The Effects of Photovoice as a Comprehensive School Health Intervention in Grade 5 Classrooms

by

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Author's Declaration

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

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

Abstract

Objective: The primary goal of the study was to explore the effects of a photovoice intervention within a Comprehensive School Health (CSH) framework. The objectives of the study were to: understand the context of each case with respect to school readiness; understand healthy eating and physical activity influences (facilitators and barriers) within a school, from the perspective of a participating students; determine if photovoice enhanced students understanding of healthy school environments and CSH pillars; and determine key factors for success of a CSH facilitator to enhance school environments.

Methods: This study employed an embedded and descriptive case study approach. One grade 5 and one 5/6 class from different schools were selected to participate in the PV intervention. Schools were purposively selected from a broader facilitated school health intervention. The study used a mixed methods approach that included both quantitative and qualitative methods of data analysis. Quantitative data sources included the Healthy School Planner survey to assess school readiness. Qualitative data sources included facilitator interviews and email exchanges with the researcher, and photovoice data (pictures and discussion transcripts). The study utilized a framework analysis approach to manage the large amounts of qualitative data.

Results: Quantitative analyses showed that School 1 scored higher across all indicator scores, suggesting greater readiness for a CSH intervention. Of the 345 photovoice pictures submitted, 220 were analysed using NVivo 10. Also analysed were 3 facilitator interview transcripts, 4 photovoice non-verbatim discussion transcripts and email exchanges between the facilitator and researcher. The final analytical framework identified three overarching themes: CSH Pillars (what is happening in schools to support healthy environments); how to create healthy school environments; and barriers. Facilitator data identified key factors for successful facilitation, which included creating action plans, enhancing buy-in, communicating, enhancing engagement and supporting sustainability. At the student-level, participating photovoice students demonstrated an increase in references to CSH pillars from time 1 to time 2, suggesting an increase in engagement and understanding of CSH pillars. Finally, time and dose were identified as large barriers to successful facilitation for a school health program.

Conclusion: This study suggests that student engagement interventions can enhance students' understanding of the theoretical grounding driving a school health program (i.e., CSH Pillars). This may result in increased engagement in policy and individual-level behaviour outcomes. Furthermore, key factors for successful facilitation were identified and should be considered for future CSH facilitation. Recommendations of smaller facilitator to school doses, longer interventions and more touch points may enhance CSH results and should also be considered in future research. Finally, this study also identified lessons learned for implementing photovoice as a student engagement intervention within a CSH context.

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1.0 Introduction

Schools have been identified as an ideal setting to address physical activity and healthy eating concerns in children (WHO, 1997a; Brownson et al., 2012). Schools reach Canadian children of all ethnicities and socio-demographic backgrounds (Government of Canada, 2014;Masse et al., 2013; Wyatt et al., 2013). Healthy children are also better learners (Tran et al., 2014; Senior, 2012; Ridge et al., 2002; Fagen et al., 2014), supporting schools to become invested in student health. The Comprehensive School Health (CSH) Framework is an evidence-based approach to school health programs, and promotes change at the environment- and student-level (Stewart-Brown, 2006). Using a multi-component and collaborative design, CSH addresses the complex nature of both school settings and health behaviours, where single model interventions may fail to do so.

Facilitators have been identified as an essential role to successfully implement and sustain CSH efforts (Austin et al., 2006; Fung et al., 2012, O'Brien et al., 2010; Ridge et al., 2002; Senior, 2012). However, there is a large research gap comparing facilitation, and its success, across CSH guided interventions. This includes facilitator roles, facilitator to school ratios, and intervention intensity. Other comprehensive health models have systematically assessed dose and intensity, supporting smaller facilitator to stakeholder ratios, longer term interventions and more touch points. Factors for successful facilitation have also been identified and include conducting school audits, modifying interventions to fit the local context, stakeholder engagement, and effective communication. Furthermore, the implementation process should promote engagement to create local ownership and leadership, and support sustainability. This is especially true in students to support current and future health behaviours (Chang et al., 2012; Griebler et al., 2014; Jensen &

Simovska, 2005; Murillo Pardo et al., 2013). Engagement opportunities allow youth to become actively involved in identifying their issues. Over time, student engagement can lead to empowerment, and involvement in advocacy for relevant change (Chang et al., 2012; Warne et al., 2013a). Engagement interventions have been linked to individual- and system-level outcomes, including improved understanding of one's needs, increased empowerment, increased minutes of physical activity, and action on social issues raised through discussion (Catalani & Minkler, 2010; Chang et al., 2012; Murillo Pardo et al., 2013; Warne et al., 2013a).

Overall, supported factors for successful school health interventions include the CSH framework, a facilitator role and student engagement. The goal of this study was to explore the use of a classroom-based student engagement intervention, guided by the CSH framework, to understand students' perceptions of health influences and enhance student understanding of CSH; addressing the first step in student engagement and determining if it does in fact enhance student knowledge, which might then lead to empowerment in the longer term.

Photovoice (PV) is a participatory method that can enhance engagement within interventions (Wilson et al., 2008). PV puts cameras in the hands of the participants and encourages them to capture photos that represent their environment. Photos are analyzed through group discussion, and action plans are created to share with policy makers (Wilson et al., 2008). By combining photography and discussion, PV can capture important concepts that may be missed in discussion alone (Davison et al., 2011).

This thesis study examined the effects of PV in the context of a CSH-guided intervention in two grade five classrooms. Using PV, the study assessed students' perceptions of healthy eating and physical activity influences within their school (facilitators and barriers). Case study

methodology and mixed-methods evaluated students' enhancements in understanding of CSH pillars. Since the study was guided by a facilitated CSH framework, it also assessed key factors for successful facilitation within schools. The information gathered and knowledge gained in this research will hopefully support the use of student engagement interventions to enhance student knowledge, and prompt further assessment on empowerment, as well as student-level and school-level outcomes. Furthermore, this study will support key factors for successful facilitation, as well as identify barriers, and hopefully support the need for more research comparing across interventions guided by CSH.

2.0 Literature Review

2.1 Introduction

Childhood obesity is considered a global epidemic with 20-40% of children considered obese in developed countries (Vander Ploeg et al., 2014). Obesity not only affects a child's self-esteem (Fung et al., 2012), but also increases their risk of becoming obese adults, developing chronic diseases, and having a decreased life expectancy (Quintanilha et al., 2013). Between 1978 and 2009, obesity in Canadian children and youth has risen from 15% to 26% in boys and girls, and across all ethnicities (Quintanilha et al., 2013). This growing prevalence puts a large strain on Canadian health care, costing approximately $1.27 to $11.08 billion annually (Tran et al., 2014). Obesity appears to have many causes but it is widely acknowledged that poor diet and inadequate physical activity are the main drivers (Fung et al., 2012; Tran et al., 2014). Across developed countries, the growing prevalence appears to be related to an increased consumption of energy dense foods and drinks, including high-fat foods and sugar sweetened drinks, a decrease in fruit and vegetable consumption, and a decrease in physical activity levels (Bourke et al., 2014).

In 2011, the Canadian government released a framework to address the childhood obesity epidemic, known as the "framework for action to promote healthy weights". It is composed of three strategies: (1) making childhood overweight and obesity a priority for all levels of government, (2) coordinating efforts to provide environments supportive of physical activity and healthy eating, and identifying risks of obesity early, and (3) researching and evaluating collective progress (Public Health Agency of Canada, 2012; Quintanilha et al., 2013). Within research, interventions addressing obesity have become less individual-focused, recognizing the importance of environment, social context, policy and culture as influential factors (Moore et al.,

2013). Comprehensive approaches have been the most effective form of health promotion (Brownson et al., 2012; WHO, 1997a) and established settings provide practical opportunities for implementation (WHO, 1997a). The World Health Organization and the 1986 Ottawa Charter for Health Promotion support the settings-based approach as an effective way to implement multi-disciplinary and comprehensive health promotion initiatives. Healthy settings are defined as "a place or social context in which people engage in daily activities in which environmental, organizational and personal factors interact to affect health and wellbeing" and include an empowerment focus (WHO, 2015b).

Within this context, schools are considered an ideal setting for Canadian comprehensive health promotion efforts relating to physical activity and healthy eating (Xu et al., 2014; Natale et al., 2014; Murillo Pardo et al., 2013; Elinder et al., 2012; Gugglberger & Dur, 2011). Almost all Canadian children and youth spend approximately 6 hours a day in school, eat 1-2 meals (Quintanilha et al., 2013) and can expend half of their daily energy during schools hours (Fagen et al., 2014). School interventions can reach all ethnicities and socio-demographic backgrounds (Masse et al., 2013; Wyatt et al., 2013) to support healthy habits at a young age, resulting in improved health and wellness in later life (Fung et al., 2012). Furthermore, health and well-being have been linked to educational success, supporting schools to become invested in student health (Tran et al., 2014; Senior, 2012; Elinder et al., 2012; Ridge et al., 2002; Fagen et al., 2014). The appropriateness of school settings for health promotion is widely recognized, as demonstrated by the Ontario Ministry of Health Promotion, Centers for Disease Control (CDC), the American Cancer Society (ACS), and the International Union for Health Promotion and Education's (IUHPE) strategies and guidelines for schools to address the increasing prevalence of childhood obesity (Ontario Ministry of Health Promotion, 2010; ACS, 2007; CDC, 2013; IUHPE, 2010).

School-based interventions are prominent in the literature and have been implemented across Canada at the provincial and district level (Propel, 2012a). While interventions may vary greatly, many guidelines and policies recognize the importance of a comprehensive approach to account for complex nature of schools (Masse et al., 2013; Veugelers & Schwartz, 2010).

2.2 Comprehensive School Health Framework

Whole school approaches are the most effective to make long-term changes in students' attitudes (Senior, 2012). Greater success is seen when health-related issues are addressed within the curriculum and throughout the school (Senior, 2012). Following this framework, Comprehensive School Health (CSH) is an evidence-based approach to school health programs focused on major public health concerns, including healthy eating, physical activity, mental illness, obesity, sexual health, and drug and alcohol misuse (Stewart-Brown, 2006). It is defined as "an internationally recognized framework for supporting improvements in students' educational outcomes while addressing health in a planned, integrated and holistic way" (Fung et al., 2012). CSH approaches have been implemented in many countries, and are known as 'Health Promoting Schools' (HPS) in Australia and Europe (Burgher et al., 1999; Australian Health Promoting Schools Association, 2012) or 'Coordinated School Health' programs in United States (CDC, 2014). The terms 'CSH' and 'HPS' will be used interchangeably through the remainder of the literature review. CSH uses an integrated and collaborative approach to involve the classroom, school environment, policies, parents and communities (Bassett-Gunter et al., 2012; Fung et al., 2012; Veugelers and Schwartz, 2010). These schools have holistic goals aimed at promoting the health and well-being of teachers, staff, students and parents (Stewart-Brown, 2006).

The pan-Canadian Joint Consortium for School Health (comprised of government, health and education ministries in provinces and territories) has recognized four pillars for CSH: Teaching

and Learning, Social and Physical Environment, Healthy School Policy, and Partnerships and Services (Joint Consortium for School Health, 2012) (See Appendix A). The Ontario government uses a slightly varied set of pillars, separating social and physical environment and integrating policy approaches into each of the other pillars. Overall, the CSH framework aims to promote change on the level of the school environment (policies, culture, and school attitude) and the student (healthy eating and physical activity behaviours, academics and self-esteem).

Interventions guided by CSH have been recognized as effective approaches to healthy eating and physical activity promotion (Stewart-Brown, 2006). Students in CSH guided schools are more likely to be active, report healthy eating and less likely to be overweight (Day et al., 2008; Veugelers & Fitzgerald, 2005; Tran et al., 2014). Other achievements of HPS include increased awareness of health issues (Education and Training Committee, 2010; Tran et al., 2014; Ridge et al., 2002), greater student responsibility and leadership skills for actions (Education and Training Committee, 2010; Tran et al., 2014; Ridge et al., 2002), improved learning outcomes and better links with the community (Education and Training Committee, 2010). A qualitative study by Ridge et al. (2002) also reported HPS schools feeling better equipped to implement school policies relating to student welfare. Behaviours learnt from these interventions have extended past the school environment and continued among students on non-school days (Vander Ploeg et al., 2014), which may lead to healthy behaviours in adulthood (Fung et al., 2012).

Comprehensive, multilevel approaches are widely supported in health literature, and although schools can focus on a variety of components to shape school health (Ridge et al., 2002), key features have been identified for successful implementation (Stewart-Brown, 2006). These include buy-in on all levels (principal, staff, parents, students) (Fagen et al., 2014; Lee et al., 2005), parent involvement (Kremers et al., 2007; Lee et al., 2005; Murillo Pardo et al., 2013;

Ridge et al, 2002), student participation (Gugglberger & Dur, 2011; Lee et al., 2005; St Leger, 2000), developing community partnerships and relations with local health services (Gugglberger & Dur, 2011; Lee et al., 2005; Ridge et al., 2002; St Leger, 2000), fulfillment of a leadership role within the school (Bowker & Tudor-Smith, 2000; Gugglberger & Dur, 2011; Fagen et al., 2014), establishment of working groups or committees for school health promotion (Araújo-Soare et al., 2009; Agron et al., 2010; Gugglberger & Dur, 2011; Lee et al., 2005), encouraging teacher modelling (Lee et al., 2005; Nutbeam, 1995; Murillo Pardo et al., 2013), fostering peer support (Murillo Pardo et al., 2013), and capacity building (Chang et al., 2012; Senior, 2012). Furthermore, healthy opportunities should be accessible by all within the school (Murillo Pardo et al., 2013). Exemplary models of CSH approaches exist, including The Annapolis Valley Health Promoting Schools, Alberta Project Promoting Active Living and Healthy Eating (APPLE) Schools, and Action Schools! BC. These model programs incorporated the identified characteristics for successful CSH (O'Brien et al., 2010; Fung et al., 2012; Veugelers & Schwartz, 2010) and were context-specific, which is an important implementation strategy to account for the dynamic nature of school environments (Veugelers & Schwartz, 2010).

Successful implementation is a critical step for interventions guided by CSH, to avoid the 'implementation gap' (Elinder et al., 2012; Senior, 2012). This occurs when effective programming is not implemented correctly or sustained within the school context (Elinder et al., 2012). While key features for success have been identified, principals may lack the project management and organizational development skills necessary for the successful implementation of health promotion initiatives (Elinder et al., 2012; Gugglberger & Dur, 2011). Limiting factors may include a lack of resources, knowledge and supporting structures (Gugglberger & Dur, 2011), as well as conflicting school priorities (Belansky et al., 2009; Laurence et al., 2007;

Propel, 2012b). Schools and teachers tend to feel overburdened with their existing roles and are unable to take on additional tasks relating to school health promotion (Belansky et al., 2009; Johnston et al., 2013). Therefore, schools require support and training to implement effective and sustainable approaches to promote the wellbeing of students (Senior, 2012; Elinder et al., 2012; Gugglberger & Dur, 2011; Ridge et al., 2002). A dedicated leadership position, or facilitator, has been used to provide such support and has been linked to the successful implementation of healthy school interventions (Austin et al., 2006; Fung et al., 2012; Veugelers, 2012; O'Brien et al., 2010).

2.3 Facilitated Leadership for Implementing CSH Approaches

A school health facilitator or coordinator is seen as an "agent of change," (Ottoson et al., 2004) and assists schools to improve programs and policies that impact student health (Propel, 2012a). Many CSH guided interventions have utilized a facilitator or coordinator role, including the exemplary Action Schools! BC and APPLE Schools Alberta, as well as other school health programs from Newfoundland, USA, France and New Zealand (Propel, 2012a). Furthermore, guidelines for school health promotion created by the CDC and ACS both highlight the importance of a leader or coordinator position (Propel, 2012a).

School health facilitators have come from various domains including teachers, health educators, nurses, and dieticians (Stolz et al., 2009; Laurence et al., 2007; Propel, 2012a). They help guide initiatives and tailor promotion efforts to the unique needs of individual school environments through stakeholder engagement (Fung et al., 2012; Lloyd & Wyatt, 2014). A review of the literature has shown facilitator roles to vary between interventions, including the level of involvement in curricular and non-curricular activities within and between schools (Propel, 2012a).

The dose of facilitator to school has also varied, from one per school (APPLE Schools Alberta) to one per school district (Healthy Schools, Healthy Students) (Propel, 2012a). Identified activities of school health facilitators include leading school audits to identify main health concerns (Senior, 2012), participation in school health committees, creating action and succession plans to influence policy and culture (Propel, 2012b; Card & Doyle, 2008), organizing nutrition and physical activity programs (Tran et al., 2014), creating and strengthening community partnerships (Card & Doyle, 2008), supplementing existing health curriculum, and teaching students (Propel, 2012c).

2.3.1 Evidence Base for a Facilitator Role

Within the literature, facilitators have been associated with positive results of CSH guided programs. Health Promoting Schools with formal support reported greater understanding of HPS concepts (Chang et al., 2012), and increased their offering of physical activity opportunities and healthy foods (Propel, 2012a). The ACS linked trained facilitators to the existence of functioning school health councils (Propel, 2012a), which is important for successful implementation of a CSH approach (Dogherty et al., 2012; Araújo-Soare et al., 2009; Agron et al., 2010; Gugglberger & Dur, 2011; Lee et al., 2005). At the student level, results included decreased self-reported soda consumption and inactivity among students, as well as decreased body mass index compared to students not part of a facilitated CSH guided intervention (Propel, 2012a). In Canada, formal evaluations of school-based interventions further support the evidence base for a facilitator role within CSH.

APPLE Schools Alberta recruited internal School Health Facilitators (dose of 1 FTE facilitator/school) and reported successful policy and student-level results after three years. This includes implementation of nutrition and physical activity policies, as well as increased self-

reported activity levels and fruit and vegetable intake. Students in APPLE Schools had lower caloric intake and were less likely to be obese. Furthermore, APPLE School Health Facilitators were viewed as the key leaders and champions necessary to make changes in the school environment (Propel, 2012c).

Action Schools! BC also found effects across multiple measures. Instead of 'facilitators,' the intervention employed two trained external Master Trainers (2:1500 schools) and 75 Regional Trainers (approximately 1:20 schools) (Propel, 2012b). Regional trainers, who were mostly seconded elementary school teachers, were trained to support local schools and act as liaisons. An evaluation compared schools with a master trainer (liaison schools), schools with an in-school regional trainer (champion schools) and schools with no intervention. Both liaison schools and champion schools showed positive effects in response to the intervention. Liaison schools consistently saw greater increases in physical activity levels across genders, amount of steps taken per day, and awareness of healthy food choices. Nonetheless, champion schools experienced increases compared to schools with no intervention. There was no difference between liaison schools and champion schools for minutes of physical activity provided by teachers. A facilitator role not only improved students' behaviours, but over 80% of teachers in the process evaluation of Action Schools! BC found the trainer very or extremely useful (Propel, 2012b).

Healthy Students, Healthy Schools (Newfoundland and Labrador) employed one full-time School Health Promotion Liaison Consultant (SHPLC) within each of their five school districts (approximately 1: 55 schools) (Card & Doyle, 2008; Department of Education and Early Childhood Development, 2014). With the assistance of SHPLCs, the program exhibited positive results including the implementation of provincial school nutrition guidelines, and positive

responses to physical activity initiatives. Schools viewed SHPLCs as critical in supporting healthier student behaviours (Card & Doyle, 2008). However, change in student health has not been measured and research supplementing pedometer data is required to assess impact on physical activity (Card & Doyle, 2008; Propel, 2012a).

The literature supports facilitated CSH approaches to enhanced student level outcomes, and they are seen to be a valued resource by teachers and schools. This is true for internal and external facilitators, as well as variable facilitators to school ratios (Card & Doyle, 2008; Propel, 2012a, 2012b, 2012c; Storey et al., 2011). Although APPLE Schools and Healthy Students, Healthy Schools had very different doses (1:1 versus approximately 1:55, respectively), both interventions resulted in school-level changes through the implementation of school-wide policies. Furthermore, Action Schools! BC evaluated two doses with internal and external facilitators. While an external highly trained body with a lower dose (master trainers, dose 2:1500) resulted in greater impact, schools with internal regional trainers (dose 1:20) still enhanced healthy student behaviours. It appears that more experience with the local context (internal trainers) can achieve at least equivalent results, despite the facilitator to school dose.

Evaluations of CSH guided interventions support the role of school health facilitators but there has been no direct comparison of facilitator factors. Even dose, which might seem clearly related to impact, appears to have complex relationships with effectiveness. Defined roles are required for successful implementation of a facilitated intervention (Dogherty et al., 2012), and certain levels of intensity have been better associated with success within the literature. However, due to the research gap assessing these factors across interventions, it is necessary to turn to other facilitated comprehensive approaches to help inform successful CSH guided facilitation.

2.3.2 Facilitation in Other Health Fields: Factors for Success

Performance management of public health organizations and practice facilitation in clinical settings have identified factors for successful implementation of a facilitator role, which may translate to a CSH context. Performance Management is defined as the "use of performance measurement information to help set agreed-upon performance goals, allocate and prioritize resources and inform managers to either confirm or change current policy or program direction, and report on the success of meeting these goals" (DeAngelo et al, 2014). Performance Improvement Managers (PIM) work with health departments and boards across the United States, and roles appear parallel to school health facilitators. Similar to school environments, PIMs recognize that implementation practices may not be universally appropriate for all public health agencies. They must provide leadership and promote engagement to ensure successful program implementation within the appropriate context (DeAngelo et al., 2014).

Project management is also a large part of practice facilitation in a clinical health setting (Dogherty et al., 2012). Practice facilitation is a multifaceted approach (Baskerville et al., 2012; Dogherty et al., 2012) historically defined as an aid for successful implementation of evidence-based practice. However, more recently, the definition has expanded to include a focus on relationship building (Dogherty et al., 2010). Practice facilitation is seen as a method of quality improvement (Loftus-Hills & Duff, 1997) and support through goal-oriented processes (Dogherty et al., 2010). Similar to the pillars of CSH (See Appendix A) implementation strategies may include aspects of education, organization, behaviour and/or social influences, reflecting the multifaceted nature of facilitation (Dogherty et al., 2010). Practice facilitation has been shown to enhance delivery of preventative services in clinical settings, including early detection of cancer, screening for haemoglobin disorders, breast cancer screening, and better

tailoring practices to meet the preventative needs of patients. Facilitation has also improved relationships within and between teams, sustained changes in practice, and made individuals more willing to implement changes (Nagykaldi et al., 2005).

The complex natures of PIM and practice facilitation in dynamic settings and literature-supported success make them appropriate learning tools for school health facilitation.

2.3.2.1 Dose and Intensity

Similar to CSH facilitation, literature supporting dose and intensity in PIM is limited, but has been assessed within practice facilitation. Firstly, dose, is broadly defined as the estimated change in an identified outcome expected to result from a given strategy, and it is measured by assessing program reach and strength. Cheadle et al. (2012) defines "reach" as the number of people affected by the change and "strength" as the estimated effect on those reached (Cheadle et al., 2012).

