

# **The Health Promoting School: Developing Indicators and an Evaluation Framework**

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**November 2009**

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This work was funded by a contribution from the Canadian Council on Learning

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### **Acknowledgements**

This study was generously funded by the Canadian Council on Learning. We are grateful to the school boards and the schools for allowing us to conduct the study. We would like to thank all the participants: students, teachers, administrators and key informants who were gracious enough to allow us their time and share their experiences, views, perceptions and ideas with us. We gratefully acknowledge the graduate students at the Faculty of Education who assisted with data collection and analysis. They are, in alphabetical order: Shaljan Areepattamannil, Wanda Beyer, Christopher De Luca, Michelle Searle, Alison Strucchelli, and Antoinette Thornton. Many thanks to Marlene Sayers for her tireless efforts at transcribing the data.

The views expressed in this document are the views of the authors and do not necessarily reflect the views of the Canadian Council of Learning.

**THE HEALTH PROMOTING SCHOOL SHOULD BE JUDGED PRIMARILY BY ITS CONTRIBUTION TO SUCH HEALTH PROMOTION GOALS AS EQUITY AND EMPOWERMENT—OR BY THE SUCCESS OF INITIATIVES CONTRIBUTING TO SUCH LONG-TERM GOALS (TONES, 1996, p. vi).**

**IF WE ARE SERIOUS ABOUT REDUCING INEQUALITIES IN EDUCATIONAL ATTAINMENT FOR [ ] CHILDREN, WE MUST ALSO TACKLE THE HEALTH INEQUALITIES THAT CURRENTLY EXIST (BRIGHOUSE, 2004).**

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# Preface

The Health Promoting School (HPS) has been proposed as a model that advances both the health and learning needs of students. The model recognizes health as a multidimensional construct that is the product of interconnected and interacting physical, social and psychological factors such as emotional health and subjective well-being (Weare, 1998). To date, there is a lack of consensus on student indicators that could reflect a HPS, and are independent of school specific interventions (Viljoen et al., 2005). This is paralleled by a lack of coherent understanding of what a HPS represents amongst various stakeholders. As such, the goal of this study was to establish indicators of student health and well-being associated with policies and practices in schools, and to further the understanding of health promoting schools by employing quantitative and qualitative methodologies.

The quantitative data analyzed for this study are from the Health Behaviour in School-aged Children study (HBSC) conducted in Canada in 2006. The HBSC is an inter-disciplinary, cross-national collaboration that examines the relationship between adolescent health and a wide range of determinants. HBSC collects data every four years from three representative age groups of children: age 11- the onset of adolescence; age 13 – the challenge of physical and emotional changes; and age 15 – the period life and career decisions are beginning to be made (Currie et al., 2001). The survey is distributed to a random selection of schools across Canada (similar procedures are used in the other 41 countries). Principals or vice-principals at the

participating schools also complete a short survey addressing issues related to school size and composition, school disciplinary practices, school policies, and teacher morale, satisfaction and relations with the community.

This study proceeds of in three phases. Phases one and two consist of quantitative analyses of the 2006 HBSC data set. The first phase established the significance of student health to academic achievement and is presented in a document titled: *Relationship between health and achievement: Evidence from the Health Behaviour in School-aged Children Study*.

The second phase examined the relationship between student-level factors, and school-level factors that could reflect elements of a HPS and a set of student indicators that reflect general health and well-being and is presented in a document titled: *Student health and wellbeing: An examination of student and school factors*.

The third phase involved qualitative examinations of two schools in Ontario to “zoom in” (Onwuegbuzie & Leech, 2006) on the organizational and structural elements within these schools that appear to be essential for achieving a HPS, and the mechanisms by which these elements intervene to support student health and well-being outcomes. These schools were chosen for study because of their specific initiatives to address issues of students’ health and wellbeing. Both schools have been formally recognised as exemplifying healthy active living schools (health promoting schools) by their respective boards and the Ministry of Education. Analysis of the qualitative data is presented in a document titled: *The Health Promoting School: Two case studies in Ontario*.

The study identified variations across schools in the health and well-being of students and was able to reveal factors within schools that were associated with these

differences. The factors identified, while by no means comprehensive, strengthens the need for health promoting strategies to address the structural and organizational factors within schools, and to address school variations that can be attributed to the neighbourhood where the school is located. The case studies confirm the significance of strengthening the school organizational capacity and improving the school culture as a means of promoting the health and wellbeing of students. The inclusion of the collective perspectives of administrators, students, teachers and health professionals involved in school health initiatives has established a deeper understanding of a health promoting school and identified the supports and challenges experienced by two school boards and schools in the process of becoming health promoting schools.

The contribution of this study with its three phases provides a platform for advancing the health promoting school agenda in Canada at the research and policy levels. By establishing an association between the self-rated health of students and their academic achievement, the study highlights the need to address student health as a component of schooling and learning. The study also established an association between the environment and disciplinary climate in schools, and the school's academic and socio-economic standing to student health and wellbeing outcomes. Furthermore, findings suggest overlapping effects of schools and neighbourhoods on students' health and wellbeing, implying that school health promoting efforts will be more successful when partnered with efforts within neighbourhoods and communities. Such information can be useful when designing school initiatives aimed at students who are struggling within the schooling system both emotionally and academically.

Most importantly, this document emphasises five key action areas that need to be addressed when implementing HPS initiatives and enhancing the capability of the education system to improve the health of students. It is essential to (a) incorporate HPS initiatives into school improvement plans at the policy level, (b) align and coordinate the HPS strategy with other ministry of education strategies, (c) establish well-defined health-education partnerships to achieve a synergy in the implementation of HPS initiatives, (d) set up central support mechanisms with the goal of building capacities within communities to support change and establish leadership, and (e) allocate fiscal and human resources and coordinate funding streams by the health and education sectors to support a long-term HPS strategy.

## **PART I: REPORT OVERVIEW**

## **EXECUTIVE SUMMARY: STUDY I**

### **RELATIONSHIP BETWEEN HEALTH AND ACHIEVEMENT: EVIDENCE FROM THE HEALTH BEHAVIOUR IN SCHOOL-AGED CHILDREN STUDY**

Research exploring the relationship between education and health suggests that people with higher levels of schooling report better health. This paper establishes a gradient in education by health among Canadian students with the intention of highlighting the interrelationship between health and educational achievement,. The work uses data from 8626 students (from 131 schools) who completed the 2006 Health Behaviour in School-aged Children (HBSC) Study. The purpose of this study is to examine the relationship between self-rated health (SRH) and academic achievement, and to examine the variations in student health profiles across schools based on school-wide gradients (linear relationships) for these two variables. Specific research questions include:

- Is there a gradient in education by health among Canadian students?
- Does the gradient in education by health vary significantly within and between schools?
- What can the between-school slopes and the within-school slopes tell us?

## Key Findings

Our analyses identified a moderately positive relationship ( $r=.445$ ,  $p < .01$ ) between students' SRH and their academic marks. These findings illustrate that linear relationships exist between the two variables and that higher levels of students' SRH are associated with higher overall marks within schools. As an example, on a 4-point academic achievement scale, the average level of achievement was 2.37 for a student reporting poor health, and 3.03 for a student reporting excellent health. Perhaps more importantly, these relationships were not consistent across schools, suggesting that the relationship between SRH and self-reported academic achievement vary across schools (different school gradients). In some schools the relationship between SRH and marks was sharp (steep gradient) suggesting that there was *more* inequality in achievement associated with differences in students' SRH. While the relationship between SRH and marks was more shallow (flatter gradient) in other schools, suggesting that there was *less* inequality in achievement for students of varying SRH in these schools.

Our findings suggest that there may be differences in the manner in which schools are able to address the relationship between students' health and academic achievement, possibly ameliorating the potentially harmful effect of lower levels of health on achievement. Some schools are able to achieve both higher levels of achievement, and less inequality in achievement in spite of students' differing levels of SRH. While in others, the gap in achievement between the healthy and non-healthy students was significant.

## **Policy implications**

At the centre of the health promoting school agenda is improving health and educational achievement for all students within a school. Students with lower reported levels of SRH are at greater risk academically. Our findings provide the necessary first level of evidence to explore the potential impact of this health promotion policy. As such, there is a potentially important relationship between students' SRH and their academic achievement that needs to be explored more fully. As an example, efforts that address the health needs of students and create opportunities for improved health may provide a possible venue for also enhancing academic achievement. If such a relationship were to be found, students reporting the lowest levels of SRH could benefit from additional supports and resources in order to enhance their SRH and learning. It may also be possible to not only raise the levels of students' achievement and health, but also minimize the extent to which lower health are associated with lower achievement levels.

The potential policy implications of our findings are that schools with large gaps in achievement for students reporting different levels of health (steep slopes) may be able implement programmes and interventions that aim to ameliorate these health and achievement gaps. On the other hand, schools with low achievement and shallow gradients may be better served implementing broader school policies focusing on improving the academic achievement of students along the SRH continuum while ensuring that students with lower health levels are supported as well. It seems essential that education and health sectors increasingly work together to develop a common agenda and a shared public policy that can address the health of young people in schools and their academic achievement.

## EXECUTIVE SUMMARY: STUDY II

### STUDENT HEALTH AND WELLBEING: AN EXAMINATION OF STUDENT AND SCHOOL FACTORS

Health Promoting Schools (HPS) have the potential to enhance the health of and mental and social wellbeing of students (Lister-Sharp, Chapman, Stewart-Brown, & Sowden, 2000; St. Leger, 2000). HPS principles are rooted in models that emphasize the need to address a setting's organizational and structural features (Dooris, 2004). However, challenges remains with respect to how these dimensions, for example, a school's environment and its links with the community, can be addressed (Deschesnes, Martin, & Jomphe Hill, 2003). Recognizing the need to identify school factors and conditions associated with student health and wellbeing, the goal of this research was to explore the following research questions:

- To what extent do student health and wellbeing outcomes vary across schools?
- What are the student-level factors that are associated with students' health and wellbeing outcomes?
- What are the school-level factors that are associated with students' health and wellbeing outcomes?
- Does the relationship between school-level and student-level variables vary across schools?

Our analyses used data from the 9670 Grades 6 to 10 students and 170 administrators who completed the 2006 Canadian Health Behaviour in School-aged children (HBSC) survey. Four outcomes were used as indicators of health and wellbeing: (a) Self-Rated Health (SRH); (b) Life Satisfaction (LS); (c) Emotional

Wellbeing (EWB) and; (d) Subjective Health (SH). These outcomes reflect general health and well-being among young people. Due to the nested structure of schools (students within schools) a two-level HLM model (see Raudenbush & Bryk, 2002; Raudenbush et al., 2004) was used to determine the student and school-level variables that best predicted the four outcomes.

### **Key Findings**

One of the major findings in this study is that the vast majority of differences in students' health can be attributed to variables and factors associated with individual children. Over 95% of the variance in students' health outcomes occur across individuals, and 5% of the variability in students' health outcomes could be attributed to differences between schools. Our analyses identified both individual and school level factors that are associated with these students' reported health outcomes. Not surprisingly, increased health outcomes are associated with increased family wealth, two parent families, higher levels of student achievement and the quality of one's neighbourhood. Nevertheless, these social-demographic factors explain only a small proportion of the observed differences in students' health outcomes. Certainly, there are other underlying psychological and emotional factors, and we need to better measure and monitor these factors. While the proportion of explained variance was relatively low, our results are intriguing and provide direction for subsequent studies of students' health and wellbeing.

As an example, we also identified four school-level factors that were associated students' health outcomes: a school's academic and socioeconomic standing, problem behaviours, and student aggression. For example, students' reported LS and EWB are higher in schools having wealthier populations. This

school level effect was in addition to an individual's own self-reported family wealth, suggesting that these students not only benefit from their own personal situation but also from a school culture in a socioeconomically advantaged area. In contrast, schools having increased amounts of problem behaviours also had students with lower levels of reported SRH, SH, and LS. More problematic behaviours (Aggression) were associated with lower levels of EWB.

Of potential importance, the relationships between student-level variables and health were not consistent across schools. Hence school level factors exist that either ameliorate or exacerbate the relationships between student-level variables and students' individual health outcomes. First, students from less advantaged neighbourhoods were found to be at an even greater disadvantage in schools having more crowded classrooms. Similarly, these students did not seem to benefit as much by the positive health benefits associated with more positive school climates. Second, schools with higher overall levels of academic achievement had larger gaps in the EWB between low and high achieving students. One possible explanation for this finding is that low achieving students in these schools cannot keep up academically with their peers or the academic expectations of the school. Low achievers also fare worse in terms of their EWB in schools with high levels of problem behaviours. Third, students who do not live with both parents report relatively lower levels of LS in schools having higher levels of student aggression. In contrast, there was less of a gap in LS if these students were in a school having a higher overall level of academic achievement. Such a finding suggests that it is possible that positive school cultures provide increased opportunities for meaningful relationships and high expectations for students from single-parent families. Lastly,

girls generally report lower health outcomes across schools, but the gender gaps for SH were even higher in those schools having higher socioeconomic levels. Further, the negative associations between poorer school climates, as manifested through problem behaviours and health were greater for girls than boys.

### **Policy Implications**

Our findings illustrate that the relationships amongst individual student and school factors with measures of student health are complex. For example, it appears there is a need to pay attention to what is happening beyond the school boundaries in order to better promote and support adolescent health in schools. There are likely overlapping effects of schools and neighbourhoods on students' health and wellbeing outcomes, and these effects likely interact with individual factors, school composition, and school processes. Our research provides early evidence that these factors need more attention and it appears that health promotion efforts may be more successful if partnered with efforts within neighbourhoods and communities.

The differential (random) relationships in student health outcomes across schools highlight not only the complexities associated with these health issues but also the need to pay attention to vulnerable groups of students. While it is not possible to modify the majority of individual factors (e.g., family structure, gender, wealth), our findings suggest that schools may be able to differentially impact those students' background factors that impact their reported health outcomes. School practices and policies that impact the social and academic climate of schools hold promise for increasing the health outcomes of students.

## **EXECUTIVE SUMMARY: STUDY III**

### **The Health Promoting School: Two case studies in Ontario**

#### **EXECUTIVE SUMMARY**

Case studies are particularly useful methods to understand complex educational phenomenon that are occurring in schools. The purpose this study was to begin to understand the nature of health promoting schools (HPS) through the examination of existing examples. The case studies included in this study provide an intensive examination of how such health promotion programs are being implemented and working, highlighting ongoing challenges and barriers. Our work included an exploration of the key structural and organizational elements that were believed essential to allow a HPS to work most effectively from the perspective of students, teachers, administrators, and key informants. Our case studies included those factors within schools, school boards, and health units and the conditions, both within and outside of the school that seemed to enable or constrain the implementation of HPS initiatives. We were interested in the following specific questions:

- What school policies and processes are in place in health promoting schools?
- What makes some schools successful at realizing a health promoting school status?
- What are the perceptions of students, teachers and administrators of what constitutes health and wellbeing?
- What are the key elements at the structural and organizational levels that need to be in place to allow a HPS to work most effectively?

The two schools were selected for inclusion as case studies because they were identified by their respective boards as health promoting schools and had received recognition for their contributions. Interviews with the principals and vice-principals at each school and with key informants from the school boards and health units involved in the healthy schools initiatives provided key information about the functioning of the HPS initiatives in these schools. Focus groups with teachers and students and observations of the schools themselves also provided information on the operational implications and success of the initiatives. Thematic analysis of these rich data formed the basis for the examination of different models of implementation of HPS and the development of indicators of successful HPS initiatives.

### **Key Findings**

Certainly, there is increasing recognition of the relationship between student health and academic achievement. Indicators of successful HPS initiatives help to assess the readiness of schools and school boards to initiate and facilitate HPS initiatives, and present a set of indicators that serve as milestones towards achieving the objectives of a HPS. The results of these case studies help us to begin to understand these initiatives and indicators. The two schools we were fortunate to observe embrace a philosophy that attention to students' emotional and physical wellbeing will have positive impacts on these students' overall education. Although the two schools differed on the range of indicators that they considered signposts of a healthy school, we were able to identify common themes across the schools that furthered our understanding and will inform future research about health promotion in schools.

## **What does a healthy school look like?**

In order for a school to begin to move toward the model of a health promoting school, there needs to be recognition that becoming a healthy school is tied to school and student improvement and encompasses a whole school culture change. These two schools exhibited a broad understanding of health and the interdependence of physical, emotional, social and environmental facets of health. The school administration allocated funds and resources for health promoting activities and provided a high degree of staff and student participation in decision-making. In both schools, there was a positive and supportive working environment, with clear collaboration amongst teachers. There were also direct efforts to integrate the HPS activities into existing practices and priorities. Overall, we found evidence of inclusive school cultures that accommodated students with diverse abilities and interests

These schools also structured their school day to ensure that both the academic and physical needs of students would be met (e.g., two extended breaks spread across the day). Procedures were put in place to help ensure that students' basic needs were met (e.g., breakfast and snack programs). And collaborations with the local community further helped to create a positive climate in the school.

## **The Students' Perspectives**

The students in these schools spoke about their connections to the school. They felt that they were valued and respected by others in the school and those teachers and administrators were caring and compassionate. Both schools seemed to embody a more democratic process. Students felt they were able to express their opinions and were part of the decision making process in their class and school.

Overall, these students indicated that the schools created a culture that valued their emotional wellbeing, their physical health, and their academic progression in the school. The disciplinary procedures were considered fair and students felt safe at the school. There were sufficient activities to engage in during non-schooling times (recess, lunch)

### **Challenges to implementing HPS**

Not surprisingly, we were able to identify some of the ongoing challenges and barriers that hinder the progress towards becoming a Health Promoting School (HPS). The most significant challenge may continue to be the lack of an encompassing framework for whole-school and board implementation of HPS. As an example, the Ministry of Education (MOE) has recognized these schools for specific health promotion activities, but there have not been any incentives to broaden or further their mandates. The MOE does not provide funds dedicated solely to healthy schools, and monies earmarked to support program enhancement (e.g. physical education, arts and outdoor education) often get siphoned into other programs that take precedence. This priority approach to funding creates narrow time frames for initiatives to be enacted before they lose subsequent funding due to new emergent priorities. Overall, it is difficult to promote healthy schools when administrators feel the pressure to meet the one consistent set of priorities, increased literacy and numeracy achievement. The inconsistent funding results in reduced opportunities for teachers to develop skills required to implement healthy school activities, or attend training and conferences.

We also identified challenges for the local health authorities involved in school health promotion. For example, school-health nurses were perceived to have

the primary roles for specific programs (vaccination, dental and lice check-ups etc). Yet these nurses felt they were limited in the role they could play in implementing healthy school initiatives due to school constraints on their presence. In contrast, the educators felt that school-health nurses lacked an understanding of schooling and learning. These challenges extend beyond the classroom and school. School-health programs at the health units are in constant competition for funds for other health promotion activities. There continue to be incongruent priorities across health and education, resulting in a poor fit in activities across sectors. For example, mental health is a priority for education (e.g. anti-bullying, positive social interactions, character education, confidence, self esteem) but ministry of health promotion does not have mental health as part of its mandate.

### **Policy Implications**

The findings of our case studies suggest these two schools and their boards have been able to fulfill several elements that support the HPS principles. Each has a distinct model of collaboration between the board and local health units with varying degrees of centralized support for individual schools within the board. Funding for these programs remains fragmented with health promoting school groups trying to secure funds from organizations such as the Ontario Physical and Health Education Association (OPHEA) and the Ontario Association for the Supervision of Physical and Health Education (OASPHE), and service clubs such as Kiwanis and Rotary. The Ontario Healthy School Coalition (OHSC) is perceived as a key player in advocacy, networking and knowledge exchange. However, educators feel that the OHSC over represents the voice of health professionals while the voice of educators in schools is underrepresented.

The province of Ontario needs to take a lead in creating provincially-based healthy schools coordinating committees that consist of members from Ministries of Education and Health Promotion. The committee would be responsible for providing funding, training, and implementation of school health initiatives. Such support would ensure increased implementation of the healthy schools model, and improve the financial and resource allocations to schools. The reliance on localized efforts to secure funds and to provide professional development will likely not address the wide gap in the implementation of these initiatives. Perhaps most importantly, there is a need to incorporate healthy schools education into teacher training programs, allowing them to see the intersection and overlap between school curricula and health. This will ensure a buy-in into the notion of healthy schools and will allow long-term viability of healthy school initiatives.

## **PART II: THE STUDIES**

## STUDY I

### RELATIONSHIP BETWEEN HEALTH AND ACHIEVEMENT: EVIDENCE FROM THE HEALTH BEHAVIOUR IN SCHOOL-AGED CHILDREN STUDY

#### Introduction

The relationship between education and health is well established in the literature (Cutler, & Lleras-Muney, 2007; Freudenberg & Ruglis, 2007; Mirowsky & Ross, 2003). Those having higher levels of schooling also report better health. Studies examining the relationships between education and health have generally emerged from fields such as health and economics, have been restricted to adult populations over 25 years old, and tend to explore the relationships between years of schooling completed and subsequent health behaviours and outcomes. For example, analyses of data from the National Health Interview Survey (NHIS) support the assertions that education is strongly predictive of adult health (Goesling, 2005). Such studies, described as gradients in health by education (see Cutler & Lleras-Muney, 2007), have generally found strong associations between years of schooling and reports of being in good health, positive health behaviours such as not drinking and smoking, reduced lost days of work due to sickness, and decreased morbidity and mortality rates (Grossman, 2000, 2005; Freudenberg & Ruglis, 2007). Despite these consistent findings, it remains unclear whether education causally affects health or vice versa or whether “the relationship between education and health is spurious and driven by factors affecting both education and health” (Monheit, 2007, p. 233). Notwithstanding the resolution of these questions, it remains certain that education is considered one of the necessary

social determinants of health that needs to be addressed to reduce disparities in health and socioeconomic conditions across populations (Low, Low, Baumler, & Huynh, 2005).

