element of Graph C while altering the general design of the visual to again reduce the presence of non-informative elements while communicating the same data (Tuft, 2001). However, it must be noted in this case that due to constraints in the researcher's own design ability and in the tools available the pictogram for Graph D was not a completely accurate representation of the data set used. This misrepresentation of the underlying numbers may have contributed to the negative responses to this graph due to its lack of clarity and difficult to interpret construction. Five of the participants gave the graph a 3 or lower and found the

graph unclear and difficult to interpret. One participant commented that the graph “looks like a bunch of legos...it’s harder to try and see what the differences are” [BC, Participant 506219]. Others commented that “I just don’t think it tells me anything really” [SK, Participants 410038] and that “it just takes me a little bit longer to sift through...it’s not as quick” [NL, Participants 109140]. The feedback from the graphs was consistent with the themes that developed in the analysis of the general profile design, reinforcing the idea that the primary concerns for individuals receiving the Profile is that the information is presented in an accessible and quickly and easily understandable format.

Figure 6: Interview Visual Aid - Graph D

Graph D



Chapter 5.1.4: Profile Delivery

Based on the YSS School Feedback Form, participants were asked to give their opinion on the level and quality of communication from YSS staff as well as the method of profile delivery. Participants were asked to rank their agreement with the statement “The amount of communication between project staff and our staff was appropriate” on a scale from 1 to 5 with 1 being strong disagreement and 5 being strong agreement. Seven respondents agreed or strongly agreed with the statement while one neither agreed nor disagreed. One participant noted that “any time you sent something back you got an immediate reply...there was phone contact. There was no confusion at any point in time” [NL, Participant 109140], another commented that “I certainly was given a lot of information” [SK, Participant 410038]. Overall, respondents noted that communication with YSS project staff was clear, prompt, and provided ample information which all contributed to a productive working relationship.

Secondly, participants were asked to rank their agreement with the statement “Accessing our school’s *Smoking Profile* electronically is a good way to receive this information”. All participants either agreed or strongly agreed with the statement noting in particular that “from an organizational standpoint, I can save that and I can reference it any time, anywhere, I don’t have to physically carry the report with me if I’m going to a meeting” [NL, Participant 109140]. Other participants noted that receiving the profile electronically made it easier to access and also facilitated sharing the report and disseminating the information it provided:

It's easy to access and it's easy to find...if you can share a link with staff, it's a whole lot easier than photocopying a bunch of pages and putting it in their mailboxes. [BC, Participant 506219]

You can check it any time you want. If it's on paper or something, like, I've got a printed copy but I don't have that with me when I'm preparing stuff at home, I don't carry it with me 24 hours a day. So you can access online any time you want. [AB, Participant 406257]

I downloaded it onto my computer and I either looked at it on my computer or I printed out the damn thing and took it away and read it...for me either way is gonna be fine. The good part is I have it now stored and I can cut and paste if I need to and put it in presentations and what not [BC, Participant 507039]

If I'm sending a report to somebody like my boss or doing a presentation for parents I can bring it up electronically and hook it up to an lcd and boom there it is. Or, I can even copy and paste certain sections of it into a report or into a presentation. So it's just very convenient in terms of being able to disseminate that information into a broader audience, whereas a paper copy you've got to photocopy it or you've gotta lend it out. And that's not, that's not user friendly as far as I'm concerned. [NL, 109140]

Participants were also asked to consider alternative or additional means of distributing the information in the Profile and what value, if any, they could add to the Profile. The most commonly mentioned potential supplement to the Profile was a PowerPoint or other type of presentation "with the key elements of the school relative to the norm, or relative to the average. Or even, if possible, a sort of microclimate of schools in your general vicinity" [BC, Participant 507039]. Another participant expressed interest in having a presentation "designed specifically for teachers to use like in a planning class or a [health] class" [BC, Participant 506219] while another participant commented that

If you had a presentation then it would be easier to put out to the teachers...I think it is better if you can have it into a presentation format so that it's easily accessible and easy to present. [SK, 406257]

Along with a presentation to supplement the Profile materials, respondents also expressed interest having the option to maintain contact with a member of YSS staff:

I would say anybody would say yes to that, I mean, if there's something...here in the...area that you could get access to or if there was an actual resource person you could bring in to speak to your class or what have you then it would be nice to know that, a lot of times they're there but you may not know that they're there. [ON, 109140]

I think it would certainly, you know, I think a little reminder, I think a little question here and there, I think it would help. You get bogged down with all these new things coming down the line so I think a little reminder that this resource is there I don't think it would be a bad idea, I think it would help. [ON, 309195]

Overall the analysis demonstrates that respondents are very satisfied with the current methods of Profile delivery but as always there are aspects that could be improved.

Participants responded positively to the idea of including additional materials with the YSS, particularly in the form of a presentation, indicating a desire to have resources beyond a report.

Chapter 5.1.5: KTA and the School Smoking Profile

Chapter 5.1.5.1: The Profile and Knowledge Translation

Based on the definition used in the Rios Conceptual KTA Model, instances of knowledge translation were coded to include mentions of knowledge exchange, synthesis, or translation. Mentions of which groups and individuals participants engaged in KT activities with were also noted during the analysis. The most common form of knowledge translation was direct sharing of the Profile with various stakeholders:

We shared [the Profile] with our teachers and we did share it with our parents in our school council meeting [NL, Participant 110160]

I would share [the Profile with my vice-principal, share it again with our school council. I would share it with the department heads, and I would

share it in a limited capacity with the students themselves through student council and the native student alliance. [ON, Participant 306265]

With regards to the school board I shared it directly with my boss...a senior education officer who is responsible for a group of schools of which we're one...I also shared that information with the CEO for the district and the assistant director for human resources and programs as well. That was done verbally in addition to an electronic copy being sent. With regards to school administrators, there's only one other besides me so I sat down with him and showed him the findings and so on. With teachers it was discussed in a staff meeting...with parents, we have school council, it's a group of parents so I shared it with them, shared the findings with them. We also put it on our school website, as a pdf, so we shared it with parents in that way as well...In terms of other members of the school district that are local to this area, met with one person in particular, the head of student support services and then through her made connections with...our health board. [NL, Participant 109140]

I did it forward [the Profile] to... the public health nurse here... I have put it on our school t-drive and shared it with our school administrators, told them where to find it so they could read it... I did mention it to teachers that teach health and what not that it would be a good resource to use in the classroom and I told them where to find it. [ON, Participant 309195]

I just used [the Profile] at my school community council meeting just to go over the statistics over here, of what we needed to do...the parents will be briefed on it at our open house in September and it will be on next year's goals to work on...I've discussed it briefly with the superintendent for our area [SK, Participant 406257]

[I shared it with] school administrators, teachers, and parents. [AB, Participant 410038]

We just put it out there so teachers could see what the profile was and with our parents much the same. [AB, Participant 410038]

I know I've passed it on to the [health course] department head...[and] PAC, the parental advisory committee [BC, Participant 506219]

Our school administrators, the four of us, we've looked at [the Profile]. A few teachers, not a lot. We have a drug and alcohol counselor, it's a community agency but it's based in our school, and we gave her that information. [BC, Participant 507039]

All participants described at least one instance of KT that involved knowledge exchange with stakeholders in their school or the surrounding community including staff members, parent and school councils, and community agencies such as public health departments and police agencies. The amount of information sharing varied greatly among participants with some individuals only sharing the Profile within their immediate school community while others included a number of outside community agencies. Along with directly sharing the Profile in knowledge exchange a few participants also described using information translation or synthesis to facilitate the process:

You look at the graphs and everything all the way through, there's certain things you're gonna take away from this, you're gonna build your presentation to your parents and to your student body and in terms of, that's the kind of presentation we're gonna look to hold in the school [SK, Participant 406257]

I can even copy and paste certain sections of it into a report or into a presentation [NL 109140]

We took information from it to share with our staff. [NL, 110160]

Overall the results of the interviews showed that knowledge translation activities were widespread among respondents and in some cases included a broad range of school and community stakeholders. The types of activities described by respondents centered mostly around straightforward exchange or sharing of the information in the Profile and little synthesis or translation, indicating a degree of passivity in the KT process.

Chapter 5.1.5.2: The Profile and Knowledge Utilization

Based on the definition of knowledge utilization used in the Rios Conceptual KTA Model instances of KU were coded as conceptual, instrumental or symbolic uses of the knowledge

in the School Profile. Conceptual KU was the most commonly cited form of knowledge use and was found to occur both among school staff:

The survey in general did make us talk about the way we address the issue of smoking, particularly on school property, and what we could do from a consistency and enforcement application. [BC, Participant 507039]

It was good just to give information to the people who are really cynical about the number of smokers we have in the school. You know they'll say there's a hundred kids out there, while I'm out there every day and I know there's between 20 and 30. So some quantitative data that way was good to kind of quell some of the staff who were worried about students smoking on property and things like that. [BC, Participant 506219]

The information about breakfast was really important for our school because we do offer a breakfast program here. Whether are not kids even know they have the change to get a free breakfast here are using it. I think that really opened up the eyes of people here because we spent a lot of money and time getting the resources to provide this breakfast and some kids still aren't using it so maybe it could give us some indication to where we could start going after the kids and saying why they don't [ON, Participant 309195]

There was some good data that supported, sort of, initiatives beyond the issue of smoking. And one of our goals at the school is around social responsibility and there was a section of the survey in particular that talked about sort of the climate and aspects of the school, you know, belonging and safety and all that kind of stuff and so in that particular, that outside piece of data was very useful for us when we compared it to our internal gauges of school climate and so it complemented or added to a greater picture of that way we felt our kids felt about the school. [BC, Participant 507039]

And among parents, community agencies, and other external stakeholders:

First of all, I think that [parents] need to know that there are certainly issues with smoking and drug and alcohol use in our area...So that was, to inform them, like I said the primary function there, and then I guess to try to solicit support from them over time to try to address the issue. [NL, Participant 109140]

With other agencies it might be to just give them information so perhaps in dealing with parents and so on they may perhaps take a different view of some of the challenges out there [NL, Participant 109140]

I just used it at my school community council meeting just to go over the statistics over here, of what we needed to do to curb some of the smoking especially the percentage of students I think that are chewers, of you know the tobacco stuff, we need to address that. [SK, Participant 406257]

Instances of instrumental KU described by participants were coded into two categories:
instrumental KU that had already occurred in the school and community:

We did use that information in part to, because we were a school that did not have a breakfast program, and we were debating whether we would follow that route or not. [NL, Participant 110160]

We have a snack program now at our school for instance where we try to provide kids healthy snacks even at a high school because we saw kids aren't doing it. [ON, Participant 309195]

It continued to inform the societal and public norms around not smoking, particularly on property. And that's something that we did do this year to a greater degree we were a little bit more consistent and a little bit more vigilant in the way we enforce kids smoking on property. So we, just, we had a strategy that we implemented and it seemed to work [BC, Participant 507039]

and planned or potential instances of KU where individuals expressed a desire to use the

Profile further in their community:

[I would] try to develop some strategies in terms of what to do with this information and how to best help the students that need help and in the overall scheme of things try to alleviate some of the issues regarding smoking and drug and alcohol usage and so on...with [our health board] it would be to try to partner with them to either come up with proactive strategies to try and minimize the number of students who are engaged in those kinds of activities and so on. [NL, Participant 109140]

I've shared it with our, we have a course out in BC called planning 10. Which is a career, basically career planning and life skills oriented course and so they, I don't know if they've specifically used aspects of that survey but it's certainly a huge potential application in the school. [BC, 507039]

A number of participants also cited symbolic uses of the Profile during the interview, particularly during discussions of what made the Profile a valuable tool for them and their school community:

Primarily it gave us information that perhaps we intuitively knew or speculated and either confirmed that [NL, Participant 109140]

[The Profile] just really confirms what we feel really where our students are at a given point in time [NL, Participant 110160]

Almost any community in Ontario these days is worried about alcohol and marijuana use as a huge issue. Cigarettes maybe not as bad but as a northern Ontario community we often come in well above the national and provincial average of smokers. So, especially for our community I think it really hammers home the issues that people are having around here. [ON, Participant 309195]

I confirmed what I thought I knew, in that way it helped. [SK, Participant 406257]

Though symbolic KU on its own is considered a form of non-use, comments from one participant highlighted how it can act as a lead in to other forms of KU:

To validate what staff were reporting to us in terms of what they were hearing in their classrooms or observing outside the building and to then try to develop some strategies in terms of what to do with this information and how to best help the students that need help and in the overall scheme of things try to alleviate some of the issues regarding smoking and drug and alcohol usage and so on. [NL, Participant 109140]

Overall, seven of the eight interview participants were able to provide specific examples of KU they had gone through with the Profile. Similar to the discussion regarding KT activities, the majority of participants provided examples of conceptual knowledge use (i.e. simply learning something from the profile rather than applying it) possibly indicating that participants are currently engaging with the Profile in a largely passive manner.

Chapter 5.1.5.2: The Profile and Knowledge Integration

Based on the definition used in the Rios Conceptual KTA Model, instances of KI were coded when participants described integrating KT and KU activities into the long-term

functioning of their school and community. Only one participant provided commentary related to KI when describing their ideal goal for using the Profile:

I trust people to do their jobs and when they have the tools or the information to do their jobs better I trust them to do their jobs. So if they can take that information and either gain some knowledge from it or apply it from an experiential point of view or utilize it in their day to day existence that would be my best hope [BC, Participant 507039]

The lack of instances of KI in the interviews potentially demonstrates that the individuals currently engaging with the Profile are doing so solely on the basis of short-term goals, focusing on what can be immediately achieved by using or applying the knowledge provided by this singular iteration of the School Profile. This focus on the short term may largely arise out of the fact that the YSS is a cross-sectional survey that provides little opportunity for follow up but may also be indicative of organizations that have yet to achieve much progress through the KTA model.

Chapter 5.2: Quantitative Results

Chapter 5.2.1: Descriptive Statistics and T-test

Out of the entire sample of schools that participated in the 2010-11 YSS (n=448), 62.9% of the sample (n=272) viewed their School Profile with 54.7% (n=87) of Secondary schools and 64.1% (n=186) of Elementary schools doing so.. The download rate was highest in the province of Manitoba with 96.7% of all schools downloading the Profile, followed by the provinces of British Columbia (76.7%), Saskatchewan (74.3%), and Ontario (72.1%). The lowest rate of downloading was recorded in Prince Edward Island at 16.7%. Downloading was also higher among schools located in urban areas (64.1%) and those schools that had completed the Healthy School Planner (67.1%). For a complete table of descriptive

statistics see Appendix I. The results of the preliminary t-test comparison between schools that did and did not download the profile (see Table 2) demonstrated significant differences between the groups on three of the student health behaviour measures used as explanatory variables. Schools that downloaded the profile were found to have a significantly higher mean prevalence of students that exceeded CSEP guidelines for sedentary behaviour regarding screen time ($t(420)=-2.20$ $p<.05$) and significantly higher mean prevalence of students categorized as having a healthy BMI ($t(420)=-2.13$ $p<.05$). The mean prevalence of students meeting nutritional guidelines for the consumption of fruits and vegetables was found to be significantly lower ($t(420)=0.95$ $p<.05$) in schools that downloaded the profile.

Figure 7: YSS School Profile Downloading by Province

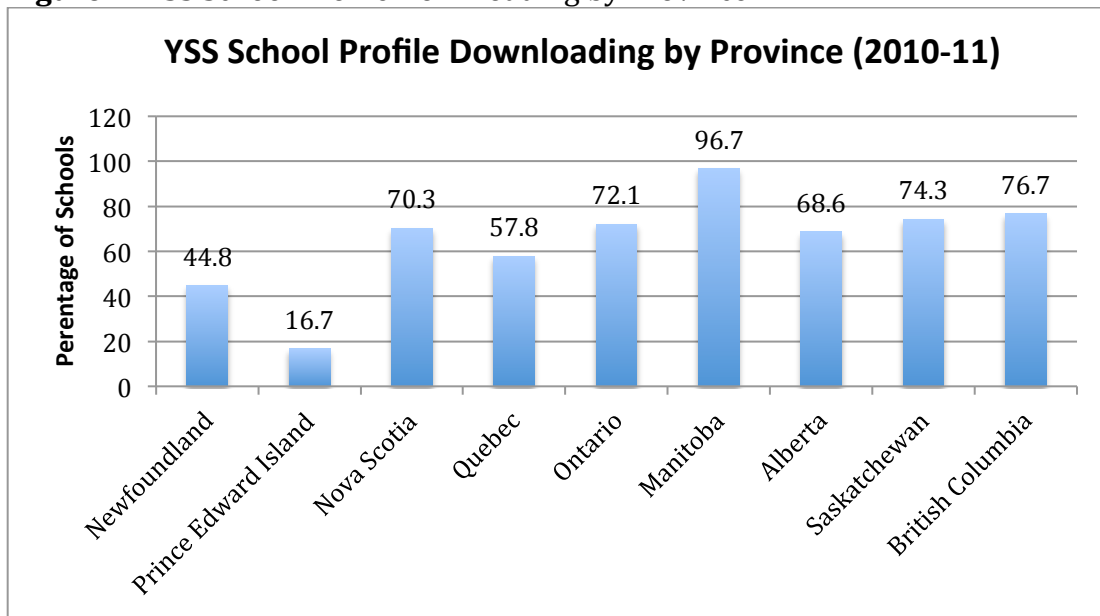


Table 2: T-test means for schools that did and did not download the School Profile

	Schools that downloaded	Schools that did not download	<i>t</i>	<i>df</i>
	T-test Means (SD)			
Smoking Prevalence	3.42 (5.37)	3.83 (6.41)	0.70	420
Smoking Susceptibility	28.11 (10.95)	27.44 (12.12)	-0.59	420
Physical Inactivity (≥ 2 hours/day)				
Watching TV/Movies	28.01 (8.30)	26.02 (10)	-2.20*	420
Playing video games/Surfing the internet	52.34 (12.20)	52.01 (12.13)	-0.27	420
Physical Activity (≥ 1 hour/day)	39.63 (11.52)	39.56 (13.83)	-0.05	420
Healthy Eating (≥ 6 servings of fruit/vegetables/day)	25.02 (15.12)	26.56 (17.48)	0.95*	420
BMI (% of students in healthy weight category)	68.31 (13.42)	65.20 (16.07)	-2.13*	419

Chapter 5.2.2: Logistic Model

The logistic model was set up to model the probability that schools would download their School Profile. Explanatory variables included school and community characteristics and student level health data (see Table 3). In the model containing all schools, those in the province of Prince Edward Island were found to be significantly less likely (OR=0.06 95%CI 0.02, 0.04) to download the School Profile. On the other hand, schools in the provinces of Ontario (OR=4.24 95%CI 1.43, 12.58) and Manitoba (OR=34.99 95%CI 4.01, 305.76) were found to be significantly more likely to download the School Profile. In the sub-model containing secondary schools only schools in Alberta were found to be significantly more likely (OR=18.22 95%CI 1.57, 211.82) to download the School Profile. No other explanatory variables were found to have a significant relationship with the outcome variable. Due to the large effect sizes and wide confidence intervals present in some of the results for the province variable some additional analysis was undertaken to ensure confidence in the findings. A logistic model with the province variable removed was constructed and run in order to ensure that the results of that variable were not masking any other potentially significant effects. This model found no significant results with any of the remaining variables in the model containing all schools, demonstrating that the large effects observed with the province variable were not masking any other relevant results (see Table 5, Appendix J). However, among the sub-models containing only elementary and only secondary schools a number of predictor variables had significant results. Secondary schools that completed the HSP were found to be significantly more likely to download the profile (OR=6.31 95% CI 2.21, 18.03) compared to secondary schools that did not complete

the HSP. Additionally secondary schools with a higher prevalence of current smokers (OR=0.85 95% CI 0.77, 0.94) and a higher prevalence of students using alcohol (OR=0.94 95% CI 0.90, 0.98) were found to be less likely to download the profile compared to schools with a lower prevalence of smoking and lower prevalence of alcohol use. On the other hand secondary schools with a higher prevalence of students using marijuana (OR=1.16 95% CI 1.07, 1.25) were found to be slightly more likely to download the School Profile compared to secondary schools with a lower prevalence of marijuana use among students. Finally, secondary schools with a higher prevalence of physically inactive students were found to be more likely to download the Profile (OR=1.16 95% CI 1.07, 1.27) than schools that had a lower prevalence of physically inactive students. In the elementary schools only model schools located in rural areas were found to be more likely to download the Profile (OR=2.76 95% CI 1.46, 5.25) than elementary schools located in urban areas.