In the case of practice facilitation, reach is measured by the number of contacts between the facilitator and the clinical practice. Strength is referred to as "intensity" and is a product of reach and the average meeting time, in hours (Baskerville et al., 2012). A systematic review of practice facilitation by Baskerville et al. (2012) showed a significant association between intervention effect size and higher intensity. More frequent visits, greater number of hours in meetings, and fewer practices per facilitator were associated with greater success of supporting guideline adoption within primary care. This is consistent with the evaluation of the Healthy Schools Program in the United States which found that more intensive training, such as one-on-one assistance from a program expert, was significantly associated with more meaningful changes made in schools (Propel, 2012a). Furthermore, within school nurse research, a higher ratio of students to nurse and the resulting less time spent in schools acts as a barrier to

relationship building and role development (Maughan & Adams, 2011). To further support greater intensity through more time, school health interventions successful at impacting student health outcomes were longer than one year. For example, the Be Active Eat Well program in Australia was conducted over three years and slowed weight gain and waist gain in children (Swinburn et al., 2012). Similarly, the facilitated implementation of the School Health Index tool used in the United States over four years successfully reduced child obesity in disadvantaged school children (Hoelscher et al., 2010).

It appears that greater intensity can support facilitated intervention outcomes. While smaller doses of facilitator to schools may still result in positive changes, as seen in Action Schools! BC and Healthy Students, Healthy Schools, interventions with more intensity (smaller facilitator to school ratios and more time with the facilitator) may enhance student level outcomes. CSH models have also been identified as complex and therefore, interventions need to be implemented over a long time period (Stewart-Brown, 2006). Furthermore, higher intensity facilitated interventions may foster relationships between facilitators and schools, and support clearly defined roles within schools.

2.3.2.2 Facilitator Practices

As previously mentioned, a defined role is also necessary for successful implementation of a facilitated intervention (Dogherty et al., 2012) but there is a large variability within facilitated practices. Similar to school health facilitators, practice facilitators and PIMs have come from multiple domains with various levels of training and experience (Dogherty et al., 2010). The variable roles of facilitators are recognized as demonstrated by the National Facilitator Development Project in England, which trained hundred of practice facilitators. They have incorporated multiple components including communication and collaboration methods, auditing

skills, change management and teamwork skills into their facilitator training (Nagykaldi et al., 2005). Due to these similarities, considerations for successful CSH guided facilitation roles as demonstrated by PIM and practice facilitation literature can be identified (Table 1).

Table 1: Considerations for Successful Facilitation of Health Interventions

Success Factors	**Performance Management of Health Organizations** (DeAngelo et al., 2014; Public Health Foundation, 2003)	**Practice Facilitators in Clinical Settings** (Baskerville et al., 2012; Nagykaldi et al., 2005; Dogherty et al., 2010, 2012)
Conduct an audit	• Assess organizational capacity and core elements in place • Identify priority health concerns • Formulate a plan to address concerns	• Assess current processes • Identify areas of improvements • Assist in creating an action plan • Provide feedback and support for goal-setting • Help implement steps for change
Adapt context specific interventions	• Adapt frameworks to fit organization's needs	• Raise awareness for areas of improvement • Select a relevant area of focus to enhance motivation • Adopt facilitation to the local culture • Tailor amount and length of follow-up • Adjust action plans as needed
Enhance buy-in		• Create a positive attitude towards change • Highlight the need for change • Help overcome resistance to change • Engage the whole team and ensure every voice is heard
Communication	• Involve all stakeholders early in discussion	• Help with consensus-building and shared decision making • Focus on building relationships • Act as a liaison • Translate and disseminate knowledge • Share ideas to build "learning communities" • Keep all members informed • Provide ongoing feedback and support
Engagement	• Identify an organizational champion to mentor and keep momentum going	• Teach teams how to overcome resistance to change • Provide resources and tools for change • Teach teams how to implement guidelines for change • Create local ownership
Sustainability	• Measure, communicate and celebrate progress	• Acknowledge and celebrate success

PIM and practice facilitation both recommend a review to assess current processes in place and areas of improvement (DeAngelo et al., 2014; Nagykaldi et al., 2005; Dogherty et al., 2012). This audit is important to help identify the capacity of the organization (Public Health Foundation, 2003) and begin forming action plans for change (Dogherty et al., 2010; Public Health Foundation, 2003). School audits are a key element of establishing HPS or CSH guided

interventions but would be too difficult for a teaching staff to do alone (Senior, 2012). Canada's Joint Consortium for School Health recognizes the importance of school assessments and has developed a tool to facilitate audits (Joint Consortium for School Health, 2015).

Similar to school environments, health organizations and clinical teams are dynamic and unique to their context. Therefore, it is important for PIMs and practice facilitators to develop interventions that are contextually appropriate. Frameworks must be adjusted to fit an organization's needs (DeAngelo et al., 2014; Public Health Foundation, 2003) and facilitation must be adapted to the local culture, including beliefs, values and norms (Dogherty et al., 2010). Tailored interventions have been linked to larger effect size in practice facilitation research (Baskerville et al., 2012). Therefore, facilitators should select an area of focus that is relevant to the priority of the team or organization (DeAngelo et al., 2014; Dogherty et al., 2012). This will enhance interest and motivation, as well as promote sustainable change (Dogherty et al., 2010).

Effective communication is fundamental when working with organizations and teams, and helps with consensus building (Nagykaldi et al., 2005; Dogherty et al., 2010). Through effective communication, facilitators can build relationships with teams, keep all members informed (Dogherty et al., 2012), and effectively work to tailor interventions to the local setting (Dogherty et al., 2010). By providing ongoing feedback, they can keep teams engaged and accountable, deliver constant support and adjust action plans as needed (Bidassie et al., 2015; Dogherty et al., 2010). Furthermore, by acting as a liaison (Dogherty et al., 2010), a facilitator can build "learning communities" between groups by "cross-pollinating" ideas. This is especially beneficial to assist isolated contexts (such as rural schools) by creating networks (Nagykaldi et al., 2005).

Through effective communication, facilitators can also promote buy-in. Buy-in at multiple levels is important for successful implementation of comprehensive interventions. It is important to involve all stakeholders early in the discussion for the greatest effect (DeAngelo et al., 2014; Dogherty et al., 2012). By including all stakeholders while highlighting the need for change (Dogherty et al., 2010), facilitators can create a positive attitude (Nagykaldi et al., 2005) and overcome resistance to change (Dogherty et al., 2012). Practice facilitation is especially effective in multi-centre studies where regular contact with a large number of professionals and practices are necessary but also difficult (Nagykaldi et al., 2005). Therefore, it is an effective method of promoting buy-in where there are multiple stakeholders, such as schools (teachers, staff, students, parents, communities, etc.).

Finally, engagement is critical to keep the momentum of an intervention going and support sustainability (DeAngelo et al., 2014). By not only making information available, but also teaching groups how to implement guidelines, facilitators can increase intervention services and enhance care. For example, practice facilitation has successfully enhanced the roles of nurses and increased their responsibilities in patient care through engagement and empowerment (Nagykaldi et al., 2005). Facilitators should identify a champion who can mentor (DeAngelo et al., 2014) and create local ownership for change (Dogherty et al., 2012). They can promote confidence by making teams and organizations aware of any resistance to change, and how to overcome it (Dogherty et al., 2012). To do so and support sustainability, facilitators should provide the resources and tools necessary for change (Dogherty et al., 2012), focus on shared decision making (Dogherty et al., 2012), communicate progress and celebrate successes to sustain motivation (DeAngelo et al., 2014; Dogherty et al., 2010, 2012).

These identified considerations for success in public health performance management and clinical practice facilitation can be translated and applied to facilitators in CSH guided interventions. Both PIM and practice facilitation recognize the dynamic nature within and between environments. They highlight the variable qualifications of facilitators, similar to the variability in school health facilitators. Facilitators must take into account the context of the environment, effectively communicate with all stakeholders early and throughout the intervention, enhance buy-in and promote engagement. These considerations are applicable within a school setting, and have already been supported as important aspects of health promotion. This is especially true for engagement, and the remainder of the literature review will further highlight the significance of engagement to promote student health.

2.4 Student Engagement

Active engagement of stakeholders is an important aim of school health interventions to create ownership, leadership and sustainability. This is especially true for students to promote current and future health behaviours (Chang et al., 2012; Griebler et al., 2014; Jensen and Simovska, 2005; Lindqvist et al., 2012; Murillo Pardo et al., 2013; Elinder et al., 2012; Community Health Nurses Initiatives Group, 2013). Student engagement is defined as "the time and effort students devote to activities that are empirically linked to desired outcomes...and what institutions do to induce students to participate in these activities" (Kuh, 2001). Many facets of student engagement exist, namely active learning (students involvement to actively develop their knowledge) and feelings of connectedness within the school community (Trowler, 2010).

Student engagement can take many forms, and according to Gadin et al. (2009) fall into one of four categories of participation: (1) Participation as consultation: asking students' feedback on decisions to be made by authorities; (2) Participation as a means: students are invited to take part

in a process with the goal decided by authorities; (3) Substantive participation: students are invited to be active in identifying problems and prioritizing change; and (4) Structural participation: students identify the problem and control the process. Substantive or structural participation are best supported for student engagement because healthy school environments should be built on factors that youth identify as important for their own well being (Simovska, 2004). Elinder et al. (2012) even argues that the benefits of a health intervention as perceived by the user are more important than the effectiveness. It appears that 'more is better,' and students must be involved in planning the process for change

Students are recognized as at the centre of CSH guided schools, and student engagement has been identified as a common theme across HPS and CSH models, along with democracy and empowerment (Jensen and Simovska, 2002; Murillo Pardo et al., 2013; Senior, 2012; Simovska, 2004; WHO, 1997b). Student engagement increases knowledge and skills, which can lead to empowerment or an "individual gaining knowledge and control over personal, social, economic and political forces for the purpose of taking action to improve their life conditions" (Gadin et al., 2009). Equipping students to make healthy decisions can lead to transformation at the individual level and involvement at the policy level (Murillo Pardo et al., 2013; Gadin et al., 2009; Trowler, 2010).

Student engagement has been linked to individual and systems-level outcomes in schools. Students that participated in active engagement interventions have demonstrated positive behaviour changes. These include increases in self-reported and objective physical activity levels, including minutes of moderate-vigorous physical activity per day and total physical activity per day in boys and girls (Lindqvist et al., 2014; Murillo Pardo et al., 2013; van Stralen et al., 2011). Increases in activity have been sustained following interventions, ranging from 2

months to 2 years (Murillo Pardo et al., 2013). Additional results included improved attitudes, self-efficacy, and leadership skills related to healthy choices (Tran et al., 2014). Empowerment, as a result of active engagement, has promoted youth to identify their own issues, as well as plan and engage in social actions to make changes (Chang et al., 2012; Warne et al., 2013a). When students see their participation can lead to change, they are more likely to partake in school decision-making (Gadin et al., 2009; Warne et al., 2013b). Students who feel connected to their school are also less likely to engage in risky health behaviours (Libbey, 2004). At the systems-level, student engagement is seen as a method of determining quality or added value to educational or environmental planning (Trowler, 2010). Furthermore, interventions that enhanced participation were more sustainable than educational interventions alone to develop healthy settings (Warne et al., 2013a). Student engagement is supported to enhance students' skills and competencies, as well as give them a voice in shaping their school environment.

Student engagement is supported by the Ontario curriculum, and identified as one of the five areas that contribute to a healthy school. The Ontario Foundations for a Healthy School (2014) encourages schools to involve students in shaping their learning environment, support students' abilities to develop the skills to be self-directed, consider the diverse perspectives of students in school decision making processes and encourage students to be leaders and contributors to policy and programs (Ministry of Education, 2014). Within a HPS context, student participation includes the process of sharing meanings and decisions that influence one's health in the local context (Jensen and Simvoska, 2005). This may also include reflections on facilitators and barriers to help guide future actions. Group discussions that lead to action allow individuals to develop the confidence and skills necessary for making choices and initiating changes (Wilson et al., 2008; Jensen and Simovska, 2005).

2.5 Photovoice as a Method of Student Engagement

Scientific literature has established participatory research as a way to give participants a voice in the research process (Catalani & Minkler, 2010). Photovoice (PV) is a participatory methodology developed by Wang and Burris in the late 1990s (Wang & Burris, 1997) and - as discussed - meets key requirements for student engagement interventions. It qualifies as "Substantive" participation, outlined by Gadin et al., (2009), because it invites participants to identify priorities, partake in dialogue about important issues, and produce action plans for change (Wang & Burris, 1997). Furthermore, PV meets the identified facets of student engagement by promoting active learning, through pictures and discussion, as well as feelings of connectedness to their school by prioritizing change. PV allows participants to represent their environment by capturing photos and analyzing them through facilitated group discussions (Wilson et al., 2008). This process of photography and discussion can capture important concepts that may be missed during discussion alone (Davison et al., 2011).

The simple basis of learning to use a camera makes PV an appropriate method across many populations. Within children, it is a powerful tool to capture the expertise and insight they have on their own community (i.e., school environment) (Wang & Burris, 1997). PV has been used with children and young adolescents in elementary classrooms, including grade 5 students (Nelson & Christensen, 2009), to increase students' awareness about self, their ability to make changes in policy, and the opportunities to positively impact future generations (Warne et al., 2013a). Consistently reported outcomes of PV include improved understanding of needs which could result in health benefits, enhanced knowledge and skills of healthy behaviours, increased empowerment in students to promote their own changes and enhanced engagement in advocacy and action, (Catalani & Minkler, 2010; Chang et al., 2012). Furthermore, a literature review by

Catalani and Minkler (2010) showed approximately 60% of photovoice projects led to actions on the issues raised through the PV process.

PV is a successful method of student engagement that can be implemented in the classroom to enhance individuals' knowledge and behaviours, and may contribute to the school environment through actions developed during group discussion. Meeting the requirements for student engagement, PV supports the settings approach that guided the CSH framework by actively involving students in shaping their priorities, within the unique context of their school (Warne et al., 2013a; WHO, 2015b). This active engagement is critical in supporting the promotion of student health in school environments.

2.6 Summary

Comprehensive School Health guided interventions have been identified as an ideal way to enhance various school health goals, following the settings-based approach (WHO, 2015b; Lindqvist et al., 2014; Murillo Pardo et al., 2013; van Stralen et al., 2011). By actively involving stakeholders to create tailored approaches, CSH approaches can positively impact school policies and student outcomes, while accounting for the complex and unique context of schools (Propel, 2012a; Propel, 2012b; Veugelers & Schwartz, 2010). However, schools require external support in the form of a school health facilitator to effectively implement and sustain comprehensive approaches (Senior, 2012; Elinder et al., 2012; Gugglberger & Dur, 2011; Ridge et al., 2002). This support may be delivered in varying doses and intensities across interventions. Similarly, facilitator roles are largely variable. Literature assessing CSH facilitators between interventions is limited but key factors for success have been identified for successful implementation of other comprehensive health approaches. These include conducting school audits, enhancing buy-in,

communicating effectively, supporting sustainability and engaging stakeholders (DeAngelo et al., 2014; Dogherty et al., 2012).

Engagement of students is especially important in school health promotion to ensure interventions meet their needs, and promote desirable outcomes (Elinder et al., 2012; Community Health Nurses Initiatives Group, 2013). Similar to CSH guided programs, student-engagement interventions have been successfully implemented in schools with diverse health goals (e.g. drug prevention, physical activity) and across age groups (Lindqvist et al., 2014; Murillo Pardo et al., 2013; van Stralen et al., 2011). The participatory method, photovoice utilizes cameras and facilitated discussion to actively engage stakeholders. The use of photovoice in the classroom complements the CSH framework and settings-based approaches when focusing on student health by promoting student voice to prioritize areas of improvement and shape actions for change. This form of substantive participation may enhance intervention outcomes by increasing students' knowledge and skills for health behaviours, and making them feel connected to the school environment through the development of action plans. These outcomes have been supported in literature.

This literature review has highlighted important considerations for successful implementation of facilitated CSH approaches (including dose and intensity) and enhancing student engagement. I hypothesize that photovoice could be incorporated into CSH approaches as an intervention to improve students' understanding of their own priority areas and their understanding of creating a healthy school environment. In the longer term, seeking out student voice through facilitated PV sessions could actively engage students to prioritize changes at the individual and school level. This active participation may enhance CSH goals as the literature has supported the link between facilitated interventions, engagement and individual- and systems-level health outcomes. This

study will enhance the understanding of photovoice as an effective student engagement approach to promoting student health within a school context. It will also contribute to identifying success factors for CSH-specific facilitator roles, and contribute to the research gap surrounding facilitator intensity and dose.

3.0 Study Rationale

The study was part of a research-practice partnership with the Propel Centre for Population Health Impact at the University of Waterloo, the Heart and Stroke Foundation, and the Champlain Cardiovascular Disease Prevention Network (CCPN), evaluating a facilitator-led and CSH-guided program. The larger scale project, known as the Champlain School Facilitation Pilot, focused on physical activity and healthy eating in fifth, seventh and eighth grade students in 16 English intervention schools. One full-time facilitator was available March 2013 to June 2014 (1:16 facilitator to school dose). Participating schools represented a diverse mix of urban and rural communities across the Champlain region. The facilitator supported schools to develop and implement an action plan in one or more of three priority areas: School Travel Planning, School Nutrition and Active Play. Intervention schools also received a one-time seed grant (September 2013) in the amount of $1,150 to support the implementation of their action plan.

The Champlain Pilot used mixed-methods to examine school- and individual-level data, framing results around three main purposes:

- Guide ongoing refinements and improvements to the school facilitation program
- Examine outcomes of the facilitation pilot on schools and students
- Identify key success factors to consider for scaling up

Pilot schools completed student-level surveys (grades 5,7,8) and school-level surveys (Healthy School Planner). Student surveys measured healthy eating and physical activity outcomes (attitudes, subjective norms, behavioural intentions, and behaviours), and BMI from self-reported height and weight. Selected schools also participated in qualitative activities, including parent focus groups and student photovoice. Baseline data collection began in Spring 2013 and continued until Spring 2014. A detailed outline of data collection with intervention schools can

be seen in Table 2. Five comparison schools also participated in the student- and school-level surveys at the same time as the pilot schools. To further understand experiences, supporting factors and challenges for school- or student-level change, interviews were conducted with principals and program staff over the course of the intervention.

Table 2: Summary of Evaluation Methods

Methods	Topics	Time
Student survey (Gr. 5,7,8)	Attitudes, social norms, behaviours related to physical activity, healthy eating, positive mental health; self-reported weight and height	Spring 2013 Spring 2014
Healthy School Planner*	Foundations of healthy school community, healthy eating, physical activity environments, and opportunities in schools	Spring 2013 Spring 2014
Principal Interviews	School readiness, pilot expectations, experiences, and recommendations for improvement	Spring 2013 Spring 2014
Principal focus groups	Program feasibility and implementation	January – March 2014
Parent focus groups	Parent perspectives of the healthy eating and physical activity environment at the school and related activities	Feb – March 2014
Student photovoice*	Student perspectives about the school environment	Winter 2014 Spring 2014
CCPN staff and facilitator interviews**	Pilot implementation	Fall 2013 Winter 2014 Spring 2014

*Data collected from these methods were analysed for this thesis project
**Facilitator interview data were analyzed for this thesis project

My thesis project added a PV component of the Champlain Pilot and focused on evaluating that aspect of the intervention. Within the broader evaluation, PV served as a dual purpose. It not only provided qualitative data, but PV also implemented a unique CSH student engagement intervention within 2 of the 16 participating schools. For the evaluation, the photos, discussion transcripts and facilitator notes supported the broader Champlain Pilot by serving as student-level data. Serving as an intervention, implementing PV allowed the facilitator to identify less-engaged schools through tracking and field notes, and connect with two schools to provide additional support. It is important to note that for the broader Champlain Pilot, PV was meant to

serve as a method of school engagement by strengthening the relationship between the facilitator and the school, while also engaging students. This thesis, however, will focus on student-level PV data. Section 5: Methodology contains data collection procedures for PV.

The literature has shown the growing body of evidence supporting student engagement to promote healthy behaviours. Engagement-focused interventions that promote students prioritizing and shaping change have been successfully used in school settings and have been linked to student-level and systems-level policy change (Lindqvist et al., 2012; Murillo Pardo et al., 2013). However, there is a lack of research providing comprehensive review of a student engagement intervention with a CSH framework. The use of PV within the facilitated Champlain Pilot program was intended to provide insight into the 'how' and 'why' to effectively and actively engage students in CSH, while fitting within the objectives of the pilot program. Since the study is guided by the CSH framework and PV is a facilitated method, it will also assess important considerations for CSH facilitation.

4.0 Research Objectives

The primary goal of the study was to explore the effect of a photovoice intervention in the context of a Comprehensive School Health framework, in two grade 5 classrooms. Using a case study approach, each classroom was analyzed separately and comparatively. Since PV was conducted within a facilitated CSH framework and utilized a facilitator, the study also aimed to explore the facilitator role.

The objectives of the thesis project (and the respective means for evaluating the objectives) were to:

- Understand the context of each case with respect to school readiness for CSH applied to physical activity and healthy eating (**Healthy School Planner)**
- Understand healthy eating and physical activity influences (facilitators and barriers) within a school, from the perspective of a grade 5 class (**PV Discussion and Pictures**)
- Determine if PV enhanced a grade 5 class' understanding of healthy school environments and CSH pillars (**PV Discussion and Pictures**)
- Determine the best skills, training and role necessary of a school facilitator to enhance healthy school environments (**Facilitator Interviews)**

This study was designed with the intent that that the use of PV in a CSH context will enhance students' understanding of the theoretical grounding driving the Champlain Pilot. By supporting their understanding of CSH pillars, this study will hopefully enrich participating students understanding of facilitators and barriers within the school environment. Additionally, the use of PV within CSH will identify best practices for a facilitator to successfully engage schools and students to support environmental change.

5.0 Methodology

5.1 Study Design

The study employed a mixed methods case study approach that included both qualitative and quantitative data sources. While predominately qualitative, both types of data were collected concurrently throughout the school year. These multiple lines of qualitative and quantitative evidence gave additional insight into school contexts, and individual- and school-level influences on physical activity and healthy eating behaviours.

Case studies allowed contextual analysis of conditions and their relationships, and are commonly used in complex, real-life settings. Furthermore, they have been supported as an appropriate approach for CSH evaluations (Ridge et al., 2002). An embedded, descriptive and mixed-methods case study approach was used to gain full understanding of the dynamic and multivariate environments of schools, and allow for multiple levels of analysis (Yin, 2003; Higginbottom et al., 2011). The approach is descriptive because a reference theory (CSH) directed the scope and depth of data collection, as well as case descriptions (Scholz & Tietje, 2003; Yin, 2003).

