

University of Alberta

**Children's Perceptions of Their School's Environment and Its Influence on
Their Active and Inactive Behaviours:
The Case of One Rural Elementary School**

By

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A thesis submitted to the Faculty of Graduate Studies and Research
in partial fulfillment of the requirements for the degree of

Doctor of Philosophy

Faculty of Physical Education and Recreation

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Spring 2012

Edmonton, Alberta

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DEDICATION

To my son Ethan, 'Magoo' this is for you.

To my mom, Patricia. I miss you every day.

To Christopher, I wish you were here.

To all the souls who have been with me along this journey,
wherever you might be.

"Do your little bit of good where you are; it's those little bits of good put together
that overwhelm the world."

Bishop Desmond Tutu

"I do not claim to know everything. I do not say that one way is better than the
other. I do not have all the answers. But I offer many questions and some solutions.
I urge you to be creative and bold. I urge you to take risks and follow your own
muse. I urge you to disclose who you are to others and especially to yourself. We
are always in a place of becoming."

Marilyn Lichtman

ABSTRACT

The purpose of this qualitative case study was to gain insight into the relationships among school setting, student perceptions of that setting, and PA (physical activity) and PIA (physical inactivity) behaviour. Children's perceptions of various aspects of the school environment were explored to reveal components perceived by children to have influence on their PA and PIA behaviour while they are at school. Guided by Bandura's (1986) Social Cognitive Theory and Moos' (1979) Social Ecological Framework, the reciprocal triad between the school environment, child, and varying levels of PA and PIA behaviours of children while at school, was examined. A qualitative instrumental case study methodology was employed and one bounded case was purposefully selected to explore PA and PIA influences of a school and children's perceptions of these influences. Participant-observations (informal) of children, teachers, and administrative staff at one elementary school were used to identify key PA and PIA school influences. Participant-observations of children (informal) over a 3 week period, in combination with teacher consultations, were also used to purposefully identify focal children of varying levels of PA and PIA behaviour. A two step interview process was then used to identify key school influences focal children perceived as impacting their PA and PIA behaviours. First, an in-class pre-interview activity that employed a mental mapping technique was completed where children in each of the elementary classrooms were asked to draw the PA and PIA spaces at their school. Second, interviews with 19 children, who had been identified as focal children and had returned consent forms, were completed. Questions and observational comments about the focal children's drawings were used to solicit how they

perceived their school had influence on their PA and PIA behaviours. Interviews with administration and teachers were also conducted to further explore children's responses from other (e.g., instructional and administrative) points of view. Results showed that DPE, PA throughout the school day, social support, and interest were significant PA and PIA influences perceived by the participant children at the school. The concluding chapter provides highlights of these results, a summary of the work, and recommendations for further study.

ACKNOWLEDGEMENTS

My PhD journey has been a long, arduous, emotional, and at times painful one. At the same time however, it has also been a wonderful, astonishing, amazing, and rewarding experience. I have learned more about myself as an academic, as a researcher, as a teacher, and as person than I could ever have imagined. I often questioned, at many points along the way, if this was really something meant for me to achieve. It is only because of the amazing support I received, from a number of people in my life, that I was able to complete this journey.

To my partner Kirk, my son Ethan, my Nelson, Bayduza, and Marquardt families, all of my friends, and the incredibly supportive village that surrounds me, thank you. I love you and through this journey have realized how much I need you. I could not have done this without you. What you have all given of yourself and willingly put up with so that I could pursue this journey could never ever be repaid. I am so grateful and blessed to have you in my life. The completion of this PhD definitely took a village!!!!

To the EICS District, thank you for allowing me to take on this type of research in one of your schools, in helping me to find and introducing me to 'the school'. And a huge thank you and many hugs to the teachers, children, and community members of this school. I have been so changed by you and your community. I will never forget what you have contributed to this journey. Allowing me into your world in such an open, honest, and welcoming way, you taught me more in the six months I spent with you than all of my graduate textbooks and seminars combined. This project was made possible because of the time, commitment, and generous contributions that you made.

I would also like to thank my committee members Dr. Wendy Rodgers, Dr. Nicholas Holt, Dr. Tara Leigh McHugh, and Dr. Cheryl Poth, and my external examiner Dr. Maureen Weiss. It was truly an honour to work and learn from each of you on this project. The contributions you made through giving of your time, encouraging words of wisdom, advice, sharing experiences, and support, are so greatly appreciated.

And finally, I would like to thank my supervisor Dr. Janice Causgrove Dunn. Even though the journey has been long and at times I had my doubts, you never gave up on me. I am so grateful for your support. I am also so thankful for the wisdom, experience, and insights you shared, the hours you spent reading my stuff, your attention to detail, the shoulder you lent to me to lean on (or cry on) when I needed one, and the boosts of confidence you gave me to keep going. For everything you have contributed to this journey, thank you!!

To each and every one of you, my deepest and sincerest thank you.
WE DID IT!!!!!!

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LIST OF ABBREVIATIONS

CSH – Comprehensive School health

DPA – Daily Physical Activity

DPE – Daily Physical Education

HRPE – Health Related Physical Education

LCT – Lead Champion Teacher

P – Participant

PA – Physical Activity

PE – Physical Education

PIA – Physical Inactivity

TEE – Total Energy Expenditure

CHAPTER 1 INTRODUCTION

Reports providing estimates of how active or inactive Canadian children are have demonstrated that across Canada the amount of physical activity (PA) that children and youth engage in is generally below recommended levels (Active Healthy Kids Canada, 2011; Canadian Fitness and Lifestyle Research Institute, 2011; Colley et al., 2011). Active Healthy Kids Canada (2011) has referred to the low levels of daily PA as a “child health crisis” (p.14), due to the health risks associated with physical inactivity in childhood. There is evidence that low levels of PA are associated with increased risks of depression and anxiety among inactive children (Strong et al., 2005), and increased rates of obesity, hypertension, cardiovascular diseases, and type 2 diabetes (Ball & McCargar, 2003, McGill et al., 2000). On the other hand, Janssen and LeBlanc (2010) recently reported numerous health benefits associated with even modest amounts of PA in children and youth. Improvements in cholesterol and blood lipid levels, bone density, markers of metabolic syndrome (i.e., abdominal obesity, high cholesterol, high blood pressure, insulin resistance), and decreases in body weight, hypertension, and symptoms of depression were reported. Moreover, a recent school-based study has also shown that increasing children’s PA may be an effective approach to improving academic performance (Reed et al., 2010).