In a number of European countries, policy makers have become aware of the link between health and educational quality in schools. In response, they have created the European Network of Health Promoting Schools (ENHPS). ENHPS embodies practical and conceptual links among education, health, participatory values, and policy formulation and implementation. The impetus for such comprehensive school approaches stems from the realization that healthy students are better learners (Whitty, Aggleton, Gamarnikow, & Tyrer, 1998). Currently, in Canada, there is increasing interest in promoting health through schools. In 2004, Ontario's Ministry of Education introduced a new school health programme with the intent of "making Ontario schools healthier places to learn" (October 20<sup>th</sup>, 2004). A Pan-Canadian Joint Consortium on School Health has been initiated by health and education deputy ministers across Canada. Their first national symposium, *The Communities and Schools for Health*, was held in November, 2004. Although some of the provincial initiatives have been in response to reports of an increase in the proportion of overweight and obese Canadian youth, these initiatives acknowledge schools as "social systems for health" in communities, having the potential to enhance the health of their populations (Rowling & Rissel, 2000). If establishing comprehensive school health initiatives can lead to improved health and academic achievement of students, there is a rationale to establish the health-education connection. Moreover, research in the field of education has identified family, peer, and economic factors as contributing to academic failure; "often lost in this inquiry,

however, is consideration of physical and mental health problems for academic performance” (Needham, Crosnoe, & Muller, 2004, p. 569).

### Purpose

This paper conceptualizes health as a predictor of academic achievement. Adapting models developed by Willms (2003, 2006) to examine the socioeconomic gradient for schooling outcomes, we use a gradient in education by health as the relationship between health and student achievement, in this case students’ self-reported academic achievement. As such, the purpose of this study is to examine the relationship between self-rated health and academic achievement, and to examine the variations in student health profiles across schools. The following research questions enabled us to address this research purpose:

- Is there a gradient in education by health among Canadian students?
- Does the gradient in education by health vary significantly within and between schools?
- What can the between-school slopes and the within-school slopes tell us?

### Education and Self-rated Health

“Health and education appear to be inextricably linked: good health is necessary for effective learning and education is necessary for maintaining good health” (Davaney, Schochet, Thornton, Fasciano, & Gavin, 1993). Cutler and Lleras-Muney (2007) suggest that poor health among young people contributes to ‘lower levels of schooling’ and that increased educational attainment directly improves health even when controlling for family background and socioeconomic status.

Research with school-aged children suggests that perceptions of one's health, as assessed by self-rated health, and school achievement go hand in hand. For example, Koivusilta, Arja, and Vikat Andres (2003) found self-rated health and health behaviours at age 14 to be predictive of educational attainment in adulthood. Perceptions of one's health as measured by asking people to rate their health provides a summary of subjective as well as objective aspects of their health combined with their perceptual framework (Kaplan & Baron-Epel, 2003, p. 1669). Self-rated health is widely used, and is considered a valid measure of health status as well as morbidity and mortality (Idler & Benyamini, 1997). Generally, self-rated health among adult populations has been found to reflect physical health problems, such as limitations of physical functioning, chronic and acute conditions, and mental health problems. Yet, self-rated health among youth appears to encompass more than just physical symptoms. For example, Vingilis, Wade, and Adlaf (1998) proposed that self-rated health among high-school students in Ontario was a somatic expression of life distress, which could explain the consistent findings surrounding the relationships between self-rated health and social and economic disadvantages among young people. Wade, Pevalin, and Vingilis (2000) suggest that factors within the external environmental, both distal and situational, may be associated with self-rated health, including family socioeconomic status, family attachment, tobacco use, self-esteem, and even school achievement. In their study of adolescents in public high schools, Zullig, Valois, and Drane (2005) found that both self-reported mental health and self-reported physical health contributed significantly to adolescent self-rated health, yet adolescent self-rated health in

these samples was “based more strongly on mental health and to a lesser extent on physical health” (p. 7), a finding that is contrary to research with adult samples.

Despite the presence of a small body of research examining correlations of self-rated health among adolescents, we only came across one study that has previously examined the association of self-rated health with academic outcomes and that modeled self-rated health as a predictor rather than an outcome in the statistical model. Using data from the National Longitudinal Study of Adolescent Health (Add Health), a large, school-based study of adolescents, their schools, and their families in the U.S., Needham and colleagues (2004) conducted a series of logistic regressions of secondary school students to explore whether physical and mental health problems are risk factors for academic failure, controlling for individual and contextual correlates of both health and academic status. To control for pre-existing physical and mental health problems in the sample, only students who did not receive any special education services in the 12 months prior to the first wave of data collection were included in the study. The authors strongly show that self-rated health and emotional distress are both associated with a greater likelihood of failing a class in the subsequent year, controlling for socio-demographic characteristics. Specifically, the odds of failing one course or more during the second wave of the study were 34 percent greater for students who rated their own health as fair or poor during the first wave of the study, compared to those who rated their health as good to excellent, controlling for prior academic achievement.

The link between health status of students and their academic achievement has not been closely examined or documented in Canada. With the increased

emphasis in promoting health through schools, it is important to determine if there is a link between students' health and their academic achievement and the extent to which schools can contribute to students' health. Our research provides an important first step in understanding the relationships between health and achievement within a Canadian context.

### Data and Methodology

The Health Behaviour in School-aged Children (HBSC) study is a cross-sectional survey developed through an inter-disciplinary, cross-national collaboration and examines the relationship between adolescent health and a wide range of determinants. HBSC is an ongoing international project sponsored by the World Health Organization and in Canada by the Public Health Agency of Canada. The HBSC's underlying premise is that the determinants of education and health are closely linked. HBSC not only addresses traditional indicators of health behaviour but also the structural and practical aspects of schools, such as schooling processes, school climate, student attachment, and connectedness to school, and the involvement of the community in school life. The HBSC offers an opportunity to further the understanding of how incorporation of factors related to the school context can contribute to the health and well-being of children and youth. HBSC uses a population health framework, recognizing that the determinants of health operate at two levels: (a) the individual level, and (b) the ecological level (Health Canada, 1994). Beginning in 1989 the HBSC now collects data every four years from students in schools across Canada. Data are collected from students representing three age groups: the onset of adolescence – age 11; the challenge of physical and emotional changes – age 13; and when very important life and career

decisions are beginning to be made – age 15 (Currie, Samdal, Boyce, & Smith, 2001).

Data for the current study came from the 2006 HBSC student survey. The Canadian sample consisted of a cross-national sample of students in Grades 6 to 10. The 2006 Canadian HBSC survey included 9670 students (47.4% boys and 52.6% girls) from 187 schools across Canada. The 2006 Canadian sample consisted of 1708 students in Grade 6, 1772 students in Grade 7, 1897 students in Grade 8, 2320 students in Grade 9, and 1973 students in Grade 10.

Self-rated health (SRH) is assessed in the HBSC by asking students to respond to the following question: Would you say your health is: a) excellent, b) good, c) fair, or d) poor? Academic achievement is assessed by the following question: Which of the following best describes your marks during the past year? a) excellent (mostly A's / above 85% / or level 4), b) above average (mostly A's and B's / between 70 and 84% / or level 3 and 4), c) average (mostly B's and C's / between 60 and 69% / or level 3), d) below average (Mostly C's / between 50 and 59% / or level 2), and e) poor (mostly marks below C / below 50% / or level 1).

Before addressing our research questions, we defined the gradient in education due to health to consist of three components: (a) The *level* of the gradient, (b) The *slope* of the gradient, and (c) the *strength* of the gradient. These elements are based on Willms' socioeconomic gradient examining the relationship of socioeconomic status (SES) and academic achievement outcomes based on PISA data (2003, 2006). We substituted the SES measures with health measures from the HBSC. The *level* of the gradient is defined as the expected marks in the past year for a student with average SRH. The level of a gradient for a school is an

indication of the overall performance of the school, after taking account of students' SRH. The *slope* of the gradient is an indication of the extent of inequality attributable to SRH. Steeper gradients indicate a greater impact of SRH on marks – “that is, greater inequality– while gradual gradients indicate a lower impact of [SES] – that is, less inequality” (Willms, 2003, p. 5). The *strength* of the gradient refers to the extent to which marks vary above and below the gradient line. A strong relationship implies that a considerable amount of the variation in marks is associated with SRH, whereas a weak relationship indicates that relatively little of the variation is associated with SRH. The strength of the relationship is assessed by the *R*-squared value of the regression line.

Our first objective involved examining the associations of self-rated health with academic performance or in other words the gradient in education by health for students in our sample. Using the Statistical Package for the Social Sciences (SPSS 16), we conducted Ordinary Least Squares regression (OLS) to obtain the levels, slopes and strengths of the gradient by regressing academic performance as a raw score on the standardized measure of self-rated health for each of the schools separately. For our analyses, only schools with 30 or more students were selected in order to obtain relatively stable school estimates. The resulting sample contained 8626 students from 131 schools. The school samples ranged in size from 31 to 226 students, with a mean of 66 students per school. The wide range of students per school reflects the range of school size in the sample as well as school configuration (K-12; K-8; 6-8; 9-12 etc.).

Slopes of the health gradient for the set of schools were derived from a set of within school equations (Willms, 2003; 2006):

$$Y_{ij} = \beta_{0j} + \beta_{1j}X_{ij} + r_{ij}$$

Where  $Y_{ij}$  represents the achievement (marks) of student  $i$  in school  $j$ ,

$\beta_{0j}$  is the average achievement in school  $j$ ,

$X_{ij}$  is the SRH of student  $i$  in school  $j$

$\beta_{1j}$  is the predicted effect of student's  $i$  SRH on his/her achievement in school  $j$

(slope of the gradient), and

$r_{ij}$  represents the student-level error term.

$\beta_{1j}$  provides a measure of the extent of inequality in academic achievement attributable to health. Steeper slopes indicate stronger relationships between students' self reported health and their achievement in a school. In contrast, a school having a shallow line (gradient) is one in which changes in students' SRH are not strongly associated with changes in students' achievement

Our second objective involved estimating the strength of the education by health gradients within- and between schools. A school- level file with student aggregate data for health and achievement was created. The slopes ( $\beta_{1j}$ ) from each regression equation for each of the schools were added as variables to the aggregate school file. The strength of the gradient was estimated by regressing academic performance on self-rated health for the 131 schools.

The third objective of this study was to examine whether the gradient in education due to health varied significantly within- and between-schools. Although the gradient lines derived from the OLS analysis do convey information about the

distribution of academic achievement relative to SRH, it does not show how these relationships vary within- and between- schools. These effects can be estimated through a hierarchical analysis that accounts for the clustering of students within schools which is not the case in OLS. A two-level HLM model ((Version 6.06, Raudenbush, Bryk, Cheong, & Congdon, 2004) was employed in three stages. The first stage produced a null model containing no explanatory variables to explain the amount of variability present at each of the student- and school-levels and partitioning of variance into within-school ( $\sigma^2$ ) and between-school ( $\tau_{00}$ ) components for each of the outcome measures (Snijders & Basker, 1999). In the second stage, and following the recommendations of Raudenbush & Bryk ( p. 141), SRH at the student-level was added to the null model the level-1 model and its aggregate ( $\bar{X}_{1j}$ ) was included in the final level-2 model. Applying group-mean centering to SRH in the level-1 model allows the decomposition of the relationship between SRH and academic achievement into it's within ( $\beta_w$ ) and between ( $\beta_b$ ) group components (see Raudenbush & Bryk, 2002);  $\beta_w$  is the average *within-school* gradient in achievement due to health;  $\beta_w$  is defined here as the expected difference in achievement between two students in the same school who differ by one standard deviation unit on SRH; while  $\beta_b$  is the *between-school* gradient in achievement due to health and is defined here as the expected difference between the mean academic achievement of two schools which differ by one unit in mean SRH (Raudenbush & Bryk, 2002). The mean of the within-school slopes  $\beta_w$  for the 131 schools, is  $\gamma_{01}$ :

$$\beta_{0j} = \gamma_{00} + \gamma_{01} \bar{X}_{1j} + u_{0j}$$

Where  $\gamma_{00}$  represents the average mean achievement of all school means,  $\gamma_{01}$  represents the mean of the within-school slopes  $\beta_w$  for all schools, and  $u_{oj}$  represents the school-level error term

The within school slope consists of the variation in individual scores around their respective school means. The mean of the between-school slopes ( $\beta_b$ ) for the 131 schools, is  $\gamma_{10}$ :

$$\beta_{1j} = \gamma_{10} + u_{1j}$$

Demonstrating the proportion of variation in schooling outcomes that is within and between schools allows the estimation of the contextual effect due to health on academic performance (Willms, 2003). Contextual factors may include the social and economic characteristics of the community in which the school is located and the demographic composition of the student body, such as ethnicity and gender; family characteristics, such as socioeconomic status and family structure; and academic achievement (Willms, 2002; Rumberger & Palardy, 2004). Contextual factors create a normative environment that promotes or undermines academic learning. According to Raudenbush & Bryk (2002), the contextual effect ( $\beta_c$ ) "is the extent to which the magnitude of the organization-level relationship,  $\beta_b$ , differs from the person-level effect,  $\beta_w$ " (p. 139), and is estimated by the difference of the between-school slope and the within-school slope ( $\beta_b - \beta_w$ ). In this paper,  $\beta_c$  is the expected difference in achievement between two students who have the same levels of self-rated health (SRH), but who attend schools differing by one standard deviation unit in mean SRH.

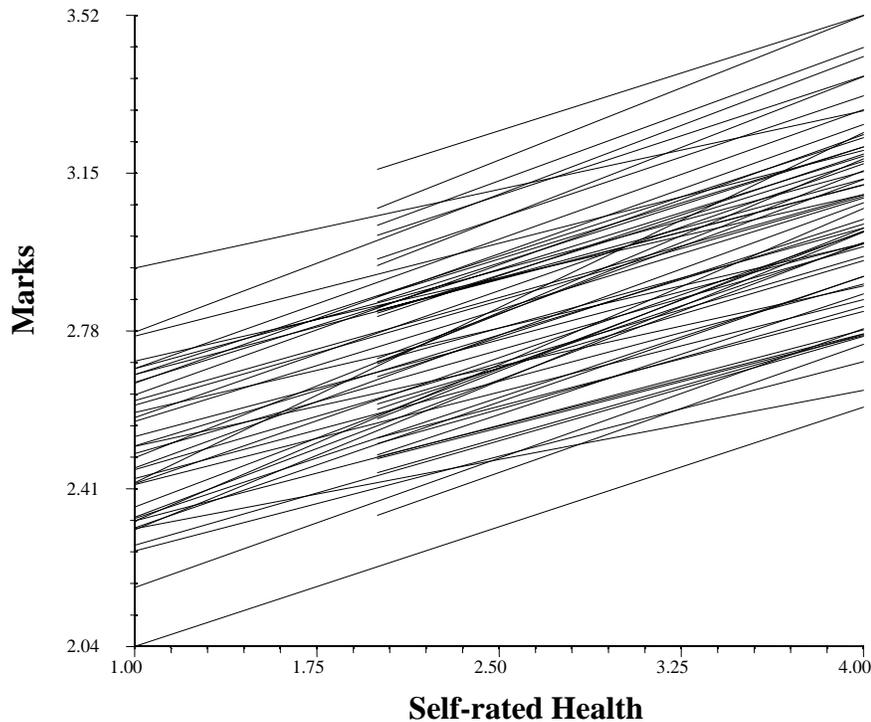
## Results

In terms of the four categories of self-rated health (SRH) across the 131 schools, approximately 28.7% of students reported excellent health, 55.1% of the students reported good health, 14.3% reported fair health and only 2.0% (173 students) reported poor health. Thus the vast majority of students reported they believed they were either in good or excellent health. To the extent the scale can be considered a continuous scale; the mean health rating was 3.11 (on a 4-point scale) with a standard deviation of 0.71. Aggregated to the school level, the variation in the health scores reduced to 0.15. In terms of achievement during the previous year, 23.7% of students reported average marks that were 85% or greater, 45.8% reported marks between 70% and 84%, 24.1% reported marks between 60% and 79%, and 6.4% reported marks between 50% and 69%. None of the sampled students reported average marks less than 50%, hence only four categories for marks were used. Considering achievement to be on a continuous scale, the average achievement score across students was 2.87 on the resulting 4-point scale with a standard deviation of 0.85. Aggregated to the school level, the variation in achievement scores was reduced to 0.27. Thus there appears to be less variability across schools in terms of students' self-rated health compared to students' academic achievement.

There also appeared to be a significant and moderate relationship between SRH and marks ( $r=.445$ ,  $p < .01$ ). The correlation between SRH and marks indicates that higher levels of students' SRH were associated with higher overall marks. As an example, the sample of students reporting poor health had mean marks of 2.37, those reporting fair health had mean marks of 2.64, those reporting good health

had mean marks of 2.91 and finally those reporting excellent health had mean marks of 3.03.

Figure 1 contains the 131 separate within-school health gradients, comparing students' SRH with their marks within each school. As shown, the within school gradients indicate a positive relationship between SRH and marks. The different slopes further indicate this relationship varies across schools, implying the relationship between SRH and achievement is not fixed. The differences in the length of the regression lines were due to differences in the reported ranges of standardized SRH in each school.



*Figure 1.* Within-school gradients for each of the 131 schools produced in HLM

Figure 2 further highlights that the relationships between SRH and marks vary within and between schools. A student with an average SRH could be expected to have a mean achievement score of 2.87 on the 4-point achievement scale. The slope for the between-school gradient in education by health is .58. The within-school gradient line (see Figure 1) represents the average within-school gradient for the 131 schools. The slope for this gradient is 0.14, indicating that a unit increase in SRH results in a 14% of a standard deviation increase in achievement or an 0.12 points increase in letter marks for a student<sup>1</sup>.

Each of the diamonds represents a school. Schools that lie above the within-school regression line have relatively higher marks than expected given their students' average SRH levels, while those below the line have relatively lower marks than expected given their students' average SRH levels. For the within-school gradient in Figure 2,  $R^2 = .027$ , indicating that only 2.7% of the variation in marks within schools is associated with students' SRH. However,  $R^2$  for the between-school gradient equals .198, implying that around 20% of the variation in marks between schools is associated with differences in the students' aggregated SRH within the school.

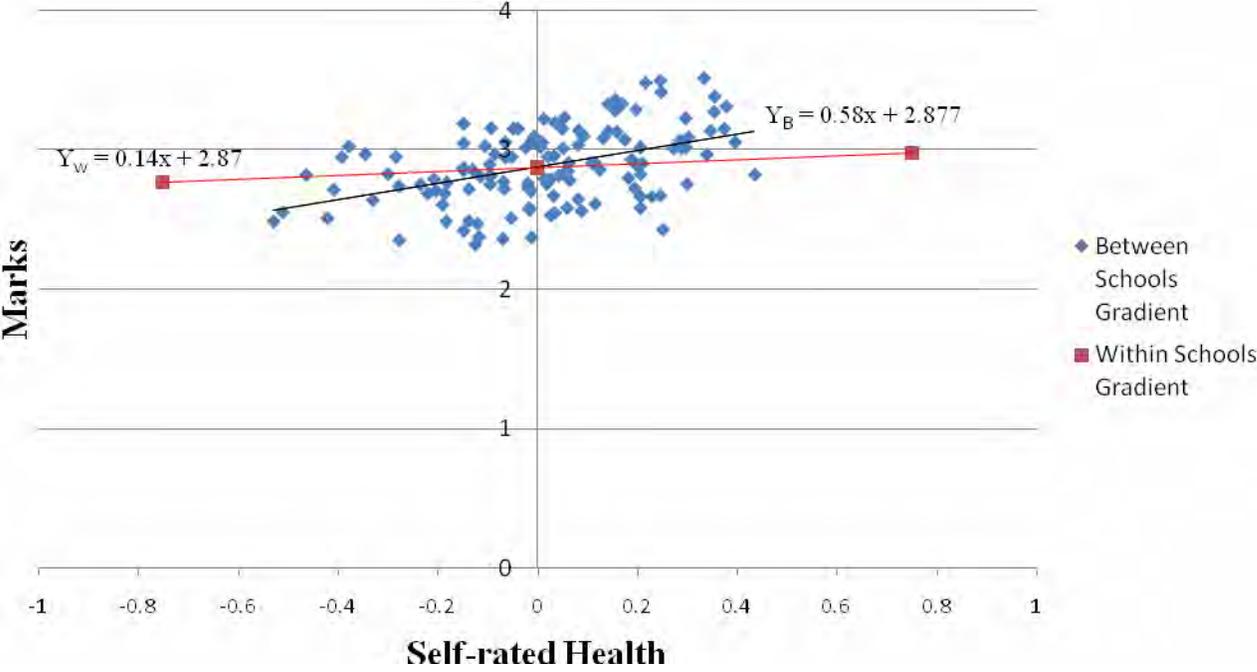
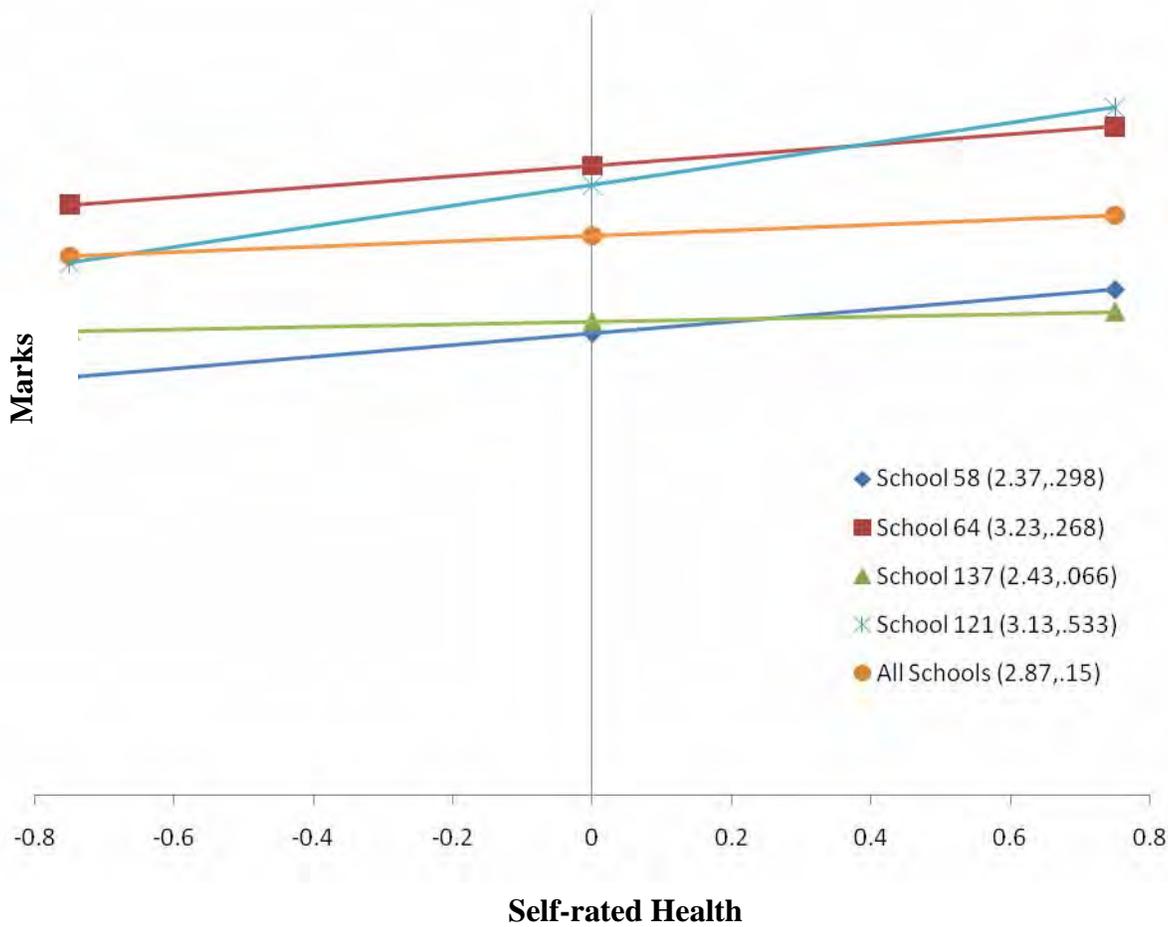