5.2 Sampling

Schools were selected from the 16 interventions schools already participating in the Champlain Pilot. Purposeful sampling was used, based on consultation with the evaluation research-practice partners and the Champlain Pilot facilitator. Within descriptive case studies, it is necessary to carefully select cases and develop descriptive scenarios to help guide data collection protocols (Yin, 2003). Two less-engaged schools were selected to promote student engagement[1]. The selection process included discussion with research partners to define 'less-engaged', and review

[1] Within the broader Champlain Pilot evaluation, photovoice also serves as a means for the facilitator to enhance activity within less-engaged schools

of facilitator field notes. The discussion asked, “Compared to practices with other schools, what two schools are the least engaged in the Champlain School Facilitation Pilot program?” Selection of two case schools was based on the:

- Least amount and least consistent points of communication between the facilitator and the key contact at the school,
- Least number of facilitator visits to the school, and
- Least number of initiatives planned and implemented at the school.

Once ‘less-engaged’ schools were selected, the facilitator contacted the principal or key contact at each school and was referred to a grade 5 teacher. The facilitator followed up with both teachers to obtain agreement for participation in PV. Consistent with the Champlain Pilot sampling for student level data, grade 5,7 and 8 students were considered. Grade 6 students were excluded to reduce school burden and avoid scheduling conflicts due to EQAO testing. Grade 5 classes were purposively selected based on suggestions for feasibility by the facilitator. Nelson and Christensen (2011) demonstrated successful use of Photovoice with students between 10 and 11 years old (grade 5) and within school settings, making this an appropriate choice.

Consent for the other sources of data was obtained following the recruitment stage of the Champlain Pilot. For photovoice, information letters and consent forms were shared with students and parents (See Appendix B) prior to the first session. Active parental consent was required for each student to participate in taking pictures. All students participated in class discussions.

5.3 Ethics

Ethics approval was obtained from the University of Waterloo and the Ottawa-Carleton Research Advisory Committee for the larger scale Champlain Pilot. Modifications to include the photovoice intervention and its evaluation were approved by both ethics boards in January 2014.

5.4 Data Sources

5.4.1 Quantitative Data Sources

5.4.1.1 School Level Data: Healthy School Planner

School-level data were collected using the Healthy School Planner (HSP) (Joint Consortium for School Health, n.d.) to assess changes over one school year. HSP is a free, online tool designed by the Pan-Canadian Joint Consortium for School Health and evaluated by the Propel Centre for Population Health Impact. HSP assists schools in the assessment of their capacity and performance to support healthy environments by looking at policies, activities, facilities and guidelines. Additional information regarding HSP is available online: http://www.healthyschoolplanner.uwaterloo.ca.

To gain a clearer picture of the school, the principal or school contact was encouraged to invite other members of the school community to assist with the completion of the survey. School teams were asked to complete three modules of HSP: Foundational, Physical Activity Express, and Healthy Eating Express. The Foundational Module (See Appendix C) assessed the infrastructure and processes in place to support a healthy school. It included 21 indicators for reporting. The Physical Activity Express and Healthy Eating Express Modules asked participants to consider the four pillars of CSH (teaching and learning opportunities, the social and physical environment, healthy school policies and community partnerships) relating to each focus area. The Healthy Eating Express Module (See Appendix D) included 8 indicators for reporting, and the Physical Activity Express Module included 6 indicators (See Appendix E).

Upon completion of all three modules, each school received a condensed report scoring each indicator in a rubric style (Level 1 [lowest] to Level 4 [highest]). This reporting style is ideal because schools are familiar with rubrics to assess student achievement.

Both schools were asked to complete the HSP pre- and post- Champlain Pilot to allow comparisons within and across cases. However, School 2 did not complete the post-HSP. This limitation will be further discussed in Section 8: Challenges and Limitations.

5.4.2 Qualitative Data Sources

5.4.2.1 School Level Data: Facilitator Data

Three interviews with the Champlain Pilot facilitator took place over the school year: September 2013, January 2014, and July 2014. A Propel investigator conducted semi-structured interviews and a Propel project manager took field notes during each interview. Verbatim transcripts were produced for analysis. See Appendix F for detailed interview guides.

Facilitator interviews supported the quantitative school-level data obtained from the HSP, and strengthened the PV data by supplementing the observer's notes. Furthermore, facilitator interviews gave insight into the ideal characteristics and skills necessary to successfully engage schools, including students, in creating healthy environments.

Additionally, three email exchanges between the facilitator with the researcher to coordinate and discuss PV were analysed to give insight into the planning process and additional information regarding the participating schools.

5.4.2.2 Individual Level Data: Photovoice

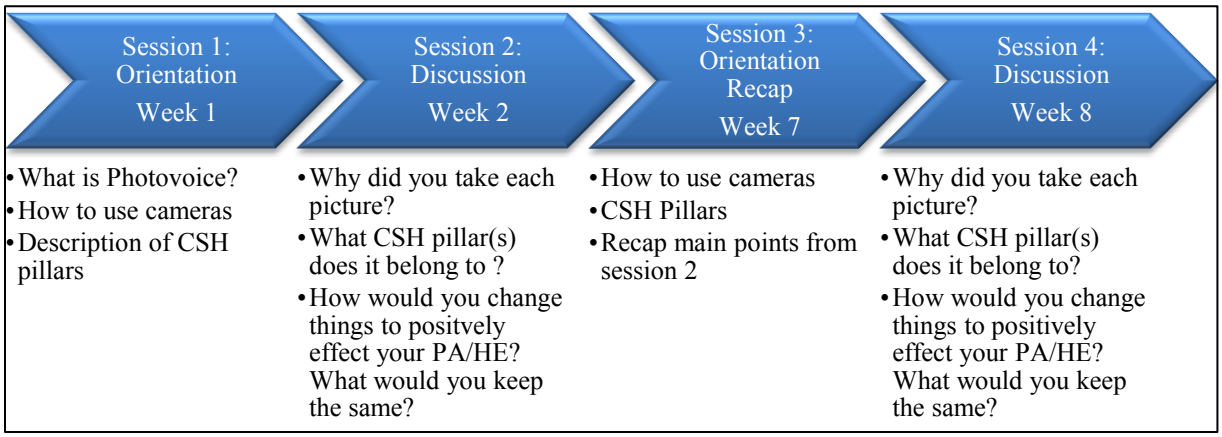
Active consent was sought for all PV participants (i.e., all students in one grade 5 class at each school). Figure 1 outlines the four PV sessions conducted by the facilitator. PV began with an orientation session, led by the facilitator at the beginning of the winter (January/February) (week

1). The facilitator oriented students to PV, the cameras, and appropriate behaviours for taking pictures in a school environment. This included asking others for permission before taking their picture, understanding appropriate locations to take the camera, and not downloading pictures to personal computers. Students received a handout with this information (See Appendix G). The facilitator also led an initial discussion surrounding the four pillars of CSH (social environment, physical environment, community partnerships, teaching and learning) to potentially expand the range of influences that students considered in their photography. The terms used to describe the pillars were changed to reflect the students grade levels. Students were paired up and given one camera per pair for three days. They were encouraged to use the cameras to capture factors that influence their healthy eating and physical activity within the school, while keeping in mind the CSH pillars. After their time with the cameras, they were asked to select eight pictures, which fit into at least three of the four CSH pillars, and submit them to the facilitator for the next discussion. Students were also asked to submit an information sheet describing their selected pictures and the CSH pillar each picture belonged to. A detailed facilitator guide for the orientation session can be found in Appendix H.

The purpose of the second session (week 2) was to discuss photos selected by each student pair. The facilitator encouraged students to explain why they chose a particular picture, how each selected image influences their school and individual health, and how they might group each image according to the pillars of CSH. Once the photos were described, the facilitator asked students to reflect on identified facilitators and barriers while suggesting changes to make their school a healthier environment. The intent was for the facilitator to forward recommendations to each school's principal to spark additional discussions for change.

The third (week 7) and fourth (week 8) photovoice sessions were planned one month later, before the end of the school year. This gap was intended to give schools time to receive students' recommendations and start to implement changes. The third session reoriented students to the purpose of the photovoice intervention, and how to use the cameras. CSH was reviewed, including the descriptions of each pillar. Cameras were distributed to the same pairs of students for three days. After three days with the cameras, they were asked to submit eight photographs that fit into three of the four CSH pillars, with an information sheet. During the fourth and final session, students had the opportunity to discuss why they took each picture, how the pictures' contents affect their physical activity and healthy eating, and with which CSH pillar each pictures aligned. Students, again, had the opportunity to suggest changes to promote a healthier school environment. Again, the intent was for the facilitator to forward recommendations to each school's principal to spark additional discussions for change.

Figure 1: Timeline of Photovoice Sessions



All PV sessions had an observer present to transcribe non-verbatim notes of the discussion.

5.5 Analysis

5.5.1 Quantitative data analysis

Descriptive statistics of the thirty-two indicators from the three Healthy School Planner modules were examined for each case (school) within and across the two cases. Specifically, the researcher used Microsoft Excel to examine the mode, mean and range indicator scores within each module, and by pillar within each module. These ratings helped understand the readiness of each school before and after the PV intervention.

5.5.2 Qualitative data analysis

5.5.2.1 Framework Analysis

Qualitative analysis was guided by Framework Analysis (FA), which provides a practical approach for real world investigations (Ward et al., 2013). FA maintains that the social world exists independently of individual subjective understanding. Gaining comprehension of this understanding requires qualitative research via participant interpretations, which are then further interpreted by a researcher (Gale et al., 2013). Unlike other qualitative methods, such as grounded theory, it is less focused on producing a theory and may be shaped by existing ideas. FA is not a new method, as it has been used in qualitative analysis for over 25 years, and is becoming increasingly popular (Gale et al., 2013). Its systematic approach emphasizes transparency by providing clear links between stages of analysis, from initial review of data to developing explanatory accounts (Smith & Firth, 2011; Gale et al., 2013). These distinct stages allow case- or theme-based analysis (Gale et al., 2013; Ward et al., 2013), making it further applicable to this study. FA is flexible and adaptable tool, beneficial for managing large, homogenous data sets where obtaining a descriptive overview is desirable (Gale et al., 2013).

An inductive and deductive approach to FA was used in this study. As the research objectives and data collection methods were guided by CSH theory, the final analytical framework was

created with the literature in mind, following a deductive approach. However, prior to creating the main overarching themes, the coding process included constant reference to pictures, transcripts and information sheets, and in-vivo coding was used to ensure data maintained grounded in the participants' perceptions (inductive approach).

FA was an appropriate analysis technique for this study due to its flexible nature, allowing multiple data sources including non-interview data to be included in the final matrix. (Gale et al., 2013). In the case of the thesis, this includes memos, PV pictures, email exchanges and non-verbatim transcripts to support semi-structured interview transcripts. Furthermore, the matrix output facilitates a case study approach by providing a structure that allows the researcher to reduce the data by case (Gale et al., 2013).

Following Ritchie et al., (2013)'s stages of creating frameworks, qualitative analysis took place in three steps:

1. Familiarisation with data: Transcripts, photos, and email exchanges were reviewed and re-reviewed by the researcher to immerse herself in the raw data. This method of familiarization was essential because the researcher was not present for all data collection periods (i.e. PV session 2 and facilitator interviews). Photos, transcripts and email exchanges were uploaded to NVivo Version 10 and memos were created to record initial impressions. Becoming familiar with the data made it easier to maneuver around the data later in analysis and ensured coding was grounded in the participants' realities (Gale et al., 2013). This stage also allowed an initial glance at reoccurring content and identification of topics of interest, as related to the research objects (Ritchie et al., 2013; Pope et al., 2000).

a. Inductive Coding: NVivo 10 software facilitated line-by-line coding. Nodes were assigned using in-vivo codes (participants own words) wherever possible to ensure data reflected participant's perspectives (Ritchie et al., 2013). Again, memo-ing took place to record the researchers' thoughts and questions throughout the coding process. Pictures were also coded to reflect participants' realities by cross-referencing with the information sheets students were required to hand in.

2. Developing working analytical framework: Initial codes were shared with a senior scientist familiar with the project and qualitative research practices for review and input. After several discussions over initial codes, nodes were refined to create more formal ideas using NVivo parent nodes. At this stage, the goal was to move to a higher level of abstraction without moving too far from the data (Ward et al., 2013). At this point, coding took a deductive approach and was guided by the CSH approach. Using the initial codes, four overarching themes were identified, with multiple defined subthemes within each. Detailed definitions of nodes ensured consistency in coding, supporting a systematic approach. It also facilitated an additional round of review by the senior scientist. An analytical framework was created and applied to the qualitative data. This framework was continually refined throughout the coding process, and reduced to three overarching themes. Related codes were grouped together in a "process of refining, applying, and refining the analytical framework" (Gale et al., 2013). The analytical framework consisted of 453 codes clustered into 19 parent nodes, which were further categorized into three overarching themes.
3. Charting data into framework matrix: Once all the qualitative data were coded using the analytical framework, the analysis was summarized into a matrix. Data were sorted by theme and case, with definitions and frequency of references included in cells to provide additional

insight into the meaning and strength of each theme. The final framework can be seen in Appendix I.

5.5.2.2 Transparency and Trustworthiness

A central part of Framework Analysis and qualitative research is to stay true to participant descriptions, especially when developing more abstract concepts. Several techniques were used during the analysis phase to ensure transparency and trustworthy interpretations of the data.

Constant and critical reflection throughout the data collection and analysis process was essential to minimize the coder's biases and assist in producing more trustworthy interpretations (Glesne & Peshkin, 1992; Gale et al., 2013). Within qualitative analysis, it is essential for the researcher to be self-aware and acknowledge subjectivity in their own interpretations (Ward et al., 2013; Gale et al., 2013). The use of field notes and memos during coding supported the analyses and write-up of results by capturing the thoughts of the coder throughout the process (Wilson, 2012). The use of NVivo further ensured transparency by keeping an account of each step of framework development, and providing visual representation of framework matrices (Hutchison et al., 2010).

To reduce misinterpretations during analyses, original data were constantly re-reviewed to ensure the coding matrix was grounded in participants' perceptions. While an additional coder would have been ideal for inter-rater reliability, study timelines and resources did not allow it. However, a senior scientist reviewed the initial coding and the analytical framework to enhance the trustworthiness of the coded data. The review and re-review of the codes, the application of the framework after an initial round of coding, and the further refining of the framework also enhanced the trustworthiness of the data (Gale et al., 2013).

Quantitative data (HSP profiles) supported qualitative data by giving insight into the school environment, beyond the PV classrooms. Furthermore, multiple sources of qualitative data were used to evaluate outlined research objectives. This triangulation of PV, interview and survey data decreased biases and further enhanced trustworthiness of the study (Martinez-Andres et al., 2012). Using quantitative and multiple forms of qualitative data, findings were framed according to the study objectives in attempt to give a full understanding of each school setting and the effects of student engagement on students' healthy eating and physical activity behaviour influences.

6.0 Results

6.1 Final Samples

6.1.1 Cases

As described previously, two case schools were purposively selected from the pool of intervention schools participating in the Champlain Pilot. While both schools were focused on physical activity, School 1 also chose to include healthy eating into their Champlain Pilot action plan. Schools represented both urban and rural settings, and were identified as less engaged within the Champlain Pilot.

Photovoice classes were selected, as described in Section 5: Methodology, and based on convenience sampling (principals contacted potential teachers, and selected the participating class). One grade 5 and one grade 5/6 split class were chosen with similar class sizes. The chosen classes had different gender demographics, with School 1 having a larger proportion of female students, and School 2 having a larger proportion of males. Together, however, the classes had approximately 50% males and female representation. See Table 3 for a detailed overview of selected cases.

Table 3: Characteristics of selected case, Photovoice Intervention and Evaluation

	School 1	School 2	Total (N = 53)
Grade of PV class	5/6	5	
Number of students	24[1]	29	53
% Female (n)	62.5 (15)[2]	41.3 (12)	51 (27)
% Students with permission to participate (n)	100 (24)	97 (28)[3]	98 (52)
Action Plan Area of Focus	Physical Activity Healthy Eating	Physical Activity	
School location (Urban/Rural)[4]	Rural	Urban	

[1] Six students in grade 6; 25% of total class
[2] 100% grade 6 students were female
[3] All but one student had permission to use the camera. That individual was still grouped with other students and participated in the discussion. Due to their level of participation, their data was included in the final data set.
[4] Rural schools fall outside the Ottawa region, within Renfrew County

6.1.2 Final Sources

The final sources of data used for quantitative analyses included completed Healthy School Planner profiles (School 1, pre- and post- intervention; School 2 pre-intervention only). School 2 did not submit their Healthy School Planner survey at the end of the intervention school year.

Qualitative data included three facilitator interview transcripts, four non-verbatim photovoice discussion transcripts and three documented email exchanges between the facilitator and the researcher. Photovoice pictures were also analyzed. Students submitted 345 pictures over the course of the photovoice intervention with information sheets. If an information sheet was incomplete or missing, the picture was removed from the sample (125 pictures or 36%). This was to ensure the researcher was using the students' information sheets to code pictures, and therefore reflecting the students' realities. A majority of the removed pictures were from School 2(116 pictures or 93% of removed pictures).The final sample included 220 photovoice pictures and accompanying information sheets.

6.2 Quantitative Results

To understand the context of each case, Healthy School Planner (HSP) profiles were assessed using Microsoft Excel. These profiles were used to evaluate readiness for a school health program, and physical activity and healthy eating within the school environment. As previously noted, school 2 did not complete the HSP at time 2. This limitation will be further discussed in Section 8: Challenges and Limitations.

Mean, mode and indicator range were calculated for each school by HSP module, as seen in Table 4. Mean, mode and indicator range by Comprehensive School Health step (module sub-categories) and indicator scores by question for each school can be seen in Appendix J.

School 1 reported higher mean scores across all three modules, and higher mode scores for the foundational and healthy eating express module at time 1, suggesting higher 'readiness' for a CSH guided intervention. From time 1 to time 2, School 1 showed various changes across mode scores. Foundational mode score remained the same (3.0), healthy eating express mode score decreased by one (4.0 at time 1 to 3.0 at time 2), and physical activity express mode score increased by one (1.0 at time 1 to 2.0 at time 2). Schools consistently gave themselves a mean rating greater than 1.0, but also had range scores across the grading rubric (1-4). Missing data at time 2 (school 2) limited cross-case comparisons.

Table 4: Healthy School Planner Indicator Scores, by module

Module	Measure		School 1	School 2
Foundational	Mean [Range]	Time 1	2.7 [1-4]	2.4 [1-4]
		Time 2	2.7 [1-4]	N/A*
	Mode	Time 1	3.0	2.0
		Time 2	3.0	N/A*
Healthy Eating Express	Mean [Range]	Time 1	2.9 [1-4]	2.6 [1-4]
		Time 2	3.0 [2-4]	N/A*
	Mode	Time 1	4.0	2.0
		Time 2	3.0	N/A*
Physical Activity Express	Mean [Range]	Time 1	2.5 [1-4]	2.2 [1-3]
		Time 2	2.8 [2-4]	N/A*
	Mode	Time 1	1.0	3.0
		Time 2	2.0	N/A*

* School 2 did not complete the HSP survey at time 2

HSP assessed student engagement via two indicators in the Foundational module. Questions specific to student engagement were only present in the foundational module. First, schools were asked if students were represented on the healthy school community planning team (within the 'form a team' step). School 1 did not answer this question and school 2 ranked their level of student representation at 3.0 (out of 4.0) at time 1. The missing data do not permit comparisons across case or time.

		School 1	School 2
The school has student representation on the healthy school community planning team.	**Time 1**	N/A	3
	Time 2	N/A	N/A*

* School 2 did not complete the HSP survey at time 2

Within the step 'implementing across the 4 pillars of CSH', schools were asked to score the range of leadership opportunities available to students in the organization of school activities. While both schools ranked their opportunities at 2.0 prior to PV, School 1 reported an increase in their score at time 2 (4.0).

		School 1	School 2
Students with a range of skills and characteristics are provided leadership opportunities in the organization of school activities.	Time 1	2.0	2.0
	Time 2	4.0	N/A*

* School 2 did not complete the HSP survey at time 2

While increases and decreases in indicator scores may reflect effects of the intervention, they may also reflect changes in champions. Different individuals may have completed the Healthy School Planner surveys at each time point. While the Healthy School Planners were used to gain additional insight into each case, the missing data limited the ability to assess readiness pre- and post-intervention. Therefore, the results will focus on qualitative data sources.

6.3 Qualitative Results

To explore the remaining research objectives, interview transcripts, discussion notes, photos and email exchanges were analyzed using NVivo 10. Key themes were identified, related to:

- Students perceptions of healthy eating and physical activity influences in their school
- Students understanding of CSH pillars
- Facilitator skills, training and role necessary to enhance a healthy school environment

Emergent themes were also analyzed across cases (schools), were applicable. Due to the small sample of facilitator interviews (N=1), cross-case comparisons were of limited use and facilitator interviews were treated as a single data set. Moving forward, the term ‘facilitator data’ will encompass interview transcripts and documented email exchange between the facilitator and researcher.

Coding of each qualitative data source resulted in the following number of codes:

- Facilitator data: 187
- Photovoice pictures and discussion notes: 266

A detailed coding matrix can be seen in Appendix I. The 453 codes were further analyzed into 19 categories, and three overarching themes: CSH pillars, how to create healthy schools, and barriers. These will be described in more detail in future sections. The analytical framework also contains the number of reference nodes for each category to demonstrate the strength of each code.

PV pictures were also coded to create attribute values. Attribute codes included which CSH pillar the facilitator or barrier represented, as well as photovoice discussion session and case (e.g., School 1, Session 1). Similarly, pictures were coded for healthy eating and physical activity to reflect the school's intervention focus area. Table 5 shows an overview of attribute codes, per photovoice session. These attribute nodes were used to compare and contrast the above themes to identify any variation by school area of focus (physical activity or healthy eating), and time.

Table 5: Frequency of attribute codes, by data source

	Photovoice Session	Frequency of Attribute Nodes						
		CSH Pillars						
		Healthy Eating	Physical Activity	Teaching & Learning	Community Partnerships	Physical Environment	Social Environment	School Policy
School 1	2	31	33	18	9	49	21	10
	4	39	36	25	12	57	30	14
School 2	2	22	29	8	5	32	24	7
	4	6	13	4	5	13	6	2
Facilitator Data[1]	--	--	--	1	27	--	--	11

[1]Faciliator data includes interview transcripts and email exchanges between the facilitator and primary coder

To recall, School 1 identified physical activity and healthy eating as priority areas, while School 2 focused on physical activity. As Table 5 demonstrates, pictures tended to reflect the priority area of each school. There was no difference of reference codes greater than three within School 1, between healthy eating and physical activity, or between times. Within School 2, there was

consistently a difference of 7 reference codes between physical activity and healthy eating, and physical activity was more represented at each time. Due to the large number of pictures removed from the data set that belonged to School 2 (116 of 125 removed pictures), comparisons between times cannot be made. The priority area of each school did appear to influence the types of pictures students taken, in relation to physical activity or healthy eating. However, these patterns (differences across cases and between times) are not as strong as those seen across the CSH pillars. Therefore, this attribute node will not be further discussed within the emergent themes.