Table 3: Logistic regression analysis examining characteristics associated with School Profile downloading among 2010-11 YSS Schools

	Odds Ratio (95% CI)		
	School Profile Downloading	School Profile Downloading	School Profile Downloading
	All Schools (n=448)	Secondary Schools Only (n=159)	Elementary Schools Only (n=289)
Healthy Schools Planner			
Not Completed	1.00	1.00	1.00
Completed	0.62 (0.32, 1.19)	1.60 (0.43, 5.90)	0.58 (0.24, 1.42)
Province			
Newfoundland	1.00	1.00	1.00
Prince Edward Island	0.06 (0.02, 0.24)***	0.39 (0.03, 5.14)	0.09 (0.01, 0.53)
Nova Scotia	3.23 (0.96, 11.56)	7.37 (0.52, 103.62)	1.13 (0.23, 5.55)
Quebec	0.85 (0.28, 2.56)	0.33 (0.04, 3.09)	3.96 (0.78, 20.23)
Ontario	4.24 (1.43, 12.58)*	14.61 (1.38, 155.06)	1.01 (0.26, 3.98)
Manitoba	34.99 (4.01, 305.76)**	12.09 (1.07, 137.13)	26.41 (1.34, 520.78)
Saskatchewan	3.34 (1.01, 11.01)	8.48 (0.83, 86.42)	2.24 (0.44, 11.38)
Alberta	2.36 (0.72, 7.75)	18.22 (1.57, 211.82)*	0.64 (0.13, 3.13)
British Columbia	4.11 (1.04, 16.19)	7.16 (0.52, 97.89)	2.13 (0.37, 12.34)
Location			
Urban	1.00	1.00	1.00
Rural	1.36 (0.77, 2.41)	0.80 (0.24, 2.71)	2.77 (1.24, 6.13)
School Type			
Elementary	1.00	n/a	n/a
Secondary	1.67 (0.76, 3.64)	n/a	n/a
Prevalence of Low-Income Households	0.97 (0.94, 1.01)	1.02 (0.95, 1.00)	0.92 (0.86, 0.97)
Smoking Prevalence	1.01 (0.95, 1.08)	0.95 (0.86, 1.06)	1.18 (0.90, 1.56)
Smoking Susceptibility	0.99 (0.96, 1.01)	1.00 (0.94, 1.06)	0.99 (0.96, 1.02)
Alcohol Use	n/a	1.00 (0.96, 1.05)	n/a
Marijuana Use	n/a	1.03 (0.95, 1.12)	n/a
Social Environment (Students who agreed)			
“I feel close to people at my school”	0.98 (0.94, 1.02)	1.04 (0.89, 1.22)	1.00 (0.95, 1.04)
“I feel I am part of my school”	1.02 (0.97, 1.07)	1.02 (0.86, 1.19)	1.02 (0.95, 1.09)
“I am happy to be at my school”	1.00 (0.96, 1.04)	0.99 (0.87, 1.12)	1.01 (0.96, 1.06)
“I feel the teachers at my school treat me fairly”	0.98 (0.94, 1.02)	0.96 (0.86, 1.10)	0.95 (0.91, 1.00)
“I feel safe at my school”	1.00 (0.96, 1.05)	0.95 (0.84, 1.08)	1.03 (0.97, 1.09)
Physical Inactivity (>2 hours/day)			
Watching TV/Movies	1.02 (0.99, 1.06)	1.00 (0.92, 1.08)	1.00 (0.97, 1.04)
Playing video games/Surfing the	0.98 (0.96, 1.01)	1.04 (0.96, 1.12)	1.00 (0.98, 1.03)

	internet			
Physical Activity (% of students at school achieving <u>>1</u> hour/day of MVPA ²)	1.00 (0.98, 1.02)	1.00 (0.94, 1.06)	1.00 (0.98, 1.03)	
Healthy Eating (>6 servings of fruit/vegetables/day)	1.02 (1.00, 1.04)	1.06 (1.01, 1.11)	0.98 (0.96, 1.01)	
BMI (% of students in healthy weight category)	1.02 (1.00, 1.03)	1.00 (0.95, 1.06)	1.02 (1.00, 1.04)	
c statistic		0.79	0.97	0.86

*p<0.05 **p<0.01 ***p<0.001

² Moderate- to vigorous-intensity physical activity (MVPA) Source:
<http://www.csep.ca/english/view.asp?x=890>

Chapter 6: Discussion

Adolescence is one of the most important life stages for physical, mental, and behavioural development, particularly for habits related to health and fitness. It is the time in life when behaviours and attitudes are cemented and the foundation for adulthood is laid (Ritchie et al., 2006; Rehm et al., 2006). To give Canadian youth the best chance of success through adolescence and into adulthood, health and fitness initiatives must be responsive to a number of modifiable and interrelated health factors. To this end the SHAPES platform was developed as a means of collecting and sharing high quality data that can be used to engage schools and their communities in developing and implementing tailored interventions (Leatherdale et al., 2009). In projects like the YSS and COMPASS, participating schools receive a tailored feedback report as part of a knowledge sharing strategy to facilitate and encourage health promotion in the school setting. The findings of this study contributed to understanding what makes the YSS feedback reports effective and useable for the teachers and administrators involved in these projects as well as examining the relationship between certain school demographic characteristics and their uptake of the Profile in order to continue improving the design and content of the reports to encourage knowledge utilization and integration at the school level.

Chapter 6.1: Research Question 1

“How can the content, design, format, and/or delivery of the 2010 YSS School Profiles be improved to facilitate knowledge translation and utilization among recipients?”

In a practical sense the implementation of KT strategies is intended to bring together individuals seeking knowledge with those who possess it. Individuals and organizations working on public health issues often seek evidence from the position of attempting to

solve a specific problem rather than the best or most comprehensive evidence (Kiefer et al., 2005). In these situations the value and relevance of knowledge increases when it gains context, particularly if that context ties it to the issue or community being dealt with (Brownson & Jones, 2009). The fact that participants specifically pointed to this aspect of the Profile as well as the breadth of information it provides as things that added value to it demonstrates that the SHAPES method of providing tailored feedback is a sound practice. While the relationship between this factor and the degree of knowledge translation or use could not be directly tested by this study due to sample size limitations, it is telling that all of the participants that pointed to the localized and comprehensive content of the Profile as one of its strongest features also all reported at least one concrete instance of sharing or using the Profile in their community. Providing tailored feedback and research results is an important part of encouraging effective program and policy decisions however it is also important to consider that a distinction must be made between KT activities that provide information and those that provide knowledge. It is most helpful to consider the two as existing on either end of a continuum or, as in the case of Landry et al.'s (2006) model, as the beginning and end products of a contextualization process. Landry et al. (2006) propose a three stage model that begins with information or data that represents quantifiable facts about reality (e.g. the student health behaviour data collected by the YSS), these 'facts' are then synthesized and organized in a way that they can be used to communicate with a specific audience (e.g. processing and presenting the YSS data in the Profile) and finally enter what is termed the "know-how" phase where the information has been contextualized and translated such that the recipients can apply it to planning and decision-making activities within their organization. The transition from information or

data through to knowledge increases the value of the original product in two ways: first by contextualizing and making information useable and secondly by increasing its accessibility and hopefully aiding in disseminating it to a wider audience (Landry et al., 2006). As pointed out above, the process of creating and distributing the YSS Profiles closely mirrors this model, additionally the value adding nature of the process can clearly be seen in the themes that arose from the interview data. Perhaps the clearest example of this is respondent's discussion of how they perceived the Profile as a more valuable tool in instances where it could be directly integrated into policy decisions or the school's curriculum.

It should also be noted that all respondents continually emphasized that the clarity and readability of the Profile's design was an important feature that added to its value as a tool. Discussions with participants regarding the design features and methods of information presentation used in the Profile pointed to a need for visual aids (i.e. graphs, charts, or tables) that allow the reader to quickly and efficiently process the information they present. The importance of considering how readers perceive individual design elements is demonstrated in participant responses to the four different graph designs presented for discussion in the interview. When asked to explain their response to a particular graph that elicited positive valuations (Graph A/C, see Appendix G) participants cited the fact that the graph was designed in a familiar or 'traditional' style they felt they could understand quickly. On the other hand, graphs that elicited negative reactions from participants (Graph B/D, see Appendix G) were cited as more difficult to interpret and taking longer to understand due to their use of 'non-traditional' design elements and data representation

methods. This is in spite of these graphs (i.e., Graph B/D) being designed to minimize the number of non-information elements in the data presentation theoretically making them more visually 'streamlined' and easier to understand quickly (Tuft, 2001). In this case an individual's preference for familiarity and visual elements that are easily recognizable seems to translate to a perception that the object/information being viewed is more easily and more quickly understood. Whether or not this perception is objectively true (i.e. whether information is better understood or retained with familiar modes of data presentation) is a question for further investigation. So it should be stated that the form or packaging in which knowledge is presented to audiences must also be given consideration in the development process. The notion of focusing the development of the School Profiles with the goal of producing a product that primarily disseminates actionable knowledge rather than simply reporting research results is one that warrants further consideration as a potential avenue for increasing not only uptake among recipients but also increasing utilization and general engagement with KTA in the school environment.

Chapter 6.2: Research Question 2

"How can additional KE strategies (e.g., knowledge brokers) be used to facilitate knowledge translation and utilization of the Profile among recipients?"

Effective KT requires more than simply disseminating relevant information or knowledge in a timely manner, it must also be translated through appropriate means and by the right messengers. Selecting the right person to act as an intermediary in a KT strategy is essential to fostering the development of a sustainable relationship that will empower the individuals who have questions to find the individuals who have the answer (Kiefer, et al., 2005). In the case of dealing with youth health issues in the school setting, particularly

where policy or programming changes are the desired outcome, those involved (i.e. School staff and administrators, students, parents, and other community members) must understand the meaning of the change that is occurring both at the school level and in a personal context (Cousins & Leithwood, 1993). Because of this need for involvement and understanding from all individuals in the process strategies that are exclusively 'top-down' or 'bottom-up' rarely achieve the desired results (Cousins & Leithwood, 1993). Louis and Dentler (1988) first put forward the idea of "school-focused knowledge use" which posits that the school as a whole should be viewed as both a locus of change and a knowledge user. The core issue with this approach then becomes determining the most effective strategies to translate knowledge in a way that is school-wide and will encourage the desired actions (Cousins & Leithwood, 1993). One approach is to view the school as a 'problem-solving' community where both knowledge producers and users are seen as members of the same collective, rather than the two communities theory that divides knowledge producers from knowledge users (Cousins & Leithwood, 1993). It is in this context of viewing knowledge producers and users as members of the same community that respondent's views of the relationship between YSS staff and their school community must be analyzed. Overall, participants responded positively when questioned about the level of communication and engagement with YSS staff however this belied a general desire for or openness to the idea of deepening that relationship and adding elements of additional support to the current YSS KE system. A majority of respondents reacted favourably to the suggestion of extending contact with YSS staff in order to facilitate KTA related to the School Profile. Respondents also reacted positively to the possibility of providing additional materials such as a presentation or other tools to facilitate sharing

and dissemination of the profile. It should also be noted that although engagement in KT and some KU activities was widespread among the sample, many of the specific instances described in the interviews consisted of individuals simply sharing or disseminating the profile to parties they thought might be interested and there was little indication of long-term engagement or follow-up in this process. Previous research with 'laggard' schools in the YSS that did not view their Profiles similarly concluded that follow-up interventions such as seeking feedback or sending reminders to participants could prove beneficial in increasing uptake of and engagement with the profile (Tirilis, 2011). Experiments among public health units have also found that creating an ongoing relationship between knowledge producers and users through means such as creating a knowledge broker role are effective in increasing engagement in the KTA process as well as producing better end results (Dobbins et al., 2009a). Taken together, these results point to the fact that developing stronger relationships with participating schools and their communities as well as maintaining them beyond the initial data collection and reporting phase could have very positive results in encouraging more extensive uptake, utilization, and hopefully integration of the YSS Profile with participating schools.

Chapter 6.3: Research Question 3

"How do school characteristics (i.e. location, type, socioeconomic status, student health behaviours) affect use of the School Profile?"

Along with addressing the needs of the individuals engaging in KTA it is also important to consider the external contextual elements and organizational characteristics that contribute to the general environment where knowledge use is occurring (Revere et al. 2007). This study examined contextual elements of the school and its surrounding

community including location and socioeconomic status. Organizational characteristics included in the model included the student health behaviours measured in the YSS as well as whether the school completed the HSP. Unfortunately the original model provided few conclusive results however the relationship between provincial location and the likelihood of downloading the Profile provides an interesting starting point for further investigation. Both the provinces of Prince Edward Island and Manitoba demonstrated a significant relationship with the outcome variable though in drastically different ways. One possible explanation for the difference in these two results is the presence of collaborative or partner projects that work with YSS schools. In Prince Edward Island there is the SHAPES-PEI program that works directly with all the schools in the province involved in the YSS including in delivering the results of the survey to participants (University of Waterloo, 2011). In essence this program functions as an alternative to downloading the profile through the OSIS system helping to explain the low download rates and the fact that the schools in PEI are less likely to download the Profile compared to reference. On the other end of the spectrum schools located in the province of Manitoba were found to be significantly more likely to download the Profile compared to the reference group and the province overall had the highest download rates in the country. Similar to PEI, Manitoba is also home to a collaborative project in this case a KE system that works with participating schools and results seem to suggest was particularly effective in the 2010-11 YSS (University of Waterloo, 2011). Taken together these two results seem to indicate that programs that work to engage schools directly in the knowledge sharing process have potential for future success. These results must be viewed with caution however, as this statistical analysis is hampered by a few limitations. Firstly, the data is a cross-sectional

sample from one iteration of the YSS and thus does not allow for any conclusions as to the possible causes of the results. Second, limited information regarding the exact structure of the collaborative projects limits the conclusions that can be made regarding exactly how they may be influencing download rates. The results from the secondary test model that had the province variable removed also brought forward some other school characteristics that could influence Profile downloading, particularly among the secondary and elementary school subgroups. In particular, secondary schools that completed the HSP were found to be significantly more likely to download the Profile. The HSP was completed on a voluntary basis by the schools participating in the YSS, its inclusion in this model was as a simple proxy measure for how involved schools were with the overall process of the Survey. Based on these results it stands to reason that increased likelihood of downloading the profile among secondary schools that complete the HSP is a result of their higher level of interaction or engagement with the YSS process as a whole. This ties in well with the results from schools in provinces like PEI and Manitoba where the presence of collaborative projects ostensibly geared towards engaging participating schools also had a noticeable effect on downloading behaviour. Though limited, these results do help narrow the focus as to which contextual factors may be influencing downloading behaviour and subsequently health outcomes at the school level, providing a basis for further investigation into the exact effects of school engagement and the collaborative projects that operate within the YSS. In addition to this a number of student health behaviour characteristics also demonstrated significant effects on downloading behaviour among secondary schools. Though the nature of the current data sample limits what kind of conclusions can be drawn from these results they do raise some questions that bear further

investigation. In particular, more detailed analysis involving multi-year or longitudinal data could be very helpful in determining more precisely how changes in student health behaviour influence downloading behaviour and whether this relationship has an effect on school health outcomes.

Chapter 6.4: Triangulating the Data

The biggest point of convergence in the results of this study is the idea of engagement between research producers and users. Though all three questions tackled very different aspects of the YSS KE system the conclusions drawn from these questions point to the importance of building relationships between knowledge producers and users. Part of this is encouraging the development of a unified community that focuses on the entire school and its surrounding community as a centre for health promotion. The qualitative results show that participants find the most value in a Profile they can directly apply to their school environment and that the inclusion of additional resources beyond the Profile itself adds significant value to it as a KE tool. In addition to valuing the resources currently present in the Profile respondents also indicated that additional support from either YSS staff or relationship building with local health agencies would be welcomed and could facilitate better utilization of the School Profile. Couple this with the quantitative results demonstrating that schools in provinces have substantially different Profile downloading behaviour than schools without and the importance of ongoing engagement and community building becomes clear.