Schools are important settings for research into the PA behaviours of children and youth. The audience is captive and children spend approximately 40% to 45% of their time in this environment (Department of Health, 2004). Schools enable researchers to reach large numbers of children and youth in already well-established community settings with trained staff, available facilities, equipment, and mandatory physical education (PE) programs for children (Robertson-Wilson, Levesque, & Holden, 2007). It is not surprising, therefore, that schools have become a prime target for activities intended to positively impact the PA behaviour of children and youth. There is no more appropriate place to teach children about the importance of PA as part of a healthy lifestyle, determinants of health, risk factors for chronic disease, and to get them moving.

Indicative of this status are the mandated daily physical activity (DPA) initiatives that have surfaced in provincial educational policies across Canada, requiring schools to provide a minimum amount of DPA for their students (Chorney, 2008). In particular, Alberta Education's DPA Policy states that "School authorities shall ensure that all students in grades 1 to 9 are physically active for a minimum of 30 minutes daily through activities that are organized by the school" (Alberta Education, 2006, p.2). Schools are ideal settings for providing DPA opportunities for all children regardless of socio-economic factors, family influences, age, gender, or ethnicity (Dwyer et al., 2008), while at the same time exerting strong influence on the overall PA behaviours of children and youth (Stratton, Fairclough, & Ridgers, 2008).

Studies have suggested that the school environment is related to students' PA levels (Durant et al. 2009; Sallis et al., 2001). Steps have been taken to increase understanding of this relationship, typically involving objective environmental assessments (Barnett, O'Loughlin, Gauvin, Paradis, & Hanley, 2006; Dwyer et al., 2008; Erwin, 2008; Fein, Plotnikoff, Wild, & Spence, 2004; Stratton & Leonard, 2002). Few researchers, however, have investigated students' perceptions of their specific school environment or the impact these perceptions may have on their PA behaviours (Robertson-Wilson et al., 2007; Stratton et al., 2008). Children's perceptions of the school environment may differ from the findings of objective environmental assessments (Bauman, Sallis, & Owen, 2002). Moreover, even children who report the general existence of PA opportunities and supports within the school environment may not perceive the opportunities and supports to be available to them personally, or they may not use them (Erwin, 2008). It is possible that a close examination of children's perceptions of their school environment may uncover potential inhibitors of the opportunities and supports that differentially influence behaviours of children with different levels of PA involvement at school (Robertson-Wilson et al., 2007).

The Research Question

The purpose of this qualitative case study was to gain insight into the relationships among school setting, student perceptions of that setting, and PA and

PIA (physical inactivity) behaviour. Children's perceptions of various aspects of the school environment were explored to uncover components perceived by children to have influence on their PA and PIA behaviour while they are at school. Theoretically the physical and environmental components of the school should be similar for each of the students within the school. The amount and type of equipment available, access to the active and inactive spaces and places within the school, the scheduled amount of time provided for PA & PIA, and exposure to people within the setting, as examples, should be relatively similar for the majority of children within the school. However, it is the perceptions children have of these external environmental influences that are of interest in order to gain insight into the relationships between components of a school setting and children's PA and PIA behaviours while they are at school.

The study explored the following central question of interest: "How do elementary school-aged children perceive their school's environment and its influence on their active and inactive behaviours while at school?" Three additional questions related to the issue at hand (Stake, 1995) were also explored to help in answering the central question: (1) What are the contextual variables of the school that appear to constrain or enable children's PA and PIA behaviours, (2) How are perceptions of the school environment similar or dissimilar for children with different levels of PA and PIA engagement, (3) How do perceptions of external physical and social supports influence the types of activity a child engages in at school?

Background and Rationale

To date, research into childhood PA behaviour has focused primarily on children's development within motivational frameworks, emphasizing within-child forces typically conceptualized as operating in isolation from environmental forces (Bengoechea & Johnson, 2001). Researchers have investigated a multitude of individual correlates believed to influence the PA behaviour of children and youth (Biddle, Gorely, & Stensel, 2004; Sallis, Prochaska, & Taylor, 2000; Welk, 1999). Many correlates have been identified (e.g., Sallis et al., 2000), leading to the conclusion that youth PA and PIA are complex, multidimensional, and multifaceted

behaviours that are influenced at multiple levels (Malina, 2008; Smith & Biddle, 2008; Spence & Lee, 2003).

Rather than focusing on the complex nature of PA and PIA behaviours at and within the individual level, an alternative approach is to gain an understanding of the contextual or multiple levels of factors outside the individual that may influence these behaviours (Spence & Lee, 2003). Ecological approaches have shown promise in accounting for multiple influences on PA behaviour (Fein et al., 2004; Gauvin, Levesque, & Richard, 2001; Holt, Spence, Sehn, & Cutumisu, 2008; Spence & Lee, 2003; Welk, 1999). A key dimension of the ecological perspective is the physical environment (Duncan, Spence, & Mummery, 2005; Sallis & Owen, 2002), and there have been repeated and consistent calls made in the literature for the examination of relationships between physical environment constructs and PA behaviours across settings (Fein et al., 2004; Sallis et al., 2000; Smith & Biddle, 2008). Because the school has become one of the primary settings used to promote PA among children and youth, it is important to identify specific school environmental and policy influences as promising intervention targets related to higher levels of PA participation.

Significance

Accelerometer-measured PA data from the 2007-09 Canadian Health Measures Survey (CHMS; Colley et al., 2011) show that only 7% of Canadian children and youth (9% of boys and 4% of girls) are meeting the new Canadian Physical Activity Guidelines of at least 60 minutes of moderate to vigorous physical activity per day (Tremblay et al., 2011). Pedometer or step count data reported from the CANPLAY study show Canadian children, aged 5 to 19, take approximately 11,600 daily steps on average (Canadian Fitness and Lifestyle Research Institute, 2011) and only 12% of children and youth (16% of boys and 8% of girls) meet a target of 16,500 steps per day (Canadian Fitness and Lifestyle Research Institute, 2009). Regardless of the methodology or optimal target used, the data consistently show that the vast majority of Canadian children and youth are not active enough to achieve health benefits (Active Healthy Kids Canada, 2011).