CSH pillars varied greatly across cases and data sources, when assessing number of coding references. These patterns will be considered within each overarching theme. It is important to note that facilitator data reflects schools across the Champlain Pilot (16 schools), while PV data reflects the two participating case schools.

6.3.1 CSH Pillars

The theme 'CSH Pillars' captured what is contributing to a healthy school environment by enhancing physical activity and/or healthy eating in schools. School activities were coded via Comprehensive School Health pillars to keep in line with the theoretical approach that guided the Champlain Pilot and the PV process.

Community Partnerships

Facilitator data revealed community partnerships to be valued by schools. It was the most referenced CSH pillar across facilitator data (27 of 39 reference codes).

Schools viewed community partners as a large asset. This is especially true for partnerships with the Public Health unit for Champlain schools that had not already connected with public health.

Due to the large number of partnerships available to schools (i.e., Kid Active, Ophea, HSF, Public Health, milk or breakfast programs), it was important for the facilitator to complement community partners, not compete with them.

> "The best thing I could do was to try to complement what they were already doing." [Facilitator Interview Time 3]

However, most schools were aware of the resources available to them the community:

> "[Schools] know what resources public health have to offer." [Facilitator Interview Time 2]
>
> "[Schools were] already well aware of all of the supports from Kid Active, Ophea, HSF, curriculum links to DPA, PALS program." [Facilitator Interview Time 1]

New relationships with community partners were also established during the Champlain pilot. To do so, it was important, as the facilitator noted, to act as a liaison between schools and community partners to ensure regular communication and create links. The facilitator focused on creating links to the local Public Health unit, if a relationship did not already exist, as they were seen as a large and sustainable asset. Partnering with Public Health enhanced the facilitator's reach within the schools.

> "Public health can facilitate other connections if [schools] need them." [Facilitator Interview Time 1]
>
> "They've assisted with doing presentations with me so we can get more classes done or more people done." [Facilitator Interview Time 2]

The role of the facilitator was important in creating these connections because schools do not have the resources or time to do so themselves.

> "Schools need a contact person. Things move fast in a school and they don't have a lot of time so they need one person that they can ask." [Facilitator Interview Time 1]

Through further analysis, it became clear that the level of support a school received from community partnerships (existing or established by the facilitator) varied from "attending

meetings or being in the loop on what's happening or phone calls with [the facilitator] to know what's going on" [Facilitator Interview Time 2]. Some community partnerships were as extensive as just including posters in the hallways, promoting programs and events, as photographed by students during PV (e.g., community camp at School 1 or community Terry Fox Run).

While the facilitator highlighted community partnerships as an asset to schools, this pillar was the least represented in both schools during both PV sessions, except School 2 Time 2. At time 1, 9 and 5 coding references for community partnerships were identified by the coder at School 1 and School 2, respectively. However, students did consistently identify school-wide community programs. These included a breakfast program at School 2 and a milk programs in School 1. When asked how many participated in the milk program during discussion at School 1, a majority of students raised their hands. The milk program was the most represented community partnership within PV pictures from School 1. It is unclear how many students at School 2 participated in a school breakfast program. At time 2, 12 and 5 coding references for community partnerships were coded at School 1 and School 2, respectively. While the number of coding references at School 2 did not increase, there were additional community partners identified through pictures. These included a Healthy Schools 2020 poster at both schools, and a Terry Fox poster at School 2. Pictures of the milk program were highly repeated from School 1. The increase in pictures relating to community partners may be due to an improved understanding of the community partner pillars

Figure 2: School 1 milk program identified as a community partnership

following the first PV session, or an increase in visible partners throughout the school such as the Healthy Schools 2020 poster.

An overview of all identified community partners, or services provided by community partners through facilitator data and PV sessions include:

- Public Health Unit
- Student Nutrition Programs (milk program, breakfast program)
- PALS training
- Green Communities Canada (presentations partnered with facilitator)
- Kid Active
- Ophea
- Heart and Stroke Foundation
- Healthy Schools 2020

Physical Environment

Multiple resources within the physical school environment were identified as supports and barriers to physical activity and healthy eating. These were identified by the facilitator and PV data. Consistently across schools and time of PV sessions, physical environment was the most represented CSH pillar. At time 1, 49 and 32 references to physical environment were identified by the coder within School 1 and School 2, respectively.

In regard to healthy eating, water fountains were commonly photographed at both schools, and identified as a facilitator for providing healthy beverage choices.

> "It shows a healthy drinking option." [PV School 1 Session 2 Discussion]

> "It [is] always healthier to drink water." [PV School 2 Session 1 C9]

Play equipment was frequently identified as a supporter for physical activity. Both participating classrooms had equipment provided by their teachers to use during activity breaks but revealed

that this was not the case for all classes within their respective schools. However, both School 1 and 2 had indoor and outdoor resources accessible to the whole school.

Indoor facilitators included a gym and a variety of play equipment at both schools, such as dodgeballs, soccer balls, hockey sticks, road hockey balls, and basketballs.

Figure 3: School 1 gym equipment supports students physical activity

"It [the picture] shows all the [gym] equipment we have to help us be physically active." [PV School 1 Session 2 C1]

"This [picture] shows that you can be active and healthy in the gym." [PV School 2 Session 1 C15]

However, neither school was allowed to use gym equipment outside during activity breaks. School 1 did have access to equipment shared by multiple classrooms that could be used during activity breaks, including balls, skipping ropes and hula-hoops. Outdoor resources for physical activity included climbing structures, fields and schoolyards at both schools. Students at both schools emphasized the large amount of outdoor space they have to play during activity breaks.

"[The field] shows how much space we have to get exercise." [PV School 1 Session 1 Discussion]

"The playground lets us be active with friends outside." [PV School 1 Session 1 C4]

"[The] play structure to play and exercise on." [PV School 2 Session 1 C9]

Figure 4: School 2's field provided large amounts of space for students to be active

"Students using the big field to play on." [PV School 2 Session 1 C22]

> "It shows that we have space to play in at school." [PV School 1 Session 2 C15]

Physical barriers influencing healthy eating also existed, specifically within the classroom. At School 1, the students photographed the poutine anchor chart used by the teacher to demonstrate progress. Students identified this as a negative influence, encouraging unhealthy food choices.

> "It [the picture] show us that the poutine [anchor chart] is unhealthy and encourages us to eat unhealthy." [PV School 1 Session 1 C1]
>
> "It [the poutine anchor chart] gives bad examples of the food choice." [PV School 1 Session 1 C7]

At time 2, both schools photographed a greater number of physical activity references. This included a bike room at School 2, encouraging active transport, and various types of healthy posters around both schools' hallways. These posters included student completed Canada Food Guides, Healthy Schools 2020, Terry Fox Run, and breakfast program posters. Within the classroom, there were additional healthy posters promoting active play and benefits to healthy eating.

> "It shows bikes that people were riding to school which is a healthy way to get to school." [PV School 2 Session 2 C13]
>
> "It shows posters that encourages you to stay healthy." [PV School 2 Session 2 C6]
>
> "It is a [picture of] a poster persuading us to be healthy and eat healthy." [PV School 1 Session 2 C17]

Social Environment

Social environment was consistently the second most referenced pillar across CSH pillars and across photovoice data. Coding found School 1 referenced the social environment pillar 21 times at time 1 and 30 times at time 2. Within School 2 data, the social environment pillar was referenced 24 times at time 1 and 6 times at time 2 (large amount of photos excluded at time 2 due to missing data).

Within social environment, modeling behavior was revealed to be an important facilitator and barrier to healthy choices at both schools. This was true for peer and teacher modeling, within and outside the classroom. Students noted that they were influenced by their peers' food choices. Healthy lunches and snacks encouraged them to make healthy choices, while unhealthy lunches encouraged the opposite.

Figure 5: Peer's lunches encourage students to make healthy or unhealthy choices

"It influences you to eat unhealthy." [PV School 1 Session 1C7]

"Because it shows a friend eating unhealthy and you might want to eat it too." [PV School 1 Session 2 C27]

Peer modeling also included physical activity behaviours across both schools. When students' friends were playing active games during activity breaks, students were likely to join them. Participating in activities with friends made them more enjoyable. Alternatively, some students chose to partake in non-active activities (e.g., sitting at recess) because it is what their friends do.

> "It shows my friends being active and having fun at the same time." [PV School 1 Session 2 C27]

School 2 utilized peer mediators, who wore vests on the playground and supported conflict resolution. Some students at School 2 noted that these peers in leadership roles encouraged physical activity by suggesting games to play during activity breaks. However, this was inconsistent across the class as many boys said the peer mediator had no effect on their physical activity levels during the school day.

As mentioned, teacher modeling was also a large influence to students' physical activity and healthy eating behaviours. Students at School 1 captured photos of active teachers who played

soccer with them at recess, or participated in a staff soccer team. A picture of said soccer team was posted in the school. Students mentioned that seeing their teachers being active encouraged them to do the same, and supported the importance of physical activity because the teacher "was doing it to show how good it is for us" [PV School 1 Session 2 Discussion].

> "It shows teachers promoting us to play by playing with us." [PV School 1 Session 2 C2]

Teacher modeling also influenced healthy eating. Students at School 1 captured multiple photos of their teacher drinking a green smoothie, which they said encouraged them to drink healthy beverages. On the other hand, they also captured photos of Tim Hortons in the classroom, which they noted encouraged them to also eat from an external food source (i.e., fast food).

> "It shows our role model (our teacher) drinking healthy smoothies." [PV School 1 Session 2 C5]
>
> Picture of teacher with smoothie: "It shows our teacher is teaching us about a healthy lifestyle." [PV School 1 Session 2 C6]

The final source of social support was identified at School 1. Students captured photos of their janitor and counselor. Students noted that the janitor supported a clean school by facilitating maintenance of the field they play on, and cleaning the classroom to make it allergy safe. The counselor supports students' mental health by providing verbal support. He also made healthy food choices, encouraging students to eat salad!

School Policy

Current practices and policies were identified across all qualitative sources, but school policy was the second least represented CSH pillar. At time 1, 10 and 7 references to school policy were coded at School 1 and School 2, respectively. At time 2, 10 references to school policy were

coded at School 1 and 2 were coded at School 2. Nonetheless, both schools implemented policies that both facilitated and limited physical activity.

School 1 supported physical activity by implementing more inclusive alternatives to traditional try-out based sports. This included dance teams, which did require tryouts but students explained that all who tried out were able to participate. However, the accessibility is still limited by grades, as only grades 4-6 can participate.

> "Dance team… they're being active. [We] have it after school and at lunch. Lots of people get to be in it. You try out but most of the people make it." [PV School 1 Session 1 Discussion]

Furthermore, students in School 1 identified regularly scheduled activity breaks as a means of achieving daily physical activity.

> "We get one hour outside with all [of] our recesses, so we get our hour of physical activity." [PV School 1 Session 1 Discussion]

School policies also act as barriers to physical activity. Facilitator interviews revealed that while schools are vested in enhancing student health, they are unwilling to change existing policies

> "They [schools] picked nutrition or physical activity but then they aren't willing to change the gym schedule or aren't willing to open up the gym on cold winter days." [Facilitator Interview Time 2]

Student PV discussions further revealed barriers to physical activity, which also included gym schedules. While students in School 1 had gym class almost every day, School 2 students only had access to the gym approximately twice per week.

> "We get gym most days, except when we have music." [PV School 1 Session 2 Discussion]

> "We have certain days that we go to the gym… We go to the gym twice a week… Yes, that's the same for the rest of the school." [PV School 2 Session 1 Discussion]

It became apparent through student discussions and pictures that schools had large amounts and a variety of sports equipment, as discussed under the Physical Activity pillar. While it appears that students valued the variety of equipment available to them, School 2 students noted that they were unable to use gym equipment outside during activity breaks. Nor could they choose what equipment they wanted to use for that particular gym day. Furthermore, students at school 2 were only allowed to use the climbing structure on certain days of the week.

> "[We] can't use the school gym equipment outside at recess." [PV School 2 Session 1 Discussion]
>
> "Some of the equipment I see in the picture we don't use. Some we would like to use but [it is] the teacher's decision what we use." [PV School 2 Session1 Discussion]
>
> "We can only use it [play structure] on our grade's day, once every week or two weeks." [PV School 2 Session 2 Discussion]

Finally, both sets of students identified non-active punishments that also took away from their physical activity. Students identified sitting against the wall or going to a 'Time Lost Room' when they misbehaved. These appeared to occur during activity breaks or during gym class.

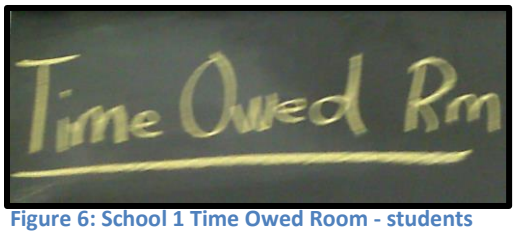


Figure 6: School 1 Time Owed Room - students who misbehaved must trade their activity breaks for time sitting in a classroom

"Maybe they got in trouble and had to sit against the wall… Yes, this is what we do if we get in trouble" [PV School 2 Session 1 Discussion]

"It [time owed room] is where we go at recess if we got in trouble" [PV School 1 Session 2 Discussion]

School wide-events were noted as a way of enhancing physical activity. A variety of events incorporated into the school environment were identified, including track and field day for students, family fun day, a wellness fair for the whole school community, and school walks to church. The involvement of events ranged from students, students and staff/teachers to the whole school community, including families.

Students also identified policies beyond healthy eating and physical activity, which they felt influenced their health. These included no smoking signs posted around the schoolyard at School 2 and allergy policies posted around the halls at School 1. Students identified these as facilitators for their health as a group and as individuals. Allergy policies not only kept students with the allergy safe, but also influenced what foods students were allowed to bring to school.

> "It [allergy poster] shows all the students in the school that need an epipen and shows what is allowed in the school." [PV School 1 Session 2 Discussion]
>
> "[The allergy poster] shows the two [foods] in the school that we are not allowed." [PV School 1 Session 1 C22]

Teaching and Learning

Teaching and learning was the third most represented CSH pillar. At time 1, there were 18 and 8coding references to teaching and learning at School 1 and School 2, respectively. At time 2, there were 25 and 4 coding references at School 1 and School 2, respectively. Similar to school policies, however, references to this pillar were apparent across all qualitative sources.

The facilitator noted the importance of encouraging classroom-based activities for school-wide events to enhance teaching and learning. For example, she encouraged class participation for a school wellness fair, but participation levels varied between classes. The facilitator noted the greater level of participation and understanding from the class that was given the class time suggested to enhance student participation in the Wellness Fair, supporting the integration of classroom-based activities.

> "They saw it work and they can do it in the classroom…There were three classes and one class was given class time…They were supposed to have time to learn and practice and talk about it in class with the teacher. One class wasn't given that time and on the day you could definitely tell they hadn't reviewed what I had given them. Whereas, the other classes knew the materials and could answer questions better…" [Facilitator Interview Time 2]

Teachers may also facilitate teaching and learning to enhance physical activity. School 2's teacher created a homework schedule to help address conflicting school priorities, which may limit physical activity.

> "I [the teacher] kind of did something about it. I give them homework on Monday and they have until Friday to do it, so they have time where they can be active because they have more days between to do their homework." [PV School 2 Session 1 Discussion]

Specific grade programs were also identified as teaching and learning initiatives to enhance student health. At school 1, all younger grades participated in "Power to Play" where they watched videos to learn about healthy behaviours. Older students also have the opportunity to participate in a similar program called "Power 4 Bones." However, the teacher must apply for their class. Teaching components include "TV clips about how to take care of your body and to exercise" [PV School 1 Session 1 Discussion]. Students revealed an interest in continuing this program throughout their grades.

> "Everyone should get to take it so we all keep learning about being healthy." [PV School 1 Session 2 Discussion]

An additional teaching and learning component identified through coding PV data were student skills, both as supporters and potential barriers to making healthy choices. Students noted that positive modeling (i.e., seeing their teacher drink a green smoothie) did not affect them if they did not have the appropriate skill set

> "I don't know how to make a green smoothie." [PV School 1 Session 1 Discussion]

However, students also acknowledged the resources they had to overcome this barrier.

> "To learn we can find a recipe by looking on the Internet [or] asking [our teacher]." [School 1 Session 1]

Additional student skills noted during PV included the ability to identify foods that were healthy, unhealthy or what they perceived to be healthy through pictures. For example:

> A student captured a picture of a granola bar: "To show people that there [are] more options to eat healthy." [PV School 1 Session 1 C4]
>
> One student captured a fellow student eating a sandwich with no vegetables during lunch: "It shows a kid eating a healthy lunch." [PV School 1 Session 2 C23]
>
> Finally, a student captured a picture of wrapped chocolate: "It shows somebody going to give an unhealthy gift." [PV School 2 Session 1 C28]

Within the curriculum, many teaching and learning opportunities were identified for students to enhance their health behaviours. Students at both schools photographed pictures of health textbooks encouraging sports, such as soccer and running, and assignments at School 1 asking them to identify the benefits of being healthy. Examples of benefits identified by students included academic achievement, feeling healthier and looking better. Students identified curriculum-based learning as a source of health information beyond the Champlain Pilot.

> "They teach us about healthy lifestyle in our curriculum, it's not just when [the facilitator] come in. We're learning about it in our curriculum." [PV School 1 Session 2 Discussion]

6.3.2 How to create healthy schools

While CSH pillars identified what was in place to help enhance or impede healthy school environments, coding of facilitator and PV data revealed multiple effects of the Champlain Pilot program that contributed to healthy school environments. These codes were grouped into seven subthemes. It is important to note that the themes were not represented with the same frequency, but all will all be reported. Frequency of references within each subtheme can be viewed in the framework matrix (Appendix I).

Accessibility

Students through PV discussion identified accessibility as an important factor for school health programs. Some students identified a cost barrier to School 1's milk program, saying "[I] don't get milk because my parents can't afford it" [PV School 1 Session 1 Discussion]. Water fountains were heavily captured (par t of the physical activity pillar), and one student said "the water is not like our milk, we don't have to pay for it" [PV School 1 Session 1 Discussion].

Adapting to local context

Both facilitator and PV data identified the need to adopt interventions to the local context. The facilitator noted that they expected the process of facilitation to be more standardized, but shortly realized that the large scale of the Champlain Pilot meant a large range of activities, which are "completely different between schools" [Facilitator Interview Time 2].

> "I really thought it would have been a little more standard where they would all promote the same things at the same time (e.g., all do bulletin boards or staff wellness). In the summer I spent time planning discrete activities that I could offer to schools to do but the activities they have on their list, it feels like I'm re-creating things for schools and re-doing things. With the big spectrum of the three priorities and then within those priorities it can be so many different things." [Facilitator Interview Time 2]

The facilitator also noted the need to "adapt within the local context" [Facilitator Interview Time 3] and "knowing...what the school wants" [Facilitator Interview Time 3]. This is important as the facilitator said "schools have already identified or have an idea of where they need to make changes" [Facilitator Interview Time 3]. Therefore, interventions must be adopted to meet the needs and wants of the school.

Students also identified policies that adapted health behaviours to the local context. Allergy policies influenced foods allowed at schools

> "It [the picture] shows all the students in the school with different health concerns so the school teaches [us to] be careful what they eat" [PV School 1 Session 1 C12].

Student engagement

Facilitator interviews highlighted student engagement as an important aspect of the Champlain Pilot. Providing opportunities were important, but so were providing the right opportunities for student voice. The facilitator noted that student committee members did not add as much value as focus groups.

> "We did have a committee that had students involved, but I don't know if having students sit at that table was the right place. What I found to be more beneficial was a focus group with the students to understand what they want. Getting the student perspective this way was more helpful." [Facilitator Interview Time 3]

Schools valued student participation by working with the facilitator to provide "leadership opportunities for students," and seeking student voice. The facilitator noted that student voice had a large impact on schools.

> "They [schools] wanted to see what the students were saying." [Facilitator Interview Time 3]

> "It caused some of the schools to shift their priorities and activities. It was a conversation piece." [Facilitator Interview Time 3]

The facilitator actively created opportunities for student involvement, such as "decorating the gym" [Facilitator Interview Time 2] or "working on a bulletin board" [Facilitator Interview Time 1].

Facilitator Role

Facilitator interviews highlighted many aspects of the facilitator role that are important for enhancing school health programs. These included the facilitator's skills and personality coming into the role, as well as her training. Communication was also highlighted as an important role of the facilitator, as well as building relationships with the school. Furthermore, it became apparent

that having a facilitator as part of a school health program made schools accountable for their action plans. These four sub-themes will be discussed in further detail.

Training, skills and personality

The facilitator noted that working with schools is "very fast paced" [Facilitator Interview Time 2] and requires "a lot of preparation, planning, running [of] events, and then follow-up" [Facilitator Interview Time 2]. Several skills were noted as valuable coming into the role, as well as personality traits. These included:

- Knowledge of the school environment and "experience working in it" [Facilitator Interview Time 1]

  > "[It is] valuable to know how a school operates." [Facilitator Interview Time 2]

- Familiarity with the school boards

  > "[I] was working with some of the same schools." [Facilitator Interview Time 2]
  >
  > "[I] already knew the school environment." [Facilitator Interview Time 2]

- Existing relationships with community partners

  > "I worked with the public health partners in [the local] county and other communities members…There were many different community partners that I already had linkages [with]." [Facilitator Interview Time 1]

- Being able to "[learn] as you go" [Facilitator Interview Time 1]

  > "Training is ongoing, learning as you go. I had a good grounding of the school environment and facilitation aspects knowing how to work with schools. Once we had the rough outline of the project it was very much learn as you go and we've had a few different key learnings in between." [Facilitator Interview Time 1]

While these skills were highlighted as important throughout the facilitator interview transcripts, further analysis also revealed personality traits that supported school health facilitation and were necessary when working with schools. These include:

- "Being enthusiastic" [Facilitator Interview Time 2]
- Perseverance

> "Perseverance because it's really easy to get quickly discouraged. Change can take time so it's just trying to keep encouraging them."[Facilitator Interview Time 2]

- "Patience" [Facilitator Interview Time 2]
- "A positive attitude" [Facilitator Interview Time 2]
- "Being flexible" [Facilitator Interview Time 2]

> "…having a plan in place to work with schools, but knowing that things change quite quickly in the school environment or don't always operate as you would hope." [Facilitator Interview Time 1]

- "Being organized and focused" [Facilitator Interview Time 2]

> "You have to have a plan in place, you have to be organized and focused on what you want and the goal of the project. It is very easy to get side-tracked within the school and different priorities can come up. So I think it's just keeping your focus, being flexible to work around other priorities…" [Facilitator Interview Time 1]

Communication

Communication between the facilitator, schools and the research team were also noted as important supporters for the intervention. By providing schools with materials following healthy events (e.g., a wellness fair), schools could follow-up with their community to share progress and updates.