Chapter 6.5: Implications for Youth Health Research

The implications for future SHAPES projects such as ongoing iterations of the YSS and the newly launched COMPASS project seem fairly clear based on the results of this study: involvement with knowledge users is a good start, but consistent engagement is better. As discussed previously, in order for schools and school communities to function effectively as setting for health promotion they require the support of a timely, relevant, and useable knowledge base. Engaging in the KTA process as outlined in the Rios Conceptual Model is one potential method for developing and maintaining the needed expertise and knowledge base to develop effective health interventions in schools. This model provides a macroscopic overview of KTA processes within an organization, which could prove valuable to individuals and organizations that are new to the process, as the model does not necessarily require specialized knowledge beyond understanding its basic elements. Furthermore, as organizations develop a deeper knowledge of KTA and its specifics the large scale nature of the model allows individuals and organizations more flexibility in adapting and selecting the means and modes of knowledge use that are most valuable to them. One drawback of such a broad approach however, is that for the KTA neophyte such freedom within the model may prove overwhelming without proper organizational support for learning and development regarding knowledge use. As the results here demonstrate the foundation of this must be engagement among knowledge producers and users. While the cross-sectional nature of the YSS somewhat hampers the possibility of this, encouraging the spread of provincial partner projects that can act as long-term partners and agents in the KTA process provides ample opportunity to support school engagement in youth health. The existence of current partner projects also provides an excellent

opportunity in further KE research examining the exact nature of the influence these projects have on student and school level health outcomes. On the other hand, the longitudinal nature of the COMPASS project not only provides a perfect avenue to develop ongoing relationships with participating schools but also a setting for the development and testing of various strategies that foster engagement in the KTA process.

Chapter 6.6: Strengths and Limitations

The primary methodological strength of this study is the use of triangulation by analyzing by qualitative and quantitative data to answer research questions. The nested mixed method design of this study provided a quantitative element that supported the conclusions drawn from qualitative data while the qualitative analysis provided a contextual surrounding for the quantitative results. Since the quantitative results drew from a national sample of YSS participants it provided a broader representation that the qualitative collection could not. Meanwhile the detail and depth of information revealed in the qualitative analysis supplemented and strengthened the shallower information contained in the logistic models. The limitations of this study were two-fold: one, the small sample size was not nationally representative of YSS participants and thus no cross-case analyses could be carried out; secondly the cross-sectional nature of the quantitative YSS data prevented any deeper analysis beyond correlational relationships. In the case of the qualitative portion of the study, the small sample size was severely limiting. The numbers of participants were too low to allow for any post-hoc correlational analyses of the interview data that could have been used to test for potential relationships (e.g. a correlation between perception of the Profile's value and instances of knowledge use). Additionally the process of recruiting interview participants relied entirely on self-

selection and excluded individuals that had not downloaded their Profile opening up the possibility of a sampling bias influencing the results. The use of a limited sampling frame (i.e., only individuals that downloaded the Profile) may also limit the generalizability of these results to other groups (i.e. those that did not download). The quantitative analysis was hampered by the fact that as it is largely a secondary analysis of data collected for another purpose issues with data quality and suitability could not always be addressed to satisfaction. This creates the potential for bias or skew in the results that may not be immediately evident. Additionally, the fact that the data is cross-sectional limits the value of the conclusions that can be drawn from these results as they can only provide a brief snapshot of one particular situation at one point in time.

Chapter 7: Conclusion

The purpose of this study was twofold: to examine how YSS participants perceived the value and utility of several aspects of the school Profile; and to examine if there were broader contextual elements and characteristics of the schools that influenced downloading behaviour regarding the Profile and Summaries. Overall the intent was to deepen understanding of participants' relationship with the School Profiles and Summaries in order to improve the KE tools employed by the YSS and other SHAPES projects. The results of this study have contributed to understanding how and why individuals value and use the School Profile as well as a limited view into how participation in collaborative projects influences downloading behaviour and its potential impact on health outcomes in schools. Specifically, these results noted that individuals participating in the YSS have a very positive view of the Profile as a whole and find great value in the tailored, quantitative type of information it provides. Additionally, KTA related to the Profile was a common theme among participant responses, indicating that there is uptake and use of the data provided by the YSS. The implications of this study point to a need for research that further examines how schools are engaging in KTA related to the Profile and the influence that existing KE systems and projects outside of the YSS may be having on the process.

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Appendix A – YSS School Profile, School Summary, Parent Summary

SMOKING PROFILE FOR



YSS.UWATERLOO.CA
THIS PROJECT IS FUNDED BY
HEALTH CANADA / SANTÉ CANADA

YOUR SCHOOL'S SMOKING PROFILE

Thank you for participating in the 2010/2011 Youth Smoking Survey (YSS).

The Health Canada-sponsored **YSS** is a collection of health and tobacco-related data gathered from students in grades 6 through 12 in participating schools throughout Canada. The administrator of the survey, the Propel Centre for Population Health Impact (Propel), at the University of Waterloo, provides school-level profiles to all participating schools. National and provincial data on youth smoking, physical activity, eating, drug and alcohol behaviours are also included, with the intention of assisting community leaders (educators, students, and public health workers) in planning interventions that will provide the healthiest environment for students to thrive. The information contained in this profile is provided to each school and only they can provide permission to distribute this profile outside the school. We encourage schools to partner with their local health and voluntary organizations and to share these results with their school community (teachers, parents and students) to take action on these findings. For relevant, up-to-date literature and ideas on how to transform this data into appropriate action steps, see the Recommendations and Resource Summary section of this profile. The data for this profile may or may not be representative of your school due to small sample sizes, so please interpret results with caution.

Propel is pleased to provide this results profile for your school. Propel centrally coordinated the 2010/2011 YSS across Canada in collaboration with the following provincial partners.

Memorial University of Newfoundland

University of Prince Edward Island

Dalhousie University

IWK Health Centre

Québec en Forme

University of Waterloo

Cancer Care Ontario

CancerCare Manitoba

University of Saskatchewan

University of Alberta

University of British Columbia

University of Victoria

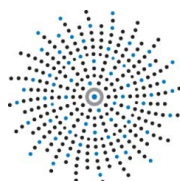
The Government of Canada has contracted this research group to implement the Youth Smoking Survey on behalf of Health Canada. The results of the survey will be provided to Health Canada in a manner that will not identify any of the participants in the survey. Please note that in some cases results in table columns or rows and graphs may not add to 100% due to rounding.

For more information regarding this profile or the research project associated with it, visit

yss.uwaterloo.ca or contact:

Tammy Cumming, Project Manager
Project Coordinator for the YSS
University of Waterloo
519-888-4567 ext. 33354
tcumming@uwaterloo.ca

Steve Manske, Senior Scientist
Principal Investigator for the YSS
Propel Centre for Population Health Impact
University of Waterloo
(519) 888-4518
manske@uwaterloo.ca



The Youth Smoking Survey (YSS) is coordinated centrally at the Propel Centre for Population Health Impact. Propel is a partnership between the Canadian Cancer Society and the University of Waterloo.

PROPEL
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**UNIVERSITY OF
WATERLOO**

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THE ISSUE

Smoking is a **School** Issue

- Youth who take up smoking show a **decrease in academic achievement**.¹
[SEE PAGE 7 FOR THE CONNECTION BETWEEN ACADEMIC PERFORMANCE AND SMOKING AT YOUR SCHOOL.](#)
- Smoking is associated with an increased risk of dropping out of high school; smoking is more predictive of dropping out than marijuana or alcohol use.²
- Starting smoking at an early age is predictive of a number of risky behaviours; these include fighting, drug use, and problems in school.³⁻⁴
[SEE PAGE 9 FOR RESULTS ON ALCOHOL, DRUG, MARIJUANA AND OTHER DRUG USE AMONGST YOUTH AT YOUR SCHOOL.](#)

Smoking is a **Student** Issue

- 85% of current smokers start smoking by age 19.⁵ The average age at which youth in grade 12 smoked their first whole cigarette is 14 years.⁶
[SEE PAGE 3 FOR THE NUMBER OF YOUTH AT YOUR SCHOOL SUSCEPTIBLE TO SMOKING.](#)
- Results from the 2008/2009 YSS show that **33% of youth in grades 6 to 12 report having tried smoking and 4% of youth report smoking on a daily basis**.⁶
[SEE PAGE 2 FOR THE NUMBER OF YOUTH AT YOUR SCHOOL WHO HAVE TRIED SMOKING.](#)
- Students who smoke also tend to engage in other health risk behaviours including physical inactivity, unhealthy eating, and alcohol consumption.^{8,19}
[SEE PAGES 12-18 FOR PHYSICAL ACTIVITY AND EATING BEHAVIOUR RESULTS FOR YOUR SCHOOL.](#)

Smoking is a **Community** Issue

- 17% of all deaths in Canada (or approximately 37,200 deaths/year) in Canada are attributable to tobacco use.⁹ Tobacco kills three times more Canadians each year than alcohol, AIDS, illegal drugs, car accidents, suicide, and murder combined.¹⁰ Preventing or delaying smoking can reduce short- and long-term health risks.^{3,11}
- In 2008, **18% of the Canadian population aged 15 years and older were current smokers** (approximately 4.9 million smokers).¹²
[SEE PAGE 2 TO SEE HOW YOUR SCHOOL COMPARES TO OTHER SCHOOLS IN THE PROVINCE AND COUNTRY.](#)

Smoking is **Everyone's** Responsibility

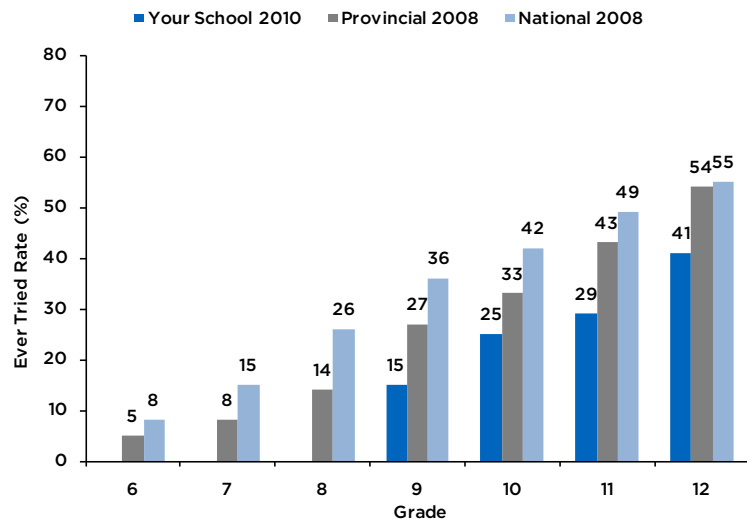
- We owe it to our kids to do whatever we can to keep them smoke-free and healthy.
[SEE THE RECOMMENDATIONS AND RESOURCE SUMMARY SECTION OF THIS PROFILE TO ADDRESS SMOKING AND OTHER HEALTH BEHAVIOURS AT YOUR SCHOOL.](#)

SMOKING AT

Our findings show that at your school, 5% of youth (6% males and 4% females) reported being a current smoker. Overall, 26% of youths surveyed (26% males and 26% females) reported having ever tried a cigarette, even a few puffs. Fewer youth (15%) (16% males and 14% females) reported having smoked a whole cigarette. We need to be concerned about all these groups, since youth are susceptible to experimenting and starting new habits.

The **Youth Smoking Survey (YSS)** was first conducted in 1994 and has been repeated biennially since 2002. The graph to the right compares your school to the rest of your province and the country using 2008-2009 YSS data.

STUDENTS WHO HAVE EVER TRIED A CIGARETTE



PLEASE NOTE: The graphs in this profile include all grades participating in the YSS, even though your school may not include all grades so that you can see provincial and national trends.

Definitions used in this report:

EVER TRIED

Someone who has ever smoked a cigarette, even a puff.

TRIER

Someone who has smoked less than 100 cigarettes in their lifetime and has smoked or puffed cigarettes *in the past 30 days*.

CURRENT SMOKER

Someone who has smoked at least 100 cigarettes in their lifetime, and who has smoked at least one whole cigarette *in the past 30 days*.

NON-SMOKER

Someone who has not smoked or puffed cigarettes *in the past 30 days* or has never smoked a cigarette, even a puff.

STUDENT SUSCEPTIBILITY TO SMOKING

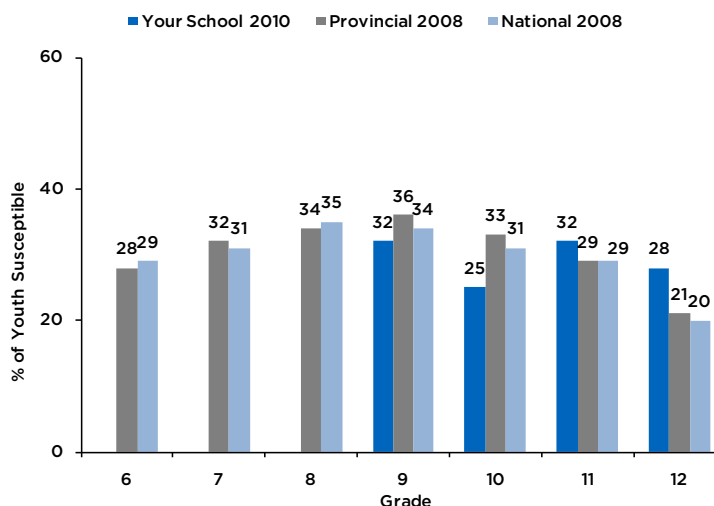
There is a relatively small window in life when a person is susceptible to start smoking. Most established smokers begin experimenting with cigarettes between the ages of 10 and 18.³ People who become dependent can find it very difficult to quit. **Therefore, we need to intervene before youth become dependent.**

Youth are less likely to begin smoking in the future if they feel they can resist peer pressure to smoke and they feel strongly that they won't try smoking in the future. To assess this susceptibility, we asked youth at your school who have never smoked two types of questions. First, we asked about their intentions to remain smoke-free: *"Do you think in the future you might try smoking cigarettes?"* and *"At any time during the next year do you think you will smoke a cigarette?"*

We also asked one question relating to their confidence in resisting peer pressure, *"If one of your best friends were to offer you a cigarette, would you smoke it?"* At your school, 29% of youth who have never smoked a cigarette have low confidence in their ability to remain smoke-free in the future. These youth are at high risk to begin smoking.

The graph on this page displays the percentage of youth, by grade, who were deemed susceptible to smoking, in comparison to provincial and national data. The decrease in susceptibility amongst secondary youth reflects higher actual smoking rates in these grades.

SUSCEPTIBILITY TO SMOKING OF STUDENTS WHO HAVE NEVER SMOKED



Your School Can Help Keep Students from Smoking:

Even when smoking rates are low, tobacco control efforts need to focus on preventing youth from becoming susceptible to smoking and experimenting with smoking. In addition, established smokers should be encouraged to quit. Use the following Health Canada recommendations to address tobacco use at your school.

- **Ensure there are consequences for smoking** on school property for all youth, parents and staff.
- Brainstorm with students and teachers about ways to **redesign smoking areas** for students for more positive activities.
- **Involve students in writing letters** to local merchants reminding them that it is illegal to sell tobacco to minors.

See the *Recommendations and Resource Summary* section of this profile for more details.

PEER AND FAMILY INFLUENCES

Youth take up smoking for a variety of reasons. Peers and family members influence youth smoking.¹³ These influences are sometimes direct (peer pressure) but more often indirect (modelling). We asked youth at your school a series of questions relating to their peers and family.

Youth were asked, “How many of your closest friends smoke cigarettes?” At your school, current smokers/tryers are more likely to have friends who smoke compared to non-smokers. **Non-smokers with friends who smoke are the most susceptible to begin smoking themselves.**

Youth were asked, “Do any of your parents, step-parents, or guardians smoke cigarettes?” and “Do any of your brothers or sisters smoke cigarettes?” At your school, current smokers/tryers are more likely to have family members who smoke compared to non-smokers. **Youth with family members who smoke face a higher risk of beginning to smoke.**

NUMBER OF FRIENDS WHO SMOKE	PERCENT OF YOUTH RESPONDING
0	66
+1	34

FAMILY MEMBERS WHO SMOKE	PERCENT OF YOUTH RESPONDING “YES”	
	CURRENT SMOKERS & TRIERS	NON-SMOKERS
PARENTS, STEP-PARENTS, OR GUARDIANS	68	40
SIBLING(S)	45	16

Obtaining and Sharing Cigarettes

Smoking is a social activity and as a result, youth often obtain their cigarettes from social sources in addition to retail outlets. At your school:

- 50% of youth felt it would be “easy” to get cigarettes if they wanted to smoke.
- 53% of current smokers and triers report “usually” or “always” sharing a cigarette with others when they smoke.
- 23% of current smokers and triers report being given cigarettes from a friend, sibling, parent or someone else.
- 47% of current smokers and triers report asking someone else to buy cigarettes for them or buying cigarettes from a friend or someone else.

Spending Money

We asked youth at your school about the amount of spending money they usually have each week to spend on themselves or save. The table to the right shows how current smokers/tryers and non-smokers responded.

Quick Facts:
FROM THE 2008/2009 YSS

Past YSS results show that 53% of current smokers in grades 9 to 12 and 80% of current smokers in grades 6 to 8 obtained cigarettes from social sources, such as family and friends. Therefore younger smokers are more likely to obtain cigarettes from friends and family.⁶

AMOUNT OF MONEY PER WEEK	PERCENT OF YOUTH RESPONDING	
	CURRENT SMOKERS & TRIERS	NON-SMOKERS
\$0 - 20	35	59
\$21 OR MORE	65	41

Smoking at Home and in Cars

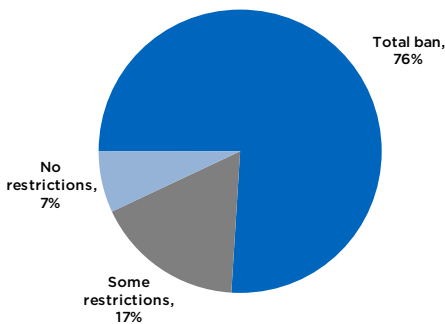
Second-hand smoke is a health concern for those who are exposed to tobacco smoke in the home and/or car.¹²⁻¹⁴ Children and youth are known to be particularly vulnerable to the adverse health effects of exposure to environmental smoke.¹⁴ We asked students about smoking rules at home and **24% reported that there were no restrictions or only some restrictions regarding smoking in the home**, as shown in the graph below to the left.

In your school, **25% of youth reported riding in a car with a smoker in the last week**. Currently, seven Canadian jurisdictions have legislation preventing adults from smoking in vehicles when children are present.¹⁵ The graph below to the right shows the number of times in a week that youth at your school are exposed to smoking in cars.