Figure 2. The strength of the between and within school gradients in education by health derived from OLS

Consider the gradient lines for selected schools highlighted in Figure 3. These gradient lines illustrate the health inequalities between schools. School 137 and school 58 are both below the within-school gradient and both have similar mean marks. Students reporting average health in school 137 have a grade average of 2.43 while those in school 58 have a grade average of 2.37. However the relationship between health and marks for school 137 is more or less constant with little if any relationship between students' SRH and achievement. However, as suggested by the steeper slope for school 58, students' marks increase by .298 points for each standard deviation increase in SRH. Thus in this school, the relationship between SRH and marks is more pronounced and students with higher levels of SRH are more likely to report higher marks.

Considering a School 121 and school 64 both have above average school achievement. Students reporting average health in these schools have average marks of 3.23 and 3.13 respectively. Once again, the relationship between health and marks varies for these two schools. Increases in SRH are more closely associated with increased achievement for students in school 121 where the steeper gradient (0.5) indicates that a one standard deviation increase in SRH results in a .5 points increase in marks,. Students in school 121 with higher levels of SRH tend to achieve higher marks than those reporting below average health. On the other hand, while a student with average SRH in school 64 has similar performance to his/her counterpart in school 121, the differences in achievement between students reporting low SRH and high SRH is not as pronounced in school 64. This suggests there is less inequality in achievement for students of varying SRH in school 64 than school 121.



*Figure 3. Within school gradient and gradients for select schools*

Note. The first value in the bracket is the intercept corresponding to the designated school. This intercept refers to the academic achievement for a student in that school who reports mean (average) self-rated health across all schools. The next value in the bracket refers to the slope of the gradient corresponding to the designated school. This value represents the change in marks associated with a one standard deviation unit increase in self-rated health for a student in that designated school. For example, on a 1 to 4 scale for marks, a student in school 58 would have a .30 increase in marks.

The contextual effect  $\beta_c$  in our analysis was 0.46 ( $\beta_b = 0.64$  and  $\beta_w = 0.18$ ) suggesting that approximately 75% of the variability in the within- and between-school slopes can be attributed to contextual factors attributed to the schools and the community in which the schools operate (Raudenbush & Willms, 1995).

### Discussion and implications

At the centre of the comprehensive school health movement is improving health and educational achievement for all students within a school. In terms of an education by health gradient perspective, this goal translates into not only raising the levels of achievement and student health, but also minimizing the extent to which poor student self-rated health is associated with lower academic performance. It is clear from our analysis that some schools are able to achieve both: higher levels of achievement (e.g. schools 64 and 121), and less inequality in achievement in relationship to health (e.g. school 64). The potential policy implications of our findings are that programmes and interventions in schools with steep slopes (e.g., school 121) should aim to shift opportunities towards disadvantaged students with poor SRH. On the other hand, programmes and interventions in schools with low achievement and shallow gradients (e.g., school 137) may be better served implementing broader school policies focusing on improving the academic achievement of students along the SRH continuum while ensuring that students whose self-rated health are compromised are supported as well. Our analysis also illustrates that the academic performance of students reporting poor health is on average 0.7 of a standard deviation lower than students who report high SRH<sup>2</sup>. Thus identifying students with lower reported levels of SRH may provide a mechanism to identify students at greater risk academically in order

to provide them with additional supports and resources that would support their learning. Thus it is possible that identifying students with lower reported levels of SRH may provide a mechanism to identify students at greater risk academically. This in turn could provide them with additional supports and resources that would support their learning. Examples of such provisions currently occur under Health Promoting/Comprehensive School initiatives. The impetus for such approaches stems from the theoretical foundation that healthy students are better learners (Whitty, Aggleton, Gamarnikow, & Tyrer, 1998). Similar policies are now being enacted throughout Canada, A consensus statement on Comprehensive School Health released in 2006 by the Canadian Association of School Health, and endorsed by a number of national organisations, emphasises the need to reduce the risk of health-related problems and support the healthy growth and development of children and youth. Earlier, Ontario's Ministry of Education introduced a new school health programme with the intent of "making Ontario schools healthier places to learn" (October 20<sup>th</sup>, 2004). Furthermore, a Pan-Canadian Joint Consortium for School Health has been initiated by health and education deputy ministers across Canada. Its first national symposium, *The Communities and Schools for Health*, was held in November, 2004. The Joint Consortium for School Health supports the advancement of comprehensive school health approaches stating that these initiatives can lead to improvements in children's health and wellbeing as well as their academic achievement (2007).

It is becoming more apparent that educational attainment is closely linked to health promotion efforts in school (Paulus, 2005), and the means by which schools promote student well-being through their organization and structure (Markham &

Aveyard, 2003). A potential sources of variability in the relationship between health and academic achievement are factors inherent to the structure and operations of a school. These factors have been described by Willms (2003) as contextual factors that consist of the environment in which teaching and learning takes place, school and classroom resources, interaction among peers, the relationships between teachers and students, the disciplinary climate of the classroom, and the norms for academic success. Other contextual variables are the school location (urban, suburban, or rural); size and type (public or private), as well as school resources such as the ratio of students to teachers.

The contextual effect in our analysis of 0.46, suggests that the difference in slopes can be explained by contextual factors attributable to schools or the collective properties of schools. These findings help explain our results that only 2.7% of the variation in marks within schools is associated with SRH, while around 20% of the variation in marks between schools is associated with SRH (Figure 2). Klinger and colleagues (2006) state that achievement is not only related to the efforts and actions of individual students “but also to the efforts and activities of schools and their staff” (p. 751), such contextual variables are important and need to be considered when examining student achievement. Studies have found that the social composition of schools predict school engagement, achievement, and dropout rates, even after controlling for the effects of individual background characteristics of students (Willms, 2003).

Our analysis has demonstrated a positive relationship between students’ SRH and their academic marks. Needham, Crosnoe and Muller (2004) point out that “if child and adolescent health problems destabilize student trajectories through the

formal schooling system, then the negative long-term association between educational attainment and adult health may be due, in part, to these early health problems" (p. 582). Efforts that address the health needs of students and create opportunities for improved health need to be explored as possible venues for enhancing academic achievement of students. Further analyses of the HBSC 2006 data will examine the associations of school-level factors which are the contextual factors derived from the school-level surveys to student health outcomes.

We were limited by the self reported scores for both health and academic achievement. In addition, the scales used may be more ordinal than continuous in nature. More reliable student achievement data would be made possible if HBSC surveys were linked to provincial achievement data. In addition sampling for provincial and board level data would provide considerable information about the distribution of health and achievement, the relationship between them, and how these relationships vary between and within these jurisdictions.

Policy recommendations outlined by Cutler and Lleras-Muney (2007) to diminish the gradients in health by education are designed to improve the quality of schooling and promote college and university attendance (National Poverty Center, 2007). In this respect, some argue that "health policy and education policy represent a two pronged approach to improving population health" (Monheit, 2007, p. 236). Others acknowledge the substantial interface between education and health at an early stage of human development and suggest health promotion, in its broad sense, contributes to a school's educational aims. Therefore, from this perspective, those dimensions that constitute effective and good schools, and those that promote the health and well-being of students, are not discrete but

overlap (Paulus, 2005). It is essential then that education and health sectors move to develop a common agenda and a shared public policy that can address the health of young people in schools and their academic achievement in tandem.

#### Notes

- 1) Standard deviation for marks =0.85; 14% of 0.85= 0.12.
- 2) Standard deviation for SRH =0.71; mean marks for students who report excellent health = 3.03 while mean marks for students who report poor health=2.37.

## STUDY II

### STUDENT HEALTH AND WELLBEING: AN EXAMINATION OF STUDENT AND SCHOOL FACTORS

#### Introduction

Adolescents spend a substantial portion of their lives in school settings, and their experiences in schools not only affect their academic development but also strongly influence their social-emotional and physical health development, both positively and negatively (Wells, 2000). Specifically, students' health behaviours and their views of themselves are related to their lives in school (Anderman, Maehr, & Midgley, 1999). In addition to the direct teaching of academic skills, schools provide opportunities for adolescents to develop relationally, emotionally, and behaviorally in ways that often have lasting impacts on their lives (Wilson, 2004). Given these important impacts of schools, it is not surprising that the values and expectations of society as a whole are reflected in our schools. Schools find themselves under constant demand to validate and legitimize their roles in a changing society, shifting the emphasis on the various outcomes of schooling (Paulus, 2005). Currently, these shifting expectations have resulted in a move away from conventional academic outcomes, to include efforts that address students' physical and mental health.

Since the onset of research on "effective schools" in 1979 (Rutter, et al.), student outcomes have been progressively narrowed to primarily assess academic outcomes, which are important, but not the only ones that matter (Hargreaves, 2001).

In response, there has been an ongoing call for school reform efforts to incorporate affective (psychological and emotional) outcomes in conjunction with academic (cognitive) outcomes (Phillips, 1993; Hegarty, 1994; Huebner & McCullough, 2000; Fitz-Gibbon, 2006; Weare & Gray, 2003). These efforts may be particularly important because physical and mental health problems in childhood and adolescence may compromise academic functioning (Field, Diego, & Sanders 2001; Needham, Crosnoe, & Muller, 2004; Thies 1999). Moreover, it is becoming more apparent that educational attainment is closely linked to health promotion efforts in school (Paulus, 2005), and the means by which schools promote student wellbeing through their organization and structure (Markham & Aveyard, 2003). Earlier research by Knuver and Brandsma (1993), employing models that examined relationships at the student and school levels, found that schools that were effective in the cognitive outcomes were also effective in promoting the affective outcomes. Therefore, it is reasonable to state that the dimensions that constitute effective and good schools, and those that promote the health and wellbeing of students, may not be discrete. These dimensions likely overlap, and efforts to improve student health through broad school interventions contribute to a school's educational aims (Paulus, 2005).

Comprehensive School Health initiatives and their European counterpart, Health Promoting Schools (HPS) have been proposed as having the potential of developing the positive health attributes of students (St. Leger, 2000), and their mental and social wellbeing (Lister-Sharp, Chapman, Stewart-Brown, & Sowden, 2000). HPS principles are rooted in social-ecological models that emphasize the need to address a setting's organizational and structural features (Dooris, 2004).

However, there is a lack of operationalisation of these dimensions, particularly as they relate to a school's environment and its links with the community (Deschesnes, Martin, & Jomphe Hill, 2003). As such, identifying school factors and conditions that are associated with student health and wellbeing would be useful for developing HPS initiatives. In response to this need to identify such factors, this study addresses the following research questions:

- To what extent do student health and wellbeing outcomes vary across schools?
- What are the student-level factors that are associated with students' health and wellbeing outcomes?
- What are the school-level factors, as reported by administrators that are associated with students' health and wellbeing outcomes?
- Does the relationship between school-level and student-level variables vary across different conditions?

### **Research Context**

Schools are increasingly recognized as social systems with the potential to enhance the health of their populations (Rowling & Rissel, 2000). These developments are rooted in social-ecological models of health that generally reflect a broad vision of wellbeing that encompasses physical activity, mental and emotional wellbeing, and social cohesion at both the organizational and community levels (Dooris, 2004). Accordingly, the "health promotive capacity of an environment must be defined in terms of the multiple health outcomes resulting from people-environment transactions" (Stokols, 1992, p. 19) and the environmental resources or constraints that could influence personal and collective wellbeing.

The underlying premise of HPS is that longer-term health improvements will only ensue if initiatives are integrated into a broader, multi-faceted health promotion strategy that supports sustained change, and moves “beyond the individual to encompass the school environment, structural issues and organizational practice” (Inchley, Muldoon, & Currie, 2006, p. 66). The aims of HPS include improving student healthy behaviours and lifestyles through increased physical activity and improved nutritional practices. Certainly, these outcomes are most often examined in empirical research. Recently, mental health and emotional wellbeing outcomes are also being considered, both as ends in themselves and as pathways to improving academic performance.

Within education, conceptual frameworks examining school effectiveness research view “schooling as a multilevel or nested phenomenon in which the activities at one level are influenced by those at a higher level” (Rumberger & Palardy, 2004, p. 237). Because student- level variables are nested within the higher level school variables, analyses using hierarchical linear modeling (HLM) enable the disentangling of student and school effects on student indicators and can account for the non-independence of observations within groups (Ma & Klinger, 2000; Raudenbush & Bryk, 2002). HLM analyses allow the separation of two potential sources of variability between schools: school inputs and school processes (Palardy, 2008). School inputs include compositional factors, school resources, and school structures. Compositional factors consist of the social and economic characteristics of the neighbourhood in which the school is located, the demographic composition, and the academic aspirations of the student body. The social characteristics of schools predict school engagement, achievement, and

dropout rates, even after controlling for the effects of students' individual background characteristics (Willms, 2002; Rumberger & Palardy, 2004). The school inputs are considered exogenous to the practices of the school's administrators and teachers (Willms, 2002; Rumberger & Palardy, 2004) yet create a normative environment that promotes or undermines academic learning.

In contrast, school processes are endogenous and have been described as Type B effects, because when statistical adjustments are made for the effects of other factors, they provide a better and more appropriate basis for comparing the performance of schools (Raudenbush & Willms, 1995). School processes refer to how schools are organized and managed, teaching practices within schools, and the climate schools create for student learning (Rumberger & Palardy, 2004). Variations in school processes and practices have been examined in relation to students' academic achievement (Lee, 2000; Ma & Willms, 2004), young people's health complaints (Karvonen, Vikat, & Rimpela, 2005), students' physical and mental health (Ma, 2000), and adolescent risk and health behaviours (Maes & Lievens, 2003). Findings from these studies indicate that differences in school processes are associated with differences in these student outcomes. While variations in outcomes have been identified between settings, there is a continued need to examine the underlying causes of these variations (Duncan, Jones, & Moon, 1998).

Nonetheless the interactions between school inputs and processes are complex and are considered to be a function of broader geographic units, such as neighbourhoods. The communities where people reside have been linked to variations in individual-level health indicators (e.g., Sampson, 2003; Sellstrom & Bremberg, 2006). Recent studies in education have also hypothesized school

factors as intermediaries of the neighbourhoods within which they are located. Schools as mediators of neighbourhood effects have been examined in relation to educational attainment (Brännström, 2008; Kauppinen, 2007), and academic streaming (Kauppinen, 2008). Support for the theoretical frameworks underlying these studies derives from Social Control Theory (SCT) (Jencks & Mayer, 1989, 1990). The SCT as applied to school contexts suggests that schools situated in disadvantaged neighbourhoods may find it difficult to attract and retain qualified teachers and staff compared to schools in more affluent neighbourhoods, and can also differ on the range and quality of resources available to them (Kauppinen, 2008; Nash, 2003; Willms, 2004).

One suggested mechanism linking characteristics of a neighbourhood to a school's context is through the 'contagion theory' (Jencks & Mayer, 1989, 1990), which has been the standard explanation for the compositional effects of schools (Dreeben & Barr, 1988 as cited in Kauppinen, 2008). According to the contagion theory, the socioeconomic composition of a neighbourhood determines what kind of behavioural norms are transmitted through the means of peer influence. This contagion of behaviours and attitudes from peers may occur in the school setting. Accordingly, the school neighbourhood may affect its social composition and determine the prevailing educational orientations and normative school ethos (Kauppinen, 2008). Results of a 10 year longitudinal study of 1,233 boys and girls from 217 public and private schools in Quebec, Canada lend support to this theory (LeBlanc, Swisher, Vitaro & Tremblay, 2008), that when students with behavior problems congregated in a common locale, or were concentrated within the same school, they tended to reinforce each other's behaviours. The researchers

concluded that the level of problem behaviours in a school is influenced to a large extent by the composition of the student body rather than by school organizational factors. Acknowledging the substantial effect that the inadvertent selection process contributes to a school's composition, Nash (2003) argues that schools can play a part in modifying their contexts and processes thereby effecting student academic outcomes. The complexity of disentangling the different dimensions of schooling warrants further exploration, particularly as they relate to the determinants of student health and wellbeing. Investigating the role of schools in this respect can contribute to the understanding of HPS in theoretical and methodological ways.

#### Data and Methodology

The data set used for this analysis is the Health Behaviour in School-aged Children (HBSC) study conducted in Canada in 2006. The HBSC is an interdisciplinary, cross-national collaboration that collects cross-sectional data every four years from students representing three age groups: the onset of adolescence – age 11; the challenge of physical and emotional changes – age 13; and the period life and career decisions are beginning to be made – age 15 (Currie et al., 2001). Principals or vice-principals at the participating schools also complete a short survey addressing issues related to school size and composition, school disciplinary practices, school policies, and teacher morale, satisfaction and relations with the community.

The 2006 administration of the HBSC in Canada consisted of a national sample of 9,670 students from 200 publicly funded schools. Data were obtained from students in all 10 provinces and three territories. Of these completed surveys, 4584 were from boys (47.4%) and 5086 were from girls (52.6%). The school-level

survey was completed by 187 administrators. To obtain reliable student measures, only schools having more than 15 students each were selected for inclusion in this analysis.

### *Measures and Variables*

The notion of health being a product of social-ecological factors implies that results of health promoting activities are not limited to observable health gains. Rather, they should reflect improved ethos or culture within a setting (Whitelaw et al., 2001). The HBSC study recognizes the multidimensional nature of adolescent health and adopts measures that are representative of generalized wellbeing and indicators of students' emotional health (Freeman, 2008). Self-Rated Health assesses perceived overall health status and is based on a single Likert-type item. The HBSC has used the Cantril ladder (Currie et al., 2001) as a global measure of student Life Satisfaction since 1998. Student life satisfaction is recognized as a measure of adolescent wellbeing because of its association with school and family factors, interpersonal relations, and indicators of adaptive functioning such as self-esteem (Heubener, Drane, & Valois, 2000; Huebner, Ash & Laughlin, 2001). The Emotional Wellbeing scale is a Canada specific scale ( $\alpha = .83$ ) and consists of variables that assess a range of self-concept and emotional health. Lastly, the Subjective Health Scale ( $\alpha = .80$ ) is a measure that has been developed and validated by HBSC researchers both in Canada and internationally with the goal of assessing a range of psychosomatic health complaints (Currie, Samdal, Boyce, & Smith, 2001). Descriptive statistics for these outcome measures are provided in the first horizontal panel in Table 1.

*Student-level Predictor Variables and Scales.* The selection of student-level variables to be included in the model was based on characteristics that would adjust for compositional differences within schools (McNeely, Nonnemaker, & Blum, 2002), and are considered as statistical controls or social distribution parameters (Lee, 2000; Palardy, 2008). Demographic measures included gender, family structure, and family wealth. Students' academic achievement was also included as a student-level predictor (see Table 1). A composite measure was created to assess students' perceptions of the neighbourhood where they lived. The neighbourhood Scale ( $\alpha = .80$ ) consisted of 7 variables. Pearson correlation for the neighbourhood Scale and family wealth was low but statistically significant ( $r = .22$ ) supporting the need for including these two apparently distinct demographic variables in the model.