> "We had a wellness fair and part of the follow-up with that was sending notes back out to all of the teachers and doing up a little blurb so they could put it up on their Facebook page, Twitter and newsletter that they send to parents." [Facilitator Interview Time 1]

Furthermore, the facilitator highlighted the importance of update meetings with schools to ensure progress and that schools were on the right track.

> "Progress meetings were an opportunity for schools to come back together, look at the action plans, make changes, and look at what they had already done." [Facilitator Interviews Time 2]

Communication between the research team and participants was also very important to ensure accurate understanding of the intervention. The facilitator noted that some schools were uninterested in working with her to enhance their environment because that was not their intention when they signed up.

> "I think if this program is going to move forward that it has to be a little clearer what this program is all about in the application." [Facilitator Interview Time 2]

Finally, the facilitator mentioned the use of memoing her work with schools, and creating notes to ensure accurate tracking and reporting to the research team and staff.

Building relationships

The facilitator highlighted the need to build relationships and to do so early in the intervention. To build these relationships, the facilitator supported a "quick win and a tangible ask" [Facilitator Interview Time 3]. The principal was identified as particularly important to create a relationship with because they "[are] the gate keeper" [Facilitator Interview Time 2] to the school and any unwillingness to meet with the facilitator was identified as a barrier. The facilitator noted that building relationships take time, and most of the first half of the year was spent building trust and obtaining buy-in from schools.

> "Buy-in from the principal [is one of the top three facilitators for school success] but they may not be the one initiating the activities but rather passing it on to the other staff member and allow the staff member the time to meet with me. Time allowance is important. If the principal is on board and understands and sees the value in what you are doing for the school then they are much more willing to allow these changes to happen." [Facilitator Interview Time 1]

> "My advice to another facilitator would be to have that quick win or something right away to get into the school. Having meetings and conversations are helpful and necessary but having a tangible to get you into the school and interacting may get things started faster." [Facilitator Interview Time 3]

Creating accountability for schools

Finally, interview transcripts made it evident that the facilitator made schools accountable in creating, planning, and implementing their action plans. Without the facilitator role, schools would not create action plans, but also would not continue working on implementing them throughout the school year. The facilitator worked to present the program in "immediate steps and small pieces [Facilitator Interview Time 1]" so schools would not get overwhelmed by the project, and maintain interest over the school year.

> "Implementing the action plan, they just need someone to be accountable to and someone to help probe them about what they can plan. Whether or not there is someone there to help them, they need that accountability and that help." [Facilitator Interview Time 2]

> "One of the teachers commented that there wouldn't be meetings if there wasn't a facilitator or without the program." [Facilitator Interview Time 2]

Creating action plans

Part of the facilitator's role was to support schools in creating action plans. PV also prompted participating students to create action plans to address barriers to physical activity and healthy eating identified through PV discussion sessions. It became clear from facilitator transcripts that action plans helped schools create clear and detailed goals. Detailed action plans, while challenging to create, also helped create goals relevant and controllable within the school environment.

> "As the action plans have been developed and we have a clear picture of the activities. [Facilitator Interview Time 1]"

> "Getting a detailed action plan. Schools could identify lots of actions but it wouldn't necessarily link back to a goal. Putting the details into the action plan (e.g., who is leading, when would this happen) is still a challenge." [Facilitator Interview Time 1]

Action plans were supported by schools and included within School Improvement Plans [SIP].

> "Schools were very receptive to including [action plans] in their [SIPs]. Trying to motivate schools to continue the great work they have done this year for next year." [Facilitator Interview Time 3]

Within PV, students identified alternatives to current school policies and activities, in attempt to overcome identified barriers. These alternatives varied from individual suggestions to ideas within class or changes in school policies.

Students suggested adjusting their social activities to include other students during physical activities.

> "We could go to a different person's group and try to play what they're playing if another group doesn't let them play." [PV School 2 Session 1 Discussion]

Students also suggested identifying peers that are not participating in activity breaks and inviting them to play.

> "In the other picture we saw people in the corner and we should include them so they can be active too." [PV School 2 Session 1 Discussion]

Within the classroom, students identified changes for negative influences and conflicting classroom priorities. School 1 students' identified the teacher's poutine 'anchor chart' (used to measure progress) as a negative influence, and suggested a healthier alternative to remove the poor example it set.

> "We could have non-food anchor charts instead. The other classes have snowman, etc instead. It would help because we're looking at it and it makes us hungry." [PV School 1 Session 2 Discussion]

Students also addressed conflicting class time by suggesting stretch breaks during class.

> "We can stand up and stretch in the class." [PV School 2 Session 1 Discussion]

Finally, students addressed school-level policies and suggested removing skill-based tryouts to create more inclusive physical activity opportunities.

> "Instead of trying out maybe you could signup and it could be drawn out of a hat so different people could play on different teams." [PV School 2 Session 1 Discussion]

Students also suggested increased access to equipment by "allow[ing] us to take stuff from the equipment room outside" [School 2 Session 1].

Action plans provided options for enhancing the school environment to enhance health by outlining clear goals and activities.

School Champion

School champions were identified as necessary to enhance buy-in, but also support sustainability. The facilitator suggested a "vice principal or a resource teacher" [Facilitator Interview Time 2]. While "inspiring other people is also a barrier" [Facilitator Interview Time 2], the facilitator noted the need for a school champion in the case of turnover.

> "Where the principal or key contact has left and they've found someone to take over this – they haven't just let it slip away." [Facilitator Interview Time 2]

As mentioned, a school champion may also enhance buy-in when principal support is limited, as noted by the facilitator:

> "Maybe the principal isn't willing but the teachers think it's a good idea so it's inspiring those other people to be champions." [Facilitator Interview Time 2]

Sharing successes

The facilitator noted that schools were willing and excited to share their successes with the facilitator and with other schools. This was usually done anecdotally, and the facilitator acted as the "linkage to share those stories" [Facilitator Interview Time 1].

> "Schools are always quick to share what they've been doing. They like to tell the good stuff." [Facilitator Interview Time 2]

Supporting sustainability

The final subtheme identified under 'how to create healthy school environments' is supporting sustainability. The facilitator identified approaches she used throughout the Champlain Pilot to

help ensure schools were able to sustain the intervention at the end of the school year. This was identified as a challenge as the facilitator noted "it's hard to show sustainability – you want them to be independent but you almost have to show them the way to do it" [Facilitator Interview Time 2].

The facilitator supported schools heavily at the beginning of the program because "it is a new concept for schools" [Facilitator Interview Time 3]. To support capacity building and sustainability, the facilitator suggested lessoning her involvement with schools as the year went on, and also as the intervention continued. The facilitator highlighted her 'support role,' but encouraged schools to "do the problem solving" [Facilitator Interview Time 2].

> "Each event going forward, I'm going to be less and less involved." [Facilitator Interview Time 2]
>
> "Second year could be lower touch." [Facilitator Interview Time 3]

Furthermore, to help support schools with sustainability, the facilitator made sure to imbed intervention pieces in existing activities, to keep schools from becoming overwhelmed. Noted examples included the integration of a classroom piece within the school-wide wellness fair. The facilitator also took part in creating School Improvement Plans (SIP) with schools to ensure focus was given to the priorities identified over the Champlain Pilot, as well as "identifying who will be the lead for next year" [Facilitator Interview Time 3]. Incorporating plans into the SIP is very valuable to schools.

> "The more you can integrate activities across pillars on the SIP, the more valuable is has." [Facilitator Interview Time 3]

However, barriers to sustainability were also identified. The facilitator feels that schools will not "sit down to write a [action] plan" again [Facilitator Interview Time 2] but schools will repeat

activities and events that "they've seen be successful" during the pilot program [Facilitator Interview Time 2].

6.3.3 Barriers

The final theme identified across qualitative sources was barriers. Barriers to creating healthy school environments were coded as such. Further analysis revealed six subthemes that will be discussed in further detail.

Time

Time was a reoccurring barrier across qualitative sources. Further analysis of time as a barrier revealed an additional four subthemes.

Competing facilitator time

Facilitator data revealed that the facilitator had difficulty dividing her time between 16 schools across the Champlain region. While the geographical distance was manageable, it was necessary to organize with the schools in similar areas to meet with them all.

> "Geography is ok, it's very doable, it's just trying to coordinate so that you aren't making a bunch of trips back and forth." [Facilitator Interview Time 1]

Additionally, schools required various amounts of facilitator time and more engaged schools took up more time due to active events, and better communication.

> "With the 16 schools, at points I wasn't able to be as involved with all schools because some schools were really engaged and wanted me there, but the less engaged schools would not respond to meeting requests, etc." [Facilitator Interview Time 3]

Finally, it became apparent that sufficient time was required to establish relationships with schools to ensure implementation. This is a timely process and the facilitator noted "…how long it takes to establish relationships" [Facilitator Interview Time 3].

Competing School Time

It became clear that schools had very full schedules and coordinating around them can be difficult. The facilitator noted that programs and facilitation must work around schools' "busy phases" [Facilitator Interview Time 2]. She also noted that schools were "busy in the later part of the year" [Facilitator Interview Time 2]. Schools had competing priorities, making planning and implementing of events difficult especially at certain times in the year.

> "There were lots of other competing things in May (e.g., EQAO), report cards, and school trips. We knew May would be busy." [Facilitator Interview Time 3]
>
> "…[it is] not ideal to begin a project at the end of the school year." [Facilitator Interview Time 1]

The facilitator noted "how demanding school time is" [Facilitator Interview Time 3] and how "easy [it is] to get side-tracked within the school [when] different priorities come up." [Facilitator Interview Time 3]. Schools are "protective of their time" [Facilitator Interview Time 3].

Finding time within the classroom was also necessary, and at a reasonable point in the intervention. Classroom interventions require planning and scheduling around curriculum timelines and other priorities set by the teacher.

> "With Photovoice, I think it's just the timing and setting aside class time because we want to get in there soon." [Facilitator Interview Time 2]

Sustainability

Time is required to create sustainable interventions for school health. Coding of transcripts revealed more time was required than the one year allotted by the Champlain Pilot. The facilitator recommended a two year minimum, as well as fewer schools per one facilitator.

> "...Getting the action plan developed and then implementing it and doing the activities, I think... if we were going to move forward with this program, they would need a 2 or 3 year program because it takes [schools] a while to get going." [Facilitator Interview Time 2]
>
> "A two year minimum." [Facilitator Interview Time 3]
>
> "6-10 schools would be best." [Facilitator Interview Time 3]

Resistance to change

Facilitator interviews revealed schools are sometimes unwilling to change. While it appeared that schools see the importance in enhancing school health, they are resistant to applying changes that went beyond adding to existing programming. Furthermore, resistance varied between and within schools. Some schools were resistant to from the beginning the process, making it difficult for the facilitator to connect with them.

> "They are just thinking they will add in all of this extra stuff." [Facilitator Interview Time 2]
>
> "There were some schools that were difficult to get a response from. There was no willingness to meet." [Facilitator Interview Time 3]

Other schools faced resistance from principals, but teachers were interested. Alternatively, parents were interested in the information, but not interested in participating.

> "Inspiring other people is also a barrier. Maybe the principal isn't willing but the teachers think it's a good idea so it's inspiring those other people to be champions. If we go to parent council, often it's like 'well that's nice to know about, keep us in the loop." [Facilitator Interview Time 2]

While schools applied to be part of the Champlain Pilot, it was inappropriate to assume they were vested from the beginning. As the facilitator noted:

> "We were under the assumption that schools were on the same page as us and wanted this and were ready to make these changes but I don't really think they are. Not always! When we are talking they see the value in wellness and they understand. We make a million excuses for schools – they've got a lot of things going on, but I really think sometimes it's their willingness to change. They will look at their survey results and they're really interested and then I'll talk about certain things like rewards or celebrations

> and its like "well, that's a treat for them" and they like to place blame on lunches, or parents or whatever. So, they are kind of resistant to making these changes. They aren't really on the same page. It's almost like sometimes I'm promoting something that the school doesn't really want." [Facilitator Interview Time 2]

School burn out

As previously mentioned, schools have competing priorities throughout the school year. The facilitator noted periods of slower progress for the Champlain Pilot due to school schedules.

> "From May on, it was a little slower. There were lots of wrap-up activities but schools were hesitant to start new things." [Facilitator Interview Time 3]

"Burn out" [Facilitator Interview Time 3] was used to describe relationships near the end of the school year with both staff and community partners. The facilitator emphasized the challenge "to keep the school spirit up and keeping them engaged and wanting to do this" [Facilitator Interview Time 1].

Outside the school environment

The Champlain Pilot and PV were planned to exclusively address the school environment, as it was not possible to control outside that. However, many facilitators and barriers existed outside the school, as demonstrated by PV and facilitator interviews.

Firstly, students' lunches packed from home could not be controlled. Many students photographed healthy (i.e., fruit and vegetables, whole wheat bread sandwiches) and unhealthy lunch items (i.e., granola bars, baked goods) packed from home. As mentioned earlier, students' lunches influenced their peers (under the social environment pillar). Students also noted barriers at home that might enhance their participation in healthy behaviours. For example, one student mentioned their dog as a positive influence to "get outside and play" [PV School 2 Session 2 Discussion].

The facilitator interviews also revealed that schools would regularly suggest ideas addressing home environments.

> "So a lot of the time was spent trying to steer the conversation back to the school environment and what we can control within the environment." [Facilitator Interview Time 1]

Again, addressing the home environment was beyond the scope of the Champlain Pilot, but it is important to note that schools and students regularly addressed barriers outside the school environment. Finally, schools also placed blame for unhealthy behaviours on factors outside the school environment, namely parents for the presence of unhealthy lunches.

> "They [schools] like to place blame on lunches, or parents or whatever." [Facilitator Interviews Time 2]

Weather

Since participating schools are located in the Champlain region, weather was a large barrier to physical activity in the winter. Barriers included access to specific equipment, or indoor activity breaks.

Figure 7: Winter weather can result in indoor activity breaks, eliminating opportunities for physical activity

"In the winter, we can't play on the structure." [PV School 2 Session 1 Discussion]

This barrier was unspecific to winter, as rainy days also prevented outdoor activity breaks.

> "It shows a rain puddle. Rain is stopping us from going outside." [PV School 1 Session 2 C17]

> "It showed mud! It is hard to play with mud in the school yard so we can't be active." [PV School 1 Session 1 C2]

Active play opportunities were replaced with classroom time and sometimes, television time. One student pair at School 2 captured a television because "it [showed] a TV that people use on rainy days" [PV School 2 Session 2 C13].

Other barriers

This category captured additional barriers mentioned least frequently by students and the facilitator, and was beyond the scope of the study. These barriers to successful facilitation included:

- Parent buy-in

  > "Parents were interested and wanted to be kept informed, but didn't think that what was said applied to them or that they were being asked to help…" [Facilitator Interview Time 3]

- Ethics delay following initial school meetings made it difficult to "keep the school spirit up" [Facilitator Interview Time 3].

7.0 Discussion

Schools are considered the ideal setting to promote child and youth physical activity and healthy eating (Xu et al., 2014; Natale et al., 2014; Murillo Pardo et al., 2013; Gugglberger & Dur, 2011). By utilizing a facilitated comprehensive approach, interventions are more likely to see success (Lindqvist et al., 2014; Murillo Pardo et al., 2013; van Stralen et al., 2011). Using the Comprehensive School Health framework, this study implemented a participatory intervention aimed at: identifying barriers and facilitators to physical activity and healthy eating in grade 5 students; enhancing students understanding of CSH pillars (social and physical environment, teaching and learning, partnerships and services, healthy school policy); and identifying best practices for facilitation within a CSH guided program.

By implementing photovoice in two case schools within a facilitated intervention guided by CSH, this study identified three main lessons. First, active engagement of students in identifying school health facilitators and barriers can enhance their understanding of CSH pillars. Second, there are key success factors for a facilitator role to effectively implement a CSH intervention. Third, conflicting time is the largest barrier to successful implementation of a CSH intervention. Also identified were key lessons for implementing photovoice in a CSH guided program.

7.1 Student Engagement

The use of photovoice within the grade 5 and 5/6 classrooms gave students an opportunity to identify facilitators and barriers to healthy eating and physical activity influences. CSH pillars guided the process, but language was adjusted to reflect grade level.

It appears that students have a greater understanding of some pillars over others, namely physical and social environment. Physical environment was consistently the most commonly and diversely represented pillar between schools and over time, followed closely by social

environment. In contrast, community partnerships and school policy were the least represented pillars. Within these pillars, there was little variation of community partners and most of the school policies identified by students were barriers to their physical activity and healthy eating. These patterns might reflect the types of engagement opportunities available to students to enhance school health at that time. The Ontario Health and Physical Education curriculum supports student involvement in creating healthy school policies (called School and Classroom Leadership) but states that students' responsibilities for learning develop over time. As students get older, they mature, develop the ability to listen with understanding and manage their behaviours, making them more capable of taking on leadership roles to enhance their learning (Ontario Ministry of Education, 2010). Students within a grade 5 and 5/6 class may not have had opportunities to be actively engaged in school healthy policy due to their age.

However, this study indicates that students are able to enhance their understanding of CSH pillars through active engagement. From session 2 to session 4, School 1 demonstrated an increase in references across all pillars (16%-42% increase between time 1 and time 2). While School 2 displayed a decrease (50%-75% between time 1 and time 2) or stayed consistent across pillars, I believe this is due to the large amount of pictures removed, not a decrease in knowledge or understanding. The increased representation across pillars is consistent with the approach used by the Ontario H&PE curriculum, which stresses that ongoing practice and reflection allows students to deepen their understanding of themselves, others and their health (Ontario Ministry of Education, 2010). Furthermore, a review by Catalani & Minkler (2010) reported improved understanding of health needs as a consistent outcome of photovoice interventions. The active engagement within photovoice may have given students the opportunity reflect on their own health needs, and further their understanding of the theoretical grounding of the study and the

CSH pillars. Active engagement can lead to empowerment through improved knowledge and skills, and may enhance participation in advocacy and action (Murillo Pardo et al., 2013; Gadin et al., 2009; Trowler, 2010; Catalani & Minkler, 2010; Chang et al., 2012). Students who are strongly engaged and given opportunities to provide leadership are more likely to adopt and sustain healthy behaviours, including increased physical activity levels (Lindqvist et al., 2014; Murillo Pardo et al., 2013; van Stralen et al., 2011; Ontario Ministry of Education, 2010). Therefore, the use of photovoice in a facilitated CSH-guided program over a period longer than five months may enhance the results of this study by further improving students knowledge and skills, leading to empowerment, policy advocacy in schools and individual-level behaviour changes. This study did not evaluate empowerment due to its short time frame but longer-term photovoice interventions within CSH frameworks will allow further assessment of this hypothesis.

While the large amount of excluded pictures skew comparisons at time 2 between both schools, time 1 still demonstrates School 1 having greater engagement in the photovoice process. Prior to exclusion, School 1 had more variety in the types of pictures they took. After exclusion and analysis, School 1 also had more references to each CSH pillar within PV discussion transcripts, suggesting higher engagement in the class discussion. School 1 consistently had more references to each CSH pillar, except social environment. The comparison is especially clear when comparing teaching and learning between School 1 and School 2. Furthermore, School 1 scored higher across all Healthy School Planner modules and measures, suggesting higher ‘readiness’ at time 1. Class sizes were very similar, and even larger for School 2 (29 versus 24 students in School 1), but geographical location may give insight into this difference. School 1 was a rural school while School 2 was urban. Rural schools have a unique set of public health challenges

due to their low population density, greater distances to reach healthy activities and fewer resources. Staff at rural schools take on many roles that make it difficult to devote time to school health initiatives (Belansky et al., 2009). A study by Belansky et al. (2012) used trained facilitators to support healthy school planning related to physical activity and healthy eating within rural schools, and found that supported schools (compared to those without the support of a facilitator) made more sustainable changes. Ninety percent of these changes were still in place one year later (Belansky et al., 2012). While the current study did not evaluate differences in school resources due to rural or urban geography, it is possible that School 1's rural setting made them more receptive to the participatory approach. Based on number of coding references between schools at Time 1, School 1 appeared more engaged in class discussions, and were able to better represent more complex pillars (e.g., teaching and learning versus social environment). Again, additional research looking at the use of photovoice within CSH approaches, with a focus on geography can further assess this.

It is important to note that there are other possibilities to explain the patterns of CSH pillar representation within photovoice data. The number of references to each pillar may have been reflective of other aspects of the school environment. For example, physical and social environment may have been easier and more accessible to photograph compared to policy or other pillars during the students' school day. Discussion topics were guided by the pictures, making is possible that policy was underrepresented at each school. It is also important to note that pictures represented activities and practices at school during the short time span that students had cameras (six days total).

7.2 Key Factors for Successful Facilitation

External facilitation, along with strong principal involvement and positive morale has been identified as the key factor for healthy school success (Belansky et al., 2012; Senior, 2012; Elinder et al., 2012; Gugglberger & Dur, 2011; Ridge et al., 2002). Similarly, this study highlighted the need for the facilitator to support implementation and sustainability of the Champlain Pilot. Current study data support the literature that key roles of an external facilitator include understanding the schools needs and creating detailed action plans, adapting interventions to the context of the school, maintaining effective communication strategies, enhancing buy-in across all stakeholders, and engaging them to support capacity-building. Furthermore, this study also found that facilitators take on the role of actively supporting sustainability of the intervention. Table 6 demonstrates the key factors for successful facilitation for the Champlain Pilot, as supported by the literature.

Table 6: Key factors for successful facilitation within the Champlain School Facilitation Pilot

Success Factor	Champlain Facilitator Action
Conduct an audit	Facilitate the creation of action plans with priority areas, detailed goals, key leads and activities.
Adapt context specific interventions	Schools can easily and readily identify priorities areas and areas for improvement within their school. It is important to understand the needs of the school and adapt processes, activities and materials to meet those needs.
Enhance buy-in	Build relationships early with quick and tangible activities. Ensure principal buy-in because they are the "gate keeper." Also ensuring a school champion will help enhance buy-in. Student voice is valued by schools when brought forward by the facilitator and opportunities for student engagement can take place inside and outside the classroom.
Communication	Facilitate communication between schools and the research team in the way of regular update meetings. Maintain memos to facilitate these meetings and track progress. Create materials highlighting activities, allowing schools to communicate with external stakeholders (i.e., parents). Create relationships with community partners, and introduce and strengthen their relationship with the school. Share successes within and between schools to further enhance communication, buy-in and relationships.

Engagement	Actively support schools in creating action plans and implementing activities. As time goes on, take a less hands-on approach. This capacity building supports sustainability of the program.
Sustainability	Use capacity building approaches (as discussed under 'Engagement'). Incorporate the intervention into existing school activities as to not overwhelm the school. Leverage existing planning tools (e.g., School Improvement Plan) and support schools to ensure focus is given to priorities identified through the intervention.