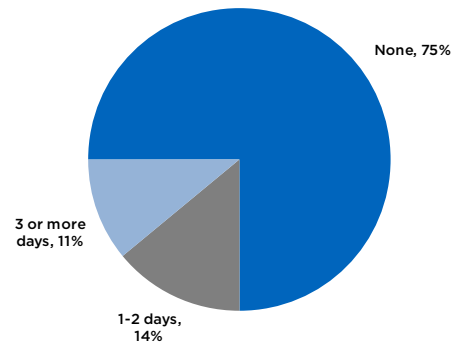
**Quick Facts:
FROM THE 2008/2009 YSS**

Past YSS results show that exposure to smoking in cars and permitting smoking in the home are associated with increased smoking uptake for youth. These results hold true even when controlling for other important influences on susceptibility and smoking behaviour.⁶

**HOUSEHOLD RULES
FOR SMOKING**



**EXPOSURE TO SMOKING
IN CARS (LAST WEEK)**



Your School Can Help Students Resist Social Pressure to Smoke

Programs that help students to develop skills for resisting social influences can be helpful. Schools can provide an environment where smoking is not acceptable. The most successful programs involve:

- Teaching youth refusal skills (through direct instruction, modelling, rehearsal, etc.),
- Ensuring designated smoking areas at schools are not visible to other youth,
- Placing designated smoking areas in inconvenient locations for youth to access,
- Teaching media literacy skills to inform youth how they are targeted by tobacco companies, and
- Include information in school newsletters to parents with tips for parents about keeping a smoke-free home (smoking outside only).

See the *Recommendations and Resource* section of this profile (page 19) for information about existing programs (like *Kick the Nic*) that can help you address tobacco use in your school.

THE SCHOOL ENVIRONMENT

The school environment plays an important role in helping youth stay smoke-free. Research shows that schools influence smoking rates even after accounting for family, economic and community factors.¹⁷ **Schools are uniquely positioned to influence the health and well-being of youth, ideally in partnership with parents and community members/organizations.** The results on the following pages describe the broader environment at your school. The environment serves as a foundation to behaviour.

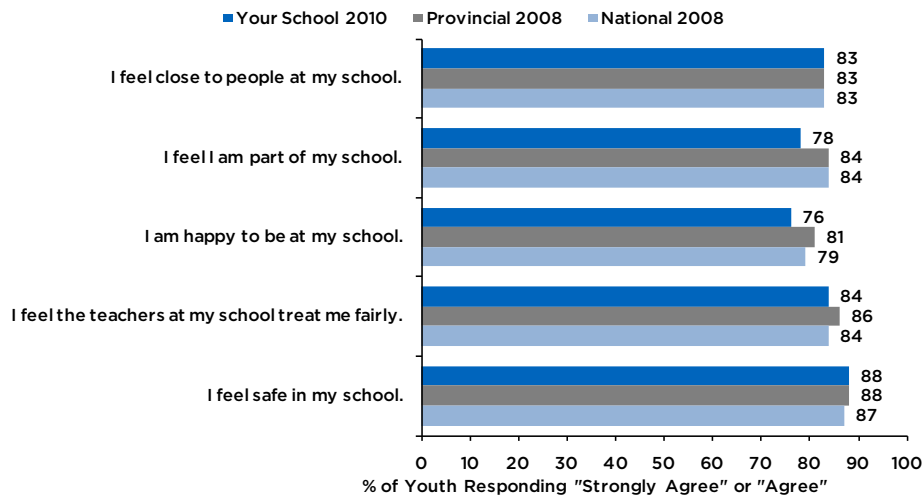
The graph below shows responses of youth at your school to the individual statements that comprise the school connectedness scale and contribute to the overall summary score. These are compared to the 2008/2009 YSS provincial and national results.

School Connectedness

A sense of connection to the school and school rules can support students in making healthy choices. **Youth who feel an attachment to their school and who consider their teachers to be supportive are less likely to smoke or engage in other unhealthy or risky behaviours.¹⁷**

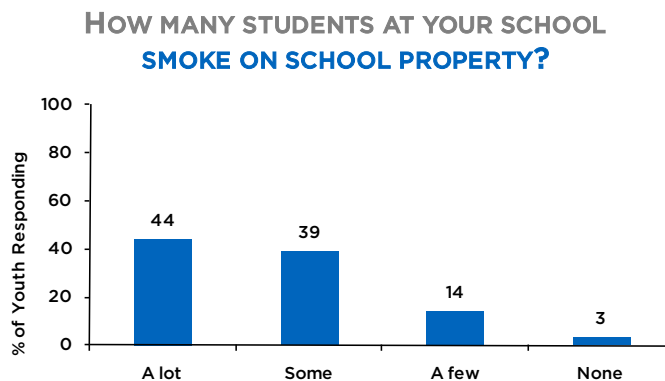


SCHOOL CONNECTEDNESS AT YOUR SCHOOL



Rules Regarding Smoking at Your School

According to current provincial law in eight Canadian jurisdictions, no one is allowed to smoke on school property.¹⁶ We asked youth at your school about their perceptions of your school's rules on smoking by asking how many youth at their school smoke on school property. The graph to the right shows how youth responded, suggesting there is room for improvement.



Academic Achievement

Research has shown a link between smoking and lower academic achievement in youth, as well as an increased risk of dropping out of school.² We asked youth at your school what grades they usually achieved in the past year. The table to the right shows the self-reported academic standing of your school's youth.

GRADES	PERCENT OF YOUTH RESPONDING	
	CURRENT SMOKERS & TRIERS	NON-SMOKERS
MOSTLY A'S AND B'S	44	74
MOSTLY B'S AND C'S	44	26

PLEASE NOTE: Mostly A's and B's is equivalent to 70% or higher and level 3 or 4; Mostly B's and C's is equivalent to 50-70% and level 2 or 3

Desire for Academic Success

We also asked youth at your school how much they agreed with the following statement: *"Getting good grades is important to me"*. Most schools find that non-smokers are more likely to endorse this statement.

"GETTING GOOD GRADES IS IMPORTANT TO ME"	PERCENT OF YOUTH RESPONDING	
	CURRENT SMOKERS & TRIERS	NON-SMOKERS
STRONGLY AGREE	26	52
AGREE	47	43
DISAGREE / STRONGLY DISAGREE	26	5

Free Online Tool

Canada's Joint Consortium for School Health has a **free online tool** to help schools assess how well their school environment promotes health. After completing an assessment for tobacco use, physical activity and/or healthy eating, an action planning portion of the tool helps you develop a feasible work plan. If you have not already done so as part of the YSS project, visit the tool at www.healthyschoolplanner.uwaterloo.ca.

Emotional Well Being

At your school, youth who report feeling good about themselves are less likely to smoke. The table to the right shows the percentage of youth at your school who reported “true” or “mostly true” to statements regarding their emotional well-being.

EMOTIONAL WELL-BEING	PERCENT OF YOUTH RESPONDING	
	CURRENT SMOKERS & TRIERS	NON-SMOKERS
IN GENERAL, I LIKE THE WAY I AM.	76	79
WHEN I DO SOMETHING, I DO IT WELL.	68	77
I LIKE THE WAY I LOOK.	73	64

Truancy/Absenteeism

Students at your school were asked how many *classes* they skipped when they were not supposed to, in the last four weeks. The table to the right shows the percentage of youth at your school who reported skipping classes by the number of classes skipped.

We also asked youth at your school how many *days* they missed in the last four weeks due to poor health/illness. The results for your school are shown in the last table to the right.

NUMBER OF CLASSES SKIPPED	PERCENT OF YOUTH RESPONDING	
	CURRENT SMOKERS & TRIERS	NON-SMOKERS
1 TO 2	32	24
3 OR MORE	56	13

NUMBER OF DAYS MISSED DUE TO HEALTH	PERCENT OF YOUTH RESPONDING	
	CURRENT SMOKERS & TRIERS	NON-SMOKERS
0 (NONE)	62	60
1 OR MORE	39	40

Your School Can Connect with Youth:

Increasing evidence demonstrates that when youth feel connected to and cared for by people at their school, they are less likely to use substances.¹⁷ Additionally, youth who experience a greater connectedness to their teachers are less likely to start smoking.¹⁸

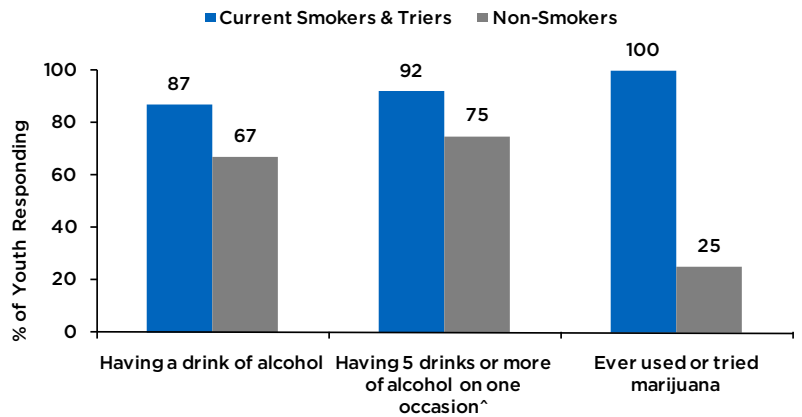
Ways schools can create a sense of school connectedness include:

- Supporting extracurricular activities
- Providing opportunities for student involvement in peer-lead activities, buddy programs, making choices, and taking initiative
- Having a non-judgmental, understanding, and positive classroom atmosphere
- Minimizing pressure, avoiding any coercive tactics, and providing reasons for rules and limits

ALCOHOL AND MARIJUANA USE

Youth in grades 7 and above were asked about alcohol and marijuana use. At your school, 69% of youth reported having a drink of alcohol that was more than just a sip in the last 12 months. Of those who had more than just a sip in the last 12 months, 76% reported having 5 drinks or more of alcohol on one occasion in the last 12 months. In addition, 30% reported having tried marijuana in the last 12 months. **Among youth at your school who have tried smoking, 46% did so while drinking alcohol.** The graph to the right shows the percentage of youth at your school that reported having a drink of alcohol, having 5 or more drinks of alcohol on one or more occasion, and ever using or trying marijuana in the last 12 months.

ALCOHOL AND MARIJUANA USE AT YOUR SCHOOL



^{*}Percent is of those who have had a drink of alcohol that was more than just a sip in the last 12 months

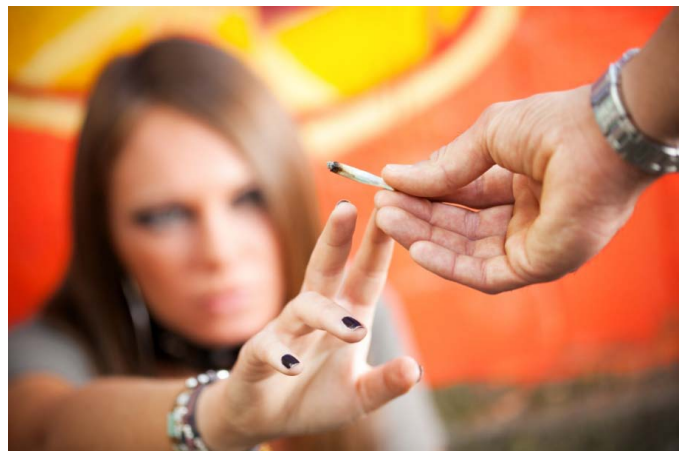
Age of Uptake

It is startling to note how young youth are when they first engage in these risky behaviours. Besides being illegal, youth are making decisions to engage in these behaviours before they are developmentally and fully capable of understanding the consequences. The table to the right shows the average age of grade 12 youth in your province that reported having first tried smoking, drinking alcohol and ever using or trying marijuana.

	AVERAGE AGE (YEARS)
FIRST TRIED SMOKING CIGARETTES	14
HAVING A DRINK OF ALCOHOL THAT WAS MORE THAN JUST A SIP	14
HAVING 5 DRINKS OR MORE DRINKS OF ALCOHOL ON ONE OCCASION	15
EVER USED OR TRIED MARIJUANA	15

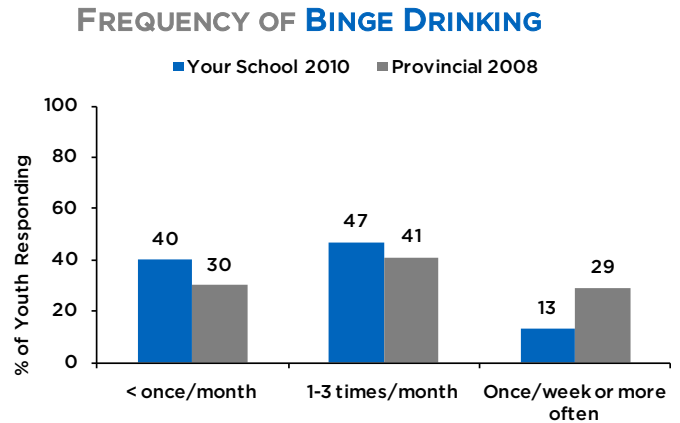
Quick Facts: FROM THE 2008/2009 YSS

Of Canadian youth in grades 7- 12 who have "ever tried" smoking cigarettes, 59% have used marijuana in the last 12 months. Amongst those who have never tried smoking cigarettes, only 9% have used marijuana in the last 12 months. Similarly, youth who have tried smoking are more likely to have had a drink of alcohol in the last 12 months than those who have never smoked (82% vs. 36%).⁶



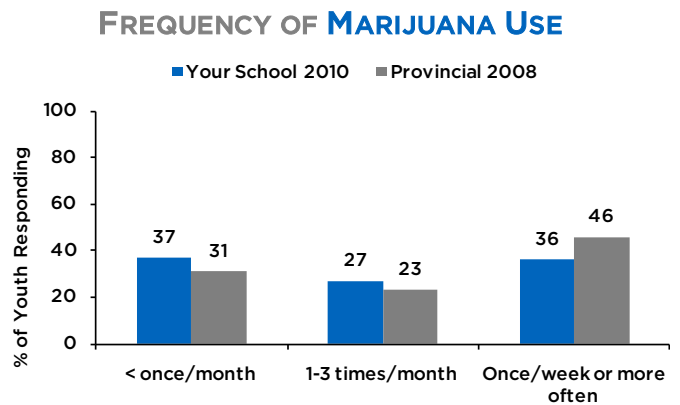
Binge Drinking

Binge drinking can be defined as drinking five or more drinks on a single occasion and it is the most common pattern of consumption among youth who drink alcohol.¹⁹ The graph to the right shows the frequency of youth binge drinking, in the last 12 months, at your school.



Marijuana Use

Youth who reported using marijuana were also asked how often they engaged in this behaviour. The graph to right shows the frequency of marijuana use by youth at your school, in the last 12 months.



Other Substance Use

There are other substance-use concerns beyond tobacco, alcohol, and marijuana. The table to the right shows the percentage of youth at your school who have tried illicit drugs (other than marijuana) and who have used medication for the purpose of getting high in the last 12 months.

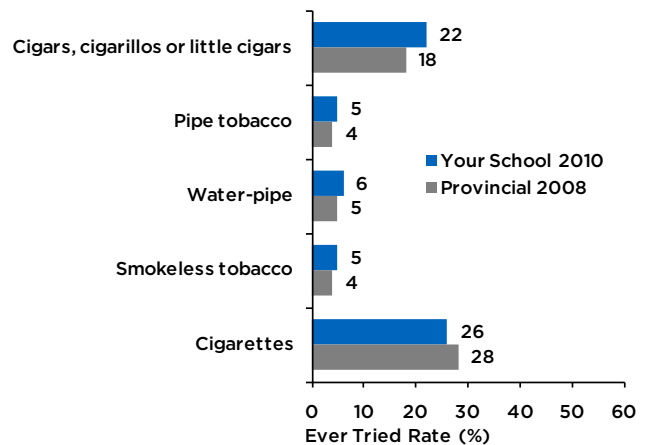
OTHER SUBSTANCES USED TO GET HIGH	% OF YOUTH AT YOUR SCHOOL	% OF PROVINCIAL YOUTH
ILLICIT DRUGS USED TO GET HIGH (EXCLUDING MARIJUANA)	4	8
PRESCRIPTION AND OVER-THE-COUNTER DRUGS USED TO GET HIGH	10	6

BEYOND CIGARETTES: EMERGING ISSUES

Youth use tobacco products other than cigarettes, including **cigars, cigarillos, little cigars, water-pipes, pipe tobacco, smokeless tobacco** (i.e., chewing tobacco) and **flavoured tobacco**. The growing popularity of these products is especially concerning because **youth commonly misconceive alternate forms of tobacco as not being as bad for them as cigarettes. Research shows that these alternative forms of tobacco may be worse in some cases²⁰⁻²¹.** At your school, 17% of youth indicated that they had used flavoured tobacco products (e.g., menthol, cherry, strawberry, vanilla flavoured, etc.).

Results from the 2008/2009 YSS show that 24% of Canadian youth in grades 6 to 12 (8% in grades 6 to 8; 36% in grades 9 to 12) reported having “ever tried” smoking cigars, cigarillos, or little cigars, flavoured or unflavoured. Though not as high as the “ever tried” rates for smoking cigarettes (33%) (17% in grades 6 to 8; 45% in grades 9 to 12, this proportion is high enough to warrant increased monitoring and action⁶. The graph to the right provides the percentage of youth at your school who reported ever trying various tobacco products, including cigarettes.

ALTERNATE FORMS OF TOBACCO USE COMPARED TO CIGARETTES



[^]Results from the 2006/2007 YSS.

Quick Facts:

- Health Canada reports that the sale of cigarillos has grown since 2001, (when about 53 million cigarillos were sold), to more than 403 million sold in 2007.²²
- Youth under age 20 are 3.4 times more likely to use cigarillos compared to those over the age of 25. This is different than cigarettes, where youth use is no higher than the general population, and is lower than in young adults.²²



PHYSICAL ACTIVITY

Healthy Body Weight

One way of determining healthy body weight is by using the body mass index (BMI), which is a calculation that compares a person's weight to their height. BMI results indicate whether a person is under, over or within a healthy body weight range.²⁴

$$\text{BMI} = \text{weight (kg)} / \text{height(m)}^2$$

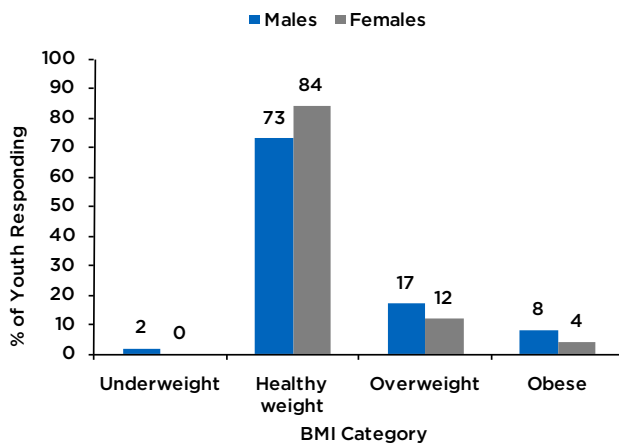
Based on BMI calculations, the graph below and to the left shows the percentage of male and female youth who are underweight, of a healthy weight, overweight or obese for their age, height and gender.