Table 1

*Description of Student-Level and School-Level Variables*

	Mean	SD
Outcome measures		
Self-rated health	3.12	0.70
Life satisfaction	7.40	1.83
Emotional wellbeing (scale index)	38.21	6.82
Subjective health complaints (scale index)	31.38	6.53
Predictor variables		
Gender	0.53	0.50
Family structure	0.68	0.47
Family wealth	3.71	0.98
Academic achievement	2.88	0.84
Neighbourhood (scale index)	27.84	4.35
School Level Variables		
Total number of students	54.74	36.10
Student-teacher ratio	15.91	2.49
School socio-economic standing	1.84	0.75
School academic standing	3.27	0.70
Organisational health (scale index)	40.10	4.44
Aggregate school climate (scale index)	33.92	2.56
Student aggression (scale index)	8.89	2.24
Student problem behaviours (scale index)	9.80	3.10

*School-level Predictors and Scales.* Factors that reflect features of the schools were derived from the school-level survey. Due to incompleteness of responses to the HBSC school-level survey, many questions with a high proportion of missing variables were lost when list-wise deletion was conducted, which reduced the number and range of school-level variables available for analysis. Composition and demographic characteristics of the school were examined using the following: number of students, student-teacher ratio, school socio-economic standing as inferred from the socioeconomic level of the community that the school serves, and the school's academic standing relative to other schools. The schools' behavioural climate was measured using a set of twelve problems. An exploratory factor analysis, using Principal Component Analysis (PCA) with Varimax rotation, was employed for eleven of the variables (weapon possession was reported as a problem in only a few schools and was excluded), to determine the factor structure underlying these variables. Factors with eigenvalues greater than 1.0 were retained, and variables with loadings less than 0.4 were suppressed. Two factors emerged with loadings ranging from .571 to .835, and with no crossloadings. Constructions of the scales were done independently, that is, no decisions were based on prior knowledge of relationships among the independent and dependent variables. The set of variables loading on Factor 1 ( $\alpha = .82$ ) were labeled Problem Behaviours, since they reflected general problems found in most schools. The set of variables loading on Factor 2 ( $\alpha = .74$ ) were labeled Student Aggression, and these reflected more severe forms of student problem behaviours that would likely be found in high-tension school environments.

A set of questions about teachers' sense of control, their job satisfaction and relationship with the school's community and the school's learning environment, were completed by school administrators. Factor analysis of this set of teacher-based items did not result in clear factor loadings. Horn's (1965) Monte Carlo PCA for Parallel Analysis confirmed a one-factor solution and these variables were summed as a scale labelled Organizational Health ( $\alpha = .76$ ).

To gauge the school's climate as perceived by students, a School Climate scale ( $\alpha = .84$ ), consisting of six student-level variables, was aggregated and included in the school-level file. A number of the items from the School Climate scale have been previously used in the literature to create a School Connectedness Scale (McNeely, Nonnemaker, & Blum, 2002; Thompson, Iachan, Overpeck, Ross, & Gross, 2006). We chose to retain the label School Climate since it matches other research that uses a similar title, and it remains consistent with research conducted by Canadian HBSC researchers (Boyce, Roche, & King, 2008).

#### Data Analysis

Student- and school-level variables were transformed linearly, reversing the scoring as necessary using SPSS 16.0. Since missing value analysis indicated that missing values did not exceed 3.5% across cases, scales were created by summing the scores of the items comprising each scale, such that higher scores indicated a more favourable health indicator. These scales provide a more reliable measure of the constructs than could be attained by the use of individual survey items. Outcome measures were standardized as z-scores to allow the measures of effect to be reported in standard deviation units. List-wise deletion of the student and school-level data was employed. Each student-level survey was matched to a

corresponding identification number on a school-level survey. Student surveys from schools that did not have a completed administrator survey were eliminated, reducing the sample size to 6126 students nested within 134 schools. The student and school samples were subsequently analysed using HLM 6.06 (Raudenbush, Bryk, Cheong, & Congdon, 2004).

The multi-level statistical model aims to explain the variation in a given indicator by examining differences at the student- and school-levels, where students are nested within their schools. A two-level HLM model (see Raudenbush & Bryk, 2002; Raudenbush et al., 2004) was employed to determine the student and school variables associated with the four outcomes. Separate HLM analyses were conducted for each of the outcome variables: (a) Self-Rated Health; (b) Life Satisfaction; (c) Emotional Wellbeing; and (d) Subjective Health. Each analysis was done in four stages. The first stage produced a null model containing no explanatory variables to explain the amount of variability present at each level (Snijders & Basker, 1999), and partitioning the variance into within-school ( $\sigma^2$ ) and between-school ( $\tau_{00}$ ) components (Schumaker & Bembry, 1995). Student-level variables were added to the null model in the second stage, first separately to determine if these variables had a significant absolute effect on the health and wellbeing measures, independent of other variables, and to examine if the effect was fixed or random. A random effect, as opposed to a fixed effect occurs if a student-level variable has a varying relationship with an outcome across schools.

Student-level variables significantly associated with the outcome variables were then added in combination to determine if each variable had a significant relative effect on the health and wellbeing outcomes adjusting for the shared effects of the other Level-1 variables. Student-level variables were group-mean

centered since this allows for the detection and estimation of the slope heterogeneity (Raudenbush & Bryk, (2002) and “is likely to produce more robust estimates of unit-specific regression equations than is grand-mean centering” (p. 149). Group-mean centering decomposes the relationship between a student-level variable and an outcome into its within- and between-group components.

Following the same procedure, the school-level variables were added to the Level-1 model in the third stage, first separately to examine their absolute effects, and then in combination to examine their relative effects while controlling for other school-level variables. In the fourth stage, we examined if the differences in the slopes in level-1 variables (random effects) could be explained by school-level variables, helping to model the variation in the relationship of students’ individual characteristics to the outcomes.

## Results

### *Descriptive Statistics*

Correlations amongst the four outcomes were low to moderate but statistically significant. The strongest correlations were between Subjective Health and Emotional Wellbeing ( $r = .50$ ) and between Emotional Wellbeing and Life Satisfaction ( $r = .48$ ); followed by the correlation between Life Satisfaction and Self-Rated Health ( $r = .38$ ). The correlation between Subjective Health and Self-Rated Health was relatively low ( $r = .30$ ), implying that Subjective Health and Self-Rated Health may target different dimensions of health, and that the Subjective Health and Emotional Wellbeing scales may both be indicative of psychological wellbeing. Correlations among the school variables were moderate but significant and ranged from .19 to .49.

### *Partitioning of Variance*

All four outcomes varied significantly between schools according to the null models ( $p < .001$ ). The statistically significant between-school variances indicate variations across schools in Canada for Self-rated Health:  $\tau_{00} = \text{var}(\mu_{0j}) = 0.019$ ,  $(\chi^2(133) = 251.5, \text{Deviance} = 17470)$ ; Life Satisfaction:  $\tau_{00} = \text{var}(\mu_{0j}) = 0.032$ ,  $(\chi^2(133) = 332.0, \text{Deviance} = 16987)$ ; Emotional Wellbeing:  $\tau_{00} = \text{var}(\mu_{0j}) = 0.035$ ,  $(\chi^2(133) = 339.3, \text{Deviance} = 17110)$ ; and Subjective Health:  $\tau_{00} = \text{var}(\mu_{0j}) = 0.051$ ,  $(\chi^2(133) = 415.5, \text{Deviance} = 17213)$ .

Estimates of the effect sizes of the explanatory variables and their respective standard errors are reported for each outcome (see Table 2). The effect size is the amount of change in a health and wellbeing indicator, “expressed as a proportion of a standard deviation change” in a health outcome, associated with a one unit change in an explanatory variable (Ma & Klinger, 2000). When group-mean centering, the effect size in the Level-1 model, known also as the within-school slope, is the expected difference in a health and wellbeing outcome between two students in the same school who differ by one unit on an individual-level variable. For the Level-2 model, the effect size, known also as the between-school slope is the expected difference between the mean health and wellbeing outcome of two schools that differ by one unit on a school-level measure (Raudenbush & Bryk, 2002). Tables 2 present the fixed-effects and random intercept estimates and variances based on the fourth stage of analysis in which both student- and school-level predictors were included in the model. The results of these analyses are described more fully below.

Table 2

*Final models containing student and school variables associated with health outcomes*

Variables	Self-Rated Health	Life Satisfaction	Emotional Wellbeing	Subjective Health
	$\beta$ (SE)			
<i>Student-level variables</i>				
Gender	-0.20(0.03)	-0.13(0.02)	-0.26(0.03)	-0.36(0.03)
Family structure	0.05(0.02)	0.16(0.02)	NS	0.10(0.03)
Family wealth	0.14(0.02)	0.23(0.01)	0.05(0.01)	0.14(0.01)
Acad. achievement	0.14(0.01)	0.17(0.01)	0.12(0.02)	0.11(0.01)
Neighbourhood	0.26(0.02)	0.33(0.01)	NS	0.20(0.02)
<i>School-level variables</i>				
Student problem behaviours	-0.03 (0.00)	-0.023(0.01)	NS	-0.03 (0.01)
Student aggression	NS	NS	-0.02(0.01)	NS
Socioeconomic standing	NS	0.078(0.03)	0.07(0.02)	NS
Academic standing	NS	-0.065(0.03)	NS	NS
<i>Intercept variance component</i>				
Tau	0.012	0.026	0.027	0.043
Sigma <sup>2</sup>	0.892	0.730	0.891	0.834
<i>Proportion of variance explained</i>				
Student-level	9.2%	18.9%	2.3%	10.3%
School-level	37.6%	13.3%	18.2%	14%
Deviance statistic	16883.30	15718.0	16920.72	16556.00

NS: Not-significant

### *Predictors of Student Health and Wellbeing*

*Self Rated Health.* Approximately 98% of the variance in students' Self-rated health (SRH) was between students with just 2.0 % occurring between schools. All five student-level predictors were significantly associated with SRH (see Table 2). Higher levels of SRH were associated with better perceptions of one's neighbourhood ( $\gamma = .26, p < .01$ ), family wealth ( $\gamma = .14, p < .01$ ), academic achievement ( $\gamma = -.20, p < .001$ ) and living with both parents ( $\gamma = .05, p < .001$ ). However, lower levels of SRH were associated with being a girl ( $\gamma = -.20, p < .001$ ). Students' SRH were lower in schools with higher incidences of problem behaviours ( $\gamma = -.03, p < .001$ ). The final model explained 9.2% of the within-school variance for SRH, and 37.6 % of the between-school variance in SRH.

The only student-level variable that had a random relationship with SRH was neighbourhood. The relationship between neighbourhood and a student's SRH was steeper in schools with more crowded classrooms ( $\gamma = 0.02, p < .05$ ). The relative association between a student's neighbourhood and their SRH was greater in schools with higher student to teacher ratios. This suggests that lower student to teacher ratios may ameliorate the relationship between neighbourhood and SRH and could potentially have a protective effect on students from poorly rated neighbourhoods.

*Life Satisfaction.* Approximately 98% of the variance in students' Life Satisfaction (LS) was found to be between students and just 2% was between schools. All five student-level predictors were significantly associated with LS. Higher levels of LS were associated with better perceptions of one's neighbourhood

( $\gamma = .33, p < .01$ ), higher family wealth ( $\gamma = .23, p < .01$ ), higher academic achievement ( $\gamma = .17, p < .01$ ), and living with both parents ( $\gamma = .16, p < .00$ ). Lower levels of LS were associated with being a girl ( $\gamma = -.13, p < .01$ ). LS was significantly associated with a school's socio-economic standing, student problem behaviours, and a school's academic standing. A student's LS was significantly higher in schools with higher socio-economic standing ( $\gamma = .08, p < .05$ ) but lower in schools with higher academic standing ( $\gamma = -.07, p < .05$ ), and higher problem behaviours ( $\gamma = -.02, p < .01$ ). The final model explained 21% of the within-school variance for LS, and 36% of the between-school variance.

Two student-level variables, family structure and academic achievement, had a random relationship with LS. When modeled with the school variables, the positive relationship between one's family structure and LS was steeper in schools with higher levels of student aggression ( $0.03, p < 0.01$ ), suggesting that differences in the relationship between family structure and LS are greater in these schools. In contrast, students in schools with lower levels of student aggression reported more similar levels of LS despite their family structure. It is possible that schools with lower levels of student aggression are able to reduce the LS gap for students from single parent homes. When modeled with the school variables, the positive relationship between one's family structure and LS was reduced in schools with higher academic standing ( $\gamma = -0.07, p < .01$ ), suggesting that a school's academic standing has an ameliorating effect on the relationship between family structure and LS.

On the other hand, the differences in students' life satisfaction associated with academic achievement were lower in schools with higher socioeconomic standing ( $\gamma = -0.04, p < .05$ ).

Thus, the gap in LS between high and low achievers is reduced as the school's socioeconomic standing increases despite students' family structure.

*Emotional Wellbeing.* Approximately 96% of the variance in students' Emotional wellbeing (EWB) existed between students and just 4% was between schools. Three student-level predictors were significantly associated with EWB. Higher levels of EWB were associated with higher academic achievement ( $\gamma = .12, p < .01$ ), and family wealth ( $\gamma = .05, p < .01$ ), while lower levels of EWB were associated with being a girl ( $\gamma = -.26, p < .05$ ). Students in schools with higher socio-economic standing reported higher individual levels of EWB ( $\gamma = .07, p < .01$ ), but higher student aggression was associated with lower levels of EWB ( $\gamma = -.02, p < .00$ ). The final model explained 2.3% of the within-school variance, and 18.2% of the between-school variance in EWB.

One student-level variable, academic achievement had a random relationship with EWB. The gap in students' EWB associated with academic achievement were diminished in schools with problem behaviours ( $\gamma = -0.01, p < .05$ ). Thus, in schools with student problem behaviours, academic achievement is not as strongly associated with EWB as in schools with less problem behaviours. The positive association between academic achievement and EWB was also reduced in schools with higher academic standings ( $\gamma = -0.05, p < .05$ ). While such schools likely have

fewer lower achieving students, it is also possible that such a school culture helps to reduce the gap in EWB that would normally be associated with individual student achievement.

*Subjective Health.* Approximately 96% of the variance in students' Subjective Health (SH) occurred between students and 4.3 % of the variance was between schools. All five student-level predictors were significantly associated with SH. Higher levels of SH were associated with better perceptions of one's neighbourhood ( $\gamma = .20, p < .05$ ), higher family wealth ( $\gamma = .14, p < .01$ ), higher academic achievement ( $\gamma = .11, p < .01$ ), and living with both parents ( $\gamma = .10, p < .05$ ), while lower levels of SH were associated with being a girl ( $\gamma = -.36, p < .05$ ). SH was significantly associated with a school's socio-economic standing and student aggression. A student's SH was generally higher in schools with higher socio-economic standing ( $\gamma = .07, p < .01$ ), but lower in schools with higher levels of student aggression ( $\gamma = -.02, p < .01$ ). The final model explained 10.3% of the within-school variance and 14 % of the between-school variance in SH.

Two student-level variables, gender and neighbourhood, had a random relationship with SH. When modeled with the school variables, the gap between gender and SH was greater in schools with higher levels of problem behaviours ( $\gamma = -0.03, p < .00$ ), and higher socioeconomic standing ( $\gamma = -0.07, p < .05$ ). Girls reported relatively lower levels of SH in schools with higher problem behaviours, suggesting that such a climate may more negatively impact girls' SH than boys' SH. Interestingly, increases in the schools' socioeconomic standing were also associated with higher gender gaps in SH. It would appear that boys' SH obtains more of a

benefit from increasing socioeconomic status in a school than girls. Lastly, the positive relationship between neighbourhood and SH was stronger in schools with positive school climate ( $\gamma = 0.22, p < .05$ ) indicating that the gap between students from poor and good neighbourhoods increased as the school climate increased. Again, this suggests that students from better neighbourhoods receive more benefit in terms of their SH from a positive school climate than those students from poorer neighbourhoods. Alternatively, a negative school climate could reduce the positive association between one's neighbourhood and an individual's SH.

### Discussion and Implications

The question of whether, and how, schools make a difference to students' educational achievement, behaviour, or health continues to occupy researchers, policy makers, and practitioners (Kirk, 2006; West, Sweeting & Leyland, 2004). The HBSC provides a mechanism to examine the relationships amongst student health and wellbeing measures and schooling in Canada. Our findings illustrate that there are both individual and school level factors that effect students' health. Important student factors included gender, family wealth, family structure, academic achievement and neighbourhood, explaining between 9.2 and 21% of the individual level variance in Self-Rated Health (SRH), Life Satisfaction (LS), and Subjective Health (SH). These student factors were much less associated with Emotional Wellbeing (EWB), with gender, family wealth, and academic achievement accounting for only 2.3% of the individual level variance. Not surprisingly, increased health outcomes are associated with increased family wealth, two parent families, and higher levels of student achievement. We also found an important

association with the quality of one's neighbourhood and reported health outcomes. Nevertheless, these findings also suggest that these particular factors constitute only a small proportion of the constellation of individual components associated with students' health outcomes. As an example, there are likely underlying psychological and emotional factors that are not explained by social-demographic factors that impact students' health perceptions.

We were particularly interested in the associations amongst school factors and individuals' health outcomes. There are modest, but statistically significant, differences in the four health outcomes across schools, accounting for 2% to 4 % of the total variance in SRH, LS, EWB, and SH. Hence the health and wellbeing outcomes of adolescents are associated with both individual and school-level variables (see also Gilman & Huebner, 2006; Greenspon & Saklofske, 1997). From a HPS perspective, identifying school factors that are associated with health in its broadest sense implies that these factors could be the target of HPS initiatives. Four school-level factors were associated with the four health outcomes. Students' reported LS and EWB are higher in schools having wealthier populations. Of importance, this school level effect is in addition to an individual's own self-reported family wealth. Hence these students not only benefit from their own personal situation but also from the school culture created by serving such a population (Willms, 2004). In contrast, an increased presence of problem behaviours in a school was associated with lower levels of reported SRH, SH, and LS. More problematic behaviours (Aggression) were associated with lower levels of EWB. Our findings extend previous research that linked a school's discipline climate to

academic and non-academic outcomes (Ma, 2000; Ma & Klinger, 2000; Ma & Willms, 2004).

The negative association between a school's academic standing and students' LS is more difficult to justify. One possible explanation could be the pressures that students identify when there are high expectations in the school for achievement. The different associations for both student aggression and problem behaviours are also intriguing and worth further exploration. The aggression scale could be a proxy measure of school location (Palardy, 2008). In contrast, problem behaviours could reflect what Raudenbush and Willms (1995) call Type B effects, which are factors associated with school operation and functioning (see also Willms, 1992).

Lastly, we identified random associations amongst the student level variables and reported health outcomes. These random effects indicate that the relationships between these student variables and health are not consistent across schools. Further, there appears to be school level factors that either ameliorate or exacerbate these relationships. For example, students from less advantaged neighbourhoods were found to be at an even greater disadvantage in schools with more crowded classrooms. Similarly, these students do not seem to gain as much by the positive benefits associated with more positive school climates. This finding corroborates other research (see Anderman, 2002) that suggests when "a school environment is perceived of as supportive by many of its students, that supportive environment may be related to problematic psychological outcomes for those students who do not feel supported" (p. 806).

Our findings suggest that low achievers are emotionally vulnerable in schools with high academic standing possibly because they cannot keep up academically

with their peers, and also fare worse in schools with high levels of Problem Behaviours, suggesting the importance of providing emotional as well as academic support for students struggling academically in such schools.

On the other hand, students who do not live with both parents benefited from being in schools with high academic standing and low aggression, where they reported higher levels of Life Satisfaction. It is possible that, a positive school culture that exhibits low student aggression and one with high academic expectations provides opportunities for meaningful relationships and high expectations for students from single-parent families.

The relatively lower health outcomes by girls are also consistent with previous research. In particular, the negative associations between poorer school climates and health are greater for girls (see Gillander-Gådin & Hammarstrom, 2003). Yet the associations between girls and health outcomes illustrate the complex underlying interactions that occur amongst student and school factors. As an example, schools having higher socioeconomic levels were associated with larger SH gaps between boys and girls (see also Vuille & Schenkel, 2001). Such differential relationships across schools are important to examine and our findings highlight potentially important interactions that bear further examination and study.

One of the ongoing challenges of the HBSC surrounds the sampling of students. Permission procedures tend to reduce the number of students from disadvantaged situations. Hence it is likely that both the student-level associations and the between-school differences are actually underestimates of the actual situation. Similarly, the short principal survey encouraged participation but resulted in relatively general contextual variables that may be too narrow to adequately

portray school functioning. Moreover, school administrators may be reluctant to report sensitive school characteristics thus compromising the validity of a survey in collecting pertinent school level data.

The findings also highlight the need to develop alternative models of data collection that both include students from the entire spectrum of the school population, and also capture changes that occur over time in a school. Cross-sectional data, as used in the HBSC, make it difficult to establish the baseline levels (Aveyard et al., 2005) that are required to make causal inferences associated with school processes. Subsequent longitudinal data collection methods will better clarify the likely complex role of these school processes we have identified.

The practices and procedures in a school impact students' health outcomes. Further, these school processes alter the relationships amongst student factors and their reported health outcomes. However, as Scheerens and Bosker (1997) note, and our findings corroborate, explanatory variables may together have a complex effect on the outcome measures (see also Duncan, Jones, & Moon, 1998). Our associations between a student's neighbourhood and student health outcomes are particularly intriguing. These findings suggest there may be overlapping effects of schools and neighbourhoods (see also Brännström, 2008) on students' health and wellbeing outcomes, and these effects likely interact with individual factors, school composition, and school processes.