It appears that habitual PIA behaviour is also exhibited by children prior to the sixth grade (Sullivan, 2002). Low levels of PA participation have been reported in younger elementary school-aged children and children in pre-school (Barnett, O'Loughlin, & Paradis, 2002; Bradley, McMurray, Harrell, & Deng, 2000). The 2007-09 Canadian Health Measures Survey data (Colley et al., 2011) showed an average daily step count of only 13,217 for boys and 11,745 for girls 6 to 10 year of age, well below the recommended 16,500 steps per day. This is disconcerting due to the positive association between these early levels of childhood PA and PIA habits and adult PA and PIA levels (Eder & Mangelsdorf, 1997; Kohl & Hobbs, 1998; Perkins, Jacobs, Barber, & Eccles, 2004; Salbe & Ravussin, 2000). Long term patterns of behaviour established early on in childhood may be very difficult to alter (Kelder, Perry, Lepp, & Lytle, 1994; Story, Neumark-Sztainer, & French, 2002). In particular, we have known for some time now that established patterns of inactivity can be quite persistent (Dishman & Dunn, 1998; Perry et al. 1990).

Research reveals the importance of establishing healthy behaviours in the early years in order to minimize poor long term health outcomes (Hands et al., 2011). Although the research in this area is somewhat scarce (Pate, Pfeiffer, Trost, Ziegler, & Dowda, 2004; Sirard & Pate, 2001), childhood appears to be a critical period for planting the seeds of positive attitude development toward PA (Fromel, Stelzer, Groffik, & Ernst, 2008) and to look further into the components of PA participation. Though the school has received increased emphasis as a place for the promotion of childhood PA (Stratton et al., 2008), there is a lack of clarity in the description of when, where, and what active behaviours occur in the lives of young children at school (Barnett et al., 2006). We do not appear to know, with a high degree of certainty, where the priorities should be in our efforts to design and implement promotion strategies intended to increase active behaviours at school. Although a significant body of work has highlighted variables at school that are related to PA behaviour of children, little is known about how the physical or social environment in elementary schools affect student PA (Barnett et al., 2006), and we have yet to achieve sufficient understanding of children's perceptions of these potential influences (Erwin, 2008).

An investigation attempting to uncover the potential contributors and inhibitors to the use of PA opportunities and supports at school is needed. Assessment of young children's PA interests, perceptions, and motives for participating in this setting could enhance our understanding of the types of initiatives and programs that work well in promoting and improving levels of PA participation in children. The knowledge gained through such an investigation has the potential to inform parents, teachers, administrators, and policy makers about where to focus the attention at school to engage children in physically active behaviours.

Guiding Perspective

Because knowledge and the inquiry process are value laden, the researcher should 'position' him or her self in the research, make explicit the value laden nature of the study, and report actively the values and biases that influence the data gathered and interpretations made in the research (Creswell, 2007). My background and experiences have shaped everything about this project, beginning with the questions I wanted to ask, throughout the inquiry design and process I used, to the choices I made and the interpretations I generated.

From a very early age, PA has been a part of who and what I am, and what I value as an important component of my life. My mother was very athletic and loved to be active. Both of my parents were very supportive of the sports and activities of all six of their children, and they encouraged us to get involved. I have carried my love of sports and PA into my adult life and though I no longer play hockey or curl, I have discovered new ways to be active. I was diagnosed with insulin-dependent diabetes when I was 22 and have found that PA is no longer just a love; it has also become an important tool in the management of my chronic disease. Beyond that, my 9 year old son has been most influential in leading me to the research questions and the way in which I am answering them. Watching him grow and develop, and experiencing how hard it can be at times to get him to engage himself physically, reignited my passion for learning more about childhood PA behaviour. At the time of undertaking and writing this dissertation my son was in Grades 3 and 4 and I was seeing how difficult it was for him, and his school, to

engage in PA. I have come to realize the significant influence my family, the people in my life, and where I come from has on how I view the world, what my interests are, and what I am passionate about.

As a researcher, I have always had a keen interest in examining the reasons why children engage themselves actively. My questions have evolved and become more complex than just exploring *what* the salient values and PA motivations of children are; I want to increase my understanding of the *why*, the *how*, and the *when* in relation to the activity and inactivity of children. I have come to realize how much can be learned from the particularities of a few when the complexities of so many has become too difficult to unravel. I have also come to understand that reality is multiple, complex, and everyone's sense of reality is worthy of consideration and respect. By observing children in one of their significant everyday environments, I can attempt to give meaning to factors and variables that have been identified in the literature as influential to behaviour. Because I consider children as key holders of knowledge and critical informants, I can gain a more fully developed understanding of where PA and PIA fit into the everyday lives of children at school. By observing and listening to children and what they have to say, I can more fully experience what they think and how they believe things work.

Ontologically speaking, I align quite strongly with a social constructivist world view where reality, meaning, and knowledge are socially and contextually influenced and constructed. Constructivism looks to the unique experience of each of us and suggests that each one's way of making sense of the world is as valid and worthy of respect as any other (Crotty, 1998). Social constructivists see reality as constructed through human activity where members of a society, together, invent the properties of the world and create meaning through their interactions with each other and the objects in the environment (Prawat, 1995).

I am also somewhat pragmatic and dialectic in my belief that multiple realities exist and that there are multiple ways of knowing, and that each stance has value and contributes in varying ways to generative inquiry and informing knowledge (Greene, 2007). All of the different ways of knowing also provide opportunity to optimize the potential of inquiry by giving rise to different ideas,

contradictions, tensions, dissonance, and opposition which serve to more comprehensively generate insights and understandings (Cook, 1985). Greene (2007) describes the dialectic position as “...what is woven from strands of particularity and generality, contextual complexity and patterned regularity, inside and outside perspectives, the whole and its constituent parts, change and stability, equity and excellence, and so forth. That is, it seeks not so much convergence as insight... the generation of important understandings and discernments through juxtaposition of different lenses, perspectives, and stances ... difference is constitutive and fundamentally generative” (p.208).