The majority (just under 70%) of Canadian children and youth have a BMI that shows they are a healthy weight for their height. About 4% are underweight and 26% fall into the overweight/obese categories.²⁴ Being overweight

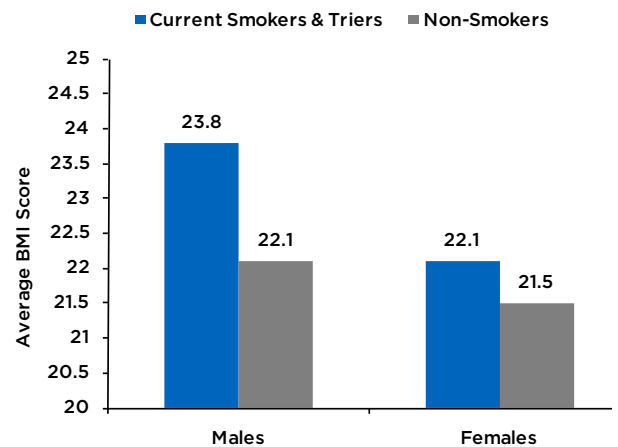
during childhood can lead to increased illness and risk of chronic diseases such as heart disease, cancer and type-2 diabetes.²⁵ Overweight and obese youth are often stigmatized by peers and adults.²⁶ These youth may experience psychological stress, and have a poor body image, as well as poor self-esteem.²⁷ Obesity in youth has also been linked to poorer academic performance.²⁸

Research has shown that youth with higher BMIs, or those who fall in the overweight or obese categories, tend to be more likely to smoke cigarettes.²⁹ This relationship tends to occur especially in young females who may be using smoking as a method of weight loss or control. The graph below to the right shows the relationship between BMI and smoking status for males and females at your school. Smokers have higher BMIs than non-smokers.

BMI AT YOUR SCHOOL



BMI AND SMOKING AT YOUR SCHOOL



PLEASE NOTE: When reviewing these results, please be aware that self-report of body weight tends to be an underestimate of actual weight.

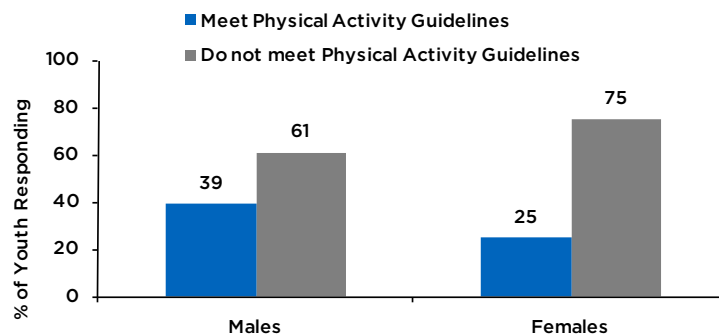
Meeting Canada's Physical Activity Guidelines

Research shows that physical activity can increase children and youth's social skills, self-esteem and school performance and decrease depression and anxiety.³² In addition, physical activity strengthens the heart, bones and muscles, improves fitness and helps youth achieve a healthy body weight.³³ Canada's Physical Activity Guide recommends that children and youth should be physically active for 60 minutes per day and should reduce the amount of time spent on sedentary activities such as watching TV and playing video games.³¹

Research shows that Canadian children and youth are *not* currently meeting these guidelines.

Youth at your school were asked how many minutes of hard physical activity they engaged in on a daily basis over the previous week. Hard physical activity includes activities that make you breathe hard and sweat. The graph below shows the percentage of youth at your school who meet Canada's Physical Activity Guidelines.

YOUTH AT YOUR SCHOOL MEETING PHYSICAL ACTIVITY GUIDELINES



Quick Facts:

Since 1981, the prevalence of overweight boys increased from 15% in 1981 to 35% in 1996, and among girls from 15% to 29%. During the same time frame, the prevalence of obesity in children tripled, from 5% to 16% for boys and from 5% to 14% for girls.³¹

Your School Can be more active...

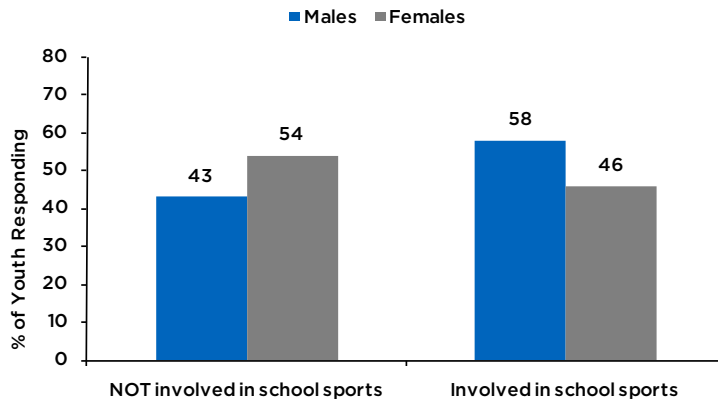
Health Canada Recommends:

- Posting Canada's Physical Activity Guidelines and Food Guide in cafeterias and other youth gathering locations
- Setting class or school goals for physical fitness
- Providing and maintaining facilities to encourage physical activity (bike-friendly areas, skateboard parks, etc.)
- Incorporating a 10-minute activity time into the morning schedule

Intramural Sports

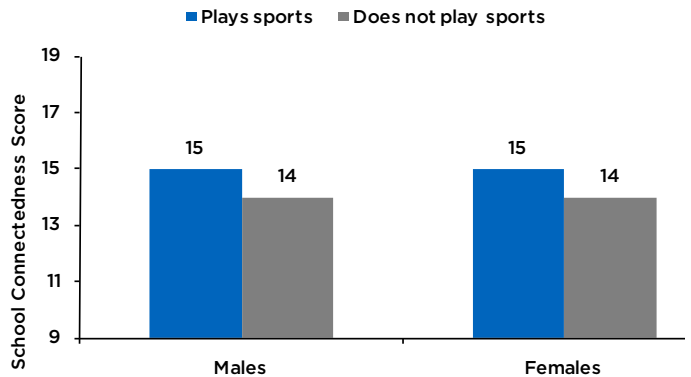
One way that youth can increase their level of physical activity is through sports programs that are offered at school. **Those who play intramural sports tend to spend more time being physically active, spend less time engaging in sedentary behaviours, have healthier body weight, engage in healthier lifestyle choices, and avoid unhealthy ones.**³⁵⁻³⁶ The graph to the right shows the percentage of youth at your school that participate in intramural or school team sports.

YOUTH INVOLVEMENT IN INTRAMURAL SPORTS



Research shows that youth who participate in extracurricular school activities, especially intramural sports, tend to have greater levels of school connectedness.³⁵ Intramural sports help youth build relationships with others in their school environment and increase feelings of acceptance, value, and belongingness at school.³⁵ The graph to the right shows that youth at your school who participate in intramural sports tend to have a greater sense of connectedness to their school, especially for males. **See page 6 for more information on school connectedness.**

SPORTS & SCHOOL CONNECTEDNESS SCORE



Your School Can make a difference:

Help students get more involved in intramural sports at school by:

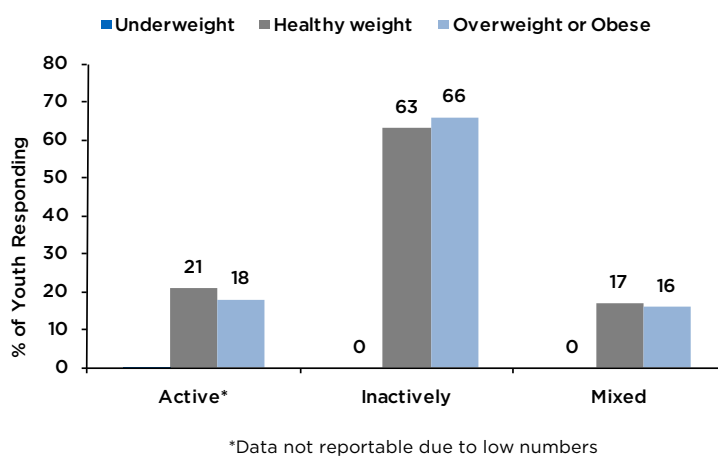
- Providing opportunities for extracurricular physical activities before and after school
- Organizing a physical activity challenge/competition between youth, teachers and parents
- Providing reminders (announcements, bulletin boards, etc.) about activities and programs to increase student awareness of available facilities

Commuting to School

Active commuting to school is one way for children and youth to increase their daily level of physical activity and can include walking, biking, skateboarding, in-line skating, skiing, wheel chairing, etc. to school. Fifty-one per cent of Canadian children aged 5 to 17 rely on inactive modes of transportation to get to and from school.³¹

Research has shown that youth who actively commute to school tend to be more physically active overall, have greater cardio-respiratory fitness and have lower average BMIs.³⁷⁻³⁸ We asked youth at your school if they usually get to school actively (e.g. walk, bike, skateboard), inactively (e.g., car, bus, public transit) or mixed (actively and inactively). Typically youth who are of a healthy weight commute actively or using mixed methods to school. The graph to the right shows your schools results.

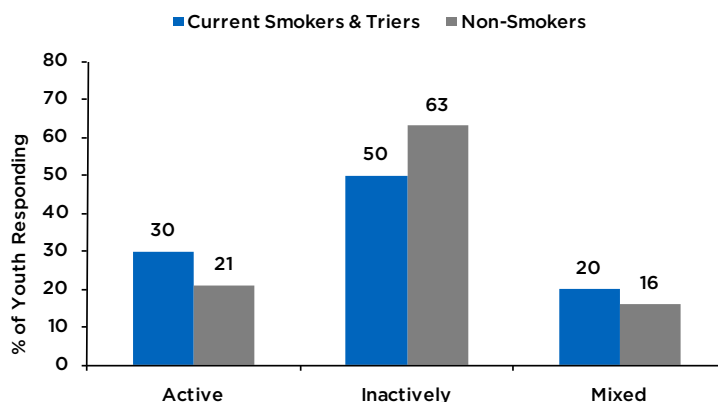
COMMUTING TO SCHOOL AND BMI



Commuting and Tobacco Use

Youth who are smokers tend to be less physically active than non-smokers.³⁹ Research has shown that smokers are less likely than non-smokers to actively commute to school. The graph to the right shows that current smokers/tryers at your schools are less likely to commute actively in comparison to non-smokers.

COMMUTING TO SCHOOL AND SMOKING STATUS



Your School Can encourage active commuting

Remind students that active transportation can help them achieve their daily physical activity requirements, and is also environmentally friendly. Schools can encourage active transportation by providing a safe bike lock area for students and providing secure areas where students can leave equipment. **Active & Safe Routes to School** (www.saferoutestoschool.ca) is a national program that encourages students to use active modes of transportation to and from school.

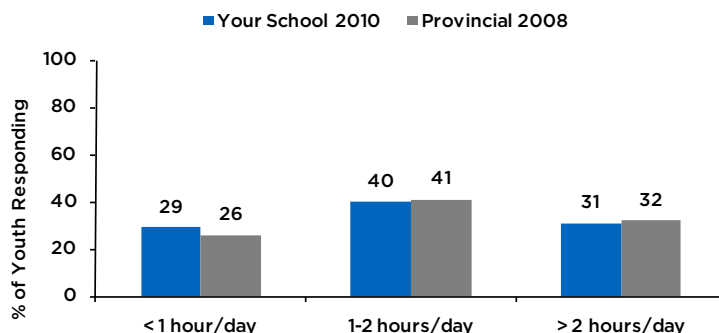
Screen Time, Reading Time and Tobacco Use

Sedentary behaviours such as watching television tend to be counterproductive to physical activity. Additionally, watching a lot of TV has been linked to higher rates of smoking uptake in youth.⁴⁰ TV is incompatible with healthier, more active choices for leisure time activities. At your school, 32% of males compared to 31% of females exceeded the two hour maximum recommended guidelines. The graph to the right shows the amount of time youth at your school reported watching TV as compared to youth in your province.

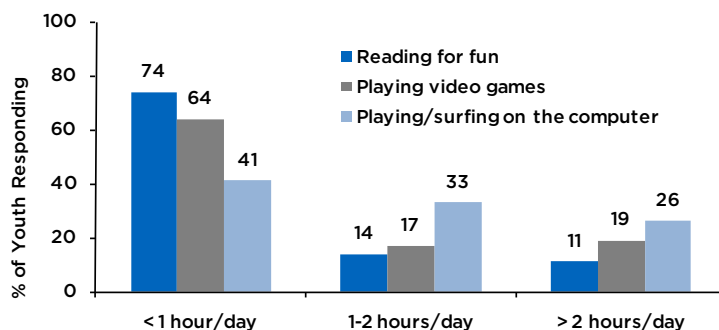
Besides the number of hours watching TV, youth are engaged in playing video games and playing/surfing on the computer in their leisure time. We asked youth about the amount of time they spend engaged in these activities as well as time spent reading for fun (not for school). The graph to the right shows the average number of hours per day youth at your school reported doing these activities.

In general, screen time tends to be higher among males when compared to females and playing video games appears to be responsible for this difference.⁴¹ At your school, 78% of males and 38% of females reported playing video games or surfing on the computer for more than 2 hours a day.

HOURS SPENT PER DAY WATCHING TV/VIDEOS



HOURS SPENT READING, PLAYING VIDEO GAMES & PLAYING/SURFING ON THE COMPUTER



Quick Facts:

Canada's Report Card on Physical Activity for Children and Youth recommends restricting television (TV) or leisure-related screen time to no more than two hours per day.⁴¹ Children with higher screen time tend to be obese, have low fitness levels, and lower levels of self-efficacy for physical activity.⁴¹

HEALTHY EATING

Sufficient daily **consumption of fruit and vegetables** in childhood and adolescence is associated with:⁴¹⁻⁴⁶

- Healthy body weight
- Prevention of certain types of cancer
- Continued healthy eating patterns in adulthood
- Reduced risk for cardiovascular disease
- Improved growth and development during a time when nutrient needs are especially high

Canada's Food Guide recommends 6-8 servings of fruits and vegetables per day for children aged 9-18 years.⁴² The graph below and to the right shows the percentage of youth at your school who meet the Canada's Food Guide recommendations for fruit and vegetable consumption for a usual day.

Eating a **regular and healthy breakfast** in childhood and adolescence is associated with:⁴⁷⁻⁴⁸

- Healthy body weight and decreased obesity
- Improved academic performance
- Better memory functioning
- Increased school attendance

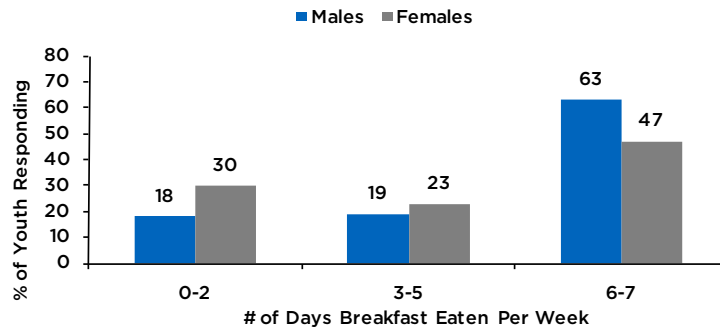
Regular consumption of breakfast is related to better overall nutrition.⁴⁷ Breakfast has a direct effect on academic performance, but youth tend to stop eating it as they transition from childhood to adolescence.⁴⁹ Youth were asked how many times they ate breakfast within the last 7 days. The graph to the right shows that only 47% of females and 63% of males eat breakfast on a daily basis. Most youth eat breakfast 3 to 5 days in a week, but 30% of females and 18% of males reported only eating breakfast 0-2 days in the previous week.

Your School Can make a difference:

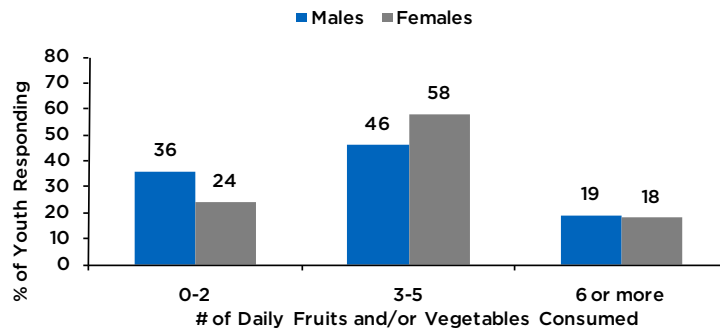
Currently, schools in Canada are involved in promoting healthy eating through activities such as:

- Replace "pizza day" or class pizza parties with healthy alternatives
- Remove the sale of junk food and soda at the school
- Provide school nourishment programs (SNPs)
- Host student forums to discuss healthy eating
- Invite chefs to teach about healthy cooking
- Promote a fruit or vegetable of the month
- Partner with local food producers to help youth learn about locally-grown foods.

BREAKFAST CONSUMPTION AT YOUR SCHOOL



FRUIT & VEGETABLE CONSUMPTION AT YOUR SCHOOL



Healthy Eating and Academics

A healthy diet is important for school performance. Research shows that youth who eat an adequate amount of fruit, vegetables, protein, fibre and other beneficial dietary components, and those who eat breakfast daily perform better in school than those who do not follow these guidelines.⁵⁰ The tables

below show the self-reported academic standing of youth at your school and how many servings of fruit and vegetables they consume per day as well as how many days per week they eat breakfast. Youth who have a less healthy diet report lower grades.