Firstly, by supporting the creation of action plans, the facilitator role can assist schools in outlining clear and defined goals, as well as activities and the key individuals to lead them. This process of self-reflection and external facilitation gives schools the capacity to create solutions and support school health initiatives (Elinder et al., 2012).The facilitator noted that schools could identify priority areas but struggle to translate them into relevant goals. Discrete goals are important because they make it easier to track school level progress (Champlain Cardiovascular Disease Prevention Network, 2014). Assistance from the facilitator and schools value of student survey data supported the creation of detailed action plans. This process of identifying school priorities, capacities, and goals through ongoing feedback are essential for successful implementation but require external assistance (Baskerville et al., 2012; Nagykaldi et al., 2005; Dogherty et al., 2010, 2012; Senior, 2012). This study supports the need of a facilitator as qualitative data revealed that the facilitator did not believe schools will take on the role of creating action plans in the next year without her assistance.

The facilitator role also supports context specific interventions, highlighting the importance of understanding schools' needs. Schools are complex settings with diverse student populations, developmental capacities and values (Bassett-Gunter et al., 2012). Their characteristics vary greatly, from urban to rural location, class size, readiness and existing resources (Veugelers &

Schwartz, 2010; Elinder et al., 2012). This study consisted of two schools with different priority areas and geographical locations. The greater Champlain evaluation consisted of 16 schools across an even larger geographical area, resulting in a variety of school environments. To ensure successful implementation, this study supports the need to adapt frameworks to fit the local school context (DeAngelo et al., 2014; Public Health Foundation, 2003). Standardized activities and promotional materials are inefficient at engaging schools. The facilitator felt her own prepared materials and activities were inappropriate to implement across all schools. Schools tend to have an idea of where changes need to be made so it is important for the facilitator to work closely with schools to shape the key processes. In the case of CSH guided interventions, this can include gathering, summarizing and reflecting on school-based evidence to inform action plans (and therefore ensuring action plans are reflective of the school's needs).

Enhancing buy-in at multiple levels is also important for successful implementation (Fagen et al., 2014; Lee et al., 2005). Review of external facilitation literature in health settings supports early discussions with stakeholders to maximize buy-in (DeAngelo et al., 2014; Dogherty et al., 2012) and ensure success and sustainability (Elinder et al., 2012). This study supports early discussion to build relationships. By starting with quick and tangible activities, the facilitator can initiate a relationship with the school and the principal. As supported by a study by Austin et al. (2006) assessing facilitation of a U.S. school health program, principal buy-in is essential because they are seen as the "gate keeper" to schools. Lack of principal support can result in a lack of participation in meetings and failure to implement recommended activities brought forward by the facilitator (Austin et al., 2006). The facilitator should also target other members of the school to identify a champion and further enhance buy-in. School schedules are incredibly busy and scheduled to the minute. Staff members already have multiple responsibilities and priorities and

therefore, more than one individual is required to push forward the intervention (Champlain Cardiovascular Disease Prevention Network, 2014; Johnston et al., 2013; Senior, 2012; Elinder et al., 2012; Belansky et al., 2009). This study highlights the importance of a champion as the facilitator noted that the principal might have conflicted ideas or limited time to lead. A champion provides the necessary ongoing leadership and commitment within the school (DeAngelo et al., 2014; Dogherty et al., 2012; Champlain Cardiovascular Disease Prevention Network, 2014). Student buy-in is also important as this study showed that schools value student voice. Students offer unique perspective (The Ministry of Education, 2010; Champlain Cardiovascular Disease Prevention Network, 2014). This study showed the range of student engagement opportunities supported by the facilitator, including surveys, sitting on a committee, photovoice or helping prepare for a school event. However, the broader evaluation found that some engagement opportunities might serve more effective than others. Classroom activities or focus groups may provide more all-inclusive opportunities for student input (Champlain Cardiovascular Disease Prevention Network, 2014). The use of photovoice in this study supports the facilitator using a classroom-based activity to obtain student voice at the individual level, from a large group of students.

Communicating often and broadly to all stakeholders is another important role of the facilitator. Effective communication generates awareness, solicits feedback, confirms plans, and supports implementation (Champlain Cardiovascular Disease Prevention Network, 2014; Gugglberger & Dur, 2011; Lee et al., 2005; Ridge et al., 2002; St Leger, 2000). By communicating formally and informally with schools, the facilitator provides regular updates to schools and the research team. This ongoing feedback allows delivery of constant support and a fluid and flexible action planning process (Dogherty et al., 2010; Champlain Cardiovascular Disease Prevention Network,

2014). This process of 'learning, responding, and adapting' (Champlain Cardiovascular Disease Prevention Network, 2014) further supports the creation of contextual interventions. This study highlighted memoing as an effective way of delivering accurate updates, and creating shareable materials with schools to enhance their communication with stakeholders. Furthermore, sharing successes between schools is supported by the literature because it can build "learning communities" between schools by "cross-pollinating" (Nagykaldi et al., 2005) ideas to enhance school health environments.

Local capacity in schools is usually limited and needs to be built through external support (Chang et al., 2012; Senior, 2012). Using a capacity building approach within facilitation enables schools with the will and capacity to create their own solutions, and can potentially lead to sustainable changes (Elinder et al., 2012). While this study could not assess sustainability due to the timeline, it highlights the facilitator role of engaging schools to support sustainability. By actively supporting schools at the beginning to create effective action plans, and then minimizing 'hands-on' time over the course of the intervention, the facilitator can enable schools to carry activities forward on their own. It is important to do this without overwhelming schools, as they are extremely busy. Incorporating intervention activities into existing school activities and leveraging existing planning tools can do this. In this case, that planning tool was the School Improvement Plan (SIP). The facilitator took part in developing the SIP to ensure it reflected the priorities identified through the intervention.

This study supports key factors for successful facilitation, as identified by practice facilitation and PIM literature. Within schools led by a CSH approach, it is important to create tailored approaches that enhance buy-in and communication, while also supporting engagement and sustainability. These similarities can be further supported by the Healthy School Planner (HSP),

which acts as a school audit to assess readiness. A variety of questions within the foundational module of the HSP measures buy-in, engagement, communication and sustainability. Figure 2 identifies the information that can be collected from the foundational module that supports these key factors for successful facilitation, with reference to the HSP question. The coordinating question can be found in Appendix J. By combing these measures with facilitation, CSH can enhance successful implementation by bringing forward school-based data to shape the tailored approach within each school and quantify school progress.

Figure 8: Healthy School Planner measures to support CSH facilitation

Audits (Action Plans)

- Develop specific, relevant and measurable goals (*Planning Q2)*

Buy-In

- Support staff to improve health *(Implementing Across the 4 Steps Q6)*
- Have at least one effective partnership that supports a healthy school community *(Implementing Across the 4 Pillars Q7)*

Communication

- Regularly communicating healthy messages within the school community *(Planning Q1)*

Engagement

- School plan for a school health team (*Form a Team Q1)*
- Student represntation on the school health team *(Form a Team Q2)*
- Student opportunities for leadership *(Implementing Across the 4 Pillars of CSH Q2)*

Sustainability

- Create a successfion plan for healthy school initatives *(Sustainining Your Healthy School Q1)*
- Implement initatives school-wide and emedded within action plans (Sustaining Your Healthy School Q2)

7.3 Time (and Dose) as a Barrier to Successful Facilitation

This study also identified many barriers to successful facilitation with time being the most commonly referenced. This included competing school time, competing facilitator time and time required to support sustainability.

As previously mentioned, schools are very busy and scheduled to the minute (Champlain Cardiovascular Disease Prevention Network, 2014), resulting in conflicting priorities for time.

This study identified conflicting school schedules as a large barrier for successful facilitation. School calendars are well planned, resulting in busy periods throughout the year. Therefore, the facilitator must be respectful of how demanding and valuable school time can be.

Facilitator time was also identified as a barrier. The Champlain Facilitation Pilot utilized one full-time facilitator for 16 schools, across a large geographical distance. This resulted in a school to facilitator dose of 1:16. Other CSH guided programs in the literature have utilized a large range of school to facilitator doses, from 1:1 with APPLE Schools Alberta, 1:2 with APPLE Schools New Zealand and 1:20 with Action Schools! BC trainers (Propel, 2012a,b,c). Facilitator to school dose can influence the effect of an intervention. Schools that receive more intensive training, which can include one-on-one support from a program expert, are more likely to make meaningful changes (Propel, 2012a). While there is a lack of literature assessing the impact of dose within a CSH model, this study supports findings from Maughan & Adams (2011) evaluation of health nurse to school ratios. Higher ratios of nurse to students means less time being spent in each school. This absence has been identified as a barrier to establishing trusting relationships and may influence unclear roles for the facilitator, as seen by the school (Maughan & Adams, 2011). Furthermore, lower practice facilitator doses resulted in greater success adopting new guidelines in primary care units (Baskerville et al., 2012). Similarly, this study showed that 16 schools per one facilitator resulted in unequal relationships with schools. Some schools were unengaged with the facilitator, and there was no time to develop a trusting relationship to try and enhance the intervention. Recommendations from this study suggest 6-10 schools per one full-time facilitator. Lower ratios may result in more hands-on experience and deeper connections with students and schools (Maughan & Adams, 2011). Additionally, an

internal facilitator (e.g., buying out teacher time) may minimize the time required to build relationships.

Time is also a barrier to supporting sustainability. The Champlain Facilitation Pilot was conducted over one school year, expecting the facilitator to create relationships, implement activities and foster capacity building in that time. However, external facilitation must be seen as a process that develops relationships over time, not a single event (Bidassie et al., 2015). The literature supports longer-term school health programs, as these programs are more likely to see change in behaviours or BMI scores. For example, the Be Active Eat Well program in Australia was conducted over three years. This flexible and locally adapted program slowed the rate of weight gain and waist gain in elementary aged children (Swinburn et al., 2012). Furthermore, the School Health Index tool used in US schools was implemented within a four-year intervention with a participatory approach and external facilitation, and reduced child obesity in disadvantaged school children (Hoelscher et al., 2010). Recommendations from this study suggest a two-year minimum for the intervention to ensure sustainable practices are implemented and supported within schools.

7.4 Lessons Learned from Photovoice

This study was the first to use photovoice as a method of student engagement within a Comprehensive School Health framework. As a result, there were many lessons learned regarding the planning and implementation, as well as better practices recommended for sustainability.

Firstly, the photovoice intervention was only five months, starting in the middle of the school year (March). Students had only three days with cameras at two points in time, resulting in a very small representation of school activities and practices. Longer interventions would result in

more touch points with the facilitator and perhaps, further enhance the knowledge of students. Furthermore, more touch points will allow a more complete implementation of a photovoice intervention where the data brought forward by students can be presented to key policy makers at each school. While the intervention was planned with the intention of the facilitator bringing forward student data, the facilitator had a difficult time meeting with key contacts regularly and following up to ensure action. Ideally, to support the empowerment nature of photovoice, students will present their own data to enhance their engagement within advocacy and action to create healthy school environments. To further maintain sustainability, innovative knowledge translation activities can take place. For example, the facilitator can assist participating classes in creating a scrapbook with their photos for future students and parents (a stakeholder not involved in this study). These measures will also enhance the relationship with the school by strengthening the intervention piece of photovoice (as it did also serve as an intervention in the Champlain Pilot).

Second, students were asked during the photovoice intervention to take pictures that represent the CSH pillars. While language was changed to reflect the students' grade level, reliability checks were not completed to ensure the selected language was appropriate. This study found that students were not able to represent each CSH pillar equally and replicated examples given by the facilitator, teacher or taken by other students. To overcome this in future photovoice interventions, there are multiple options:

- Materials should be validated to ensure understanding by participants, based on their grade levels

- Additional training of CSH pillars to enhance students understanding prior to taking pictures (this study used 45 minutes before assigning cameras to students which may be insufficient)
- Coding by CSH pillar can be completed by the research team, removing the responsibility from the participating students

Additional training may be the most beneficial lesson as it may also address the large amount of data excluded from this study, and avoid this in future studies. There were many pictures from this study that came back blurry or with incomplete information sheets. Camera training, as well as practice days with cameras may prevent this. Quality of cameras should also be considered, as they might be difficult for children to take pictures that are not blurry.

As this section demonstrates, implementing a comprehensive photovoice intervention can be a timely process. While this study had the facilitator contact principals to enhance relationships and buy-in, further investments from teachers are necessary. Implementing photovoice within existing class curriculum, if possible, may eliminate the issue of conflicting class time. In the case of this study, students at School 2 ran out of time to complete their information sheets, resulting in large amounts of missing data. Teachers must have a clear understanding of the time and investment required for photovoice, making teacher buy-in critical.

7.5 Research Implications

Utilizing a unique student engagement tool within a theoretically driven school health program has given insight into critical success factors that should be considered for future interventions. Firstly, lower school to facilitator ratios (dose) may result in greater success of interventions. Within this study, the facilitator found 16 schools unsustainable and recommended 6-10 schools per one facilitator. Second, more than one year is required to implement and maintain a

successful school health intervention. Again, the facilitator within this study recommended a two-year minimum as relationship building with schools can take up to one year. Longer interventions may fill the "implementation gap", where effective programming in not correctly implemented or sustained within the schools reality due to limited resources or understanding of the program (Elinder et al., 2012). This additional time may address the challenge of meeting with key policy makers to share photovoice data. The recommendations made by the facilitator within this study should be considered for future systematic reviews across Comprehensive School Health literature, possibly providing stronger evidence for smaller facilitator to school doses, and longer interventions.

The final implication of this study is that classroom based active engagement interventions, such as photovoice, can be used as an effective method of student engagement within Comprehensive School Health models. Students can enhance their understanding of their own needs, as well as school activities and practices. Additional research, utilizing a classroom-based student engagement technique and a smaller facilitator dose in a longer-term CSH guided program may enhance the results of this study. Furthermore, such interventions may empower students to create sustainable changes in school policies and practices, as well as their own behaviours.

8.0 Challenges and Limitations

As with all studies, this thesis project is not without challenges and limitations to the research. Utilizing a framework analysis approach allowed clean representation of the large amounts of data. However, the qualitative nature of the analysis required the coder to become familiar with large amounts of data to ensure it was all considered during coding, enhancing rigour and trustworthiness (Ward et al., 2013). This is incredibly time consuming because the coder was not present at all data collection points and relied on non-verbatim transcripts for two of the four sessions.

Ideally, framework analysis should be considered at the stage of the research proposal to ensure fit with the research questions (Gale et al., 2013). However, the nature of the broader Champlain Pilot evaluation (the use of a developmental evaluation approach which supports enhancing the intervention over time to enhance change) supported the implementation of photovoice and a framework analysis approach in the middle of the intervention. However, the late planning did limit triangulation and the mixed-methods approach. Namely, school level surveys did not add the value expected to the qualitative results, and student survey data was not applicable to evaluate the impact of photovoice. The lack of value added from the school level surveys, as well as the missing data at time 2, limited the case study approach as the researcher could not draw reliable cross-case comparisons.

Finally, the convenience sampling method may have influenced data. The facilitator contacted principals at each school to identify potential classes to participate in photovoice. The principal selected the class that would participate and connected them to the facilitator to assist with planning. Given the convenience sampling method, principals may have chosen classes they thought were most engaged, and best suited for the task, enhancing the results of the study.

Furthermore, the inclusion of a 5/6 split class may have enhanced the results of the study due to the advanced age and grade level of the grade 6 participants.

9.0 Conclusion

Student engagement is critical in school health programs to enhance individual- and school-level outcomes. Comprehensive School Health (CSH) frameworks have shown to be effective models for improving school health and providing support through a facilitator role. By combining these aspects of successful school health programs, this study implemented a CSH-guided student engagement intervention to evaluate the impact on school health. The objectives of this study were twofold: to examine student level outcomes by understanding their health behaviour influences within schools, and their change in knowledge of CSH pillars; and to examine key factors for successful facilitation of a CSH-guided program in schools. This study was the first to implement photovoice as a unique student-engagement intervention within a CSH framework, focusing on two grade 5 classrooms in different schools. Results from this study supported such classroom-based interventions as students demonstrated an enhanced knowledge of CSH pillars, which may contribute to empowerment and engagement in school policy and advocacy if continued in a longer intervention. Key factors for successful facilitation in CSH-guided schools were also identified, highlighting the need for school audits, tailored approaches, enhanced stakeholder buy-in, ongoing communication, engagement and capacity building, and finally, support for sustainability. However, time and dose were identified as large barriers to successful facilitation and implementation of photovoice. Too large facilitator to school ratios, short program timelines and conflicting school priorities can limit the success of the intervention. The implications of this study point to a need for longer interventions with lower facilitator to school ratios. Specifically this study suggests 6 to 10 schools per one external facilitator, and a two year minimum program. Additional assessment to compare dose and intensity between CSH intervention s are necessary as there is a large literature gap. However, this study supports the implementation of a CSH guided student engagement intervention in classrooms to enhance

student knowledge. Future research with smaller facilitator to school doses, longer intervention and support for the identified key features of successful facilitation may enhance study findings and result in positive individual- and school-level outcomes, supporting physical activity and healthy eating.

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Appendices

Appendix A Pillars of Comprehensive School Health

(Joint Consortium for School Health, 2012)

Appendix B Information Letters and Consent Forms

Student Information Letter

[Date]

Dear Participant:

As part of the Champlain Pilot Program that has been going on at your school we are asking students to take part in a photovoice project. This project will help your school make healthier choices around physical activity and/or eating environments.

The project will take part during this school year.

- Week 1 will include an introduction class with the school facilitator about physical activity and healthy eating.
- You and a partner will be given a camera for 2 days and asked to take pictures of what you feel is important to your physical activity and/or healthy eating. When your time for taking pictures is over, you must hand the camera back to your teacher.
- Your class will have another discussion to look at the pictures and talk about what you think is important to your physical activity and/or healthy eating. You and your class will discuss possible changes in the school to help make healthier decisions.
- This will be happen 1 more time in the school year.

A research team member will sit in your class to take notes during the class discussions. Nobody outside the research group will know your comments. Outside the classroom, **only the Champlain pilot program research staff at the University of Waterloo will see your answers and pictures**. Your parents will not see your comments. Your name will not be included in the notes taken, so there will be no way to link you to your answers or your pictures.

The decision to take part in this study is made by you and your parents. If you would like to take part now but change your mind later, you can let your teacher know at any time. If you want to stop participating during one of the discussions, let the facilitator or your teacher know. There will be no penalty if you choose not to participate. You may decide not to answer any questions you are not comfortable with.

This project has received approval from the Ottawa-Carleton Research Advisory Committee. This research has been reviewed and ethics clearance has been granted by the Office of Research Ethics at the University of Waterloo. If you have any comments or concerns resulting from your participation, please contact Dr. Maureen Nummelin, the Director, Office of Research Ethics at (519) 888-4567 Ext. 36005 or nummelin@uwaterloo.ca.

Your co-operation in taking part in the pilot testing of the Fostering Healthy School Environments: Champlain Pilot Program 2013-14 is greatly appreciated.

Sincerely,

Jennifer Yessis
Principal Investigator
Propel Centre for Population Health Impact
(519) 888-4567 x.32860
jyessis@uwaterloo.ca

Dana Zummach
Project Manager
Propel Centre for Population Health Impact
(519) 888-4567 x. 37701
dmzummac@uwaterloo.ca

Parent Information Letter

[Date]

Dear Parent:

Thank-you for considering having your child participate in the photovoice project as part of the Fostering Healthy School Environments: Champlain Pilot Program 2013-14. This pilot project is being done on behalf of the Champlain Cardiovascular Disease Prevention Network, in partnership with the Heart and Stroke Foundation and the Propel Centre for Population Health Impact at the University of Waterloo.

As part of your school's efforts to increase the healthiness of its physical activity and eating environments, your child is invited to participate in a classroom discussion about what influences their physical activity and eating. Then, for the next 2 days, your child will be given a camera and asked to take pictures of what he/she believes is important to their physical activity and/or healthy eating environment. In the second week, the school facilitator will then lead a class discussion using the students' pictures. This process will be repeated one more time. The facilitator will support the students to create action plans to improve in their school environment. Once your child has had 2 days to take pictures, they must return the camera to the school for use by other students.

In the first session, the school facilitator will orient students to the project objectives, how to operate the cameras, and appropriate behaviour during the "picture taking" phases and discussion. She will also review all pictures to assess appropriateness before bringing them to class for discussion.

The objectives of the photovoice project are to:

- Understand student perspectives about the school environment;
- Improve the school environment through the development of action plans

We anticipate the photovoice project will start on [date].

Please read the information below regarding the photovoice project.

- Only students with parental permission will use cameras.
- Parents will be asked to review pictures to delete ones they deem inappropriate before the child returns the camera. Parents will also be asked to assist the child in picking pictures for the class discussion.
- An observer will take notes of ideas expressed during the discussion. The notes will maintain confidentiality. This means that the name of individual children will not be associated in any way with the results of the photovoice project.
- As with the discussion, the pictures' content will remain confidential, and will never be associated with individual information. Pictures of participants will NOT be published.
- Participation in the photovoice project is voluntary. You can change your mind about your child's participation. Your child can choose what pictures to take, and whether to add to the discussion. As well, your child can stop participating in the photovoice project at any time.

- If you provide permission and then later change your mind, please contact Dana Zummach at (519) 888-4567 ext. 37701.
- If your child would like to withdraw participation during the photovoice project, he or she can let the facilitator or teacher know at any time.

- The notes and pictures will be kept in a secure location in Propel Centre for Population Health Impact, University of Waterloo.

The project has received approval from the Ottawa-Carleton Research Advisory Committee. This research has received ethics clearance from the Office of Research Ethics at the University of Waterloo. Your co-operation in permitting your child to take part in this research is greatly appreciated; however, the final decision about participation is yours and your child's. If you have any comments or concerns resulting from your participation, please contact Dr. Maureen Nummelin, the Director, Office of Research Ethics at (519) 888-4567 Ext. 36005 or nummelin@uwaterloo.ca.

We thank you for considering having your child participate in this project. If you have any questions about this focus group, you may call Dana Zummach, Project Manager, at (519) 888-4567 ext. 37701 or by email: dmzummac@uwaterloo.ca.

Please complete the attached permission form, and <u>return the signed form on the day of first discussion</u>. Also, please provide your child with the attached information letter so that he/she can have a better understanding of this project.

Sincerely,

Jennifer Yessis
Principal Investigator
Propel Centre for Population Health Impact
(519) 888-4567 x.32860
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Champlain Program Pilot Photovoice Subproject Permission Form Student

After reading the information letter, please complete the following.

NAME OF CHILD: (print in capitals)	FIRST NAME	LAST NAME	
CHILD'S GENDER: ○ Male ○ Female	**CHILD'S GRADE:** GRADE	**FIRST 3 DIGITS OF POSTAL CODE:** POSTAL CODE	

STUDENT SURVEY PERMISSION	
PERMISSION DECISION: (please check one)	○ YES - I give permission for my child to participate in the photovoice project classroom discussions where an external researcher will be present to take notes to be made of the discussions. ○ NO - I <u>do not</u> give permission for my child to participate in the photovoice project classroom discussions
PERMISSION TO TAKE PICTURES	○ YES – I give permission for my child to take pictures with a camera provided by the project and to return the camera to the school after one week. ○ NO – I do not give permission for my child to use a camera.
NAME OF PARENT/GUARDIAN: (print in capitals)	Mr. Mrs. Miss Ms. Dr. _____ (circle one) FIRST NAME LAST NAME
SIGNATURE/DATE:	SIGNATURE OF PARENT/GUARDIAN DATE

Appendix C Healthy School Planner Foundational Module

STEP 1

Team

Planning for healthy school communities works well if the workload is shared and all key groups are involved. It is essential that students participate and that their ideas are respected.