In terms of epistemology, my belief that there is a relationship between the researcher and the participant (because knowledge is socially constructed) is consistent with the discussion of social constructivism by Creswell (2007). Individuals create meaning through their interactions with each other and with the environment they live in. This relationship is contextual and situational in nature and the relationship is important to meaning. The research goal is to rely as much as possible on the participants' views of the situation. As a result, meaning is formed through interactions with others and the cultural norms that operate within the life of the individuals (Creswell, 2007). The nature of the relationship will impact the findings and knowledge gathered, as meanings of a situation are forged in discussions and interactions, which impact the broader understanding or knowledge of an issue.

As a methodological position, I have come to view research as a holistic and contextually focused endeavour where the goal is to build a complete picture or multi-dimensional analysis (Creswell, 2007). My interest in context, my belief in the existence of experiential knowledge and multiple realities, my desire to create knowledge from the both the emic and etic perspectives, and my position on the value of multiple ways of knowing have led me to case study as a methodological process of inquiry in my own research. The intensive, in depth focus on a case, use of various sources of evidence, development of experiences, understandings and interpretations, and the meshing of a number of data sources, points of views and

theories that are all possible in the use of case study methodology, align well with how I view research and the world around me.

Guiding Theory and Framework

Throughout the design and completion of this project, I utilized an existing theory to explore the phenomenon of a school's impact on children's PA & PIA perceptions and behaviour. Theory served as a guiding roadmap for this project's qualitative design (Anfara Jr. & Mertz, 2006; Charmaz, 1990; Mays & Pope, 2000). It is important to note that this project did not test theory per se, but used theory to construct and frame data collection and analysis.

Social Cognitive Theory (SCT) is one of many prominent theories adopted for understanding health promotion behaviours, including PA (McCauley & Blissmer, 2000). SCT does not just seek to explain human behaviour as solely the product of external influences or the remnants of past stimulus inputs, but as an interplay between both the self-produced and external sources of influence that exist within an environment (Bandura, 1986). This delineation of environment as both external (the physical and social factors within an environment that can affect a person's behaviour) and internal (a person's cognitive or mental representation of the experienced environment or perception) is a key highlight of SCT and a key reason why it was chosen to theoretically guide to this research project. In research examining PA behaviours among children and adolescents, the primary tenets of SCT for understanding PA have received increasing and consistent support (Motl, 2007). Elements of the physical environment (e.g., access to facilities, safety), social environment (e.g., social support from friends), and person (e.g., self-efficacy, enjoyment) have all been linked with childhood PA across a number of studies (Sallis et al., 2000).

King and colleagues (2002) provided a classification of theoretical frameworks that range on a continuum from intrapersonal theories on one end to more extra personal macro-environment theories on the opposite end. Examples of intrapersonal theories include the theory of planned behaviour, transtheoretical model, self-determination theory, and expectancy value theory, to name just a few. These conceptual approaches to PA promotion incorporate an array of individual

factors related to activity behaviour that operate at the level of the individual. In contrast, extrapersonal theories encompass individual factors but also address complex physical and social environmental factors that are external to the individual. While intrapersonal theories imply that behaviour is more choice driven, extrapersonal theories emphasize the role of the environment for enabling choice. Within intrapersonal theories, the environment's influence on behaviour is mediated by individual-level constructs such as attitudes, whereas in extrapersonal theories the environment has considerably more direct influence on behaviour (King et al. 2002).

For research aimed at understanding the influences on PA, King and colleagues (2002) emphasize the importance of the presence of three social-ecologic conceptual principles that should underlie an ecologic or contextual analysis of individuals' activity patterns: (a) a consideration of the scale or level of environments at which particular environmental conditions are situated and exert influence on PA patterns, (b) an examination of the type of PA behaviour engaged in, and (c) an investigation of the extent to which particular environmental conditions exert either a facilitating or constraining influence on activity behaviours. SCT (Bandura, 1986) has the potential to be a useful theory for investigating the influence of the environment on activity behaviour because the theory attends to all three of the social-ecologic principles outlined by King and colleagues (2002). It is also closely associated with the social constructivist perspective (Shunk, 2000) given its emphasis on reciprocal relationships among person, environment, and behaviour; the structure of the theory specifies that behaviour can be influenced by both personal and environmental factors.

Unfortunately, Bandura's writings do not explicitly describe or outline the specific components within the physical environment (Sallis & Owen, 2002). Consistent with SCT, Rudolph Moos' (1979) social ecological framework denotes the existence of both environmental and personal systems, and their importance to behaviour, in that the personal and environmental systems also affect each other through mediating processes of cognitive appraisal and activation and motivation. These mediating factors are also reciprocally influenced by personal characteristics

and environmental characteristics. Unlike SCT, however, this social ecological framework clearly delineates and specifies the multiple influences of the physical environment (Sallis & Hovell, 1990). Although acknowledging the fact that there are an infinite number of possible relevant environmental influences, based on the examinations of a number of institutional settings Moos (1979) has conceptualized environment as an “Environmental System” with identifiable components influential to behaviour. These components are categorized into four major domains: physical setting, organizational factors, human aggregate variable, and social climate. Each domain can influence behavioural outcomes directly as well as indirectly through the other sets. The focus of this system or model is on the extent to which social climate is determined by, and mediates, the influence of the other three domains (Moos, 1979). Social climate is both the fourth domain of environmental influences and the major mediator of the other three.

Moos’ (1979) conceptualization of the relationship between environmental and personal variables and behaviour provides a general model of the process of the person-environment interaction. This framework provides a way of uncovering crucial knowledge about and identifying specific components that lie within the school’s atmosphere or climate that are influential to PA and PIA behaviours, including the kinds of things that are rewarded, encouraged, emphasized, the style of life that is valued in the community and how a person sees the various components of the environment, their attitudes, expectations, and perceptions while in it. The conceptualized environment as an “Environmental System” with identifiable components influential to behaviour is a key reason why Moos (1979) social ecological framework was chosen to help guide the collection and organization of data in relation to the context of the school environment.