Grades	# of days breakfast is eaten per week		
	0-2 days	3-5 days	6-7 days
Mostly A's and B's	68	61	78
Mostly B's and C's	28	39	21
Lower than C's	4	0	0

Grades	# of daily servings of fruits & vegetables consumed		
	0-2 days	3-5 days	6-8 or more
Mostly A's and B's	62	76	78
Mostly B's and C's	35	24	20
Lower than C's	3	0	1

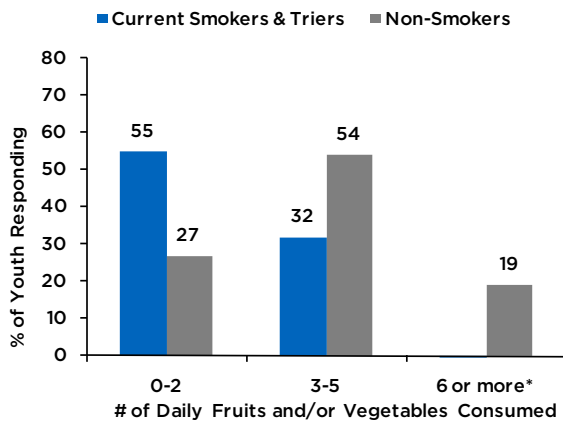
PLEASE NOTE: Mostly A's and B's is equivalent to 70% or higher and level 3 or 4; Mostly B's and C's is equivalent to 50-70% and level 2 or 3; and Lower than C's is equivalent to <50% and level 1.

Healthy Eating and Smoking

In adolescence, health risk behaviours tend to be clustered. Unhealthy eating tends to be associated with other unhealthy choices including smoking and binge drinking.^{8,19} Compared to non-smokers, youth smokers tend to consume fewer fruits and vegetables and more snack foods and soft drinks.⁵¹ Additionally, youth smokers are less likely to eat breakfast on a daily basis than non-smokers.⁵¹⁻⁵²

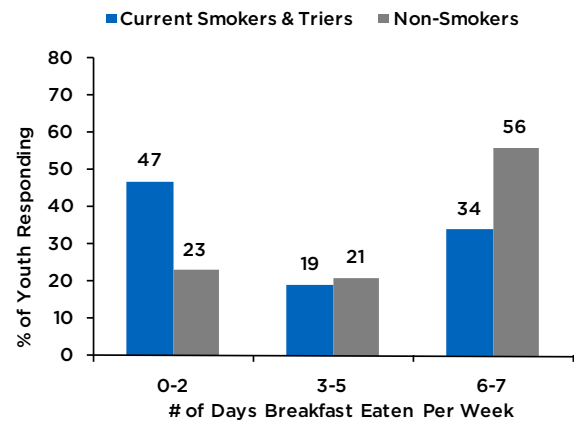
The first graph below to the left shows that 19% of non-smokers consume the recommended amount of daily fruit and vegetables servings versus only few smokers. The second graph below to the right shows that 23% of smokers, in comparison to 47% of non-smokers, report eating breakfast as little as 0-2 days per week.

FRUIT/VEGETABLE CONSUMPTION AND SMOKING



*Data not reportable due to low numbers

BREAKFAST CONSUMPTION AND SMOKING



RECOMMENDATION & RESOURCE SUMMARY

Schools are not alone in having interest and responsibility in the health and well-being of students. In fact, health-promoting schools' frameworks suggest community connections (with parents, public health agencies, voluntary agencies, etc.) are critical to the success of schools to impact youth. **Ensuring local partners are aware of your interest in the health and well-being of students, and the information you have (such as this Profile) will help guide the planning of positive changes in your community.**

For information about your local Public Health Units, visit <https://www.publichealthontario.ca>.

STUDENT SUSCEPTIBILITY TO SMOKING

Even when smoking rates are low, schools need to focus on preventing youth from becoming susceptible to and experimenting with smoking to reduce their risk of becoming addicted. In addition, established smokers need to be encouraged to quit to reduce the risk of serious long-term health problems. Schools can ensure there are consequences for smoking on school property, redesign smoking areas for more positive activities, and involve students in writing letters to local merchants reminding them that it is illegal to sell tobacco to minors.

For more information about tobacco control in Canada, visit:
<http://www.hc-sc.gc.ca/hc-ps/tobac-tabac/index-eng.php>

For more information about alternate tobacco product legislation in Ontario, visit:
<http://www.mhp.gov.on.ca/en/smoke-free/factsheets/FAQ-Cigarillos-June2010.pdf>

PEER AND FAMILY INFLUENCE

Schools can help students develop skills for resisting social pressures to smoke and provide an environment where smoking is not acceptable. Programs need to teach youth refusal skills and media literacy skills to educate them on how they are targeted by tobacco companies. Schools can also ensure designated smoking areas are not visible to other youth and are situated in an inconvenient location. Finally, schools need to provide parents with tips to keep a smoke-free environment to prevent their children from being exposed to second-hand smoke.

For more information about established programs to help children and youth quit smoking, visit:

- Kick the Nic: http://www.aadac.com/87_486.asp
- Teaming up for Tobacco-Free KIDS: <http://www.tobaccostinks.com/home.html>
- The Lung Association- Lungs are for Life: <http://www.lungsareforlife.ca/>
- ACT school resources: <http://www.actnl.com/index2.php#loadPage=00034>

THE SCHOOL ENVIRONMENT

Youth are less likely to start smoking and engage in other risky behaviours when they feel connected to and cared for by their school and those at their school. To create a sense of school connectedness, schools can support extracurricular activities, provide opportunities for student involvement in activities, promote a non-judgmental and understanding classroom atmosphere, and minimize pressure by avoiding coercive tactics.

For more information about the Joint Consortium for School Health visit: <http://eng.jcsh-cces.ca/>

To complete the **free online tool** to help assess how well your school environment promotes health, visit:
www.healthyschoolplanner.uwaterloo.ca

PHYSICAL ACTIVITY

Schools can promote active living by posting *Canada's Physical Activity Guidelines and Food Guide* in cafeterias and other youth gathering locations, setting class or school goals for physical fitness, providing and maintaining facilities to encourage physical activity, and incorporating a daily activity time into the class schedule. Schools can also provide opportunities for extracurricular physical activities before and after school and remind students about activities and programs to increase student awareness and participation. Finally, schools can encourage students to use active methods to get to and from school to help them achieve daily physical activity goals.

For information about Canada's Physical Activity Guides for Children and Youth visit:
<http://www.phac-aspc.gc.ca/hp-ps/hl-mvs/pag-gap/index-eng.php>

For more information about established programs to help encourage children and youth to use active modes of transportation, visit:

- Active and Safe Routes to School: www.saferoutestoschool.ca

HEALTHY EATING

Schools can promote healthy eating through various activities, including providing healthy alternatives to unhealthy food rewards such as class pizza parties, removing vending machines that sell junk food, providing school nourishment programs such as breakfast or snack programs, encouraging student participation in discussions about healthy eating, and partnering with local food producers to help youth learn about locally-grown foods.

For more information about Canada's Food Guide visit:
<http://www.hc-sc.gc.ca/fn-an/food-guide-aliment/index-eng.php>

For more information about national breakfast programs, visit:

- Breakfast for Learning: <http://www.breakfastforlearning.ca>
- Breakfast Clubs of Canada: <http://www.breakfastclubscanada.org>

For more information about Ontario School Nourishment Programs, visit: <http://www.osnp.ca>

For more information about a school food policy that has worked in the province of Ontario visit:
<http://www.edu.gov.on.ca/eng/teachers/healthyschools.html>

To access an electronic copy of this Profile and Teacher, Parent and School Summaries contact the project contact person at your school () or follow these steps:

1. Visit: www.yss.uwaterloo.ca
2. School Login:
Username:
Password:

THANK YOU AGAIN FOR PARTICIPATING IN THE 2010/2011 YOUTH SMOKING SURVEY.

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SUMMARY FOR PARENTS

YSS SUMMARY FOR PARENTS AT YOUR SCHOOL

The Health Canada-sponsored **YSS** collects tobacco use and other health- and education-related data from youth in grades 6 through 12 in participating schools throughout Canada. Below we summarize some of the data collected from youth at your school, and offer some ideas for how your school can make a difference. For more information and resources on the Youth Smoking Survey, please see: www.yss.uwaterloo.ca/resources.

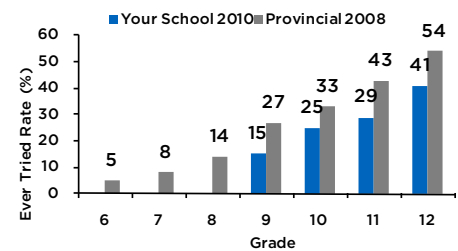
26%

of youth at your child's school have ever tried smoking a cigarette.

You can help:

- **Listen** to what your child has to say about smoking.
- **Ask your child directly** about the pressures to smoke he or she faces at school and from friends.
- **Talk about why smoking sucks.** Focus on what catches their attention: bad breath, yellow teeth, early wrinkles, cost.
- **If you smoke, quit or at least let them know you want to quit.** Children who observe their parents smoking are more likely to smoke themselves.

% of Youth Who Have Ever Tried Smoking



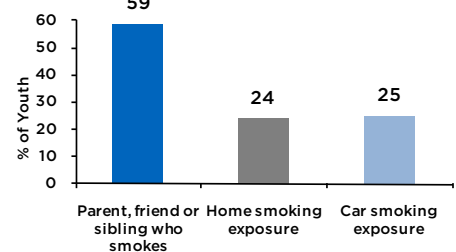
37%

of youth at your child's school have been recently exposed to smoke in vehicles or at home.

You can help:

- Teach your family how **second-hand smoke can hurt them**, especially children and youth.
- **Work as a family** to plan and make a smoke-free home and vehicle.
- **Pay attention** to your child's choice of friends including whether the friends or their parents smoke.
- **If smokers visit**, set up an area outside your home for smokers to use.

Exposure to Smoking



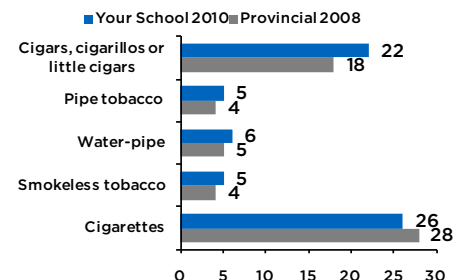
22%

of youth at your child's school have tried smoking cigars, cigarillos or little cigars.

You can help:

- Teach your child that **alternate forms of tobacco use may be just as harmful**, if not more, than cigarettes.
- **Teach media literacy skills** to inform your children how they are targeted by tobacco companies.
- **Emphasize the addictive qualities** of alternate forms of tobacco.

Alternate Forms of Tobacco Use

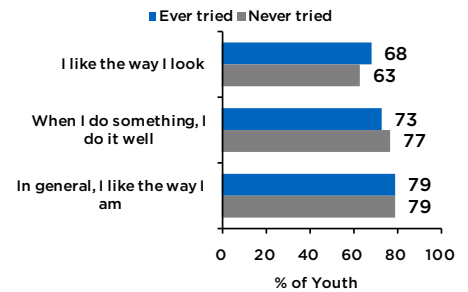


14%

of youth at your child's school do not like the way they look, and this is especially true for youth who have tried smoking.

You can help:

- Create an **encouraging home environment**. Ensure your child receives positive messages about their body and who they are.
- Encourage your child to **exercise for fun and fitness** rather than weight loss.
- Teach your children **media literacy skills** for dealing with unrealistic body images and lifestyles.
- Focus on the positive aspects of your children's lives so that their **self-esteem is based on abilities and positive qualities** rather than appearance.

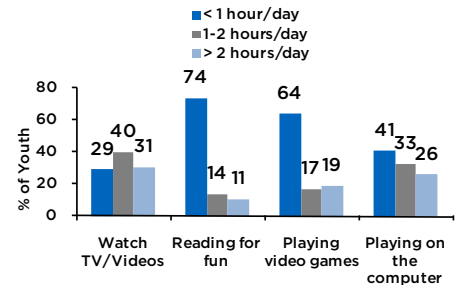
Emotional Well-Being

31%

of youth at your child's school spend over 2 hours/day watching TV or videos.

You can help:

- **Work as a family** to monitor and gradually decrease screen time while increasing physical activity.
- **Place daily time limits** on media use, such as 2 hours per day maximum.
- **Set a positive example:** role model appropriate time for media usage; get active with your child.
- Consider **removing televisions, computers and video game devices** from your child's bedroom.
- Participate in events such as **television-free weeks**.

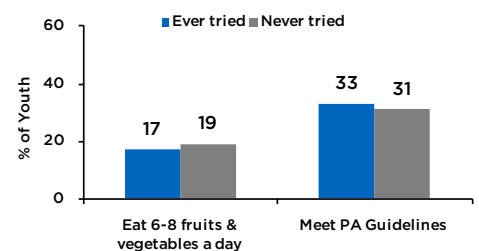
Leisure Time Activities

81%

of youth at your child's school do not eat the recommended daily amount of fruits & vegetables.

You can help:

- **Purchase local fruits and vegetables** when they are in season, and freeze extras for later.
- **Skip the cookies and baked goods**, chips and other salty snack foods, soft drinks and other high calorie beverages. They can often cost a lot and are low in nutrients.
- Encourage your child to **actively commute to school** (for example, walking or biking) and participate in **extracurricular sports**.

Smoking, Healthy Eating and Physical Activity



SUMMARY FOR SCHOOLS

YSS SUMMARY FOR YOUR SCHOOL

The Health Canada-sponsored **YSS** collects tobacco use and other health- and education-related data from youth in grades 6 through 12 in participating schools throughout Canada. Below we summarize some of the data collected from youth at your school, and offer some ideas for how your school can make a difference. For more information and resources on the Youth Smoking Survey, please see: www.yss.uwaterloo.ca/resources.

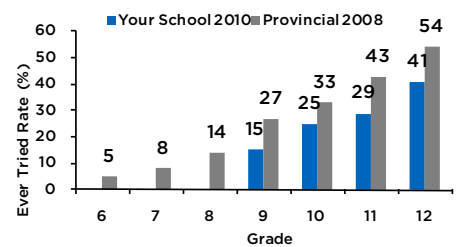
26%

of youth at your school have ever tried smoking a cigarette.

Your School can help:

- Educate youth about the short and long-term **negative health and social effects of smoking**.
- **Include youth who don't smoke** in tobacco prevention efforts because they can learn ways to positively impact their peers and will be less susceptible to smoking in the future.
- Involve **youth in writing letters** to local merchants reminding them that it is illegal to sell tobacco to minors and offering to work to find solutions.

% of Youth Who Have Ever Tried Smoking



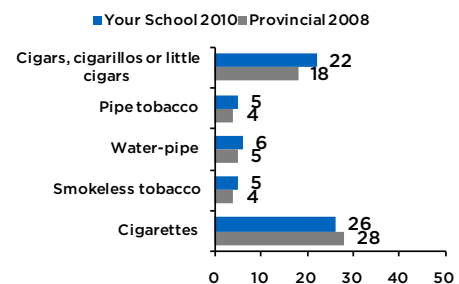
22%

of youth at your school have tried smoking cigars, cigarillos or little cigars.

Your School can help:

- **Note that** tobacco use isn't "solved" – it is still the leading cause of death in Canada. New forms of use are replacing cigarettes.
- Teach youth that **alternate forms of tobacco are just as harmful**, if not more, than regular cigarettes.
- Help them understand the **pressures to use** and that even "trying" has immediate effects & can lead to regular use.
- **Teach media literacy skills** to inform youth how they are targeted by tobacco companies.
- **Emphasize the addictive qualities** of alternate forms of tobacco.

Alternate Forms of Tobacco Use



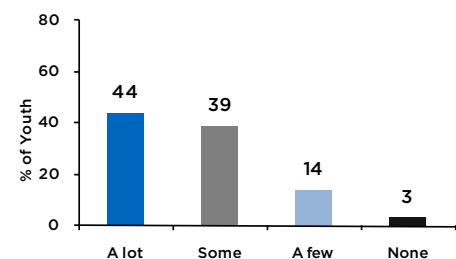
97%

of youth at your school believe smoking occurs on school property.

Your School can help:

- **Post no-smoking signs** around school property.
- **Enforce the non-smoking ban.** Ensure awareness and application of appropriate consequences. Partner with public health to enforce.
- **Teach and emphasize the reasons behind the law;** for example, the negative health effects of smoking and the bad example it sets for younger youth.

How Many Youth at Your School Smoke on School Property?





SUMMARY FOR SCHOOLS

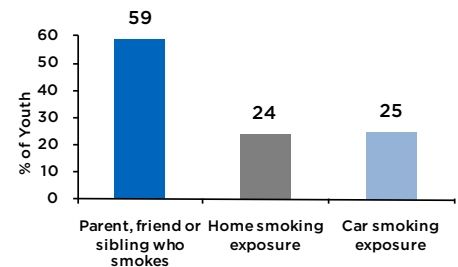
41%

of youth at your school have a friend, sibling, or best friend who smokes.

Your School can help:

- **Teach youth refusal** skills for dealing with peer pressure.
- **Place designated smoking areas** in inconvenient, less visible locations for youth to access.
- **Include information in school newsletters** to parents with tips about keeping a smoke-free home and vehicle.

Exposure to Smoking



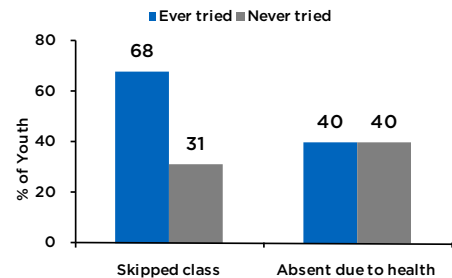
41%

of youth at your school have skipped at least 1 class in a 1-month period.

Your School can help:

- **Support youth in quitting smoking** or staying smoke free because more smokers miss school.
- **Increase school connectedness** by supporting stronger relationships between teachers and youth.
- Encourage participation in **extracurricular activities from all youth (reduce the inequities).**
- Address **bullying** in the school environment.

Smoking and Truancy/Absenteeism



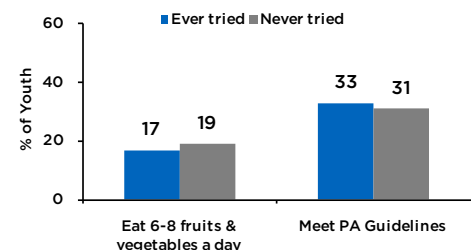
81%

of youth at your school do not eat the recommended daily amount of fruits & vegetables.