Our ongoing attempts to identify the relationships amongst individual and school factors and student outcomes continue to challenge researchers. As suggested by Palardy (2008) "while inputs and processes both impact outcomes directly, processes may also mediate or moderate the effects inputs have on

outcomes" (p. 25). While it is easier to change school processes than to change individual and family conditions (LeBlanc, Swisher, Vitaro, & Tremblay, 2008), it may be possible for schools to address the compositional effects resulting from the neighbourhoods in which they are located

As such, it becomes imperative to discern how schools can not only address the compositional effects emanating from the neighbourhoods in which they are located, but also their own organization, climates, and processes in an effort to enhance students' health and wellbeing.

## STUDY III

### The Health Promoting School: Two case studies in Ontario

#### THE HEALTH PROMOTING SCHOOL: TWO CASE STUDIES IN ONTARIO

##### Introduction

Let us rethink school health away from kits and projects to solve problems and use the school as an ongoing setting where health is created, supportive environments are built, partnerships made and many skills learned. Then we might be able to say this is what school communities can realistically do to build the health and wellbeing of their students now, and into the future (St. Leger, 2000, p. 408)

St. Leger's words echo the calls for an ecological approach, grounded in a contextual oriented view (Stokols, 1992), and a collective responsibility (Tones, 1986) towards health and wellbeing. The settings approach recognizes that health is not just a result of what individuals do to look after their own health, through healthy habits and lifestyles, but that health is shaped by the context in which individuals find themselves.

From a health promotion perspective, a setting has been defined as a place or social context within which people engage in daily activities where environmental, organizational and personal factors interact to affect health and wellbeing (Nutbeam, 1998). Accordingly, the recognition of schools as one of the settings that shapes student health required a shift in how health promotion is done from an individual level intervention to a whole school change program that included individual and institutional components (Bond et al., 2004). This shift also entailed the cooperation of individuals and groups acting at different levels for

health promotion to be successful (Green & Kreuter, 1990; Stokols, 1992, 1996; Dooris 2005).

The Ottawa charter for health promotion (1986), has been credited with reshaping school health across the world by embracing a more holistic approach and encouraging the health and education sectors to work together to develop the health attributes of students (St. Leger, 2000). Schools that aspire to be health promoting schools (HPS)<sup>1</sup> are required to adopt a set of guidelines developed by the WHO (1996) that include establishing school health policies, developing programs that promote health, extending the teaching beyond health knowledge and skills to take account of the school's social and physical environment, organizational practices. Additionally, it was seen necessary that schools establish links with community and partner organizations with the purpose of creating "a total context that is conducive to health and where not only the physical environment but the ethos and relationships provide a climate conducive to positive health and wellbeing" (Weare, 2001, p. 9). So far these guidelines have been well represented in theoretical frameworks, but there is little written on their implementation, application and practice (Inchley, Currie & Young, 2000).

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<sup>1</sup>Schools as settings for health approach have emerged in countries and continents under different labels. In Europe, parts of Asia and Australia it has become known as the Health Promoting School (HPS). While in the US and Canada there has been a preference for Comprehensive School Health. This study will adopt the term the Health Promoting School (HPS) to refer to healthy school initiatives throughout since the bulk of the research literature available uses the term

In Ontario, the Ministry of Education recognizes the value of activities and initiatives that promote healthy living in schools. In addition to physical activity, which is mandated for all schools, the Ministry's website lists a series of ideas and suggestions around becoming physically active and eating healthy. While there are no particular details specified as to how schools could implement these changes, the Ministry, through its school recognition program, posts the accomplishments of schools in relation to each of the various domains identified under the healthy schools banner.

These efforts to "social-market" the activities undertaken by the various schools, are recognized as important ways of getting the message out and for catalyzing and leveraging change (Adelman & Taylor, 2003, p. 21).

The demonstration projects highlighted on the MOE website are generally locally designed and implemented initiatives. In the absence of clear policy guidelines, successful implementation of school initiatives has been attributed to four individual and organizational factors: principal support; allocation of resources; formalization of the plan into policy; and teacher commitment (Elias, Zins, Graczyk, & Weissberg, 2003; Fullan, 2007; Hill, 1997).

Understanding implementation at a practical level has been recognized as essential for schools in the preliminary stages of their journey towards becoming an HPS. Rumberger and Palardy (2004) suggest that the area of research that holds the most promise for understanding and improving school performance is exploring and understanding school processes that consist of how schools are organized and managed, the teaching practices they use, school restructuring and various policies and practices that affect the social and academic climate they create for students.

The same logic can be applied to understanding HPS models that are recognized as a process in itself and not a preset outcome (Jensen & Simovska, 2002), whereby the tools for evaluating the implementation of HPS can identify processes by which schools can be more effective as health-promoting institutions, and the factors that influence this process (Tossavainen, Turunen & Vertio, 2005).

“Policymakers, implementers and target groups will form interpretations of policy language, legislative intent, and implementing actions, and that these interpretations may differ from each other” (Grin & Vand de Graaf, 1996, p. 296). Their ideas and theories have to be brought “to light” in order to reach a consensus on what deserves to be tested (Weiss, 2000).

Applying a bottom-up approach to examining policy implementation entails identifying the network of actors involved in planning, financing and delivering of service, and the examination of their goals and strategies (Hjern & Porter, 1981; Sabatier, 1997). Not only does this process reflect the logical reasoning and assumptions held by practitioners but also an understanding of how program clients or intended beneficiaries understand the program (Rogers, 2007). Examining the ways schools translate the HPS principles into practice should focus on the resulting system change manifest in organizations and conditions rather than on individuals (Wold, 1999; Greenberg et al., 2001). By mapping and understanding the relationships, interactions, and synergies within and between different groups the study will be able to generate a theory of the whole system (Dooris, 2005).

According to Weiss (1997), an interactive process is required in order to achieve successful theory-articulation. This process entails a combination of procedures that include observing the program in operation, discussions with

people involved in the program, review of evaluations of similar programs, and logical reasoning, followed by discussions and modifications until stakeholders agree with the final formulation of programmatic theory, only then will an evaluation will be credible and useful to them. Conducting case studies can obtain these linkages because they can provide a closer and deeper look at how a program is working and being implemented, highlighting ongoing challenges and barriers. In addition, case study research allows the generation of rich data from which explanations can be developed (Thurston, 2006), the understanding of “both the processes through which social realities are constructed and the social relationships through which people are connected to one another” (Miller, 1997, p. 3), and the triangulation of data from a variety of sources to enhance the validity of the findings (Inchley, Muldoon, & Currie, 2006). With these understandings in mind, the purpose of this study was to develop a portrait of a health promoting school by observing the workings of a case with the goal of examining its meaning (Stake, 2006). The study addressed the following research questions:

- What does a health promoting school look like?
- What are the perceptions of students, teachers and administrators regarding what constitutes a HPS?
- What are the key elements at the structural and organizational levels that need to be in place to allow a HPS to work most effectively?

#### Method

Contacts and meetings with practitioners associated with the health and education sectors from two boards in Ontario were established at the outset of the study. A group of stakeholders from school boards and health units who were

involved in healthy school initiatives were invited to serve as an advisory group for the study. Three meetings took place with the goal of exploring their assumptions and understandings about student health and healthy schools in what Patton (1997) describes as reality testing. In addition engaging stakeholders in the research process, the process of reality testing contributed to the direction of the study. Meetings, which took the form of working groups involved going through different tasks and activities. As an example, a definition of what a health promoting school was presented to generate responses and discussions. In one brainstorming activity, participants had to work in pairs and respond to statements and assumptions about health and healthy schools. One of the activities also involved mapping their understandings and aspirations for healthy schools with the *Foundations for a Healthy School* document available on the Ontario Ministry of Education website. Working with stakeholders in a participatory manner was useful in generating the research questions designed, and in an increased interest in a study they helped shape. Patton (2002) suggests that purposeful sampling in qualitative research provides the opportunity to examine information-rich cases for in-depth study. The stakeholders identified two schools (K-8), one in each board that was actively engaged in school health promotion activities and were identified in their respective school boards as being particularly successful healthy schools<sup>2</sup>.

It is important to note that although comparing the two cases was not one of the goals of the study, a single case is usually studied with close attention to other cases that share a common characteristic or condition which makes the “cases categorically bound together” (Stake, p.4). In this instance the two schools are categorically bound by the notion of healthy schools.

The first school Parkway, in the Parkway School Board, is located close to downtown in a small city with a population of approximately 20,000. The school serves around 350 students from Junior Kindergarten to Grade 8, mostly lower to middle income. The second school Highbrook, in the High-brook School Board, is located in a suburb of a medium size city with a population close to 130,000. The school serves around 700 students from Junior Kindergarten to Grade 8, mostly middle to high-middle income, and has an extended French immersion program. After permission from two school boards was granted, letters of information and consent forms were distributed to students, teachers, administrators and parents on school council, inviting them to participate in the study. Only students in Grades 6 to 8 were included since these correspond to age groups that are represented by the data set used for the quantitative parts of this study. None of the parents at either school returned consent forms.

Case studies of socially organized settings require multiple methodological techniques (Miller, 1997). Data collection included focus groups with teachers and students , a two hour school observation of playgrounds and recreational areas at each school, and semi-structured interviews with school principals, vice principals, key informants, and two teachers who were unable to attend the focus groups. Data were also obtained from a school health conference organized by one of the boards.

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<sup>2</sup> To ensure the confidentiality of participants, pseudonyms will be used to refer to the names of the schools and school boards.

A key informant is someone with an expert source of information and who assumes a position of responsibility and influence (Marshall, 1998). Key informants included two representatives from education and two from health who were actively engaged in developing, planning and implementing HPS initiatives in their respective jurisdictions. Corbin and Strauss (2008) recommend that concepts derived from early stages of analysis of qualitative data, and questions that emerge about those concepts, should inform and “drive the next round of data collection” (p. 144). The semi-structured interview questions for the key informants were revised after the data analysis for the other groups was completed. These questions became more specific as the researcher was seeking to saturate categories and themes by probing into the organizational and support features within each board, themes that frequently came up when interviewing administrators and teachers in particular.

In total seven focus groups of 4 to 5 students each, and two focus groups with 5 to 6 teachers each were conducted by the author and by graduate students who provided research assistantship during the process. Semi-structured interviews with the two teachers, three administrators and four key informants varied in duration from 60 to 75 minutes. All focus groups and interviews were recorded. The transcriptions were done by someone who was not familiar with the study. Using ATLAS-TI and beginning with one of the teacher focus groups, the author and graduate students identified and discussed the constructs found in the data and developed those into codes.

Next, analysis and coding of the data were conducted for each school independently by the two graduate students. The author then gave the transcripts

a detailed reading combining data codes into more general themes. An exploration of the themes across cases was conducted to identify uniqueness or overlap in the data. Thematic analysis was done in two stages: (a) within each school and (b) across the two schools and boards, with the latter serving as the basis for the examination of different models of implementation of HPS and the development of indicators of successful HPS initiatives.

The case studies demonstrated how the notion of HPS has been adapted in each of the school boards and presented the processes and organizational changes that led to creation of a HPS culture. Case study data allowed for a rich description of the HPS initiatives within the two schools including activities, and aspirations associated with being an HPS. Also captured is data about healthy school processes. This includes a look at related policies and how these are being interpreted, adapted and implemented.

The paper is organized in two main sections. The first section, the findings, presents the two models of HPS adopted by the schools and school boards in the study, the interagency partnerships that were implemented, and their funding processes. Findings also include the understandings that emerged around the HPS, the effects of the HPS on students and schools, and the factors that enabled these initiatives. Issues surrounding the sustainability of these initiatives are also presented. In the final section, I discuss the findings of the case studies and draw out the main implications of the HPS initiatives. Finally, by bringing the various stakeholder perspectives across cases together, it was possible to establish an inclusive operational implementation model of what makes a HPS.

## Findings

### *Models of Health Promoting Schools*

As the two case studies demonstrate, both schools and school boards aimed to bring about long-term transformations in cultures, values and conditions of schooling for their students and staff members. The HPS initiatives were seen as way of tackling a range of problems among the students they served by increasing the value attached to healthy living and healthy choices, increasing student engagement and involvement, and creating a safe school culture which were all essential for creating better learners. Although these goals were at times viewed as ambitious, they were seen as necessary if HPS schools were to claim a substantial impact. Administrators seeking to address these long-term, deep-seated, issues used the notion of being a HPS to adopt a strategic multi-initiative whole school approach to these issues. This section will present the approaches taken by each school board.

*The Parkway School Board.* In the Parkway School Board, the HPS project was part of a wider strategy to develop healthy schools and was spear-headed by a Physical and Health Education (PHE) curriculum coordinator. He took the initiative to establish a partnership with the local health unit in 2002. Following this, a healthy school consultation committee was established and included representatives from health, education, and agencies such as the Canadian Cancer Society, the Heart and Stroke foundation, and community representatives amongst others. Local consultations provided a context where expertise from different perspectives were shared to assess need and to reach a shared understanding of a healthy school. This process led to the creation of a strategic initiative to move forward and a HPS

blueprint was created which included a set of policies, guidelines and a resource kit. The offshoot of this process also was the creation of a dedicated management structure in the form of an coordinating and executive committee which included a PHE curriculum coordinator, the school-health manager from the health unit, physical health and education teachers, and members of stakeholder groups such as parks and recreation. The HPS executive committee was responsible for strategic planning and overall management of the initiative and was seen as a way to bridge service divisions, to allow the participation of key stakeholders in decision making and to construct a shared sense of aims and tasks. Since its inception the committee has evolved and now includes school-level coordinators. It is now also being co-chaired by the PHE curriculum coordinator and the manager of the school health team at the health unit. Funding and coordination of activities is channeled through the curriculum coordinator to schools. The public school board has a dedicated and funded position for 1 full-time PHE curriculum coordinator who is also responsible for healthy schools, and a half-time position for a resource person who provides training on a part-time basis to teachers at schools and oversees implementation of the daily physical education requirements.

The HPS executive committee conducts monthly meetings to develop action plans and organize HPS activities within the board and schools. The committee also organizes two conferences each year in its board that brings teachers, health professionals and other stakeholders together.

Currently, teachers who are members of the HPS executive committee are seen as the middle system of leaders or school facilitators. In addition to teaching full-time they each oversee a group of 5 to 6 schools including their own school.

The duties of the facilitators to their family of schools include sharing the communiqués from the HPS executive, seeking resources, and providing support to move through the process of becoming a HPS. Each facilitator is given six days of release time each year to work with their schools, attend conferences, and to manage administrative details. Funds from the school board are also used for supply coverage when facilitators attend meetings which normally take place during the regular school day. The committee provides each school with \$400 that was allocated by the MOE for enhancing daily physical activity in the schools.

The Health Unit provides one financial commitment for two half-time school health nurses to provide support for all health promotion programs in school. The program budget also provides in kind contributions for office supplies and use of facilities. The school health nurses, together with the HPS executive committee, also submit annual proposals to Life Works Coalition, Ministry of Health Promotion, to support their program activities although getting these funds (\$5,000 to \$6,000 ) is not always a guarantee.

The role of the school health nurse manager is to (a) improve working relationships between the Health Unit and schools and the school boards, (b) connect the health unit programs with the school programs, (c) work closely with the curriculum coordinator to develop and provide materials for distribution to schools, and (d) provide professional development teachers around health themes. For example, at one of the bi-annual conferences, school health nurses worked closely with teachers helping them interpret nutritional information on food packages and relating this information to Canada's new food guidelines, an exercise that would support the changes to the nutrition guidelines in schools.

Although the executive committee in the Parkway School Board recognized that adopting HPS initiatives requires a cultural change, they realized that selling it as such would be overwhelming and akin to setting schools up for failure. Accordingly, the committee broke down the notion of the HPS into three core pillars: (a) school environments; (b) curriculum delivery; and (c) supports and services.

Schools were given the flexibility in working practices and in identifying the pillar they wanted to focus on. For example, the Parkway School embarked on the HPS by focusing on student participation and leadership as one of their first priorities. The school created a school health committee and developed a plan to increase student participation through newly created clubs, student committees and intramural activities. Working closely with the school health executive committee, parent volunteers and community partners, the school boasted an improvement in student morale, feelings of ownership and pride in their school. Within the span of four years, the school had 75 students organizing leadership committees and activities compared to around eight students at the inception of the program.

*The Highbrook School Board.* In the Highbrook School Board, creating a position for a HPS coordinator was spurred by the Ontario Ministry of Education (MOE) legislating daily physical activity (DPA) in 2005. The original focus at the time was to “to get all schools to a high level of DPA implementation” as explained by one key informant. Similar to the Parkway School Board, a committee was brought together by a champion for healthy living who was a physical and health education teacher, and who saw a need for coordinated efforts among schools around physical and health education policy at the time. The committee comprises

educators, senior administrators from the board office, principals, community partners, and school health nurses from the public health unit. The perceived lack of leadership and support for implementing DPA across school led to the creation of a full-time position at the local health unit for a physical education specialist. The teacher who was the champion of the school-board initiative was seconded to the health unit. This arrangement had the advantage of giving schools external support, from an individual who fully understood the challenges the schools were facing and would help produce tangible action plans. The position receives 0.75 of its funding from the health unit (HU) and 0.25 from the school board. The activities of the PES fall under five categories:

- To provide professional support for teachers in schools around ways of delivering DPA and incorporating physical activity into their daily practices and provides training around the use of novel equipment acquired by schools to enhance their physical education programs.
- To seek funding to provide professional development for teachers, wellness days, workshops for student leaders and to purchase new sports equipment for school gyms and classrooms.
- To coordinate the HPS committee and share ideas for activities and events around physical activities in school.
- To act as the liaison between the health unit and schools and school boards.
- To instigate links with other agencies and programs in other jurisdictions.

The physical education specialist, who was a teacher at one of the schools, attends the curriculum departmental meetings at the board once a month to provide updates on the activities taking place in schools and to stay in the loop in

terms of MOE expectations. Unlike the HPS executive committee in the Parkway School Board , the purpose of monthly meetings of the HPS committee in the High-brook School Board is to share information, receive updates from the PES on new programs from organizations such as the Ontario Physical Health and Education Association (OPHEA) and share resources. As such the committee does not assume a management responsibility but serves as an advocacy group by promoting the activities of its members.

While leadership at the High-brook School Board is located at the health-unit, funding to schools is channeled through the school board to participating schools. Schools that are interested in becoming a healthy school are invited to submit expressions of interest to the PES but have to demonstrate their engagement in a health promoting activity and outline a plan of action. The consequence is that funding is contingent on creating a strategic framework for planning and delivery to expand their activities. Schools that are active are usually the ones with a champion who becomes the lead teacher at the school for promoting healthy school initiatives.

Encouraging schools to achieve their DPA goals and providing support by someone who has the 'know how' and expertise in physical education and in teaching is valued beyond its immediate goals and is seen as an entry point into schools. As such, improved physical activity is seen as a conduit for a series of school health improvements through increased student participation. By reaping the benefits of becoming physically active, the schools can then proceed to address other health interventions with the support of the school-health department at the health unit. The school-health manager, the liaison between the health unit and

the school board administration, oversees all the school-health nurses with their different capacities, and meets with superintendents and board directors monthly to respond to their requests for other health promoting activities.

In summary, both school boards had established and dedicated supervisory and management structures. However, the oversight for implementing the HPS in the Parkway School Board, the coordinating committee, was more a formalized decision making group that included multiple stakeholders in addition to facilitators who were champions of the HPS at their own schools but provided support for other schools as well. In contrast, the focal point for supporting for the HPS at the Highbrook School Board, were in large part with the physical education specialist seconded to the health unit, acting as a coordinator with support from school health nurses.

The coordinating committee and coordinator were seen as “change agent positions” (Adelman & Taylor, 2003, p. 22) recognized as vital to driving forward healthy schools initiatives. These agents were particularly valued by teachers who saw the importance of healthy schools initiatives but did not have the personal capacity to implement them. The role of coordinators is important not only for attracting and coordinating funding but for: (a) providing specialist expertise and support, (b) reducing the management burden on existing leadership teams in schools who are still involved in their regular teaching and administrative responsibilities, (c) helping schools network with other schools that have had more experience, and (d) linking schools to community groups and agencies. A key feature of both school boards is that there was a significant lead-in time allocated before initiatives were implemented. Such a process is not possible or feasible when

partnerships and projects are saddled with the pressure to deliver tangible results under tight time constraints (Milbourne, Macrae, & Maguire, 2003). Unlike short-term projects, the advantage of allowing projects to incubate before hatching meant that decisions and plans put in place were not ad-hoc but were intended to overcome differences and to establish models to work collaboratively. Models as such are not static but have evolved over the course of the partnership. The approach of the coordinating committees also varied according to the needs of each school within their jurisdictions, and the available resources and capabilities at schools. As Milbourne and colleagues (2003) suggest, “the clearer the project is about its aims and the way it should work, the stronger it is in arguing its own values and outcomes” (p. 27). For both cases, the philosophy of a healthy school entailed a concerted effort to produce incremental but manageable changes that are elements of a whole school cultural change, but that would occur over time. As such, these developments were seen as part of a process rather than as discrete events that required collaborative efforts by schools, school boards and partnerships, which will be discussed next.

### *Interagency Partnerships*

A partnership is defined as a voluntary agreement between two or more agents to work cooperatively toward a set of shared goals (Gillies, 1998). The existing record of collaboration between the health units and the school boards was highlighted by key informants as one of the key factors for the success of the partnerships that were developed, in line with similar research suggesting that “most effective inter-agency work results from teams where individuals already have a history of working together” (Milbourne, 2003, p. 32). Moreover, the

success of the partnership was attributed to a gradual and sustained process of trust-building where both partners worked closely to understand each other's aims, priorities and working styles. The process was not always straightforward given the pressures under which both sectors are working and the time and financial constraints. As such, it was important that the process of developing these partnerships was given ample time to develop through a series of progressively small-scale activities.