Summary

Research examining the influences on the activity behaviours of children and youth is moving toward greater focus on the relationship between person, environment, and the social context as an interactive, interdependent network that exerts influence on all of its members. For children and youth, it is hypothesized that components at the social level (i.e., family, peers, and school) and personal

characteristics at the individual-level are related to PA behaviour (Duncan, Duncan, Strycker, & Chaumeton, 2004). The physical, social, and perceived environments are thought to be related to children's individual characteristics (e.g., motivation, perceived barriers) in a reciprocal way and may also influence active or inactive behavioural choices in both direct and indirect ways (Salmon, Spence, Timperio, & Cutumisu, 2008). Few researchers, however, have investigated students' perceptions of their specific school environment or the impact these perceptions may have on their PA and PIA behaviours. The purpose of this study was to explore the relationships among school setting, student perceptions of that setting, and PA and PIA behaviour at school.

CHAPTER 2

REVIEW OF LITERATURE

Individual-level correlates have been found to account for approximately 20 to 40% of the variance in PA behaviours (Culos-Reed, Gyurcsik, & Brawley, 2001; Dishman, 1994; Spence & Lee, 2003). The variance in children's PA behaviour accounted for by psychosocial correlates has ranged from 6 to 30%, with most falling at around 20 to 30% (Welk & Schaben, 2004). Greater interest, as a result, has developed into examining the role of various environments in facilitating or constraining PA behaviours (Roberston-Wilson et al., 2007). A focus on the relationship between personal characteristics, circumstances, and contextual characteristics of the environment in which the behaviour occurs, could help to increase our understanding of the behaviour (Rice, 1999). This shift from a focus on individual-level correlates towards a focus on broader social, physical, cultural, and economic correlates of behaviour is consistent with ecological approaches that acknowledge the relationships between an individual's behaviour and multiple levels of the environment is not only complex, but also important to understanding behaviour (Fein et al., 2004).

The Ecological Perspective

“What is the relationship between human behaviour and the environment?” is the foundational question for ecological psychologists (Patton, 2002). The term *ecology* refers to the interrelations between people and their environments, and the ecological perspective focuses on the nature of people's transactions with their physical and socio cultural surroundings (Stokols, 1992; 1996). In ecological models of behaviour, *environment* refers to the space outside of the person, and the role of the physical environment's impact upon behaviour is explicitly specified. Emphasis on the environmental domain and the multilevel nature of ecological models distinguishes them from other models or theories (Sallis & Owen, 2002). Ecological models typically lack specificity at each level, but do allow for other models to be integrated to enhance the specificity of treatment of intrapersonal,

interpersonal, and community levels of influence, as well as the environmental domain's influence (Smedley & Syme, 2000).

Within child and adolescent populations, physical environment variables (i.e., access to facilities, time outdoors, opportunities to exercise), individual personal attributes (i.e., self-efficacy for exercise, physical self-concept, or perceived physical activity competence), and social-environmental and interpersonal influences (i.e., peers, family, parents, physical education teachers, significant others) have all been identified as positive correlates of PA (Biddle et al., 2004; Sallis et al., 2000). Conceptually, ecological approaches attempt to account for the multitude of these factors influencing youth PA and PIA behaviours (Gauvin et al., 2001; Spence & Lee, 2003; Welk, 1999). However ecological frameworks move us towards the next level of analysis by facilitating a simultaneous examination of the relationships between the characteristics of the individual (e.g., knowledge, cognitions, valuations, perceptions) and the multiple levels of the environment (e.g., social, interpersonal, organizational, community, policy, structural, contextual influences) to understand when, how, and why children and youth engage themselves in PA behaviours (Fein et al., 2004).

Social Cognitive Theory

The environment and its influence on behaviour is an integral component of SCT (Salmon et al., 2008). This theory addresses the psychosocial dynamics within an environment that influence behaviour and conceptualizes behaviour as having a triadic, dynamic, and reciprocal relationship with the environment and the person. At the heart of SCT is the principle assumption that behaviour, personal factors, and the environment exert bidirectional influence on one another to varying degrees (Bandura, 1986). Human behaviour is thought to be not simply the result of the characteristics of a person or the context of the environment, but rather the interplay between all three of these factors. The relationships among and between person, behaviour, and environment is referred to as *reciprocal determinism*. This principle assumes that these three components are constantly influencing each other and a change in one has implications for change in the others (Baranowski, Perry, & Parcel, 2002).

According to SCT, the construct of *behaviour* is viewed in reference to behavioural capability. If a particular behaviour is to be performed, a person must know what the behaviour is (knowledge of the behaviour) and how to perform it (skill). The *personal* construct includes variables that influence and are important to behavioural success, such as an individual's capability to symbolize behaviour, to anticipate the outcomes of behaviour, to learn by observing others, to have confidence in performing and overcoming problems faced in performing the behaviour, to self-determine or self-regulate behaviour (e.g., plan, organize, manage), and to reflect on and analyze experience (Bandura, 1986; 1997). Self-efficacy lies at the heart of these personal characteristics and the triadic or reciprocal determinism process (Salmon et al., 2008). Self-efficacy is central to, and conceptualized as being the most important prerequisite to, behaviour change in SCT (Bandura, 1986).

Not only is self-efficacy concerned with the number of skills one possesses, but also with what someone believes he or she can do with those skills under a variety of circumstances (Bandura, 1997). The sense of personal agency about one's ability to perform a specific task in a given context is thought to affect the activities an individual chooses to engage in, the amount of effort invested, the degree of persistence in the face of failure or adversity, and the level of success experienced (Bandura, 1997). Self-efficacy therefore, is not just a measure of the skills one has, but a belief about what one can do under different sets of conditions with whatever skills one possesses (Bandura, 1997). Consequently, self-efficacy is not just a "contextless global disposition" (p.43) but is very much related to the environmental conditions in which the behaviour occurs (Bandura, 1997). Judgment of operative capabilities, or what a person believes he or she can do under given circumstances and the demands of a given task are partly governed by the initiation and regulation of transactions between the individual with the environment (Bandura, 1997). As a result, the *environment* construct of SCT has become increasingly recognized as important to understanding behaviour and provides the ecological component for understanding behaviour using SCT (Baranowski et al., 2002).