Your School can help:

- **Partner** with public health, youth and parents to develop school rules around food and beverage.
- **Replace "pizza day"** or class pizza parties with healthy alternatives.
- **Remove the sale of junk food** and pop at the school
- **Invite chefs to teach** about healthy cooking.
- **Promote a fruit or vegetable** of the month.
- **Partner with local food producers** to help youth learn about locally-grown foods.

Smoking, Healthy Eating and Physical Activity



Appendix B – School Board Information Package

School Board Information Letter

Dear [insert name of superintendent or Committee Chair]:

We would like to invite [board name] to participate in a study that will be conducted with schools that participated in the Youth Smoking Survey that was conducted across Canada in the 2010-2011 school year.

Project Details

The Youth Smoking Survey consists of a survey of students in **Grades 6 through 12** (with parental permission). In addition, a school staff member(s) completed a survey of school policies and programs for tobacco control.

Participating schools were then provided with a tailored feedback report (School Profile) outlining smoking rates in their school, comparisons with provincial and national rates, specifics of smoking and other health behaviour, smoking cessation, perceptions of peer smoking, and environmental tobacco smoke. For this current project schools in your board that received their Profile will be contacted and a school staff member interviewed regarding the effectiveness of the Profile and how it can be improved for future use.

This research is being conducted by Patricia Rios, a Master's student, at the University of Waterloo with the support of her faculty supervisor Scott Leatherdale, a principal investigator in the Youth Smoking Survey and other SHAPES projects.

Sampled Schools

We are seeking your permission to approach the following **selected** schools in (insert board name) area:

- [sch_name]
- [sch_name]

Overview of the SHAPES Research Group

We share educators' concerns that the initiation and consolidation of smoking as a regular habit occurs largely during the senior elementary and high school years. We have collected data from elementary and high schools on topics such as smoking, healthy eating, physical activity and mental fitness in 2,000 schools across Canada with over 350,000 students participating using the SHAPES System. We have a reputation for conducting high quality research in real world settings in a way that minimizes impact on schools' personnel and students and provides value in the form of a tailored feedback report. We encourage participating schools to share their feedback report with their **[insert school board name]** and local public health unit to assist in targeting, planning and evaluation of efforts with youth, and to facilitate teamwork between schools, boards and public health departments. (Please refer to the website shapes.uwaterloo.ca for more information about SHAPES projects).

Additional Materials

Included in this package are:

- the recruitment e-mail for individual schools,
- a copy of Information Letter for individual schools, and

- a copy of the Interview Guide to be used with school staff

Ethics Details

This research has been reviewed and ethics clearance has been granted from the Office of Research Ethics at the University of Waterloo. If you have any comments or concerns resulting from your board's participation in this project, please contact Dr. Susan Sykes, Director of Research Ethics at the University of Waterloo, at (519) 888-4567 ext. 36005 or ssykes@uwaterloo.ca.

Next Steps Checklist

- ✓ Review the additional materials
- ✓ Complete the enclosed *Board Response Fax-Back Form* and fax to 519-746-6776 OR contact the Investigator listed below for more information
- ✓ Visit the project website at www.shapes.uwaterloo.ca for further project details

We would like an opportunity to speak with you to discuss our project. The student investigator, Patricia Rios, will call you within **two** weeks to determine your interest. We look forward to collaborating with you on this exciting project.

Sincerely,

Patricia Rios
Student Investigator
Phone: (519) 888-4567 ext. 36768
Email: prios@uwaterloo.ca

School Board Approval Form

To:
From:
Fax:
Pages: 1

Re: Developing a more effective school-level feedback report based on the needs of school stakeholders: Improving the SHAPES knowledge exchange tool

Date:

I have reviewed the research application/package and our decision is as follows:

_____ yes, we would like to participate in the project and we give project members permission to contact the selected schools

_____ No, we are not interested in participating in the project at this time. We decline to participate in the project for the following reasons:

Sincerely,

Name: _____ Signature: _____
Phone: _____ Email: _____

Appendix C – School Recruitment E-mail

Subject: Youth Smoking Survey Interview Request

Dear *[insert contact name]*,

I am a second year Master's student in the Department of Public Health and Health Systems at the University of Waterloo conducting research under the supervision of Dr. Scott Leatherdale, an investigator with the Youth Smoking Survey (YSS). Your school participated in the 2010-11 YSS and you were listed as the school contact for the project. The YSS consists of survey of students in grades 6 through 12 and a survey of school staff member(s). Participating schools then received a tailored feedback report (School Profile) outlining smoking rates and other health behaviours in their school. My focus is on evaluating your opinion of the School Profiles used in the YSS so that the Profile can continue to be improved to better serve the needs of schools and their communities. I am inviting you to participate in a brief telephone interview (15-20 mins) scheduled at your convenience to collect feedback on the School Profile and how information is shared with schools participating in the YSS. The approval of your school board has been obtained prior to contacting you for this project.

You will shortly receive an in-depth information letter describing the details of the project as well as how you can participate. Your feedback will help us to ensure the School Profile is meeting the needs of schools across the country. This project received ethics clearance through the University of Waterloo, Office of Research Ethics (519-888-4567 ext. 36005).

Sincerely,

Patricia Rios
Student Investigator
University of Waterloo

Appendix D – School Information Letter

[School name]

[School address]

Dear [Contact name],

I am a second year Master's student in the School of Public Health and Health Systems at the University of Waterloo conducting research under the supervision of Dr. Scott Leatherdale, an investigator with the Youth Smoking Survey (YSS). Your school participated in the 2010-11 YSS and you were listed as the school contact for the project. The YSS project included a survey of students in grades 6 through 12 and a survey of school staff member(s). Participating schools then received a tailored feedback report (School Profile) outlining smoking rates and other health behaviours in their school. My focus is on evaluating your opinion of the School Profiles used in the YSS so that the Profile can continue to be improved to better serve the needs of schools and their communities. As your school participated in the 2010-11 round of the YSS and has received and downloaded a School Profile, your views and opinions are important to this study. The approval of your school board has been obtained prior to contacting you for this project.

I am inviting you to participate in a brief telephone interview (15-20 mins) scheduled at your convenience to collect feedback on the School Profile and how information is shared with schools participating in the YSS. The interview will focus on your opinions of the School Profile and how your school and community have used the Profile. The interview will be conducted over the phone. At the time of the interview you will need to have access to a computer with an internet connection for the duration. The interview will be audio recorded (with your permission) and you may decline to answer questions or withdraw from participation at any time throughout. With your permission, anonymous quotations may be used in publications produced from this work. A reminder email will be sent in a week encouraging you to participate in an interview.

As a thank you for agreeing to participate a Tim Horton's gift card has been enclosed with this letter. If you wish to participate please contact Patricia Rios at (519) 888-4567 ext. 36786 or at prios@uwaterloo.ca to schedule an interview at your earliest convenience. Participation is voluntary and will be kept confidential, and any reports that summarize the results will not identify you or your school. Data will be securely stored for 7 years and then confidentially destroyed.

This study has been reviewed and received ethics clearance through the Office of Research Ethics at the University of Waterloo. However, the final decision about participation is yours. If you have any comments or concerns resulting from your participation in this study, please contact the Director of this office at (519) 888-4567 ext. 36005.

Thank you again for your participation in the 2010-2011 YSS. The involvement of schools across the county was instrumental in the success of the project. If you have any questions about your School Profile or the interview, please contact Patricia Rios at (519) 888-4567 ext. 36786 or prios@uwaterloo.ca.

Sincerely,

Patricia Rios
Student Investigator
University of Waterloo

Appendix E – School Follow-up E-mail

[email sent to school contact 2-weeks after letter was mailed to the schools]

Subject: Youth Smoking Survey Interview Request Follow-up

Dear *[insert contact name]*,

Recently we sent you an information letter requesting your participation in a 15-20 minute interview. If you have not already contacted the researcher to inform them of your participation status or schedule an interview, please take a few minutes to do so today. Your feedback will help us to ensure the School Profile is meeting the needs of schools across the country.

If you would like to schedule an interview or if you have any questions or concerns about your participation, please contact Patricia Rios at 519-888-4567 ext. 36786 or email prios@uwaterloo.ca. This project received ethics clearance through the University of Waterloo, Office of Research Ethics (519-888-4567 ext. 36005).

Sincerely,

Patricia Rios
Student Investigator
University of Waterloo

YSS Interview

Question 1					
Our Smoking Profile is a valuable resource for our school	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
	1	2	3	4	5

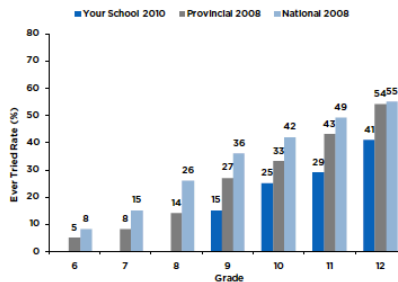
Question 3					
Have you shared or do you intend to share the School Profile with any of the following groups:	School Board	School Administrators	Teachers	Parents	Community Agencies

SMOKING AT

Our findings show that at your school, 5% of youth (6% males and 4% females) reported being a current smoker. Overall, 26% of youths surveyed (26% males and 26% females) reported having ever tried a cigarette, even a few puffs. Fewer youth (15%) (16% males and 14% females) reported having smoked a whole cigarette. We need to be concerned about all these groups, since youth are susceptible to experimenting and starting new habits.

The Youth Smoking Survey (YSS) was first conducted in 1994 and has been repeated biennially since 2002. The graph to the right compares your school to the rest of your province and the country using 2008-2009 YSS data.

STUDENTS WHO HAVE EVER TRIED A CIGARETTE



PLEASE NOTE: The graphs in this profile include all grades participating in the YSS, even though your school may not include all grades so that you can see provincial and national trends.

Definitions used in this report:

- EVER TRIED**
Someone who has ever smoked a cigarette, even a puff.
- TRIER**
Someone who has smoked less than 100 cigarettes in their lifetime and has smoked or puffed cigarettes in the past 30 days.
- CURRENT SMOKER**
Someone who has smoked at least 100 cigarettes in their lifetime, and who has smoked at least one whole cigarette in the past 30 days.
- NON-SMOKER**
Someone who has not smoked or puffed cigarettes in the past 30 days or has never smoked a cigarette, even a puff.

PEER AND FAMILY INFLUENCES

Youth take up smoking for a variety of reasons. Peers and family members influence youth smoking.¹³ These influences are sometimes direct (peer pressure) but more often indirect (modelling). We asked youth at your school a series of questions relating to their peers and family.

Youth were asked, "How many of your closest friends smoke cigarettes?" At your school, current smokers/tryers are more likely to have friends who smoke compared to non-smokers. **Non-smokers with friends who smoke are the most susceptible to begin smoking themselves.**

Youth were asked, "Do any of your parents, step-parents, or guardians smoke cigarettes?" and "Do any of your brothers or sisters smoke cigarettes?" At your school, current smokers/tryers are more likely to have family members who smoke compared to non-smokers. **Youth with family members who smoke face a higher risk of beginning to smoke.**

Obtaining and Sharing Cigarettes

Smoking is a social activity and as a result, youth often obtain their cigarettes from social sources in addition to retail outlets. At your school:

- 50% of youth felt it would be "easy" to get cigarettes if they wanted to smoke.
- 53% of current smokers and triers report "usually" or "always" sharing a cigarette with others when they smoke.
- 23% of current smokers and triers report being given cigarettes from a friend, sibling, parent or someone else.
- 47% of current smokers and triers report asking someone else to buy cigarettes for them or buying cigarettes from a friend or someone else.

Spending Money

We asked youth at your school about the amount of spending money they usually have each week to spend on themselves or save. The table to the right shows how current smokers/tryers and non-smokers responded.

NUMBER OF FRIENDS WHO SMOKE	PERCENT OF YOUTH RESPONDING
0	66
+1	34

FAMILY MEMBERS WHO SMOKE	PERCENT OF YOUTH RESPONDING "Yes"	
	CURRENT SMOKERS & TRIERS	NON-SMOKERS
PARENTS, STEP-PARENTS, OR GUARDIANS	68	40
SIBLING(S)	45	16

**Quick Facts:
FROM THE 2008/2009 YSS**

Past YSS results show that 53% of current smokers in grades 9 to 12 and 80% of current smokers in grades 6 to 8 obtained cigarettes from social sources, such as family and friends. Therefore younger smokers are more likely to obtain cigarettes from friends and family.⁴

AMOUNT OF MONEY PER WEEK	PERCENT OF YOUTH RESPONDING	
	CURRENT SMOKERS & TRIERS	NON-SMOKERS
\$0 - 20	35	59
\$21 OR MORE	65	41

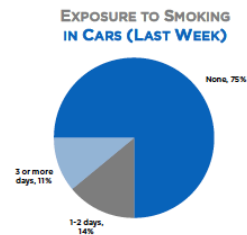
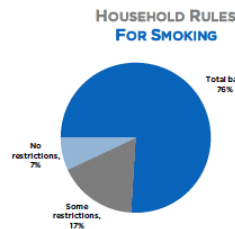
Smoking at Home and In Cars

Second-hand smoke is a health concern for those who are exposed to tobacco smoke in the home and/or car.¹⁴ Children and youth are known to be particularly vulnerable to the adverse health effects of exposure to environmental smoke.¹⁴ We asked students about smoking rules at home and **24% reported that there were no restrictions or only some restrictions regarding smoking in the home**, as shown in the graph below to the left.

In your school, **25% of youth reported riding in a car with a smoker in the last week**. Currently, seven Canadian jurisdictions have legislation preventing adults from smoking in vehicles when children are present.¹⁵ The graph below to the right shows the number of times in a week that youth at your school are exposed to smoking in cars.

**Quick Facts:
FROM THE 2008/2009 YSS**

Past YSS results show that exposure to smoking in cars and permitting smoking in the home are associated with increased smoking uptake for youth. These results hold true even when controlling for other important influences on susceptibility and smoking behaviour.⁵



Your School Can Help Students Resist Social Pressure to Smoke

Programs that help students to develop skills for resisting social influences can be helpful. Schools can provide an environment where smoking is not acceptable. The most successful programs involve:

- Teaching youth refusal skills (through direct instruction, modelling, rehearsal, etc.).
- Ensuring designated smoking areas at schools are not visible to other youth.
- Placing designated smoking areas in inconvenient locations for youth to access.
- Teaching media literacy skills to inform youth how they are targeted by tobacco companies, and
- Include information in school newsletters to parents with tips for parents about keeping a smoke-free home (smoking outside only).

See the *Recommendations and Resource* section of this profile (page 19) for information about existing programs (like *Kick the Nic*) that can help you address tobacco use in your school.

HEALTHY EATING

Sufficient daily consumption of fruit and vegetables in childhood and adolescence is associated with:⁴¹⁻⁴⁶

- Healthy body weight
- Prevention of certain types of cancer
- Continued healthy eating patterns in adulthood
- Reduced risk for cardiovascular disease
- Improved growth and development during a time when nutrient needs are especially high

Canada's Food Guide recommends 6-8 servings of fruits and vegetables per day for children aged 9-18 years.⁴² The graph below and to the right shows the percentage of youth at your school who meet the Canada's Food Guide recommendations for fruit and vegetable consumption for a usual day.

Eating a regular and healthy breakfast in childhood and adolescence is associated with:⁴⁷⁻⁴⁸

- Healthy body weight and decreased obesity
- Improved academic performance
- Better memory functioning
- Increased school attendance

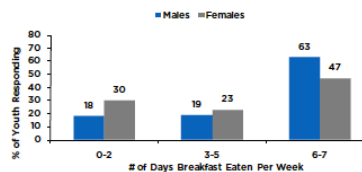
Regular consumption of breakfast is related to better overall nutrition.⁴⁷ Breakfast has a direct effect on academic performance, but youth tend to stop eating it as they transition from childhood to adolescence.⁴⁹ Youth were asked how many times they ate breakfast within the last 7 days. The graph to the right shows that only 47% of females and 63% of males eat breakfast on a daily basis. Most youth eat breakfast 3 to 5 days in a week, but 30% of females and 18% of males reported only eating breakfast 0-2 days in the previous week.

Your School Can make a difference:

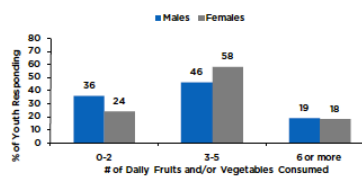
Currently, schools in Canada are involved in promoting healthy eating through activities such as:

- Replace "pizza day" or class pizza parties with healthy alternatives
- Remove the sale of junk food and soda at the school
- Provide school nourishment programs (SNPs)
- Host student forums to discuss healthy eating
- Invite chefs to teach about healthy cooking
- Promote a fruit or vegetable of the month
- Partner with local food producers to help youth learn about locally-grown foods.

BREAKFAST CONSUMPTION AT YOUR SCHOOL



FRUIT & VEGETABLE CONSUMPTION AT YOUR SCHOOL



RECOMMENDATION & RESOURCE SUMMARY

Schools are not alone in having interest and responsibility in the health and well-being of students. In fact, health-promoting schools' frameworks suggest community connections (with parents, public health agencies, voluntary agencies, etc.) are critical to the success of schools to impact youth. Ensuring local partners are aware of your interest in the health and well-being of students, and the information you have (such as this Profile) will help guide the planning of positive changes in your community.

For information about your local Public Health Units, visit <https://www.publichealthontario.ca>.

STUDENT SUSCEPTIBILITY TO SMOKING

Even when smoking rates are low, schools need to focus on preventing youth from becoming susceptible to and experimenting with smoking to reduce their risk of becoming addicted. In addition, established smokers need to be encouraged to quit to reduce the risk of serious long-term health problems. Schools can ensure there are consequences for smoking on school property, redesign smoking areas for more positive activities, and involve students in writing letters to local merchants reminding them that it is illegal to sell tobacco to minors.

For more information about tobacco control in Canada, visit: <http://www.hc-sc.gc.ca/hc-ps/tobac-tabac/index-eng.php>

For more information about alternate tobacco product legislation in Ontario, visit: <http://www.mhp.gov.on.ca/en/smoke-free/factsheets/FAQ-Cigartillos-June2010.pdf>

PEER AND FAMILY INFLUENCE

Schools can help students develop skills for resisting social pressures to smoke and provide an environment where smoking is not acceptable. Programs need to teach youth refusal skills and media literacy skills to educate them on how they are targeted by tobacco companies. Schools can also ensure designated smoking areas are not visible to other youth and are situated in an inconvenient location. Finally, schools need to provide parents with tips to keep a smoke-free environment to prevent their children from being exposed to second-hand smoke.