QUESTION 1

Who is involved in completing this assessment for your school? (Select the number of participants for each group)

		# of participants			
a.	Students	0	1	2	3+
b.	Teaching staff member(s)	0	1	2	3+
c.	Other staff member(s) (e.g., educational assistant, custodian, administrative assistant, etc.)	0	1	2	3+
d.	Principal / Vice Principal	0	1	2	3+
e.	School / parent council representative	0	1	2	3+
f.	Parents / families / guardians	0	1	2	3+
g.	Health services professionals	0	1	2	3+
h.	Community organization / non-profit organization representative	0	1	2	3+
i.	School district / division / board representative	0	1	2	3+
j.	Other	0	1	2	3+

QUESTION 2

Does your school community have a leader for healthy school initiatives?

- □ Yes
- □ No
- □ Don't know

STEP 2

Planning

Planning for a healthy school community involves using data from various sources to assist in identifying goals to work towards planning actions in each of the pillars of comprehensive school health in order to improve health and learning outcomes.

QUESTION 3

Has your school used data (e.g., surveys, attendance records, policy review) from the following to inform your action plan for creating a healthy school community?

	Yes	No	Don't Know
a. Students	□	□	□
b. Teachers	□	□	□
c. Parents / families / guardians	□	□	□
d. Formal review of policy or practice	□	□	□

QUESTION 4

Does your school develop goals that are specific, measurable, attainable, realistic and time limited within an action plan to create a healthier school community?

□ Yes, we develop goals with all above criteria

□ Yes, we develop goals without meeting all criteria

□ No

□ Don't know

□ Our school does not have an action plan

QUESTION 5

Does your school community communicate that "healthier students are better learners" with the following groups at least once a year?

	Yes	No	Don't know
a. Students	□	□	□
b. Teachers	□	□	□
c. Parents / families / guardians	□	□	□
d. Groups outside the school (e.g., neighbourhood association, local businesses)	□	□	□

QUESTION 6

Does your action plan for a healthy school community include ways to:

	Not at all	Minimally	Somewhat	Fully
a. Support students in improving their well-being through **teaching and learning** (i.e., across the curriculum and inside & outside the classroom)	□	□	□	□

		Not at all	Minimally	Somewhat	Fully
b.	Foster a **social environment** at the school to enhance the well-being of the school community	□	□	□	□
c.	Use the **physical environment** at the school to enhance the well-being of the school community	□	□	□	□
d.	Develop or implement **healthy school policies**	□	□	□	□
e.	Involve the broader school community to leverage **community partnerships and services**	□	□	□	□

STEP 3

Implementation across the 4 pillars of comprehensive school health

Teaching and Learning - Resources, activities and provincial/territorial curriculum where students gain age-appropriate knowledge and experiences, helping to build the skills to improve their health and wellbeing. Through formal and informal curriculum and associated activities, students gain knowledge, understanding and skills to improve their health and well-being and enhance their learning outcomes.

QUESTION 7

Beyond health and physical education classes, does your school encourage integration of health and well-being... (Select all that apply)

□ during instructional time (e.g., across curriculum)?

□ during non-instructional time (e.g., extra-curricular activities)?

QUESTION 8

Do students with a range of skills and characteristics (e.g., age, gender, ability, culture) play a leadership role in the organization of school activities?

□ In no activities (0-10%)

□ In some activities (11-50%)

□ In most activities (51-80%)

□ In all activities (81-100%)

Physical Environment -

The physical environment is safe and accessible and supports healthy choices for all members of the school community. The physical environment includes:

- The buildings, grounds, play space, and equipment in and surrounding the school.
- Basic amenities such as sanitation and air cleanliness.

QUESTION 9

How well do the following physical environments promote safety and / or injury prevention:

		Not at all	Minimally	Somewhat	Fully
a.	Outdoor spaces (e.g., adequate lighting, car-free zones, shade to promote sun safety)	□	□	□	□
b.	Indoor spaces (e.g., facilities, equipment)	□	□	□	□
c.	Air quality (e.g., temperature, free from mold)	□	□	□	□
d.	Water quality (e.g., free from bacteria, taste, colour)	□	□	□	□

QUESTION 10

Do all members of your school community have equal and inclusive access during school hours to the following spaces?

		None	Some	Most	All
a.	Outdoor spaces	□	□	□	□
b.	Indoor spaces (e.g., toilets, change rooms, desks, classrooms)	□	□	□	□

Social Environment -

The social environment is:

- The quality of the relationships among and between staff and students in the school.
- The emotional well-being of students.
- Influenced by relationships with families and the wider community.

The school's social environment supports the school community in making healthy choices by building competence, autonomy, and connectedness.

QUESTION 11

Does your school community foster a safe and supportive environment for everyone?

□ Not at all

□ Minimally

□ Somewhat

□ Fully

QUESTION 12

Does your school community foster a respectful environment?

□ Not at all

□ Minimally

□ Somewhat

□ Fully

QUESTION 13

Does your school community foster a sense of connectedness:

	Not at all	Minimally	Somewhat	Fully
a. within the school?	□	□	□	□
b. with the broader community?	□	□	□	□

QUESTION 14

Are staff supported to maintain and improve their personal health and well-being?

□ Not at all

□ Minimally

□ Somewhat

□ Fully

Partnerships & Services -
The school collaborates with partners in the school community (e.g., families, community groups, businesses, non-governmental organizations, schools & school districts/divisions/boards, provincial/local/municipal governments, regional/local health authorities) to create & sustain a healthy school environment.

QUESTION 15

Does your school have at least one effective partnership with the following individuals or groups to promote and sustain a healthy school environment?

	Yes	No
a. Individuals / organizations within the school community (e.g., families, volunteers, parent council)	□	□
b. Other Schools	□	□
c. Community group(s) or non-governmental organization(s)	□	□
d. Business(es)	□	□
e. Government at any level	□	□
f. Health authority/health region	□	□

	Yes	No
g. Other	□	□

QUESTION 16

Thinking of the "effective partnerships" identified in the previous question, which of the following supports have your partnerships provided in the last 12 months? (Select all that apply)

□ Funding

□ Services (e.g., health services, volunteer activities, training opportunities, professional development)

□ Material resources (e.g., handouts, signage, computers, equipment)

□ None of the above

□ Other

QUESTION 17

How many of your school community members (staff, students) are engaged in community service through your school (e.g., promoting community events, promoting or coordinating food drives, hosting blood donation clinics, raising money for charities)?

□ None (0-10%)

□ Some (11-50%)

□ Most (51-80%)

□ All (81-100%)

QUESTION 18

In a typical week, how often do community members (including parents) volunteer in your school? ***Volunteer activities do not have to be specific to health and well-being (think about all volunteers in your school).***

□ Rarely

□ 1 or 2 days per week

□ Most days

□ Every day

Healthy School Policy - Management practices, decision-making processes, rules, procedures and policies at all levels that promote health and wellbeing, and shape a respectful, welcoming and caring school environment.

All school policies/guidelines and practices support learning outcomes while concurrently addressing healthy school initiatives in a planned, multi-faceted and integrative manner.

QUESTION 19

How frequently does your school engage the school community to review and update implementation of healthy school policies and practices (e.g., healthy eating policies, bullying policies)?

□ Never

□ Less than once a year

□ At least once per year

□ Don't know

QUESTION 20

Does your school use existing information or gather evidence to update implementation of policies and practices to create a healthy school community (e.g., district level reports, school satisfaction surveys, school accountability surveys)?

□ Not at all

□ Minimally

□ Somewhat

□ Fully

STEP 4

Celebrate!

Celebration of healthy school initiatives is an important part of instilling the concept and importance of health promoting schools in the minds of school students and staff, parents, the local community and senior officials.

QUESTION 21

How often does your school celebrate successful healthy school initiatives:

	Less than 1 time/year	1-2 time / year	More than 2 times/year
a. Within the school (students and staff)?	□	□	□
b. With the broader community (families, other groups)?	□	□	□

QUESTION 22

Does your school community recognize, acknowledge and celebrate contributions of volunteers?

□ Not at all

□ Minimally

□ Somewhat

□ Fully

STEP 5

Sustaining your healthy school community

A successful health promoting school takes steps to sustain its efforts and achievements into the medium- and long-term.

QUESTION 23

How many school staff participated in learning opportunities (e.g., professional development, staff meetings, expert consultations) related to creating a healthy school community in the last 12 months?

- □ None (0-10%)
- □ Some (11-50%)
- □ Most (51-80%)
- □ All (81-100%)

QUESTION 24

How well has your school community prepared a succession plan (formal or informal) if your leader for healthy school initiatives was to leave (e.g., having shared leadership, vice-chair, mentorship for new leader candidates)?

- □ Not at all
- □ Minimally
- □ Somewhat
- □ Fully
- □ Our school does not have a leader for healthy school initiatives

QUESTION 25

How many of your healthy school initiatives are implemented school wide?

- □ None (0-10%)
- □ Some (11-50%)
- □ Most (51-80%)
- □ All (81-100%)

QUESTION 26

Are your healthy school initiatives embedded within your school's action plan?

- □ Yes
- □ No
- □ Don't know

□ Our school does not have an action plan

STEP 6

Monitoring & Evaluation

A successful health promoting school seeks continuous improvement to its planning and implementation of policies and practices reflecting a comprehensive school health approach through ongoing monitoring and evaluation.

QUESTION 27

How often does your school formally assess its progress on creating a healthy school community?

□ Less than one time per year

□ One time per year

□ More than one time per year

□ Conducted a school assessment but did not use results to plan or monitor progress

Appendix D Healthy School Planner Healthy Eating Express Module

1. Is there a policy or a guideline(s) that contains recommendations or requirements for the types of food and beverages offered at your school? (Check all that apply)

   □ Yes, a province or territory policy or guideline

   □ Yes, our school district, division or board has a policy or guideline

   □ Yes, our school has its own guideline(s) and/or policy

   □ No policy or guidelines for the food and beverages offered at our school

   □ Don't know

2. Does the healthy eating policy or guideline(s) contain recommendations* or requirements** for foods and beverages offered in the following:

	Yes, requirements	Yes, recommendations	No recommendations or requirements for this outlet or activity	Not applicable (e.g., food outlet not available)	Don't know
Cafeteria	□	□	□	□	□
Lunch program	□	□	□	□	□
Breakfast program	□	□	□	□	□
Vending machines	□	□	□	□	□
Canteen/ tuck shop	□	□	□	□	□
Fundraising	□	□	□	□	□
Classroom or school celebrations	□	□	□	□	□
Rewards for students	□	□	□	□	□

3. How often do the foods and beverages offered in the following outlet or activity *follow* the policy or guideline(s)?

	Always	Sometimes	Rarely	Never	Don't know	N/A
Cafeteria	□	□	□	□	□	□
Lunch program	□	□	□	□	□	□
Breakfast program	□	□	□	□	□	□
Vending machines	□	□	□	□	□	□
Canteen/ tuck shop	□	□	□	□	□	□
Fundraising	□	□	□	□	□	□
Classroom or school celebrations	□	□	□	□	□	□
Rewards for students	□	□	□	□	□	□

4. Does your school offer any of the following free or reduced-price school food or beverage programs to students?

	Yes, to all students	Yes, to some students	No program	Don't know
Breakfast program	□	□	□	□
Lunch program	□	□	□	□
Milk program	□	□	□	□
Vegetable and fruit program	□	□	□	□
Snack program	□	□	□	□

5. To what extent do the following statements on food and beverage practices apply to your school?

	Fully	Somewhat	Minimally	Not at all	Don't know
Healthier food and beverages are subsidized, priced close to cost, or priced competitively with less healthy food to promote healthy food and beverage choices.	□	□	□	□	□
School staff model healthy eating (e.g., eating healthy meals and snacks, providing positive feedback to students about their food choices).	□	□	□	□	□
Students have a clean, orderly and inviting space to eat.	□	□	□	□	□
Students have at least 20 minutes to eat lunch once they are seated.	□	□	□	□	□
School ensures an allergy-safe environment, where applicable (e.g., peanut / nut safe).	□	□	□	□	□
School makes offering food grown in this province / territory a priority.	□	□	□	□	□
Advertising unhealthy food or beverages is not permitted in this school.	□	□	□	□	□

6. Does your school actively engage students in the promotion of healthy eating (e.g., events like Healthy Eating month, contests, grants, clubs, student summits)?

□ Fully

□ Somewhat

□ Minimally

□ Not at all

□ Don't know

7. How many teachers at your school have participated in learning opportunities related to healthy eating in the past 12 months?

□ All

□ Most

□ Some

□ None

8. During the past 12 months, to what extent have the following components been included in healthy eating lessons at your school?

	Fully	Somewhat	Minimally	Not at all	Don't know
Influence of healthy eating on growth and development (e.g., health impacts / consequences, body image).	□	□	□	□	□
Decision-making and behaviour change skills to support healthy personal food choices.	□	□	□	□	□
Skills training (e.g., media literacy, planning and preparing healthy meals and snacks).	□	□	□	□	□
Teaching staff use current, reliable Canadian and culturally appropriate healthy eating resources / activities in the classroom (e.g., Eating Well with Canada's Food Guide, Dietitians of Canada).	□	□	□	□	□
Healthy eating is integrated into other curriculum areas (e.g., science, physical education).	□	□	□	□	□

9. Does your school have at least one effective partnership with the following individuals or groups to promote and sustain a school environment that facilitates healthy eating among students?

	Yes	No
Families	□	□
Community group(s) or non-governmental organizations	□	□
Business(es)	□	□
Farmers / food producers (such as community gardens)	□	□
Health authority/health region	□	□
Government at any level	□	□

10. Which of the following supports do your partnerships provide to help facilitate healthy eating within your healthy school community? (Check all that apply)
    □ Funding, grants or donations
    □ Services (e.g., programs, activities, guest speakers, teacher training)
    □ Material resources (e.g., handouts, signs, equipment)
    □ None of the above

Appendix E Healthy School Planner Physical Activity Express Module

QUESTION 1a

For each grade taught in your school, please indicate whether students taking physical and/or health education class take it for all or part of the school year.

	All year	Half of school year	Less than half of school year
Kindergarten	□	□	□
Grade 1	□	□	□
Grade 2	□	□	□
Grade 3	□	□	□
Grade 4	□	□	□
Grade 5	□	□	□
Grade 6	□	□	□
Grade 7	□	□	□
Grade 8	□	□	□
Grade 9	□	□	□
Grade 10	□	□	□
Grade 11	□	□	□
Grade 12	□	□	□

QUESTION 1b

For each grade taught in your school, please indicate the number of minutes a typical physical and/or health education **class** period consists of.

	Minutes (0-120 minute range)
Kindergarten	
Grade 1	
Grade 2	
Grade 3	
Grade 4	
Grade 5	
Grade 6	
Grade 7	
Grade 8	
Grade 9	
Grade 10	
Grade 11	
Grade 12	

QUESTION 1c

For each grade taught in your school, please indicate the number of days physical and/or health education is scheduled for in a typical week (Monday to Friday).

	1 day	2 days	3 days	4 days	5 days
Kindergarten	□	□	□	□	□
Grade 1	□	□	□	□	□
Grade 2	□	□	□	□	□
Grade 3	□	□	□	□	□
Grade 4	□	□	□	□	□
Grade 5	□	□	□	□	□
Grade 6	□	□	□	□	□
Grade 7	□	□	□	□	□

Grade 8	□	□	□	□	□
Grade 9	□	□	□	□	□
Grade 10	□	□	□	□	□
Grade 11	□	□	□	□	□
Grade 12	□	□	□	□	□

QUESTION 2

Is daily physical activity (DPA) for students during instructional time mandated at your school?

(Select all that apply)

□ Yes, this is mandated by our province or territory

□ Yes, this is mandated by our school district or school board

□ Yes, our school has its own guideline and/or policy

□ No, this is not mandated at our school

QUESTION 3

For each grade that daily physical activity (DPA) for students during instructional time is mandatory, please enter the number of minutes per day required.

	Minutes (0-120 minute range)
Kindergarten	
Grade 1	
Grade 2	
Grade 3	
Grade 4	
Grade 5	
Grade 6	
Grade 7	
Grade 8	
Grade 9	
Grade 10	
Grade 11	
Grade 12	

QUESTION 4

How many teachers at your school have participated in learning opportunities related to physical activity and physical and health education in the last year?

□ None

□ Some

□ Most

□ All

QUESTION 5

To what extent do each of the following statements apply to your school?

	Not at all	Minimally	Somewhat	Fully
The social and physical environments of the school assist students in developing the skills they need to lead an active lifestyle through their involvement in physical activity	□	□	□	□
School staff set a tone that supports involvement in physical activity (e.g., not using physical activity as punishment)	□	□	□	□
Students' participation and/or accomplishment in physical activity are recognized and celebrated	□	□	□	□
Students have the opportunity to develop leadership skills related to physical activity (e.g., through daily physical activity, intramurals)	□	□	□	□
Our school's policies and/or practices related to the social and/or physical environment contribute to physical activity opportunities for students	□	□	□	□
Physical activities are embedded in the daily life/culture of the school (e.g., school assemblies, fund-raising, staff meetings)	□	□	□	□
Sport and physical activities offered are designed to be inclusive of all students	□	□	□	□
Students have access to a variety of facilities to engage in physical activity (e.g., gymnasiums, multipurpose rooms, outdoor paved areas, playing fields)	□	□	□	□
Students have access to a variety of equipment to engage in physical activity (e.g., playground equipment, balls, skipping ropes)	□	□	□	□

QUESTION 6

Does your school have at least one effective partnership with the following individuals or groups to help students remain or become physically active?

	Yes	No
Families	□	□
Community group(s) or non-governmental organization(s)	□	□
Business(es)	□	□
Government at any level	□	□
Health authority/health region	□	□

QUESTION 7

Does your school have the following supports to help students remain or become more physically active?

	Yes	No
Funding, grants or donations	□	□
Services (e.g., programs, activities, guest speakers, teacher training)	□	□
Material resources (e.g., handouts, signs, equipment)	□	□
None of the above	□	□

Appendix F Facilitator Interview Guide

September 2013 Interview Guide

Section A: Purpose of the evaluation and interview:

The discussion today will focus on your experiences with several components of implementing the pilot project, including:

- project start up (including getting the initiative and processes off the ground within schools, training and orientation to the school stakeholders)
- barriers and facilitators to implementing the initiative successfully
- partnerships (e.g., with HSF, Propel and community agencies)
- sustainability of this project – related to extra resources required (staff time, resources, relationships required with school board, schools, public health)

Section B: Project start-up (25 minutes)

For the first part of the discussion, we'd like to ask you about the start-up of the project to better understand factors that have helped or hindered you during the start-up phase. This discussion will help inform how the initiative might need to improve if it were to be expanded into different jurisdictions or schools.

1. What background do you bring to your role as facilitator of this project?
   Probes:
   a. Education
   b. Knowledge of Champlain region
   c. Knowledge of intervention strategies
   d. Knowledge of education system
2. Based on your experiences to date, what are three characteristics that you feel are essential to being successful in the job as facilitator?
   a. What training or project orientation did you have when you were first hired?
   b. Was the training that you received adequate?
   c. Do you have suggestions for improving the training of the school facilitator if the initiative was implemented again?
3. There are several partners involved in this intervention and evaluation. Was the relationship with the project partners (i.e., HSF and Propel) adequately described to you during project start up? Did you understand why they were partners and what they added to the project?

Section C: Ongoing project implementation (25 minutes)

The next few questions will focus on some of the ongoing components of project implementation.

4. We have sent you a copy of the original job description of the role of the school facilitator. Is the role similar to the expectations outlined at the outset of the project and if not, how is the role different than that in the job description?
   a. Is project management similar to what you expected?
   b. Is the maintenance of relationships between partners what you expected it would be? For example, relationships between Propel, Heart and Stroke Foundation, and/or community partners.
   c. Is the administrative burden of project (paperwork) reasonable? Is anything unexpected?
   d. How have you found the travel to and from different schools? (can probe whether driving to the different schools results in a lot of wasted time or whether the face-to-face contact is an important aspect of the project and worth the travel time required)
5. What is your approach for facilitating the work with schools?

    a. For example, is it based on need, geographic location, school population, intervention selected?
    b. Are you planning to spend a targeted amount of time supporting each school per month?
    c. What have been the top three challenges you have faced while working with the schools?
    d. What has helped you most in working with the schools?
6. How involved were you in the selection of the interventions for each school?
    a. How did the schools select the interventions? (i.e., school assessment tool, based on need, parental input?)
7. How much support did schools need in developing their action plans? Did schools contact you to get support such as resources or toolkits from community agencies? Did you provide every school with resources once they selected their area of focus?
8. Do schools share success stories with you?
9. What are the top three facilitators for school success in their focused areas so far? (what helps a school in their readiness to take action?)
10. What are the top three barriers to schools in being successful in their focused areas so far?
    a. e.g., school ability to get going…or finish
11. How have you partnered with public health or community agencies like Green Communities? How have the relationships with the community agencies been maintained so far during this project?
12. Can the schools work with these organizations (public health, etc) on an ongoing basis even after the initiative is officially over? How do you facilitate these relationships?

Section D: Other Context (5 minutes)

1. We know that job action in Ontario schools was taking place at the beginning of the project. Can you describe any implications that the job action had on the success of project?
    a. Do you feel that any schools have had difficulty starting projects?

Section E: Concluding the Interview (5 minutes)

Thanks so much for providing your insights and perspectives today. Before we close, is there anything else you would like to share that might improve the Champlain funding program? Is there any other feedback that you'd like to offer?

January 2014 Interview Guide

Purpose of the evaluation and interview:

The discussion today will focus on your experiences with several components of implementing the pilot project, including:

- barriers and facilitators to implementing the initiative successfully
- partnerships (e.g., with HSF, Propel and community agencies)
- sustainability of this project – related to extra resources required (staff time, resources, relationships required with school board, schools, public health)

Section A: Ongoing project implementation (25 minutes)

The first few questions will focus on some of the ongoing components of project implementation.

1. Describe your experience with the facilitation program since September. Has your experience matched your expectations for project implementation?
2. Can you describe your understanding of the progress that schools have made so far?
    a. What are some of the highlights?
    b. What are some of the challenges?
    c. What factors do you feel influence the impact of the program?