According to SCT, the environment is comprised of factors that can affect a person's behaviour and are physically external to that person. Conceptually, the environment includes the *social environment* (family members, friends, peers) and the *physical environment* (size of a room, ambient temperature, opportunities). Bandura's ideas stem from social learning theory traditions and as a result social reinforcement, social agents, models of behaviour, and sources of reinforcement are important features of SCT present within the behavioural environment (Smith & McDonough, 2008). Constructs such as peer support for PA or PIA behaviour, vicarious learning, and role modeling have been significant contributions of SCT to understanding PA behaviour in youth. In accord with SCT, an extensive review by Taylor, Baranowski, and Sallis (1994) identified role modelling, social influence, and social support processes as three primary mechanisms of direct and indirect influence on children's PA. Both the social and physical components of the environment are recognized as influential to behaviour.

Situation is intricately intertwined with the environment construct. Situation refers to the cognitive or mental representation of the environment (including real, distorted, or imagined representations) that may affect a person's behaviour. It is a person's perception of the experienced environment and may include perceptions of place, time, physical features, activity, participants, and their roles within the environment (Baranowski et al., 2002). Situation also refers to how the environment is construed by an individual, such as how he or she reacts to it and whether the environment is viewed favourably, neutrally, or negatively depending on how well the individual functions within it (Bandura, 1997). Individuals can exert substantial influence over their own behaviour simply through the selection and construction of environments (Bandura, 1986). As a result, this conceptualization of situation recognizes the importance of one's own perception of the environment and its relationship to behaviour.

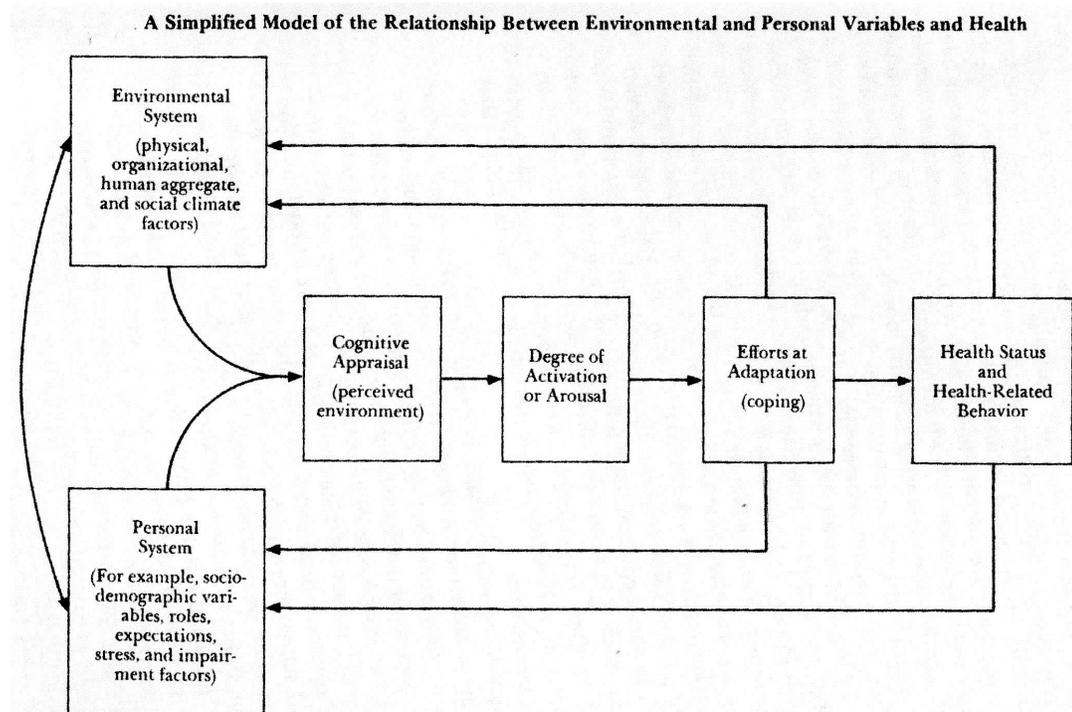
A Social Ecological Framework

According to Moos (1979b), "A social ecological perspective provides a distinctive framework by which the transactions between people and their environments, and the impacts of these transactions on human functioning, can be

conceptualized” (p.527). The simplified social ecological framework developed by Moos (1979) illustrates the major sets of factors mediating the relationship between the environment, the person, and health status (see Figure 2.1). The framework emerged from a belief that these variables need to be conceptualized and studied together (Moos, 1976), and was referred to as social ecological because it emphasized the inclusion of social-environmental and physical-environmental ecological variables.

The model shown in Figure 2.1 illustrates how both personal and environmental systems influence each other through a selection of factors. The framework primarily depicts a unidirectional causal flow but there are also feedback mechanisms by which the different sets of factors can mutually influence each other (Moos, 1979b). Through the mediating processes of cognitive appraisal and activation or arousal, the personal and environmental systems can influence each other. Personal characteristics and environmental characteristics can also both influence the mediating factors.

Figure 2.1 – Social Ecological Framework



- Rudolph Moos (1979b; p.529)

A person's efforts to adapt to the environment by using a preferred set of coping skills, is integral to the framework. Coping skills are determined in part by the personal system and the environmental system (Moos, 1979). For example some children may be more prone to form or join peer groups at school and their school may reward and promote involvement in student leadership initiatives. These two mechanisms could influence the child's behaviour in terms of level of involvement at school. The use of a coping skill could also change both the personal and environmental systems. For example, a child who joins a student led initiative may change his or her own personal system in that a change in attitude may occur, which could also help create a new initiative changing the environmental system of the school.

Ultimately, one's efforts to adapt have the potential to affect systems within the environment, the behaviour itself, and personal indexes like interests, values, self-concept, aspiration, and achievement levels (Moos, 1979). This behavioural, environmental, and personal process results in either stability or change in one or all of the behavioural outcomes, the environment, or the personal indexes (Moos, 1979). The reciprocal nature of this framework is in step with *reciprocal determinism* of SCT that postulates the constant influence the person, the environment, and behaviour have on each other and how the change in one component has implications for change in the others. This social ecological perspective is underlined by two key assumptions: (a) people cannot be understood apart from their environmental context, and (b) physical as well as social and organizational environments together must be studied; one without the other significantly diminishes the likelihood of understanding the relevant mediating factors that either facilitate or constrain behaviour (Parke & Chappell, 2010).