Interagency collaboration between involved joint meetings, discussions, planning, and professional development. There were also positive repercussions to the health-education partnership that occurred in these boards. Key informants reported increased visibility across sectors, highlighting the contributions of each, improved communication channels, increased opportunities for joint decision making and enhanced capacity to secure resources. While these partnerships were seen as essential for improved interpersonal relationships and for mobilizing formal and informal organizational capacities and resources, they can also bring out some of the existing tensions rooted in disciplinary differences (Milbourne et al., 2003). For example, educators appreciated the role that nurses played in the professional development of teachers through the workshops they conducted but felt that nurses did not have the instructional tools to be in the classroom teaching students about health issues, and to engage students in the process. Moreover, educators felt that at times the resources at the health units, while plentiful, were not always made public, highlighting the need for improved visibility of the school health nurses and improved communication channels:

*they have a resource centre that you can hook up with, I mean anyone can access it but if you don't talk to the health unit on a regular basis you would never know what they had or just how much support they can provide for you (Grade 8 teacher)*

On the other hand, health professionals felt that since initiatives were in schools, educators were always in the driver seat and were the gatekeepers to delivering health messages:

*a lot of the times we're trying to get our programs in the door and it's not necessarily what the schools are looking for so they don't have to work with us, so any time someone from the school board says we would like to work with you to promote health in our schools we're game. It means that we can, you know, do our programmes and reach our mandate, and just that partnership coming to us instead of us always trying to go to them is nice (Key Informant)*

Although the point of delivery for activities were generally the schools, there were examples of joint health-education initiatives that extended beyond the school boundaries where both worked together to plan local strategies such as wellness days and health focused one-day camps for students. Planning these activities and events entailed a clear outlining of financial commitments and a planned funding formula, details of which are addressed next.

#### *Funding for HPS initiatives*

The ways in which projects attached to the HPS developed was shaped to a large extent by the funding that was available to schools. In Highbrook School, a capital investment from the school board allowed for the revamping of playground and yard facilities to include a soccer field, basketball courts, a fitness trail, a mini-putt area, and installation of new equipment and improvements to existing facilities. The financial demands required supplementing and matching funds through sizeable donations, fund raising, and in-kind contributions from parents and community members who had a stake in improving conditions at the school.

The school playground improvements were seen as an efficient way to use the funds and were considered by the principal as way of providing a tangible benefit to the school and community on the long-term.

To some degree, all projects depended upon multiple funding sources and the effective co-ordination of finances. The funding model for HPS as it exists enables schools to carry out at times disjointed activities. In many cases, such as in Parkway School, the principal's use of funding was to release staff to manage the initiatives rather than to fund particular activities, and for the purchase of equipment. The drive and entrepreneurship of school teachers and administrators led them to plan their own projects and enlist the support of other agencies in their delivery. Active seeking of financial support from a complex web of sources was sometimes done by approaching various service agencies in the community and corporations with the hopes of them contributing resources in kind, or sharing the financial burden:

*it is a private company so it's great to see that the corporation has decided they need to do something in our community and they supported us with grant money to have lines drawn on the tarmac. We had to find the person to do it and then submit the bill and they paid so that was a real great partnership (Administrator)*

By the same token, however, the necessity of seeking multiple funding sources implied that HPS activities had to be funded by a succession of short-term arrangements that would jeopardise the sustainability of some of these initiatives. Relying on donations and provisional financial support meant a hiatus in funding for some core activities in a school:

*another company [name] had a group of employees come and teach playground games to the kids, so we've had them come a couple of times to our school, but they couldn't come back this year because they're trying to spread it around (Administrator)*

The pursuit of funding was regarded as an unwelcome distraction from the real business of developing healthy schools, and some leaders felt that they had to jump through hoops in order to maintain their momentum. They were also concerned that the different funding sources were not properly allocated and get siphoned into other initiatives that take precedence which keeps HPS initiatives underfunded. This led to a sense of disappointment and frustration:

*each board in the province receives funds for programs labelled as support program enhancement such as physical education, outdoor education. Although school boards are directed on how to spend the funds in those subject areas, there's always a clause at the bottom that says, or as needed. So what happens is that the money gets whittled down really quickly, so then all that other money that was there is just somewhere else, so I think boards have the flexibility to do some of that (Key informant).*

In addition to these strategies, schools had to simply prioritize their existing budgets in order to support HPS activities, on the grounds that what they were doing was of direct benefit to their students:

*When you look at the grand scheme of funding, the funding for providing a healthy environment is very minimal compared to funding for literacy or numeracy, somebody's got to be there to champion the cause (Grade 8 Teacher)*

Despite the acknowledgement that funds allocated to healthy schools programs will never match funds allocated directly to the core activities of the school, participants wished that they could have a stream of dedicated funding that sees HPS as central to their educational purpose even if that meant they had to be accountable for the funding and spending:

*we need the money to get the time, the release time to sit and talk about the stuff, because we're just doing it on the fly most of the time (Grade 8 teacher)*

## *Understandings of the HPS*

The point of departure for both cases was how to create a school culture that would address barriers to learning through the healthy development of students. The HPS was not regarded as a discrete activity, but rather as a way of being that pervades all aspects of school life and links to the core objectives of the school (St Leger, 2001). In this manner, the HPS was not regarded as a set of tasks that had to be checked off a list but as a wide-ranging school initiative that permeated the fabric of the school and appeared to be linked to a whole-school effort:

*it's more about a culture and how that school is to live, work, and play, it's a feel of a school, it's how you connect with people, and every decision they make in that school is done so with health in mind (Key Informant)*

*it's an initiative that never really ends, there's not a start and a finish date, there's not a list of we've done this, this, and this, so check we're a healthy school. It's something that they do every year forever and that can be frustrating I think for people, especially if you happen to be task oriented (Administrator)*

Moreover, there was a sense that although the delivery differed, the underlying goals were essentially the same and there was a shared basic understanding that a HPS is not just about physical activity, as some might assume, but about addressing the multiple needs of students. A number of participants expressed their thinking on these matters:

*it's the whole child that comes to you at the start of every day, and we need to foster that because sometimes they're not necessarily going home to an environment that has that same sense of value, you know, they may be going home to something that is not constructive (Administrator)*

*to me it's all about from the moment they get on a bus to the moment they get into their door at the end of the night, have they had an environment that talks to all of their qualities, we're going to try and help them stay healthy by making right choices, we want them to have a successful time on the yard with their peers, and we're going to try and develop the skills and the activities in order to give them that (Administrator)*

*they're all elements of the same package, a healthy school, a healthy body, a healthy mind put together and you have the healthy student (Administrator)*

Running through these understandings is a common thread that HPS are essentially initiatives that relate directly to the core business of schools in enabling children to become healthy well adjusted learners:

*but we're here to help to try to make, you know, positive citizens for the future and giving them a whole skill set for being responsible and useful citizens for the future and part of that means giving them a sense of wellness (Grade 8 teacher)*

Administrators saw the various interest groups at school all united under the banner of a HPS, but realized that what was required was the need to establish a common school goal and to orchestrate the goals of the diverse committees that were in place:

*there was the school beautification committee, the yard revitalization group, the living schools committee, the character education committee, and there was a gym committee that got the different equipment for the activities in the yard, so all these different committee chairs were doing their own thing and nobody was kind of working as a group. So what I did is I brought the chairs from each of the committees together because I found it very overwhelming, we were going in many directions, and to me they all fit together (Administrator)*

Not only was bringing the groups together to the table important for achieving a common goal, so was coordinating the various agendas in an efficient manner:

*we developed one plan for the whole school that would kind of dovetail everything in together because by changing the landscape of a school I really do believe you transform the culture of everybody at the same time. So not just by the physical changes but by the dynamics that occur when people work together, so that was it (Administrator)*

Administrators were concerned that the narrowing of educational goals had led to an education system that is singularly focused on achievement outcomes while losing sight of non academic outcomes at the expense of educating the whole child. Lamenting the current state:

*why is it now in the year 2008 that we're talking about character and student behaviour and safety, and about obesity and children being inactive... that tells you that there are some things that are missing from what we've been doing, so I think we have to look at it in terms of a society what we value and say here's what an educated child looks like and then we work towards that (Administrator)*

There was a general agreement that schools could not be effective in achieving their educational goals if they perceive their fundamental role too narrowly. Rather, student achievement was seen as closely tied to social and health issues such as opportunities for personal development, social interaction, participation and engagement that cannot be entirely provided by the formal curriculum, but through a HPS initiative. As such, this led to a sense of frustration:

*the Ministry of Education's priorities are three: increasing student achievement, reducing the gaps in student achievement, and instilling public confidence. So if you look at those three things, I mean health promoting schools can help support the first two and they really fit in the third one of restoring public confidence in what we're doing in our schools (KI)*

Teachers and administrators alike believed that despite the Ministry of Education advocating for promoting health through schools, they lament the fact that these initiatives are still not highly valued:

*I actually wish the Government would recognize how important it is to have healthy active kids because it really does benefit the learning environment (Grade 7 teacher)*

There was a sense that establishing the connection between the positive outcomes that are associated with healthy schools through research might make a difference to the support they receive for their work:

*It's a safe environment because we're a healthy school. We don't have data to support the benefits of being a healthy school. To make the Government change that mandate we need to start collecting data on this stuff to make it known how beneficial it is to our kids (Administrator)*

However, as the literature suggests, similar initiatives that aim to influence the contextual changes “in which health is created and experienced” (Gillies, 1998, p. 114) do not lend themselves well to measurement indicators. Considering that when the main concern of organizations are qualitative changes for human beings, “there are few agreed performance standards available [nor] any obvious bottom line against which progress can be measured ” (Edwards & Hulme, 1995, p. 11 as cited in Milbourne et al., 2003). However, participants believed that having data to support their observed benefits is a way of legitimizing their efforts and justifying their actions. The next section presents the effects of becoming a HPS as observed by the researchers and articulated by the study participants.

#### *Effects of the HPS on Students and the School*

*Physical activity.* In 2005, the Ontario MOE put forth a legislation requiring all schools to implement daily physical activity (DPA) for all elementary schools. Despite the best intentions, schools often lacked the necessary capacity, resources, and support to effectively implement this legislation (Cooper, Fusarelli, & Randall, 2004). Most teachers valued daily physical activity (DPA) and recognized its benefits to the physical and emotional wellbeing of students:

*one might look at physical activity as being one component, but we look at health as being kind of an overall mental health (Grade 8 teacher)*

There was a generalized sense, that students, particularly those in the younger grades eagerly awaited the chance to move around and be active:

*when you say the word fit break to them they know exactly what that means, and I get that: its 2:20 [Miss] it's time to be active. And they hold us accountable for what we need to do and they value it, they really do (Grade 4/5 teacher)*

Moreover, a number of teachers acknowledged that increased opportunities for participation in physical activity is also about shifting students' perceptions and understandings of physical activity from being a means for competitive sports geared toward "super athletes" to a conduit for healthy lifestyle:

*I've had a lot of comments from kids that they say, you know, I finally like phys. ed. and it's about, just doing the best that I can and being healthy (Grade 7 teacher)*

Some teachers commented that adopting a healthy lifestyle was not limited to students' lives in school, but extended beyond school hours to become part of a daily routine:

*I'm running after school on the fit trail, you know, I've decided to come, me and my dad (Grade 7 student)*

On the other hand, students appreciated the few opportunities they had for participating in intramurals which made them feel good about themselves and provided them with the chance to participate in team sports that they enjoyed but could never make the cut for at the competitive level:

*they pick the best people first and then like the not so good people are last and then it makes you feel really bad, and sometimes they leave people out and that's not fair (Grade 7 student)*

Having the whole school engage in daily physical activity at the same time was seen by one of the teachers as essential to bringing the whole school together. In his words, "I think the 20 minutes which we have together is a really big key to our success at being an active school instead of being active individual classrooms". Involving the school's athletic council, consisting of students in the intermediate grades, in planning and leading some of these sessions was key to developing

student engagement and leadership and allowed for a more positive student-teacher interaction:

*when you're active with your kids and they're buying into it, it allows you to interact with them on a different kind of level, kind of playing with them a little bit more than maybe you might just by talking to them in the classroom in a more static way (Grade 8 teacher)*

In addition to the athletic council, students in one school were trained to be physical activity leaders where they support teachers in the primary classrooms and in the gym. Training students for these responsibilities meant the students learned valuable leadership skills while creating opportunities for other students at school to be active:

*they lead physical activity games for three weeks and then the teacher can walk away with those games, they've seen kids lead them and now they have, you know, a basket of new games that they can play, and we made sure that every set of three weeks there was new games going in the classrooms so that also relieved some of the stress off, you know, the teachers who might not necessarily feel comfortable running these things (Grade 8 teacher)*

Although no formal evaluation of outcomes of the HPS were conducted, anecdotal reports by key informants suggested positive effects on students, teachers and the school communities in a range of ways. Schools saw a decrease in discipline problems on the schoolyard, less students being sent to the office during the day for problem behaviours, fewer suspensions, and improved attendance rates. Participants attributed these positive changes to the broad range of programs that were put in place that led to increased student engagement and connectedness to school, and to a vision of HPS that extended beyond physical activity or nutrition to encompass intramurals across all grades, clubs that were geared to students not interested in physical activity and sports such as crafts knitting, media and chess clubs including many others. Increased opportunities for students to be physically

active and participate in various school clubs and activities allowed them to use their time constructively:

*I really think that it's also cut down on a lot of difficulties that you might typically have on the yard because you're not necessarily having as many people who are bored and by being bored they are, you know, getting into mischief. Because they are busy doing things they are more likely to be positive and I think that that's cut down quite a bit on the kinds of issues I've had to deal with out on the yard as a teacher over the last number of years. (Grade 8 Male teacher)*

*Student learning.* The positive effects of becoming a healthy school were not only noticeable in relation to students' behaviours and effective use of time but also in relation to students' academic performance:

*they learn through better relationships and because of all these other things we're doing they're more involved with their teachers, also the more they see their teachers having fun shaking a bayonet for their team and they see and all that personal interaction I think has an effect on how well the kids learn and pay attention and how much they're willing to give to their teacher in the other areas (Grade 4/5 teacher)*

A number of students confirmed these perceptions and were eager to attribute their improved learning to the changes at the school:

*I used to always get really low marks on my report card like B's, C's, and D's all the time, and then once we started doing the healthy active school which I think was Grade 5 I think um all of a sudden there was an A on my report card and I was so happy and I didn't know what it was from. The next year I got A's, this year I've been getting A's all the time, and I think it is because of the healthy food because I never got it before, not at school, I never got A's before, and I think because this is the only healthy school I've ever been to that that's helped with my learning (Grade 7 student)*

*like I used to get C's and B's on my report card, but I think that was because I never really concentrated because I was always eating junk food and just doing something lazy or something, because then when I started eating healthier it just helped me concentrate and like be better (Grade 7 student)*

*The physical space.* A key philosophy underlying the healthy schools was that students had to be actively engaged during recess and could pursue their varied

interests rather than just being idle leading to bullying and fights. In Parkway School this was achieved by moving to a balanced school day with two 40-minute recess times that gave students more time out to play, while alternating the juniors and intermediates. In Highbrook School, the yard was designed by taking into account the ratio of students to play areas:

*I just kind of quantify things by looking at space on the yard and how people use it so that if there's a basketball court there's probably going to be, you know, 20 kids that might be consumed by that space, if you go ahead and do that all the way around the schoolyard, a soccer field you're looking at probably 30 or 40 kids right, so if I have a school of let's say 600 kids and I have about 500 play spaces well then I'm doing pretty well, but if I'm sitting in a school of 600 and I've got 200 play spaces then I've got a problem  
(Principal)*

While one administrator recognized the importance of yard beautification projects, he was sympathetic to the reluctance of some schools with limited resources to undertake such projects to improve their play spaces because of the demands that puts on schools:

*a lot of schools, you know, because of maintenance they like to keep them kind of like barren wastelands so that they don't have to do the upkeep, like right now, you know, you look at this and say well it's beautiful, but who keeps it up over the summer, so you have to create a program where parents come in over the summer to weed and water and take care of the space otherwise it's not going to be sustainable  
(Administrator)*

The Highbrook School recognized that yards are not only intended for students who want to be on the run at all times but need to allocate a space for students who need some peace and quiet over the recess:

*we named it the peace park just to make sure that it was kind of significant so this is a really quiet, reflective, tranquil place, and I think that that's helped because if somebody is having a difficult time they know that there is a space for them away from others that gives them time to kind of reflect  
(Administrator)*

However it was clear that in Highbrook School, with a more affluent parent composition, the school was able to generate more funds through individual donations and more ambitious fundraising efforts. As a result, the school had a

state of the art playground that was beautifully landscaped, with each section dedicated to a specific sport and school grade. In addition the school had a large screen TV at the entrance, by the main office that is used to grab the attention of students and the school community and serves to communicate different events happening at the school. The changes that were implemented to the school yard, though intended to meet a specific local need had positive repercussions beyond its perceived intention within the community:

*It's not just during school hours either it's after school, we have kids that come back and they use the yard, they ride the fitness trail on their bikes, there are adults out there running the fitness trail, it's a safer place to run, we have people out there walking dogs which is great too, it's well used (Administrator)*

*Healthy eating.* Both schools implemented changes to improve students' dietary practices. These changes included the snack options available through vending machines and providing classrooms with snack baskets. One school just offered fruit, while another offered baskets filled with various snack options such as fruit, fruit cups, apple sauce, crackers, and cheese strings and these were available to all students to choose from:

*like for me yesterday, I didn't have any fruit so I went to the snack basket and got one (Grade 7 student)*

*everyone has an opportunity to at least choose something healthy even if they didn't get sent with it from home, and also kids will come with, you know, not a huge lunch, or good one, but sometimes just a sandwich and an apple and maybe that's it, and sometimes not even that, but we have lots of food here, and that's all donations (Grade 8 teacher).*

However, in the school where drastic changes to the hot lunches were made, students felt that to keep the prices within reach, the quality of the food was compromised and a lot of the food they ordered was thrown away because it did not taste well:

*we're selling less than we did before but at least we're modelling or at least trying to model what they should be eating (Grade 7 teacher)*

On the other hand, students valued the gradual changes that Parkway School undertook with regards to delivering the healthy school message and felt it allowed them to become critical about the food choices they made:

*the thing I like about the school is they don't force you to eat healthy things, they suggest it but they don't force you. I know some other healthy schools where they will force you to eat healthy food and if you don't, like if you bring in an unhealthy snack then they'll send a note home saying to pack healthy things, and I think that's wrong, like it's not going to make you become healthy, like you need to choose yourself to be a healthy person (Grade 7 student)*

Part of engaging students in decision making around healthy foods was to appoint them as peer tutors where students in grades 7 and 8 act as lunch monitors by going to the primary classes and encouraging students to eat their sandwiches and fruit before their cookies for example, thus reinforcing healthy choices in the process. Having a breakfast program at one school was also seen as a way of encouraging healthy eating. In addition, the program addressed a particular need and was seen as valuable in its own right:

*the healthy breakfast program that we have here is essential to the school, it gets kids to school on time in a lot of cases, it makes sure the kids have the right start (Administrator)*

As stated by the principal it was important that "the tone of the breakfast was right and did not create a leveling process" whereby students are embarrassed, intimidated or shy about using it. As such the program, supported by donations, was available to all students. In her words, "we never question if a child wants to eat, we never question it. It's just not done". Many students appreciated the opportunity to have a good start to their day and were grateful for having the breakfast program at their school:

*I can concentrate more if I had a really good breakfast. Like this morning I had a bagel and peanut butter and it makes me feel good for the rest of day...cause when I don't eat I don't concentrate, I just concentrate on that I'm hungry, I'm hungry, I want food, I don't want to do work, and so it [breakfast club] helps (Grade 7 student)*

*Increased student participation.* There was consensus from teachers that HPS initiatives linked well with a range of educational initiatives aimed at addressing the difficulties experienced by children and young people struggling academically and emotionally. As such, being inclusive and addressing the needs of vulnerable students and those with different needs were seen as a feature of being a healthy school. Above all, what was important was providing opportunities for students to participate even in a small way to school life:

*I had a girl last year that didn't get involved in anything and didn't have a great home life and I kept at her and let her know that I cared and wanted her to get involved, I sent her down to the primary classes with another student to teach the primary kids how to do that conga line, and that even like just that one leadership opportunity she had she took it so seriously because somebody believed in her, so I think you can reach those kids you just have to keep trying, and finding something that they like (Grade 7 teacher)*

Students with learning disabilities (LD) at one school were taught to how to become self-advocates speaking up for themselves, and to understand their learning disabilities. Their participation was encouraged whereby students with LD were responsible for putting the snack baskets together and delivering them to the classrooms. This activity was not only regarded as essential to their self-esteem but also incorporated teaching them about healthy foods. Their inclusion into school life was also enhanced by a educating other students in the school about learning disabilities therefore reducing their stigma and isolation. Students struggling with their studies were also provided with continued support through a study skills program, where teachers were available in the library over the recess to tutor and

provide support for doing homework that was incomplete or perceived as challenging.