3. How much support did schools need from you to implement their action plans? Have you noticed or heard that schools are forming teams or recruiting champions?
4. In September, you mentioned three characteristics that you felt were essential to being successful in the job as facilitator: a positive attitude, being flexible, and being organized and focused. Would you still consider these to be the most important characteristics or has something changed since you've been more actively working in the schools?
5. What are the main barriers to schools in being successful in their focused areas so far?
6. What has helped you most in working with the schools?

Section B: Engagement (10 minutes)

7. How do you know (based on data, activities or observation) how engaged a school is?
8. How would you describe the level of student engagement (e.g., least engaged and most engaged) in participating schools? Is there something specific that you look for to determine student engagement in schools?
9. What level of student engagement are the Photovoice schools starting at? (*This will only be asked if we have confirmed which schools will be involved*)
10. How have community partners supported schools in this project?
    a. How did they get involved?
11. Are there any successful examples of school-community partnerships that have worked well on this project?

Section B: Project administration (15 minutes)

12. Do you have any concerns about the workload in the remaining months of the program?
13. Is the administrative burden of project (paperwork) manageable?
    a. Are there any resources that would be helpful with this portion of your job?
14. Do you tend to spend a targeted amount of time supporting each school per month?
15. Do you have any concerns about the evaluation activities taking place over the winter and in the spring (i.e., principal focus groups, parent focus groups, student Photovoice, student and school level data collection)?
16. Can you describe any feedback (positive or negative) that you've had about the pilot project (e.g., from the donor agency, from partners on the projects, from school boards or schools)?

Section C: Sustainability (5 minutes)

17. Do schools share success stories with you?
18. What do you think sustainability of this program might look like for schools involved in this project?
    a. Do you feel that schools involved in this project will be able to sustain initiatives they have started this year without the support of the school facilitator?
19. Do you think schools have been successful in changing the culture at their school? (e.g., are the schools finding champions or building teams that can support initiatives in the future?)

Concluding the Interview (5 minutes)

Thanks so much for providing your insights and perspectives today. Before we close, is there any other feedback that you'd like to offer?

July 2014 Interview Guide

Purpose of the evaluation and interview:

- The discussion today will focus on the wrap-up of the pilot program and thinking about recommendations for future implementations of this type of school facilitation program.

Section A: Wrap-up project implementation (20 minutes)

These questions will focus on some of the wrap-up components of project implementation.

1. Describe your experience with the facilitation program since we last spoke in January. Has program implementation moved forward as you had anticipated?

2. Were there any new barriers or concerns raised by the schools that you noted or that were raised by any of the schools?
3. How much support did schools need from you to incorporate elements of their action plans into their school improvement plans for next year?
    a. Do you have a sense of how many schools are likely to continue working on the initiatives next year, even without your support or this funding?
4. Laurie mentioned that you provided each school with a memory stick that contained a brief presentation highlighting the progress made over the past year. Do you know if/how schools plan to use this presentation?
5. There was a great deal of variation between schools in terms of readiness and level of engagement in the initiative. Do you have any tips for working with schools that aren't as ready or engaged?
6. Can you describe any other feedback (positive or negative) that you've had about the program (e.g., from the donor agency, from partners in the program, from school boards or schools)?

Section B: Lessons learned (35 minutes)

7. What are the main lessons you have learned over the course of the program that you would share with someone in your position if this program was offered again in the future?
8. What stands out to you as the best aspect of this program?
9. Based on your experience this year, would you make any recommendations for modifying the length of the program?
10. Based on your experience, would you change any of the selection criteria for this program in the future?
11. Based on your role, do you have any recommendations for modifying the number of schools that a facilitator should be accountable for in the future?
12. Are there any other modifications to the program that you would recommend based on your experience over the last 18 months?
    a. What about sequencing of new schools over time (e.g., start with 10 schools and then the following year, start 5 more)?
13. Do you have any other comments to add to what you've shared already related to the school facilitation program?

Concluding the Interview (5 minutes)

Thanks so much for providing your insights and perspectives today. Before we close, is there any other feedback that you'd like to offer?

Appendix G Photovoice Handout for Students

Champlain Photovoice Project Guide

The Champlain Cardiovascular Disease Prevention Network, in partnership with the Heart and Stroke Foundation (HSF) and the Propel Centre for Population Health Impact at the University of Waterloo, is piloting a program to support healthy eating and physical activity among school- aged children. The photovoice project is a part of the pilot program and your school's effort to increase the healthiness of its physical activity and/or eating environments.

The goal of the project is to:

- Understand what you think is important to your physical activity and/or healthy eating within your school
- Make plans to make positive changes in your school

It is your turn to take pictures! Please remember the following guidelines:

Taking care of your camera

Please take care of your camera. You will have to return them for other students to use.

- **DO** keep your camera in a case when not being used (if applicable)
- **DO** avoid rough behaviour with your camera (try to avoid dropping)
- **DO have your parent/guardian review** your pictures before returning your camera
- **DO** return the camera to your teacher after **2 days** or by your teacher's deadline
- **DO NOT download pictures** onto personal computers, phones, laptops or other devices.
- **DO NOT** get water, beverages or food on the camera
- **DO NOT** remove the memory card (if applicable)
- **DO NOT** lend the camera to anyone else

Appropriate behaviour for picture taking

While you are taking pictures, you must:

- Always ask someone before you take a picture of them. If a person says they would not like you to take their picture, DO NOT take it.
- Never take pictures of someone who does not give permission to be photographed
- Never take pictures in private areas (bathrooms, change rooms)
- Ask yourself "Would I like my picture taken in this situation?" If the answer is no, DO NOT take the picture
- If the person cannot be identified in the picture, there is no need to ask permission to take the picture first
- Do not go anywhere you would not normally go
- Remember the goal of the project when taking pictures – look for things you think are important to your physical activity and healthy eating behaviour

Selecting pictures for discussion (to be tailored to the selection method agreed upon by the teacher and facilitator)

Before next week's discussion, you will be asked to:

- Have your parents review your pictures. Ask them to delete pictures they feel are not appropriate for class.
- Arrange computer time with your teacher (at school or at home with parents)
- Upload your pictures onto the computer
- Select up to 15 pictures for sharing in the class
- When picking pictures, make sure:
    - The picture is appropriate (see guidelines above)

- Pictures represent at least 3 of the topics we discussed in class (to be tailored to the school's goals prior to intervention)
    - Where: Places that affect what you eat (*alternatively*, your play at school OR how you get to and from school)
    - Who: People that affect what you eat
    - Why: Information that helps you decide what to eat
    - Other: like price of foods you might choose
- At least 5 pictures have to focus on school activities
- The picture can be easily understood (not blurry)
- You remember where, when and why the picture was taken. Write this down so you remember for class discussion!

Appropriate behaviour for class discussion:

- Before class, I will pick my pictures and give them to my teacher
- I will bring my notes with the information for my pictures (where, when and why I took each picture)

Please remember:

- All questions are allowed
- Be truthful and honest – we want to hear about your experiences, so don't be shy to share
- Be respectful to others' opinions and pictures during the discussion
- What is shared in discussion should not be shared with others outside the classroom

Appendix H Photovoice Facilitator Project Guide

Champlain Photovoice Project Guide for Facilitator

1. **Explain project and timeline**

   As some of you may already know, the Champlain Cardiovascular Disease Prevention Network, in partnership with the Heart and Stroke Foundation (HSF) and the Propel Centre for Population Health Impact at the University of Waterloo, is piloting a program to support healthy eating and physical activity among school- aged children.

   Specifically, money has been provided to your school to implement a program in which a school facilitator works with elementary schools in creating plans to address nutrition and/or physical activity. There are approximately 20 other schools participating in this pilot program.

   The photovoice project is a part of the pilot program and your school's effort to increase the healthiness of its physical activity and/or eating environments. We will start with a classroom orientation discussion about physical activity and healthy eating. Then, for the next week, you and a partner will be given a camera to take pictures of what you believe is important to your physical activity and healthy eating environment. Next week, you will bring in your cameras and we will review the pictures and discuss them in class. We will look at themes within pictures, and discuss possible positive changes in the school. We will repeat this one more time in May or June.

   The photovoice project will help us:
   - Understand student perspectives about the school environment
   - Improve the school environments by developing action plans

   Introduce recorder: A researcher will be taking notes during our discussions but this information is for research purposes only. Your names will never be part of the results of the photovoice project. Any notes will maintain full confidentiality. The pictures will also be kept by the researchers but will not be shared with anyone outside of the research team. Invite questions about confidentiality (understanding).

2. **Orientation Discussion: What affects your physical activity and/or healthy eating**
   NOTE: Tailor this discussion to the particular topics being addressed by the school in the Champlain project.

   - Ask about awareness of the Champlain project, and what their school/class has done.
   - Build on those ideas to reinforce the main purposes of the Champlain pilot. (Be prepared with examples of what the school has done, in case students are not aware)

   <u>Begin discussion</u> (Try to encourage discussion that identifies factors within their school. This should encourage students to take pictures within the school environment)

   - Start a diagram on the board outlining 4 main categories that affect "your" physical activity and/or healthy eating:

   I. Who: Other people (Social Environment)
   II. Where: Place (Physical Environment)
   III. What we have: Resources inside and outside the school (Community Partnerships)
   IV. What I know: Information I have (Teaching and Learning)

   - (An aside: these categories reflect the four pillars of Ontario's Foundations for a Healthy School)
   - Try to categorize discussion ideas into one or more of the four categories. This should help students understand the sort of pictures to take

   Questions and prompts to help lead discussion:

1. What makes a healthy you? (The goal is to have students identify physical activity/healthy eating as important health factors)

2. What leads you to eat what you do?
   - Packed/bought lunch
   - Time I have
   - How hungry I am
   - What my friends are eating
   - How comfortable I am
   - What I know to be healthy food
   - Food based programs offered at school

3. What encourages you to take part in physical activity?
   - Scheduled time (Gym class)
   - Available equipment/area for physical activity (e.g. in gym class, room in the park during recess)
   - If my friends are participating
   - How comfortable I am with the activity
   - What I consider as physical activity (e.g. active transport)
   - Available physical activities outside of scheduled time (intermural, sports teams, clubs)
   - Personal equipment (appropriate shoes, clothes)?
   - Physical activity programs run by the school (e.g. Terry Fox Run)
   - How I feel that day

4. What are the benefits of being healthy (through physical activity or healthy eating)?

   - How it makes me feel
   - Time spent with friends
   - Learn new things I like (new foods/activities)
   - Perform better in school
   - Feel more awake in the morning
   - More concentrated in class
   - More positive coping strategies (e.g. stress release)
   - Help me make better decisions
   - Make new friends
   - Will help me be healthy in the future
   - I can share this information with friends and family to help them be healthy as well

3. Describe the photovoice project

Explain that you would like to learn more about what they think, and that you have a unique way of doing that. You hope that this could lead to a classroom / school project to help make changes at the school. There will be opportunities for everyone with permission to use a camera to take pictures. But because we only have X cameras for the class, you will have to partner up. Each student will have one day to take the camera home with them. You will be back next week to see the pictures and discuss them with the class.

4. Explain how cameras work and how to care for them (handout)

- Do take care of the cameras – you will have to return them for other students to use the follow week
- **DO** keep your camera in a case when not being used (if applicable)
- **DO** avoid rough behaviour with your camera (try to avoid dropping)
- **DO** return the camera to your teacher after **2 days** or by your teacher's deadline
- **DO NOT** get water, beverages or food on the camera
- **DO NOT** remove the memory card (if applicable)
- **DO NOT** lend the camera to anyone else
- **DO NOT** download the pictures onto personal devices

- Camera logistics...
- Based on cameras chosen for the project. The research team will provide an outline for the facilitator prior to discussions
- This will include information on deleting pictures on the camera

5. Appropriate behaviour for picture taking (handout)

It is important to review appropriate behaviour during the photovoice project.

While you are taking pictures, students must:

- Always ask someone before you take a picture of them. If a person says they would not like you to take their picture, DO NOT take it.
- Never take pictures of someone who does not give permission to be photographed
- Never take pictures in private areas (bathrooms, change rooms)
- Ask yourself "Would I like my picture taken in this situation?" If the answer is no, DO NOT take the picture
- If the person cannot be identified in the picture, there is no need to ask permission to take the picture first
- Do not go anywhere you would not normally go
- Try to keep your pictures within the school setting (at school or school trips)
- Remember the goal of the project when taking pictures – look for things you think are important to your physical activity and healthy eating behaviour

6. Selecting pictures for discussion

- After the 2 days of picture taking, teacher arranges for students to review their pictures on classroom computer (or at home as appropriate). Alternatively, the facilitator may have to review pictures and select them for discussion. This is to be determined after consulting with the teacher.
- Student selects up to 8 pictures for sharing with the class.
- Criteria for selection:
  - Content is appropriate as discussed above
  - Pictures represent at least 3 of the four topic/groups of influences
  - At least 5 pictures need to focus on the school
  - That someone looking at the picture can easily figure out what it is (not blurry)
  - That the student remembers where, when and why the picture was taken

7. Explain appropriate behaviour for class discussion (handout)

- Before class, students will pick pictures to review during our class discussions. (If applicable)
- They should write down where, when, and I they took they pictures they selected for discussion prior, and bring this information to the discussion

During the discussions, remind students that:

- All questions are allowed
- Be truthful and honest – we want to hear about their experiences, so don't be shy to share
- Be respectful to others opinions and pictures during the discussion
- What is shared in discussion should not be shared with others outside the classroom

8. Discussion with photos

Notes for facilitator:

- Try to have students identify themes within the pictures for class discussion – especially within the Foundations for a Healthy School framework.
- Remove all, if any, inappropriate pictures prior to discussion
- The goal of the discussion is to identify important influences for students physical activity and healthy eating, identify any gaps/barriers, and find solutions by creating action plans that are feasible for the school to act on
- Once you have had some discussion, you can shift the focus to "what we can do about it" to help the school become a healthier place
- Length of discussions to be determined in conjunction with the teacher.

Appendix I Analytical Framework for Qualitative Data

Table I1: Final Analytical Framework for Facilitator and Photovoice Data

Theme	Parent Node	Child Node	Node Definition	Facilitator Data	Photovoice Data			
					School 1		School 2	
					Time 1	Time 2	Time 1	Time 2
CSH Pillars			What is going on in a school that is contributing to, or acting as a barrier to creating healthy school environments (categorized by the CSH pillars)?	39	107	138	76	30
	Community Partnerships		What community partners are in each school and to what degree?	27	9	12	5	5
	School Policy		What policies influence school health at the school level and individual level?	11	10	14	7	2
	Teaching and Learning		What is in place to enhance the knowledge and skills of students, staff and/or the facilitator?	1	18	25	8	4
	Social Environment		What influences exist within the social environment at schools?	--	21	30	24	6
	Physical Environment		What influences exist in the physical environment at schools?	--	49	57	32	13
How			How are schools creating healthy environments? What is necessary to do so? What factors from the facilitator influence a healthy school environment? What activities are encouraged to influence a healthy school environment?	145	11	11	14	9
	Accessibility		Accessibility of a paid milk program which influences student participation – highlights the need for accessible activities and programs	--	2	--	--	--
	Adopting to a local context		How are intervention and school practices tailored to the needs of the school and students?	7	7	5	--	--
	Student engagement		Active involvement of students or the identification of need to involve students within the intervention	10	--	--	--	--
	Facilitator role	Training/Skills/ Personality	Factors of the facilitators training, skills and personality that contribute to successful facilitation within the intervention	25	--	--	--	--
		Communication	Methods of effective communication for the intervention between the facilitator and the school and research team	17	--	--	--	--
		Building Relationships	The building of relationships between the facilitator and the school staff and students	32	--	--	--	--

		Accountability	How the facilitator role keeps schools accountable for their actions throughout the school year.	7	--	--	--	--
	Action plans		Detailed plans and/or goals created by schools or students to encourage change in a specific priority area	4	2	6	14	9
	School champion		Identifying a lead at a school to enhance implementation, change and sustainability	9	--	--	--	--
	Sharing successes		Sharing stories of school successes with other schools as a method of motivation and celebration	7	--	--	--	--
	Supporting sustainability		What contributes to sustainable practices at a school, within the intervention?	27	--	--	--	--
Barriers			What is acting as a barrier for the facilitator to support healthy school environments? What is acting as a barrier for students to partake in healthy activities within their school?	66	39	17	10	12
	Time	Competing facilitator time	How the responsibility of 16 schools effects the intensity of the intervention	15	--	--	--	--
		Competing school time	How existing school priorities may limit the intervention	19	1	4	2	5
		Sustainability	The issues associated with promoting sustainability given the context of the intervention	13	--	--	--	--
	Resistance to change		An ‘in-vivo’ code to demonstrate the resistance facilitators meet to promoting change within schools	8	--	--	--	--
	School burn out		An ‘in-vivo’ code to demonstrate schools losing interest or motivation at the later end of the intervention	5	--	--	--	--
	Outside the school environment		Influences identified outside the school environment, or resources from home. These cannot be controlled within this study and have therefore been coded separately as a barrier.	2	14	5	--	1
	Weather		How winter and spring weather limit students’ physical activity opportunities	--	24	8	8	6
	Other		Other barriers that did not fall within the greater categories	4	--	--	--	--

Appendix J Healthy School Planner Scores

Table J1: Healthy School Planner Scores for Foundational Module, by question

Step	Question		School 1 Score	School 2 Score
Form a Team	The school has a team that plans for a healthy school community with membership covering a variety of perspectives.	Time 1	1	2
		Time 2	1	N/A*
	The school has student representation on the healthy school community planning team.	Time 1	N/A	3
		Time 2	N/A	N/A*
Planning	The school community communicates that 'healthier students are better learners' at least annually.	Time 1	4	3
		Time 2	3	N/A*
	The school develops specific, measurable, attainable, relevant, and time limited goals built on accurate data to create a healthier school community.	Time 1	2	2
		Time 2	2	N/A*
	Planning to improve the school is conducted using a comprehensive school health approach (i.e., teaching and learning, healthy physical and social environment, healthy school policy, partnerships and services).	Time 1	N/A	3
		Time 2	3	N/A*
Implementing across the 4 pillars of CSH	The school integrates wellness beyond health and physical education classes during instructional and non-instructional time.	Time 1	4	2
		Time 2	4	N/A*
	Students with a range of skills and characteristics are provided leadership opportunities in the organization of school activities.	Time 1	2	2
		Time 2	4	N/A*
	The physical environment is safe and accessible for all members of the school community	Time 1	3	2
		Time 2	3	N/A*
	The school community fosters a safe and supportive environment for everyone.	Time 1	4	3
		Time 2	4	N/A*
	The school community fosters respect and connectedness.	Time 1	3	2
		Time 2	3	N/A*
	Staff members are supported to maintain and improve the personal well-being.	Time 1	4	3
		Time 2	4	N/A*
	The school has at least one effective partnership that	Time 1	2	2

	supports and contributes to a healthy school community.	Time 2	1	N/A*
	The entire school community is engaged in community service.	Time 1	3	2
		Time 2	4	N/A*
	Community members volunteer in the school daily.	Time 1	2	3
		Time 2	2	N/A*
	The school regularly reviews and updates its implementation of healthy school policies and practices.	Time 1	3	2
		Time 2	3	N/A*
Celebrate	The school celebrates successful healthy school initiatives within and beyond the school more than twice per year.	Time 1	2	2
		Time 2	2	N/A*
	The school community fully recognizes, acknowledges and celebrates contributions of volunteers.	Time 1	3	4
		Time 2	3	N/A*
Sustaining your healthy school	All school staff participate in learning opportunities related to creating a healthy school community in the last 12 months.	Time 1	3	2
		Time 2	2	N/A*
	The school has a fully prepared succession plan for its healthy school initiatives.	Time 1	1	1
		Time 2	1	N/A*
	All healthy school initiatives are implemented school-wide and embedded within the school's action plan.	Time 1	3	4
		Time 2	2	N/A*
Monitoring and Evaluation	The school formally assesses progress on creating a healthy school community through assessment and evaluation.	Time 1	2	2
		Time 2	3	N/A*
	Mean	**Time 1**	2.7	2.4
		Time 2	2.7	N/A*
	Mode	**Time 1**	3	2
		Time 2	3	N/A*
	Indicator Range	**Time 1**	1-4	1-4
		Time 2	1-4	N/A*

* School 2 did not complete the HSP survey at time 2

Table J2: Healthy School Planner Scores for Physical Activity Express Module, by question

Step	Question		School 1 Score	School 2 Score
Teaching and Learning	**The school offers at least 30 minutes of physical education daily to every grade for the entire school year.**	**Time 1**	1	1
		Time 2	2	N/A*
	The school offers 150 minutes of physical education per five-day week (Monday to Friday) to all grades for the entire school year.	**Time 1**	1	1
		Time 2	2	N/A*
	All school staff participate in learning opportunities related to physical activity.	**Time 1**	3	2
		Time 2	2	N/A*
Healthy School Policy	**The school provides at least 20 minutes of daily physical activity (DPA) during instructional time to all grades taught in the school.**	**Time 1**	4	3
		Time 2	4	N/A*
Social and Physical Environment	**The school's social environment, as well as its physical environment, facilitate an increase in physical activity at school and in the school community.**	**Time 1**	4	3
		Time 2	4	N/A*
Partnerships and Services	**The school has effective partnerships to help students become more physically active.**	**Time 1**	2	3
		Time 2	3	N/A*
		Mean **Time 1**	2.5	2.2
		Time 2	2.8	N/A*
		Mode **Time 1**	1	3
		Time 2	2	N/A*
		Indicator Range **Time 1**	1-4	1-3
		Time 2	2-4	N/A*

* School 2 did not complete the HSP survey at time 2

Table J3: Healthy School Planner Scores for Healthy Eating Express Module, by question

Step	Question		School 1 Score	School 2 Score
Teaching and Learning	**All school staff participated in learning opportunities related to healthy eating in the past 12 months.**	**Time 1**	2	2
		Time 2	3	N/A*
	All school staff participated in learning opportunities related to healthy eating in the past 12 months.	**Time 1**	4	4
		Time 2	4	N/A*
Healthy School Policy	**All school food outlets and activities are required to adhere to a healthy eating policy or guideline(s).**	**Time 1**	1	1
		Time 2	2	N/A*
	The school always follows the policy or guideline(s) for the food and beverages offered at the school.	**Time 1**	4	4
		Time 2	4	N/A*
Social and Physical Environment	**The school offers free or reduced-price food and beverage programs to all students.**	**Time 1**	2	2
		Time 2	3	N/A*
	The school fully supports, promotes and reinforces healthy eating behaviours.	**Time 1**	4	3
		Time 2	3	N/A*
	The school actively engages students in the promotion of healthy eating.	**Time 1**	3	3
		Time 2	3	N/A*
Partnerships and Services	**The school has effective partnerships to support healthy eating.**	**Time 1**	3	2
		Time 2	2	N/A*
		Mean **Time 1**	2.9	2.6
		Time 2	3	N/A*
		Mode **Time 1**	4	2
		Time 2	3	N/A*
		Indicator Range **Time 1**	1-4	1-4
		Time 2	2-4	N/A*

* School 2 did not complete the HSP survey at time 2