The Environmental System. Moos (1979) social-ecological framework describes or outlines the key components or specific variables that exist and form the environment construct, something which Bandura's writings have rarely, if ever, done (Sallis & Owen, 2002). Moos conceptualization of "The Environmental System" categorizes the infinite number of environmental variables into four major domains.

The first environmental domain is *physical setting*, which includes features of the natural environment, including geographic and meteorological characteristics such as weather, temperature, rainfall, and topography. This domain also includes features of the built environment like building and physical design, structure, and architecture, classroom designs, and arrangements of classrooms that are influential to behaviour. Physical characteristics, organization, and structure all serve to influence psychological states and social behaviour (Moos, 1979).

The second domain is *organizational factors*, which includes the organization's size and function. This may include factors such as the size or number of people in the environment, the number of social interactions, and level of interpersonal proximity. For example, educational institutions are often assessed on such dimensions as size, faculty to student ratio, average salary level, affluence and wealth. These dimensions are then related to student behaviour and achievement. Organizational factors are assumed to exert their effect primarily through the type of social environment they help to create (Moos, 1979).

Third is the *human aggregate* domain. This domain represents factors related to the characteristics of the people inhabiting a particular environment. The aggregate characteristics of people in a setting such as average age, ability level, socioeconomic background, and educational attainment are situational variables in that they define relevant characteristics of the environment. This idea is based on the notion that most of the social and cultural environment is relayed through other people. The character of an environment is implied as being dependent in part on the typical characteristics of its members. The impact of the composition variables of a setting is mediated largely by the social climate they help to create (Moos, 1979).

Finally, the fourth domain is *social climate*. According to Moos (1979) this domain is not only the fourth domain of environmental variables, but it is also the major mediator of the impact of the other three domains. Social climate is conceptualized as the perceived aspects of the social environment that influence behaviour, such as the supportiveness of a social setting for particular behavioural choices, or the clarity of expectations around appropriate and inappropriate

behaviours. It is these conditions that are thought to establish an environment's overall atmosphere or characteristics. It's the kinds of things that are rewarded, encouraged, emphasized, the style of life which is valued in the community, and what is most visibly expressed and felt that helps to reveal what is important about a setting (Moos, 1979). The dimensions of this domain have been conceptualized into three broad categories (Moos, 1976).

The first of the social climate dimensions is the *relationship dimension*, which reflects how involved people are in the environment and how much they support one another. According to Moos (1979), an involvement or cohesion dimension is present in every setting and is reflective of how committed people are to a setting and the other people in it, as well as the degree of social transactions between the people in the setting. Attentiveness to activities in the setting, participation, the concern, commitment, enthusiasm, and constructiveness displayed towards activities reflect involvement in a setting. Support is reflected by emotional support, affiliation, and cohesion. Emotional support includes the level of concern for others demonstrated in the setting, the efforts that are taken to aid one another, and the emphasis placed on open and honest communication. Affiliation refers to how well the people in the setting work with and come to know each other, and how well they support and are friendly towards one another. Cohesion refers to the level of friendship and open communication demonstrated between members of the setting and between superiors and subordinates and how helpful and concerned people in the setting are towards one another (Moos, 1979).

The second social climate dimension is *personal growth or goal orientation*. This dimension refers to the basic goals of a setting, how personal development and self-enhancement tend to occur in a given setting, and the direction of this development (Moos, 1979). According to the underlying purposes of a setting, the nature of this dimension will vary from setting to setting. These purposes may include goals such as fostering individualism, independence, achievement, competition, or inclusiveness, to name just a few. The goals are explicit and specific to a particular setting in question.

The third social climate dimension is *system maintenance and system change*. This is how orderly the environment is, how clearly the expectations have been relayed to the people within the setting, how control is maintained and to what level, and how change is dealt with in the setting (Moos, 1979). Organizational systems and strategies, levels of member influence, input, innovation, individualism, and level of practicality, as well as standards of decorum and propriety also reflect the dimension of system maintenance and change within a setting.

The Personal System. There are varied and numerous individual characteristics that can help to explain a person's response to an environment. Socioeconomic status, age, sex, level of ability, interests, values, ego orientation, self-esteem, coping styles, intelligence, and cognitive and emotional development are all examples of background and personal factors (Moos, 1976). These factors can help to determine what an environment means to an individual. They can also affect the psychological and intellectual resources available to an individual that help them to adapt to a setting (Moos, 1979) and handle situations (Moos, 1976). Other categories of personal variables include attitudes, values, traits, expectations, roles, and illness-related factors. For example, the degree to which people believe that ability and skill (rather than luck and chance) have a role to play in their success, can affect the outcome of their effort. Intelligence and level of cognitive development can influence a student's ability to seek or use information and counteract feelings of powerlessness. People with greater responsibilities and more responsible roles tend to perceive the setting more positively than those with little to no responsibility in the setting. How people see the environment and its various components, how they respond and adapt to the environment, and the degree of stability or change they show in an outcome criteria are all partially defined by personal factors (Moos, 1979; 1976).

Mediating Factors: Appraisal, Activation, and Adaptation. Personal and environmental factors have influence on one another, creating what Moos (1979) refers to as the process of cognitive appraisal. The cognitive appraisal of an environment is conceptualized as occurring at two levels. At the primary appraisal

level is the individual's perception of the environment as being potentially harmful, beneficial, or irrelevant. At the secondary appraisal level is the individual's perceptions of the range of coping alternatives that may be available to them. Although both the environmental and the personal systems can affect behaviour directly and their effects are not necessarily mediated through cognitive appraisal, cognitive appraisal is an important mediating factor in most problems where health psychology is addressed (Moos, 1979; 1979b).

When an environment has been appraised and has been assessed as requiring a response, usually activation or arousal will occur (Moos 1979b). Activation prompts effort by the individual to act by adapting or employing coping strategies, such as denying or minimizing the seriousness of the situation, seeking information, asking for help, looking for reassurance and emotional support, learning new skills, setting goals, and/or rehearsing new roles in response to the appraisal. Activation and adaption may impact the environmental or personal systems. The placement of variables in either the coping or outcome blocks in the model is arbitrary because coping skills may mediate the outcome or be the outcome (Moos, 1979).