For more information about established programs to help children and youth quit smoking, visit:

- Kick the Nic: http://www.aadac.com/87_486.asp
- Teaming up for Tobacco-Free KIDS: <http://www.tobaccostinks.com/home.html>
- The Lung Association- Lungs are for Life: <http://www.lungscanforlife.ca/>
- ACT school resources: <http://www.actnl.com/index2.php?loadPage=00034>

THE SCHOOL ENVIRONMENT

Youth are less likely to start smoking and engage in other risky behaviours when they feel connected to and cared for by their school and those at their school. To create a sense of school connectedness, schools can support extracurricular activities, provide opportunities for student involvement in activities, promote a non-judgmental and understanding classroom atmosphere, and minimize pressure by avoiding coercive tactics.

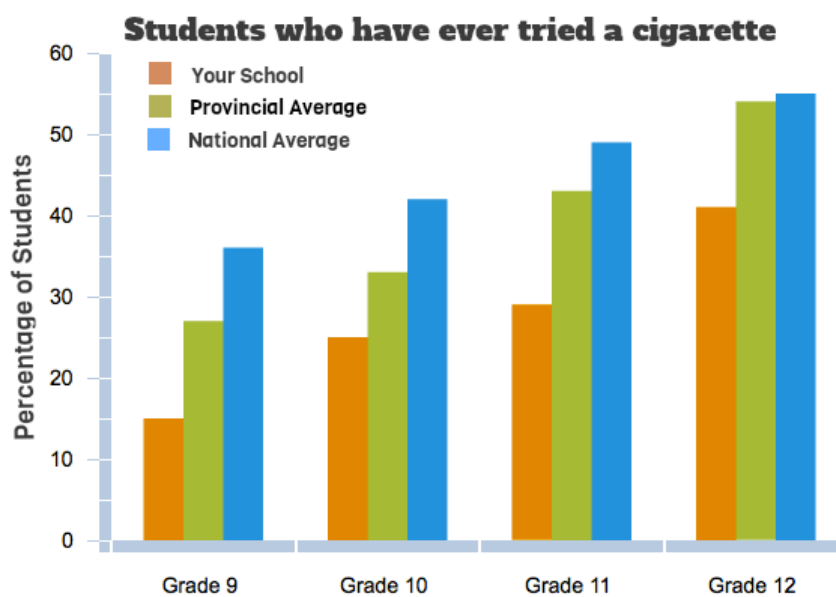
For more information about the Joint Consortium for School Health visit: <http://eng.jcsh-cces.ca/>

To complete the free online tool to help assess how well your school environment promotes health, visit: www.healthyschoolplanner.uwaterloo.ca

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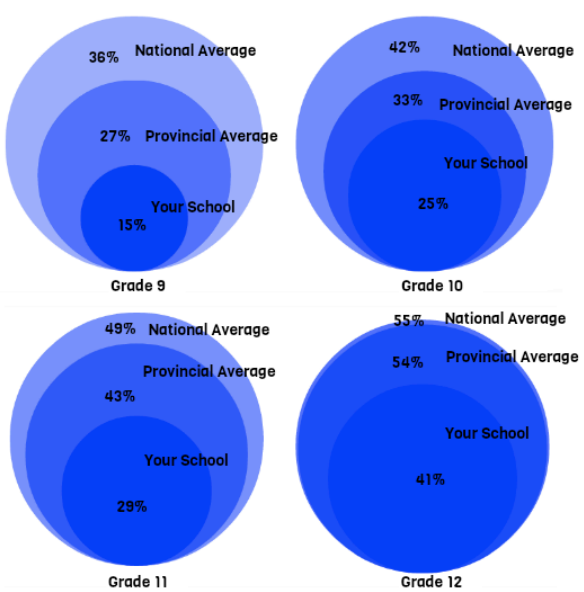
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Graph A



Graph B

Percentage of Students who have ever tried a cigarette



Question 14					
Accessing our school's Smoking Profile electronically is a good way to receive this information	Strongly Disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly Agree 5

Question 15					
The amount of communication between project staff and our staff was appropriate	Strongly Disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly Agree 5

Appendix G – Interview Guide

As mentioned in the information letter, this interview will be audio-recorded. Before we begin I need to ensure that you give your consent to be recorded and would like to remind you that you can decline to answer any question or withdraw from the interview at any time.

Also, as stated in the letter, your responses may be quoted anonymously in future work, do you consent to this as well?

Portions of this interview will use visual aids and require you to be near a computer with an internet connection. As part of the interview arrangements you should have received an e-mail with a link inviting you to join an online meeting room, please do so now.

Except in the cases you are asked to provide a ranked response, this interview is intended to be an open-ended exercise. Please feel free to respond to the questions as you see fit and provide whatever information you feel is relevant to the discussion. If you require clarification on any question please ask.

Section A - Overall Impression/Intended Usage

- On a scale of 1 to 5, with 1 being strong disagreement and 5 being strong agreement, please rate the following statement: “Our *Smoking Profile* is a valuable resource for our school”

Follow-up Questions (optional)

- What aspects of the Profile made it useful to you and your school?
- What aspects of the Profile made it difficult for you and your school to use?

- ✓ Have you used the Profile since your school received it?

Follow-up Questions (optional)

- a. If so, how has it been used in your school or community?
- b. If not, what do you feel prevented you from using the Profile in your school or community?

- 3. Have you shared the School Profile and Summaries with any of the following groups:

- i. School Board/Division/District
- ii. School Administrators
- iii. Teachers
- iv. Parents
- v. Community Agencies (i.e., public health)

- a. What was the desired outcome of sharing the Profile with these groups?

Follow-up Questions (optional)

- i. Was this outcome achieved?
- ii. If so, what prevented the desired outcome from happening?

Section B - The School Profile

4. Have you or other staff at your school read the complete (30 pg.) School Profile?
Follow-up Questions (optional)
 - a. If not, what has prevented you from reading the Profile?
 - b. Was the profile easy to read? If not, why not?
 - c. Was the profile informative? If not, why not?

5. Looking at this page of a sample YSS profile, [page 2] what do you think is the most important piece of information on this page?
Follow-up Questions (optional)
 - a. Why does that information seem important to you?
 - b. Is that information easy to understand the way it is presented?
 - c. Does it have value to you regarding the health issues in your school?

6. Looking at another page of a sample YSS profile, [page 4] what do you think is the most important piece of information on this page?
Follow-up Questions (optional)
 - a. Why does that information seem important to you?
 - b. Is that information easy to understand the way it is presented?
 - c. Does it have value to you regarding the health issues in your school?

7. Looking at another page of a sample YSS profile, [page 5] what do you think is the most important piece of information on this page?
Follow-up Questions (optional)
 - a. Why does that information seem important to you?
 - b. Is that information easy to understand the way it is presented?
 - c. Does it have value to you regarding the health issues in your school?

8. Looking at another page of a sample YSS profile, [page 17] what do you think is the most important piece of information on this page?
Follow-up Questions (optional)
 - a. Why does that information seem important to you?
 - b. Is that information easy to understand the way it is presented?
 - c. Does it have value to you regarding the health issues in your school?

9. Looking at another page of a sample YSS profile, [page 19] what do you think is the most important piece of information on this page?
Follow-up Questions (optional)
 - a. Why does that information seem important to you?
 - b. Is that information easy to understand the way it is presented?
 - c. Does it have value to you regarding the health issues in your school?

10. Now looking at the Table of Contents for the Profile, how well do you feel the issues represented here reflect the important health issues in your school and school community?

Follow-up Questions (optional)

- a. Do you consider this list comprehensive?
 - b. If not, which issues would you like to see represented?
11. Are the health issues you consider important given enough space in the Profile?
- a. If not, which do you think should be expanded on?
12. Consider the following two graphs [(A)graph from YSS vs. (B)Matrix style infographic]; on a scale of 1 to 5, 1 being the least appealing and 5 being the most appealing how would you rank graph (A)? Graph (B)?
- a. Which is easier to understand? More informative?
13. Consider these two graphs [(A)Infographic vs. (A)Interactive applet], on a scale of 1 to 5, 1 being the least appealing and 5 being the most appealing how would you rank graph (A)? Graph (B)?
- a. Which is easier to understand? More Informative?

Section C - Report Delivery and Staff Contact

14. On a scale of 1 to 5, with 1 being strong disagreement and 5 being strong agreement, please rate the following statement: “Accessing our school’s *Smoking Profile* electronically is a good way to receive this information”.

Follow-up Questions (optional)

- a. If so, what makes this method of delivery useful/appealing to you?
 - b. If not, what makes this method of delivery not useful/unappealing to you?
 - c. Are there are alternative methods of delivering the YSS Feedback that you feel would be more appropriate (i.e., multimedia presentation, video, interactive website)?
 - d. Why do you consider these formats more appropriate?
15. On a scale of 1 to 5, with 1 being strong disagreement and 5 being strong agreement, please rate the following statement: “The amount of communication between project staff and our staff was appropriate”.
- Follow-up Questions (optional)*
- a. If so, why?
 - b. If not, why not?
16. Do you feel the communication between project staff and school staff needs improvement?
- Follow-up Questions (optional)*
- a. If so, in what way?
 - b. If not, why not?

17. Do you feel that improved communication between school staff and project staff will encourage you to use the feedback provided by the YSS School Profiles?

Follow-up Questions (optional)

- a. If so, how?
- b. If not, why not?

Appendix H – YSS School Feedback Form



School Feedback Form

School Name: _____ **Province:** _____

To better understand and respond to your needs for future implementations of the YSS, please take a few moments to complete the following feedback form.

1. Please indicate your level of agreement or disagreement with the following statements regarding the administration of the 2010/2011 YSS, in your school.	5 Strongly Agree	4 Agree	3 Neutral	2 Disagree	1 Strongly Disagree	Not Applicable
a) The communication method (e.g. telephone, email) used by project staff was effective for our staff.						
b) The amount of communication between project staff and our staff was appropriate.						
c) The project was well organized.						
d) Administering the questionnaire did not overly burden our staff.						
e) Our <i>Smoking Profile</i> is a valuable resource for our school.						
f) Accessing our school's <i>Smoking Profile</i> electronically is a good way to receive this information.						

2. Please indicate who has/will receive a copy of your school's Smoking Profile and Summaries. The profile was provided to you via email and the summaries are enclosed in this package. (check all that apply)

	School Board/Division/District	School Administrators	Teachers	Parents	Community Agencies (i.e., public health)
Smoking Profile (Full Report)					
Summary of Profile for Schools					
Summary of Profile for Parents					

3. What motivated your school to participate in the Youth Smoking Survey?

4. Rank your school's top 3 school/health-related issues in terms of importance. (1=highest priority, 2=moderate priority, 3=lower priority):

Tobacco Use
Alcohol & Other Drugs
Healthy Eating

Physical Activity
Bullying/Violence
Mental Health

Sexual Health
Use of Technology
Other:_____

5. I completed the Healthy School Planner (HSP)

___ on paper because (please explain why): _____

___ online (please explain why): _____

___ I did not complete the HSP (please explain why): _____

6. Do you have any other comments or suggestions about the Youth Smoking Survey?

Please send feedback to Michelle Gubbels at the University of Waterloo by fax: **(519) 746-8171.**
Thank you for supporting this project!

Appendix I – Descriptive Statistics Table

Table 4: Descriptive statistics for schools that did and did not download the School Profile

	School Profile Downloading					
	All Schools		Secondary Schools Only		Elementary Schools Only	
	Yes (n=272) %	No (n=176) %	Yes (n=87) %	No (n=72) %	Yes (n=186) %	No (n=104) %
Healthy Schools Planner*						
Completed	67.1	32.9	65.6	34.4	68.2	31.8
Not Completed	54.1	45.9	38.1	61.9	60.8	39.2
Province*						
Newfoundland	44.8	55.2	33.3	66.7	52.9	47.1
Prince Edward Island	16.7	83.3	25	75	14.3	85.7
Nova Scotia	70.3	29.6	80	20	64.7	35.3
Quebec	57.8	42.1	12.2	87.8	80.6	19.4
Ontario	72.1	27.9	95.5	4.5	59	41
Manitoba	96.7	3.3	92.3	7.7	100	0
Alberta	68.6	31.4	62.5	37.5	73.7	26.3
Saskatchewan	74.3	25.7	100	0	59.1	40.9
British Columbia	76.7	23.3	81.82	18.2	73.7	26.3
Location*						
Urban	64.1	35.9	52.4	42.7	69.3	30.7
Rural	55.2	44.8	57.3	47.6	54.1	45.9
Prevalence of Low-Income Households						
	14.4 (±6.6)	14.0 (±7.2)	14.8 (±7.5)	13.9 (±6.8)	14.2 (±6.2)	14.1 (±7.5)
Smoking Prevalence						
	3.4 (±5.4)	3.8 (±6.4)	9.1 (±9.0)	8.7 (±7.7)	0.7 (±1.6)	0.5 (±1.1)
Smoking Susceptibility						
	28.1 (±10.9)	27.4 (±12.1)	30.0 (±7.9)	29.3 (±9.9)	27.3 (±12.1)	26.2 (±13.3)
Alcohol Use						
	#	#	52.3 (±16.1)	55.5 (±15.1)	#	#
Marijuana Use						
	#	#	22.8 (±11.5)	20.3 (±10.7)	#	#
Social Environment (Students who agreed)						
“I feel close to people at my school”	85.85 (±7.9)	86.0 (±7.7)	82.2 (±5.4)	83.6 (±6.4)	87.7 (±8.3)	87.8 (±8)
“I feel I am part of my school”	88.2 (±7.8)	87.9 (±7.4)	82.5 (±6.5)	84.9 (±7.2)	91 (±7)	89.9 (±6.8)
“I am happy to be at my school”	84.0 (±9.6)	83.7 (±9.6)	78.8 (±7.3)	80.7 (±9.3)	86.5 (9.6)	85.8 (±9.2)
“I feel the teachers at my school treat me fairly”	87.4 (±7.7)	87.7 (±7.6)	84.8 (±5.3)	86.0 (±6.1)	88.6 (±8.4)	88.9 (±8.3)
“I feel safe at my school”	91.1	91.3	88.5	90.6	92.4	91.9

	(±6.9)	(±6.7)	(±5.6)	(±6.0)	(±7.1)	(±7.1)
Physical Inactivity (>2 hours/day)						
Watching TV/Movies	28.0 (±8.3)	26.0 (±10.0)	28.7 (±6.2)	24.6 (±7.5)	27.7 (±9.2)	27 (±11.4)
Playing video games/Surfing the internet	52.3 (±12.2)	52.0 (±17.5)	56.1 (±7.5)	56.3 (±8.6)	50.6 (±13.6)	49.1 (±13.3)
Physical Activity (>=1 hour/day)	39.6 (±11.5)	39.6 (±13.8)	36.3 (±10.5)	33.2 (±11.9)	41.4 (±11.7)	43.9 (±13.4)
Healthy Eating (>6 servings of fruit/vegetables/day)	25.0 (±15.1)	26.6 (±17.5)	18.2 (±11.7)	17.2 (±11.6)	28.3 (±15.5)	33 (±18)
BMI (% of students in healthy weight category)	68.3 (±13.4)	65.2 (±16.1)	71.5 (±8.7)	69.9 (±13.6)	66.8 (±15)	62 (±17)

*Means could not be calculated for categorical variables so prevalence was used instead

Appendix J – Test Model of Logistic Regression

Table 5: Test model of logistic regression with province variable removed

	Odds Ratio (95% CI)		
	School Profile Downloading	School Profile Downloading	School Profile Downloading
	All Schools (n=448)	Secondary Schools Only (n=159)	Elementary Schools Only (n=289)
Healthy Schools Planner			
Not Completed	1.00	1.00	1.00
Completed	1.52 (0.96, 2.38)	6.31 (2.21, 18.03)***	0.90 (0.49, 1.64)
Location			
Urban	1.00	1.00	1.00
Rural	1.56 (0.97, 2.51)	0.70 (0.25, 1.95)	2.76 (1.46, 5.25)**
School Type			
Elementary	1.00	n/a	n/a
Secondary	1.72 (0.89, 3.31)	n/a	n/a
Prevalence of Low-Income Households	1.00 (0.97, 1.03)	1.00 (0.93, 1.07)	0.96 (0.92, 1.01)
Smoking Prevalence	1.00 (0.95, 1.06)	0.85 (0.77, 0.94)**	1.18 (0.94, 1.49)
Smoking Susceptibility	1.01 (0.99, 1.02)	1.05 (0.99, 1.11)	1.00 (0.98, 1.02)
Alcohol Use	n/a	0.94 (0.90, 0.98)**	n/a
Marijuana Use	n/a	1.16 (1.07, 1.25)***	n/a
Social Environment (Students who agreed)			
“I feel close to people at my school”	0.98 (0.95, 1.02)	1.00 (0.87, 1.16)	0.98 (0.94, 1.02)
“I feel I am part of my school”	1.01 (0.97, 1.05)	0.93 (0.82, 1.06)	1.05 (1.00, 1.11)
“I am happy to be at my school”	1.01 (0.98, 1.05)	1.06 (0.95, 1.19)	1.01 (0.97, 1.06)
“I feel the teachers at my school treat me fairly”	0.98 (0.95, 1.02)	0.98 (0.88, 1.10)	0.97 (0.94, 1.01)
“I feel safe at my school”	1.00 (0.96, 1.04)	0.96 (0.84, 1.09)	1.02 (0.97, 1.07)
Physical Inactivity (>2 hours/day)			
Watching TV/Movies	1.03 (1.00, 1.06)	1.16 (1.07, 1.27)***	1.01 (0.98, 1.04)
Playing video games/Surfing the internet	0.99 (0.97, 1.01)	0.96 (0.89, 1.03)	1.00 (0.98, 1.03)
Physical Activity (% of students at school achieving >1 hour/day of MVPA³)	1.00 (0.98, 1.02)	1.04 (0.99, 1.09)	0.98 (0.96, 1.01)
Healthy Eating (>6 servings of fruit/vegetables/day)	0.99 (0.98, 1.01)	1.03 (0.99, 1.07)	0.98 (0.96, 1.00)

*p<0.05 **p<0.01 ***p<0.001

³ Moderate- to vigorous-intensity physical activity (MVPA) Source: <http://www.csep.ca/english/view.asp?x=890>

BMI (% of students in healthy weight category)	1.02 (1.00, 1.03)	1.04 (1.00, 1.09)	1.02 (1.00, 1.03)*
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