*Approach to discipline.* Teachers felt that punitive approaches to problem behaviours do not help students learn to deal with the challenges that they might face on a daily basis. They believed that at the heart of being a HPS, is to help students gain inter-personal and social skills and learn how to address inter-personal problems. In this manner, teachers have created a communal model to dealing with conflict in a safe and reassuring context:

*it's a program called TRIBES. I have students calling emergency community circles in which they sit in front of 30 of us, we have a rule of no names, and they sit around the circle and they say, there's a couple of people in the classroom who are making fun of me and it's making me feel horrible, and they say that in front of all of us and then we talk about why, about where it stems from, and they come up with strategies, and they feel better about expressing it, and I have solved many issues this year with that circle and it's been amazing, really, really amazing (Grade 8 teacher)*

The TRIBES program was also seen as a way to fill in a need to allow students to voice their problems and get some feedback on how to deal with these issues in the absence of qualified counsellors at the school:

*I'm not a qualified counsellor but, you know, you do your best but there's so many things coming out in these circles that the kids feel they have a voice, they feel like problems are getting solved, I'm giving them their voice so that they do have the confidence to tell people in the future, you know, this is how I'm feeling....it's a powerful, powerful tool (Grade 7 teacher)*

It was important for schools to depart from practices that were viewed by students as punishment. One way of dealing with problem behaviours was to allow students to reflect on their actions and discuss them in an open accepting way:

*so students if they come in a high level of stress we're not going to solve anything with me going directly at them. They know the routine, they come in and I say: we just sit down for a while to let you calm down, I'm going to give you a paper if you want to write things down before you talk, and let me know when you're ready (Administrator).*

Teachers also felt that accommodating the needs of students, particularly those in the intermediate grades, and respecting their autonomy such as allowing them to listen to music using their iPods and to snack when they felt like it, created less tension in the class and saw a tremendous change in how they conducted themselves:

*homework completion skyrocketed to a point where almost everybody almost every day was done almost everything and so that was a really positive way, you know, a positive response to I guess my method of approaching these guys (Grade 8 teacher)*

The positive effects of becoming a HPS was seen as a product of interacting factors that made these changes possible. Common themes emerged from the data. These themes, presented as enabling factors, were interwoven into participants' responses throughout, and were recognized as key to the success of the HPS initiatives at their schools.

#### *Enabling Factors*

*Leadership.* Research suggests that in general the duty of principals revolves around organizing and structuring the operations in the school with the goal of achieving effectiveness and efficiency (Bolman & Deal, 1991). However, both schools benefited from having visionary leaders that were able to achieve a sense of commitment, ownership and a sense of shared values (Larsen & Samdal, 2008). The principals at each of the schools were credited for being the main driving force behind the HPS initiative by providing direction (Daft, 1999), a key strategy for the implementation of new initiatives. These leaders were described as dynamic individuals who had the belief and motivation to make their vision a reality:

*he tends to be an agent for change in the sense that he knows how to bring people together and say I've heard what you said and I've heard what you said and now here I'm going to share with both of you what you're saying and here's the common message (Grade 7 teacher)*

Although the priorities of the initiative came from the leaders, teachers felt that their input and ideas were valued and taken into account throughout the process. Not only was the administrator at the school seen as guiding the HPS movement but was perceived as someone who created a more horizontal form of leadership at the school and who valued a collaborative approach and fostered a sense of community:

*I really feel that a lot of the messages that come to us from the Ministry of Education are ones where your role as a teacher is this, the role of students is this, and if you have issues with that then you go to the administrators, like it almost feels to me that they're trying to kind of pull that whole sense of community apart in some of the things that they're asking us, so because of [the principal] there is this whole sense of we're in the big picture together, it's not just admin here and staff here and then teachers (Grade 8 teacher)*

*She was enthusiastic and the thing is that once you see her involved you got motivated yourself. So she was, her enthusiasm and her leadership saying we're going to do this, got people started (Grade 4 teacher)*

In particular, there was a belief in the values and long-term benefits of a HPS

*You cannot discount support of an administrator no matter what initiative it is within a school, if you don't have the support of an administrator and somebody who's there to say yes we believe in the whole child, yes we believe that this should be happening and it shouldn't just be what the Ministry of Education might be mandating to us as far as curriculum, we want our kids to be this way, that's why we have this I feel (Grade 8 teacher)*

Research by Hjern and Porter (1981) suggests that success of an initiative is contingent upon the efforts of actors within a locale, and the implementation structures put in place. Alignment of goals around common and shared core beliefs (Sabatier, 1991) at the school and board levels were credited for being able to shape the organizational conditions that are necessary for adopting the HPS:

*we just have a really strong group of core people I guess at the board office level and then it trickles down (Grade 8 teacher)*

*A participatory and inclusive approach.* Achieving their vision did not preclude these leaders from being attuned to the needs of their school communities. For instance, principals undertook a needs analysis and a school-wide consultation. The consultations were a means of enabling the school community to help shape the course of the HPS initiative. The process also enabled the principal to identify the needs and the activities that students and staff envisioned would meet their requirements:

*we did a big brainstorm as a staff, students, and parents, they came up with all the things they wanted to see in their schoolyard (Principal)*

*our administration took a great approach when they asked all of our kids what they wanted on the yard and they surveyed our kids and then they surveyed us and they implemented kind of the strategies that the kids wanted so it became their choice and their voice about what they wanted on the schoolyard (Grade 7, teacher)*

Accommodating the needs of members of the school community was not regarded simply as a pragmatic approach but rather as a means of promoting ownership and responsibility. Administrators believed that teaching students about respect entailed providing them with opportunities for decision making and taking responsibility for those decisions. As one teacher explains:

*he instilled this program of adopt a yard, so each class has now adopted a portion of the yard and it's their responsibility to look after it and care for anything that's happening in that part, so it's really given the kids a sense of ownership and pride. Like my kids own the front and if they start seeing the tulips going which they're going to start in the next couple of days they're going to tell me it's time to come out and trim the tulips (Grade 8 teacher)*

*Teamwork.* Teacher alignment and commitment (Donaldson, 2001), was established in both schools through a dialogue with teachers when introducing the HPS initiatives. As a consequence, establishing a HPS team at the school-level that met monthly was essential to align teacher and school efforts, to establish a plan

for concrete activities and to maintain the school focus (Daft, 1999). Moreover, a climate of openness in communication among teachers and a positive attitude towards change were viewed as essential for the implementation of new initiatives. Teachers talked about cooperation and crossovers, where teachers in the intermediate grades were helping with younger grade activities and vice versa:

*I think it's made people who would be very uncomfortable teaching physical activity much more comfortable, and that's been a change (Grade 4/5 teacher)*

Some teachers felt pressured by the demands that the requirements for DPA placed on them, particularly those who felt they were never involved in sports themselves:

*when you're a teacher, like you know you're trained for teaching the math, you're trained for teaching language, at what point in time are you really trained to teach phys. ed., and if you're not an athletic person it's just like being thrown in art, like I find it absolutely ridiculous to have somebody who hasn't done music since Grade 6 teaching a music program. Hello, like it doesn't make logical sense (Grade 7/8 teacher)*

However, the various efforts integrated into the schools to provide support for those teachers and the collective commitment and enthusiasm of the HPS team were seen as vital to supporting discouraged teachers. It is well recognized, that teachers who are provided with resources and training are generally more likely to implement changes required than those who do not (Larsen & Samdal, 2003). Accordingly, having the support of the PES minimized the stress associated with taking on responsibilities they were not prepared for, and was essential to developing their knowledge and repertoire of skills they can employ when applying DPA in their classroom.

*Parental and community partnerships.* Initiatives that have been found to be successful are those that have strong community representatives and involvement

(Gillespie, 1998). Similarly, effective community partnerships and collaboration with other agencies are an important catalyst for advancing the HPS initiatives:

*we've had OPP Officers serve in the Breakfast Club in the morning, and the kids love it so I think it's just nice for them to see the police in a positive way right so I think that's a good community partner to have as well  
(Administrator)*

In one school consultations around planning and goal setting for the HPS initiatives at the school level involved a wide range of parent council representatives and community partners such as children's mental health services:

*we all met in the library and we had discussions on what would a healthy school look like, where are we now, what steps would we need to take in order to get where we're going, and this was mapped out on the walls on chart paper all around (Grade 4/5 teacher)*

Schools appeared to see activities involving parents and families as complementary to their efforts to provide additional support for children's learning in addition to the fundraising efforts that they undertook.

The enabling factors presented are intrinsic to any successful school initiative, but were seen as necessary components for steering the course of becoming healthy schools. However, the energy and optimism around HPS initiatives was overshadowed by the realization that these factors, while important in their own right, are not enough for the long-term viability of a HPS. Limitations for sustainability, as perceived by participants, are presented in the next section.

### *Sustainability*

Sustainability of the momentum related to the healthy school activities and thinking through the viability of activities beyond the academic year was threatened by several factors relating to funding, infrastructure and conflict with curricular requirements. Participants saw long-term sustainability dependent on a dedicated central support mechanism whose sole responsibility is the coordination and

delivery of HPS initiatives. For example in the Parkway School Board where a central support mechanism was put in place, coordinators and facilitators still had to juggle their responsibilities as full time teachers and administrators:

*If those were full-time paid positions we could do so much more and the schools would go so much further if they had that support. And when you read about programs that are doing really well it's that they have someone, a nurse or somebody in the school leading that committee, and we just don't have the staffing for that, so that would be probably my wish, you know, to have a whole team of staff, public health nurses, teachers, dieticians, health promoters working together, leading all of these schools and having full-time to do that (Key informant)*

Some saw sustainability in terms of the drive and good will of the groups and individuals at the school that were responsible for the development the HPS initiative, but realized the difficulty associated with staff mobility:

*We'll have a change in Principalship next fall and I mean the first thing that some of us will be doing is knocking on the doorstep of this new person and saying listen we've been doing this, and this matters, we value it, and we need it to continue, and hope that there's support there (Grade 8 teacher)*

This raised very real issues about sustainability for projects, not simply in terms of a loss of funding, but also of the trust and goodwill they had begun to build up in their communities through their leadership.

It is generally found that school initiatives are more likely to become sustainable if they become integrated into school improvement plans (Adelman & Taylor, 2003). The MOE, on its website, has included a clause under the heading 'Tips' encouraging teachers and principals to "Include healthy schools activities as a part of your school's improvement plans" (2008). This lack of formalization of healthy school policies into actual school improvement plans was perceived for what it is- symbolic policy (Cooper et al., 2003). Participants felt that HPS initiatives were

still regarded as an add-on to the school's activities and that did not seem to make sense:

*going back to government policy you know, if you look at the Ministry of Education's priorities there are three, increasing student achievement, reducing the gaps in student achievement, and instilling public confidence. So if you look at those three things, I mean health promoting schools can help support the first two, and really fit in the third one of restoring public confidence in what we're doing in our schools (Key informant)*

While teachers strongly believed that the HPS did not distract from the goals of schooling, they still felt that HPS initiatives were not a priority when it came down to the academic goals of schools:

*if they're like an OFIP<sup>3</sup> school which is a turnaround school, that has been identified by the Ministry and that needs help in literacy, you'd be hard pressed to get them to have a healthy schools focus (Grade 8 teacher)*

Likewise, teachers understood the value of embedding the HPS initiatives into a wider range of school and board-based initiatives but felt that they were sometimes unsure where to start with the competing and conflicting messages they receive and the lack of alignment of policies emerging from the various MOE branches:

*I worked at the Ministry this summer writing curriculum and you really realize how segregated they are there, you know, in terms of funding, in terms of policy branches working, they all work very separately so they all have separate agendas and it's probably only the big people at the top who understand really what's going on and what's driving what (Key informant)*

Moreover, there was a consensus that the MOE provides a lot of information on what should be done in schools, yet they do not provide information on how things should be done to fit in all that is required:

*if both initiatives are coming down from the Ministry but the Ministry is saying oh no you can't do DPA during French, you can't do DPA during math or language they're basically shooting themselves in the foot because they're discouraging us from doing it (Grade 8 teacher)*

Some teachers were clear on how the HPS initiatives related to other agendas in their own areas, but called for more guidance on how to achieve co-ordination with other strategies. The difficulty of fitting all the requirements in was also exacerbated by the time demands required for each of the curriculum strands, literacy and numeracy, by the MOE:

*there's just not the time..when everything's mandated because it is 180 to 220, about 80 minutes, so two periods a day, which gives us all a rotary and that's when we have to fit in DPA as well, and in rotary we have the science, the history, the geography, music, art, drama, and computers, so we now have seven subjects for two periods a day (Grade 7/8 teacher)*

Others felt that they had to give up the struggle to try to balance the demands for healthy activity and the curriculum requirements and focus on what was recognized as more important by their superiors:

*what gets rewarded is how a school performs on the EQAO not whether they're doing DPA every day right, so I feel that teachers have to set their priorities or they won't meet those needs. I don't always get to DPA. My students are constantly reminding me, and I'm like well guys sorry it's language period (Grade 8 teacher)*

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<sup>3</sup> Ontario Focused Intervention Partnership (OFIP) Schools are those that are determined to be low-performing and or "static" based on grades 3 and 6 provincial results in over three years and are provided intensive and targeted literacy and numeracy support in order to improve student achievement

A common message that emerged is the need to have a coordinated message and guidance from the MOE on how to enable schools to respond to the new agenda. Yet, some argue that the lack of external controls that require adherence to certain prototypes might actually contribute to the success of locally created inter-agency projects especially where “voluntary cooperation is being built upwards to drive developments forward” (Milbourne, p. 33). Centrally prescribed targets and performance mechanisms have been shown to stifle and restrict innovations that adapt to local contexts (Gewirtz, 1998; Milbourne, 2002) especially when programs cross disciplinary boundaries (Milbourne, 2002).

Currently, the Ontario Healthy Schools Coalition<sup>4</sup> (OHSC) assumes the provincial role of advancing the healthy schools agenda, providing a forum for sharing success stories, knowledge sharing and advocating for strategic action both at the Ministry of Health Promotion and Ministry of Education. The latter, for example, is in the recent efforts by the coalition to encourage members on their mailing list to provide their input on the newly drafted curriculum strands. While the coalition is credited by many for the role it plays in bringing the healthy schools agenda to the forefront, and for maintaining that momentum, educators feel that they are generally underrepresented and unable to consistently be part of the teleconferences and the annual forum that the OHSC conducts. As one key informant explains:

*when you look at the list of their attendees who might be on a teleconference call there are many boards on there, but what is the power of that person and what is the role of that person and what are they doing to get more educators? I think that is a missing link. I don't think the invitation is ever made to education, except if you're a member of the coalition and you're on their mailing list. If I went out to my teachers in my school right now and I talked to the phys. ed. teachers they would not even know that the OHSC existed. So how do they get in? They have to work with teachers as a community and share resources, and a lot of times their approach is not working for educators*

Other problems identified are that teleconfernces take place during school hours and the forum during the school year which makes it impossible for schools to pay for release time for teachers. "Was I the only teacher there? I thought I was", commented a teacher regarding the last OHSC conference that took place May in Toronto.

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<sup>4</sup> In December 2000, the Ontario Public Health Association (OPHA) Healthy Schools Workgroup merged with the University of Toronto's Centre for Health Promotion "School Health Interest Group" and the Coalition of Ontario Agencies for School Health to form the Ontario Healthy Schools Coalition (OHSC).

## Discussion and Implications

This study, based on two schools, each in a different Ontario school board, used qualitative methodologies to better understand the nature and existence of health promoting schools (HPS). This included looking at the perceptions of students, teachers and administrators regarding what constitutes a HPS, and the key elements at the structural and organizational levels that had to be in place to allow a HPS to work most effectively from the perspective of students, teachers, administrators, and key informants. Findings are presented in an implementation model (Figure 1, Appendix A) which illustrates the agents involved in implementation of the HPS, and the elements that constitute these initiatives.

The case studies confirm that the term HPS acts as an umbrella term for a very wide range of practice. Despite this variety, it was possible to identify common features which both school boards and schools shared. The development of a HPS was seen by the participants of the study as fundamental to enhancing both the health and learning goals of students, and as a catalyst for enhancing a school's culture and climate. Moreover, there was a shared basic understanding that a HPS is not just about physical activity as some might assume, but about addressing the multiple needs of students. The school recognition program awarded by the MOE, for being a healthy school may mean no more than undertaking a few additional activities to increase student participation in physical activity and changing food and snack options. However, the development of a HPS school, at least as interpreted by participants in this study, is considered a comprehensive, whole-school based venture.

Anecdotal reports by study participants suggested that the HPS had positive effects that were palpable in a range of ways. In all cases, a more positive school culture and climate that encompassed students, teachers and the school communities was highlighted as a key attribute of becoming HPS. The whole-school cultural change was seen as a conduit to long-term improved student health, wellbeing and learning. Such long-term outcomes are likely to be more difficult to identify, and for some skeptics may well be attributable to other initiatives as well as to the HPS approach. Nonetheless, in both cases, administrators, teachers and key informants were able to articulate a 'theory of change', showing how their actions were part of a series of changes that are essential to ultimately generate a whole school approach. Activities which were already having immediate impacts often formed part of a sustainable, strategic approach which was considered to produce more fundamental changes in the longer term.

Each school board interpreted their tasks within their financial and resource constraints. The lack of explicit policies and guidelines for the implementation of HPS models has allowed school boards to make decisions to meet their local needs, without attempting to outline any one preferred model of a HPS. This is in line with the finding from the literature that initiatives of this kind tend to take on many forms as schools explore what is possible and required to meet their own requirements. Allowing organizations to undertake their own needs assessment and identify their own priorities galvanizes their interest in the venture (Gillies, 1998). Not surprisingly, therefore, the cases did vary in the range of activities they undertook, the management structures that were put in place, and the way their resources were used. The efforts by the schools to develop into HPS also

represented a range of initiatives with different features, aims, and target groups within each board. It is also worth adding that there was a good deal of similarities between schools with regards to offering a range of activities that were agreed upon as part of an overall physical and health strategy. However, schools were able to identify the activities that seemed to be a priority considering their conditions and developed activities according to arising needs in a particular situation.

HPS schools, in their current forms, are a recent phenomenon and a range of teething problems is only to be expected as they begin to be established.

Nonetheless, these problems were not seen as discouraging but were viewed as necessary steps in moving along the HPS continuum. In this context, what is remarkable is how resourceful school boards and schools were in tackling these problems. It is obvious that the two HPS projects, were, of course, made possible because of a group of enthusiastic and motivated people with a shared vision. Yet, as the two cases illustrate, the mechanisms for the development of HPS schools required dedicated management and leadership structures from both boards of education and the health units, an embedding of healthy school activities in wider school board plans, the deployment of coordinators with appropriate levels of expertise, a willingness to invest in genuine partnerships with other agencies, and a high degree of cooperation and collaboration between administrators and teachers, and across levels of teachers.

Given the ambitious nature of the HPS developments identified in the case studies, there are aspects of current provincial policies and structures which were perceived to be less than helpful. These include the time-limited nature of funding sought from various agencies, and the wider context of initiative-led funding.

Moreover, the failure of HPS initiatives to be incorporated into other educational strategies or be part of school improvement plans resulted in conflicting and competing demands on time and resources to achieve curricular goals.

As more schools jump on the HPS bandwagon, a basic underlying question that needs to be addressed is whether the development of HPS is viewed simply as one short-term initiative at a time, amongst many, or is it part of a longer-term vision for how schools should operate.

Tsouros (1995) has likened the HPS to a social movement rather than an intervention (cited in Nutbeam, 1998). Such an approach requires more fundamental examination of how current provincial policies and structures are negotiated and outlined. In terms of subsequent provincial roll-out, it becomes necessary to translate the various elements of the demonstration projects undertaken by the various schools under the Ministry's social marketing scheme into a blueprint for how schools should adopt and implement HPS initiatives. Such a blueprint would put forth committed policies and clear guidelines for implementation including information on:

- a. Developing the HPS into a whole school strategy.
- b. Alignment and co-ordination of the HPS strategy with other Ministry strategies.
- c. Incorporating healthy school initiatives into school improvement plans.
- d. Include HPS programs into the professional development of teachers.

However, the blueprint as a stand alone document requires the commitment of resources both financial and human to be translated into practice. A dedicated central support group at the provincial level that equally represents the health and

education sectors would provide the scaffolding to schools and school boards required during the implementation of HPS, and would work closely with experienced full-time coordinators and facilitators at the school board level.

Researchers have called for a closer integration of health and educational activities in advancing the HPS (Paulus, 2005; Dooris, 2005). The success of the initiatives provided in the case studies is predicated on successful health-education partnerships. Further research in other contexts in Ontario is required to identify factors that might impede such partnerships, and the supports that need to be in place to allow organizations rooted in distinct disciplines to capitalize on their differences (Griffiths, 2000). To achieve a synergy between health and education in the implementation of HPS initiatives, dialogue should occur at the onset of partnership development to outline the following:

- a. The strategies each sector follows around school health.
- b. The shape the partnership will take and the level of the partnership.
- c. The investment and commitment to the partnership by each sector.
- d. The fiscal and human resources allocated.
- e. The responsibilities for identifying action areas to be shared by both agencies.
- f. The coordination of funding streams by each sector that would support a long-term strategy.

The development of the HPS was driven by health professionals who saw it as an opportunity to enhance population health by accessing young people across various social strata (Young, 2006). The fact that the model did not originate in the education sector emphasizes the need for a HPS model to be relevant to both public

policy sectors where linkages between education and health can be mapped (St. Leger & Nutbeam, 2000), and the relationship between education and health can be translated into practice. A key element of a settings approach to health promotion is that it attends to both public health and organizational agendas, where the action for health must help deliver the core business of the setting (Dooris, 2004), which is precisely what the schools in the two case studies endorse.

By examining two schools in distinct school boards, this study was able to present two models of interagency partnerships and management and coordination supports created to implement healthy school initiatives. This made it possible to articulate the network of actors involved in planning, and delivering of HPS initiatives, and to examine their goals and strategies. The understandings of the program by the beneficiaries and those who deliver were also brought to light and clarified. These contributions are a first step in reaching a programmatic theory of HPS (Weiss, 1997) which were not possible with this study. While an in-depth examination of schools was intended, the study time-lines were such that the presence of researchers at schools was confined to a few days during a busy time of the school-year (May and June) which made it impossible to get hold of participants. Future research would benefit from a prolonged presence at schools to include a wider sample. Furthermore, it would be insightful to include decision makers at the Ministry of Education and Ministry of Health Promotion to include their perspectives and get an insider perspective on the workings of the policy process surrounding the healthy schools agenda in Ontario.

## Appendix A

### Implementation Model of a Health Promoting School (HPS)

An implementation model and a programmatic theory are useful for establishing evaluation mechanisms and frameworks to monitor a health-promoting school's practice, including the degree of implementation, and the effectiveness of the HPS approach. The implementation model of HPS activities in the two case studies is represented in Figure 1. The model illustrates the agents involved in implementation of the HPS, and the elements that constitute these initiatives. Each of the hexagons represents the governing bodies for the education and health sectors at the provincial levels, in this case, the Ontario Ministry of Education, and the Ontario Ministry of Health Promotion. The ovals each represent members of each sector at the board/regional level that are responsible for overseeing school health programs. Within boards of education these may be curriculum coordinators for physical health and education. Within public health units these likely include both the school health managers and school health nurses responsible for addressing school health programs through the Chronic Disease and Injury Prevention Department.

The rectangle with rounded corners represents a coordinating committee or a coordinator that is predicated on a partnership between education and health. In the case of the Parkway School Board, facilitators or school-coordinators, are also members of the coordinating committee.

The two-way arrows between the coordinating committee/coordinator depict the linkages and collaboration required between this oversight entity, and the school-level school-health committees as well as school staff (administrators, teachers, and support

staff) and students who work together to enact the Health Promoting School (HPS). The three core elements of the HPS as identified in the case studies are students' physical and emotional wellbeing and the staff's professional wellbeing. Moreover, enacting the HPS initiatives requires support from community partnerships represented at the bottom of the figure. Sustainability of the HPS initiative requires support to a large extent by the coordinating committee/coordinator. The dashed box around the Provincial-level School Health Committee indicates the absence of this structure at the time this study was conducted. The dashed lines depict the proposed relationships such a committee would have with the board-level school health coordinating committees in addition to the support it would provide for a long-term strategy and sustainability of HPS initiatives.

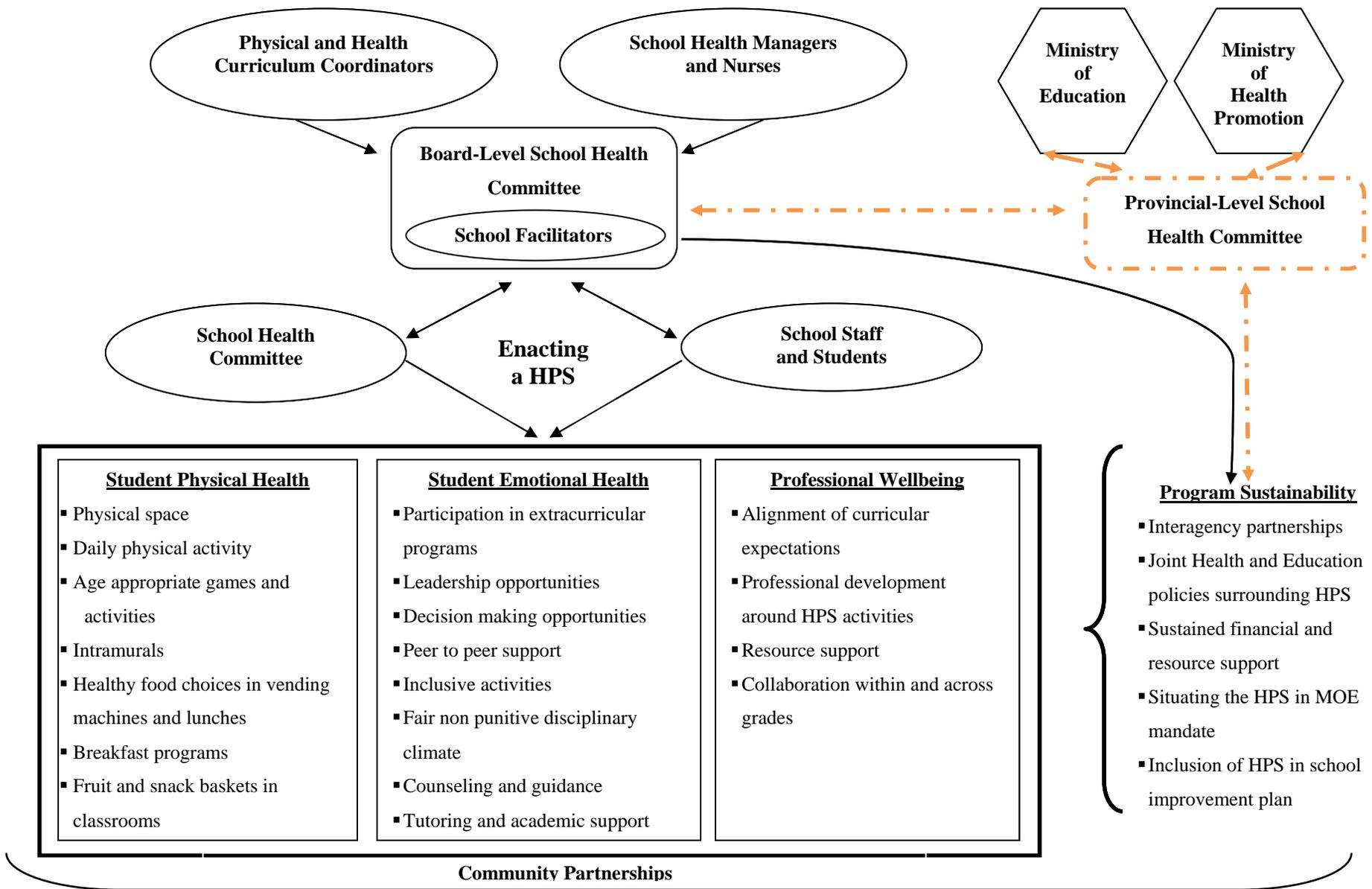


Figure 1: Implementation Model of a Health Promoting School

Elements for each part of the implementation model as identified from the case studies are outlined as follows:

### **Board-level (Regional) School Health Committee**

#### *Institutionalizing the HPS*

- Adopting the HPS as a goal.
- Incorporating healthy school initiatives into school improvement plans.
- Including HPS programs into the professional development of teachers.

#### *Inter-agency Collaboration*

- Health units and boards of education have staff with expertise, dedicated to HPS
- An organizational structure/chart is drawn to identify the shape the partnership will take and the level of the partnership
- An investment and commitment to the partnership by each sector is outlined
- The partnership is represented by a team of HPS regional/district committee composed of full-time staff from boards of education and school-health nurses
- The coordination of funding streams by each sector that would support a long-term strategy is established
- Identification of action areas to be shared by both agencies is developed
- Linkages of action areas to the policy expectations of each sector is identified to ensure alignment of objectives
- Allocation of budget to the HPS initiative that outlines the fiscal and human resources required by each agency
- Incorporation of HPS initiatives into schools' improvement plans
- Planning for training and support of school health committees, allocation of funding to schools, coordination of resources, and sharing and exchange of expertise across all schools within board jurisdictions.

#### *The School Health Committee*

- Includes staff, administrator(s), teachers, parents, students, nurses, and community partners (e.g. mental health services, child and youth services, parks and recreation) that are all part of the decision making process.
- Designate/elect a school-health coordinator that leads the school health committee, provides leadership at the school, and acts as the liaison with the board-level HPS committee
- Identify school needs, create priorities and identify assets and barriers
- Priorities for development of HPS aims and actions are clearly linked to local school improvement objectives
- Develop a school-health plan to achieve a shared understanding of a HPS and that provides a clear list of aims and actions.
- The action plan provides a strategy for improvement in key areas that have been identified as priority projects.

- Identification of possible available financial resources to provide the minimum necessary support for the work of the school or team is done
- Resources, including space, are efficiently and effectively organised for use by teachers and students.
- Formal and collective decisions made as to how to incorporate HPS into the school day and curricular requirements

## **Student Emotional Health**

### *Decision making opportunities*

- Student representatives are members of school health committee
- Students are involved in making decisions around hot lunches provided for sale, and other foods for fundraising events

### *Leadership opportunities*

- School leadership committees (school council) prioritizes and includes HPS activities such as athletic council, and health and nutrition teams
- Students are recognized as a valuable resource for leading and implementing physical activities.
- Peer to peer programs such as lunch monitors, physical activity leaders, and activity buddies are established

### *Student participation*

- Students with a range of abilities are provided with opportunities to participate in school life and extra-curricular activities
- Students participate by preparing fruit and snack baskets and delivering them to classrooms
- Youth advocacy efforts that promote healthy lifestyles are established (such as students' contributions to newsletters; theme days)

### *Creating a positive school culture*

- Providing resources to meeting the emotional, physical and social needs of individual students
- Providing equality of opportunity and a sense of fairness
- Presenting opportunities for students to develop meaningful relationships to feel valued, safe and secure
- Provide students with supports to enhance their learning (e.g. one to one tutoring, individual counseling)
- Establishing a disciplinary climate that is not punitive
- Attendance and discipline problems are handled in a sensitive and caring but authoritative manner to minimise disruption to learning and teaching
- Offering opportunities for group-counseling (e.g. anger management, conflict resolution) and integration of services of other agencies to support students
- Inviting families to participate in special activities at school
- Facilities for displaying student contributions to HPS and participation in HPS activities

## **Physical Health**

### *Providing a wide range of opportunities for physical activity*

- Improvements to physical space
- Whole-school/classroom fitness breaks (DPA)
- Playground games encouraged by providing grade and age suitable equipment
- Intramurals (non-competitive sports) an option for all grades
- Physical activity encouraged through creative means such as dance, walks in the neighbourhoods
- Affordable after-school programs provided by community partners (e.g. martial arts, yoga, basket ball)
- Appropriate space is allocated for DPA, especially during winter and the creative use of physical space

### *Providing equitable and affordable healthy food options*

- Breakfast programs that are available to all students and that are promoted as a healthy way to start one's day as a way to reduce stigma
- Healthy snack options that are visible and accessible (e.g. fruit baskets in classrooms and hallways)
- Providing healthy snacks after a special physical activity event for all students
- Provide students with healthy snack options in vending machines, if present.

## **Professional Wellbeing**

- Release time for teachers on school health committees to participate in workshops, and to provide workshops and training for teachers at school.
- Support with alignment of curricular expectations when possible
- Teachers receive comprehensive and helpful guidance on implementing HPS activities
- Collaboration and exchange of expertise across grades and subjects
- Collaboration between physical educator specialists and teachers

In order for schools to adopt a HPS model, there is a need for further case studies in schools across Canada to confirm, modify or expand the implementation model presented. Joint research by health and education would also serve to expand the linkages between activities undertaken by a HPS program and its outcomes, or the underlying programmatic theory of health promoting schools in Canada.

## APPENDIX B

### Variables and Scales Derived from the 2006 Health Behaviour in School-aged Children Study (HBSC)

#### *Student Level Outcome Variables and Scales*

*Self-Rated Health* was assessed by asking students to respond on a four-point scale to the following: Would you say your health is: a) Excellent, b) Good, c) Fair, or d) Poor?

*Life Satisfaction* was assessed by asking students to rate their life on a ladder where 0 represents the worst possible life and 10 the best possible life.

*The Emotional Health Scale* was derived from the students' responses to the following question: a) I have trouble making decisions; b) I am often sorry for the things I do; c) I have confidence in myself; d) I often wish I were someone else; e) I often feel helpless; f) I would change how I look if I could; g) I often feel left out of things; h) I often feel lonely; i) I often have a hard time saying no. Students respond to each item on a 5-point scale (strongly *agree*- strongly *disagree*) response format.

*The Subjective Health Scale* was derived from the students' responses to the following question: In the past six months, how often have you had the following: a) headache; b) stomach ache, c) backache, d) feeling low (depressed), e) irritability or bad temper, f) feeling nervous, g) difficulties in getting to sleep, and h) feeling dizzy. Students select one of the following five response options for each item: about every day, more than once a week, about every week, about every month, rarely or never response format.

#### *Student Level Predictor Variables and Scales*

*Gender* was coded as a dummy variable, where 0 = boy and 1 =girl.

*Family structure* was coded such that living with both parents =1 and having other living arrangements = 0.

*Family wealth* was assessed by asking students to respond on a four-point scale ranging from very well-off to not well-off at all to the following: How well off do you think your family is?

*Academic achievement* was assessed from the students' responses to the following question: Which of the following best describes your marks during the past year? a) Excellent (mostly A's / above 85% / or level 4), b) Above average (mostly A's and B's / between 70 and 84% / or level 3 and 4), c) Average (mostly

B's and C's / between 60 and 69% / or level 3), d) Below average (Mostly C's / between 50 and 59% / or level 2), and e) Poor (mostly letter grades below C / below 50% / or level 1).

*Neighbourhood Scale* was derived from the students' responses to the following 6 items on a 5-point scale (strongly *agree*- strongly *disagree*): a) Generally speaking, I feel safe in the area where I live; b) The area where I live is a good place to live; c) People say hello and stop to talk to each other; d) It is safe for younger children to play outside where I live; e) You can trust people around here; f) There are good places to spend your free time (e.g. leisure centres, parks, shops); g) I could ask for help or a favour from neighbours.

### *School Level Variables and Scales*

*School size* was derived from the school administrators' report of the school enrolment.

*Number of teachers* was derived from the school administrators' report of the total number of teachers in the school.

*Student-teacher ratio* was defined as the number of full-time teachers divided by the number of students in the school. One unit on this variable represents a change of one student per teacher.

*School academic standing* was derived from the school administrators' response to the following question: Relative to other schools, the academic achievement of students at this school is: a) Far greater than average, b) Greater than average, c) Average, d) Below average, and e) Far below average

*School socioeconomic Standing* was derived from the school administrators' response to the following question: Considering that the average total family income (before taxes) in Canada is about \$64,000, how would you describe the average socio-economic level of the community that your school serves? On a 3-point scale below average, average and above average

*School disciplinary problems* was derived from the school administrators' response to the following question (on a 4-point scale- not a problem, a minor problem, a moderate problem, a major problem): To what extent are each of the following matters a problem for your school: Classroom disturbances, student absenteeism, student apathy, student physical conflicts, race/ethnic based conflicts, student weapon possession, drop-out, vandalism, verbal abuse of teachers, drug and alcohol use. (Check one response for each statement,

*Problem Behaviours Scale* included the following five variables: Student absenteeism, apathy, lateness, drop-out, and student drug and alcohol use.

*Student Aggression* included the following variables classroom disturbances, student physical conflicts, vandalism, student race/ethnic based conflicts, and verbal abuse of teachers.

*Organizational Health Scale* was derived from the school administrators' response to the following question (on a 5-point scale-strongly agree to strongly disagree): To what extent do you agree with the following statements about teachers in your school?: a) Teachers at this school seem happy in their work, b) Teachers in this school have good relations with the community, c) Teachers in the school are discouraged by the amount of work they have to do, d) This school's teachers have high expectations of their students' conduct, e) This school's teachers and staff are likely to attend student athletic and art-drama, f) This school's teachers are accessible to students outside of scheduled class time in order to provide help with school, g) This school's teachers are actively encouraged to participate in the development of school policies, h) This school organizes and invites parents to presentation-seminars about youth-related issues (discipline, bullying, drug use, etc.), i) This school encourages parents to participate actively in school-led activities; j) The atmosphere at the school is generally positive and productive.

*School Climate Scale* is derived by asking students to respond to the following statements on a 5-point scale (strongly agree to strongly disagree): a) The rules in this school are fair, b) I am encouraged to express my own views in class, c) Our teachers treat us fairly, d) When I need extra help, I can get it, e) My teachers are interested in me as a person, f) Most of my teachers are friendly. The scale was aggregated to the school-level.

## APPENDIX C

### Focus Group and Interview Questions

#### Focus Group Questions: Students Grades 6 to 8

- 1) I have never been to your school before; tell me about your school.
- 2) We've made you miss recess to talk to us, if you were out on the yard now what would you be up to? (how would you spend your time?) How about at recess?
- 3) What ideas do you have for making more students enjoy lunch and recess?
- 4) You also have DPA (Fit Time), tell me about that.
- 5) Are you involved in intramural programs or other clubs? How important are those for you?
- 6) Tell me, what does it mean to you to be physically healthy?
- 7) What things/events at school make you feel this way?
- 8) What things/events at school can improve the physical health of other students?
- 9) If you could change something at school, what would you do to make students in your school physically healthy?
- 10) We've talked about what helps you feel physically healthy, think about what it means to you to be emotionally healthy?
  - a. What things/events at school make you feel this way?
  - b. What things/events at school can improve the emotional health of students?
- 11) When do you feel you can concentrate most on your work during school time?
- 12) If you could change something at school, what would you do to make students in your school emotionally healthy?
- 13) Can you give me examples of how you or other students have been involved in healthy school activities?
- 14) Can you give me examples of opportunities you have had to make decisions about school activities that promote health?

### Focus Group Questions: Teachers

- 1) Your school has been identified as a healthy school. Can you give me some examples about initiatives you had to undertake to become a healthy school?
  - a. Who did you get support from in implementing healthy school initiatives?
- 2) What do you think are important qualities that have contributed to your school becoming a healthy school?
  - a. What are the support structures in place for a healthy school initiative?
  - b. What are the changes within the school that had to be in place to become a healthy school?
  - c. Who is in your school health is responsible for championing healthy initiatives?
- 3) How did these initiatives influence/impact students?
  - a. How so? Can you give me examples about how these initiatives influenced students?
  - b. Did some students benefit more than others?
- 4) Have you seen changes in the staff culture at the school as a result of becoming a healthy school?
  - a. Is there tension between fulfilling curriculum requirements and the mandates of a healthy school?
- 5) What challenges have you experienced as a result of being a healthy school?
- 6) How does the designation of a healthy school affect how you teach? affect what happens in the classroom?
- 7) Tell me what comes to mind when your student is physically healthy? emotionally healthy?
- 8) Tell me, what happens at the school that promotes the emotional and physical well-being of students? (What makes them successful, what hinders them from being successful)
- 9) Tell me, what happens at the school that promotes the emotional and physical well-being of staff? (What makes them successful, what hinders them from being successful)
- 10) Is there anything you would like to add regarding the healthy schools initiatives?

## Interview Questions: Administrators

- 1) Tell me what comes to mind when we speak of the physical health of students? The emotional health of students?
  - a. How do we ensure the physical and emotional health of students?
- 2) For you, what is the value of a healthy school?
  - a. How do you see a healthy school as a component of learning?
  - b. How do you see a healthy school contributing to school climate?
- 3) What do you think are important qualities that have contributed to your school becoming a healthy school?
- 4) What continues to motivate your healthy school initiative?
  - a. What do you think of the ministry guidelines for foundations for healthy schools?
  - b. How best is it to implement those guidelines?
- 5) Tell me about the initiatives that you had to undertake to become a healthy school?
  - a. How do these initiatives influence/impact students?
  - b. What benefits have you seen as a result of being a healthy school?
  - c. What changes to school policies and practices has the healthy schools initiative had?
  - d. What challenges have you seen as a result of being a healthy school?
- 6) Tell me how funding for these initiatives is allocated and spent.
- 7) When we talk about a healthy school we think of it as the entire school culture. Can you describe various initiatives at your school that contribute to school climate? (e.g. earth care, character education?)
- 8) Tell me a bit about what needs to be in place for *your school* to achieve and maintain a healthy school status.
  - a. What are the pillars of a healthy school?
  - b. What support systems need to be in place to achieve a healthy school? Who is on your school health action team?
  - c. Who do you get support from in implementing healthy school initiatives?
- 9) Can you think of initiatives that happened at school that did work and others that did not?
- 10) There is a belief that community partnerships are important for healthy schools, can you tell me about any partnerships that are working to contribute to healthy schools initiatives?

- 11) How do those partnerships arise? How are those partnerships formed and fostered?
- 12) What purpose do those partnerships serve?
- 13) How are decisions made about who to partner with?
- 14) What methods are used to communicate and facilitate these partnerships with school staff and students?
- 15) Do you have any comments you would like to make regarding the healthy schools initiatives?

## Interview Questions: Key Informants

1. What was the driver for the HPS initiative?
  - a. What was the incentive for the boards of education?
  - b. What was the incentive for the health unit?
2. Whose responsibility was it to translate the ministry guidelines into practice?
  - a. What sector took the first step?
3. It is clear that you have a successful partnership with health/education; can you describe the working model between education and health in your board?
  - a. Can you describe your role?
4. Can you tell me, what were the challenges to developing this partnership?
  - a. How did you overcome the challenges/difficulties of developing this partnership
5. What do you think was essential/what had to be in place for this partnership to succeed?
  - a. How are the priorities determined
  - b. How were both groups able to reach to a common understanding around concepts/values/language?
6. Is there a mandate to make the HPS part of the school improvement plan?
  - a. What is required to integrate principles of a HPS into mainstream education?
7. What criteria are needed at the school level to implement a HPS initiative?
8. Can you tell me, who is responsible for providing support to teachers at school for training and staff development?
9. Can you describe the financial framework that underlies this partnership? What are the financial commitments by each sector?
10. In your mind, what is required for continuity and sustainability of the HPS initiative at Henderson?
  - a. What is required at the individual school level for the principles of the HPS to become institutionalized?
11. What changes at the school have you seen as a result of it becoming a healthy school?
12. Is there anything you would like to add regarding the healthy schools initiatives?

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