Children's Physical Activity Behaviour

Although research relating Moos (1979) social ecological framework to the PA behaviour of children is absent from the literature, many reviews of the correlates of youth PA and PIA behaviour have been conducted (Ferreira et al., 2006; Gorley, Marshall, & Biddle, 2004; Sallis et al., 2000; Van Der Horst, Paw, Twisk, & Van Mechelen, 2007). The purpose of this review is to present a summary of children's PA correlates that is in relation to the basic tenets of SCT and organizationally consistent with the structure of Moos (1979) Social Ecological Framework.

Person-Related Factors: Child Characteristics. Personal characteristics and individual attributes of the self have long been recognized by sport and exercise psychologists as key predictors of motivated behaviour in the PA domain (Horn, 2004; Weiss & Williams, 2004). Demographic factors of gender and age are two of the most frequently studied correlates of youth PA (Loucaides, Plotnikoff, &

Bercovitz, 2007). In relation to gender, boys have consistently been reported as being more active than girls (Raudsepp & Viira, 2000; Simons-Morten et al., 1997; Trost, Pate, & Sallis, 2002). In relation to age, following rapid declines in PA at around the age of 12, adolescents have consistently been reported as less active than children (Armstrong, 1998; Pratt, Macera, & Balnton, 1999).

Psychological variables such as self-efficacy and perceptions of competence have also received considerable attention in the youth PA correlates literature. General physical self-perceptions (i.e., physical self-worth, perceived athletic or physical competence) in particular have become recognized as being weakly to moderately correlated with PA levels in children and adolescents (Burkhalter & Wendt, 2001; Craft, Pfeiffer, & Pivarnik, 2003; Crocker, Kowalski, & Hadd, 2008; Harter, 1978; Spence et al., 2006; Weiss & Ferrer-Caja, 2002). Children with high self-perceptions of body, sport-competence, physical conditioning, and physical self-worth are consistently found to be more active than those who have low self-perceptions (Stucky-Ropp & DiLorenzo, 1995).

PA preference and interest, intention to be active, enjoyment, and attitudes are also consistently identified in the literature as positive correlates of youth PA in children ages 3 to 12 years (Biddle et al., 2004; Chen & Zhu, 2005; Crocker et al., 2008; Kohl & Hobbs, 1998; Poulsen & Ziviani, 2004; Sallis et al., 2000). Children who have developed an appreciation and enjoyment for PA, through repeated exposure to varied PA opportunities, tend to be more active than those who have had only an occasional exposure to varied PA (Borra, Schwartz, Spain, & Natchipolsky, 1995; Lawman, Wilson, Van Horn, Resnicow, & Kitsman-Ulrich, 2011).

The Environmental System: At the School Level. Little research has been conducted to investigate the specific features of the school environment that influence youth PA (Biddle et al., 2004, Ferreira et al., 2006). Despite this lack of attention however, the school environment continues to be seen as a critical setting for promoting PA among children and youth because of the school's potential to reach a high proportion of this age category (Lagarde & LeBlanc, 2010). The research that has been conducted in this area does seem to indicate that well-

designed schools and well-implemented school-based programs can improve the PA levels of youth (Ferreira et al., 2006). However, what continues to remain unclear is what it means to be a well-designed school or a well-implemented school-based program in order to effectively promote and increase children's PA.

Health promotion and health education in schools have traditionally focused on teaching children about health and its determinants (Stewart-Brown, 2006) from an individual, behavioural approach (Veuglers & Schwartz, 2010). Over the past several decades however, health promotion in schools has developed and evolved (Veuglers & Fitzgerald, 2005) into integrated approaches that are currently being promoted to effectively help students observe, learn, and demonstrate positive health attitudes and behaviours by providing them with more supportive social and physical environments while at school (Lister-Sharp, Chapman, Stewart-Brown, & Sowden, 1999; Rowling & Jeffreys, 2006). Integrated health promotion in schools has moved towards a more multi-factorial approach that covers teaching health knowledge and skills in the classroom, changing the social and physical environment of the school, and creating links with the wider community (Stewart-Brown, 2006).

Terms such as Health Promoting Schools (in Europe and Australia) or Coordinated School Health (across the United States) are international terms used to refer to an integrated school health approach. In Canada, Comprehensive School Health (CSH) is being used to refer to an integrated approach to health promotion in schools (Veuglers & Schwartz, 2010). The Joint Consortium for School Health (JCSH; a pan-Canadian group of federal, provincial, and territorial health and education partners) describes CSH as “an internationally recognized framework for supporting improvements in students' educational outcomes while addressing school health in a planned, integrated and holistic way” (JCSH, 2011). CSH is viewed as a socio-ecological approach (Naylor, Macdonald, Reed, & MacKay, 2006a) that encompasses the whole school environment. A multitude of possible programs, activities, and services can take place in the school and within relationships between the school, the home, and the community (Alberta Learning, 2002) that are used to change and influence PA and health promotion in the school

setting (Naylor et al., 2006a). At its heart, the CSH approach strives toward linking health and education outcomes by including the instruction, supports, and environment of the school setting as part of a foundation that allows for interaction and cohesion between home, school and community (Gleddie & Melnychuk, 2010).

Within the CSH framework there are three key areas of focus: (1) healthy eating, (2) PA, and (3) mental well-being. The JCSH (2011) identifies four distinct but inter-related pillars essential to providing a strong foundation for CSH: (1) social and physical environments (e.g., safe, bully-free playgrounds, no soft drinks or junk food for purchase on-site), (2) teaching and learning (e.g., quality professional development for teachers, wellness integrated across the curriculum), (3) a healthy school policy (e.g., development of a local school district wellness or nutrition policy), and (4) partnerships and services (e.g., connecting with local health authorities and community groups). The CSH framework is generic in its implementation, enabling issues to be addressed and decisions to be made based on the common principles of the framework, while still allowing for modifications based on local school contexts. As needs from school to school will vary, each school community is able to examine the CSH framework and principles and tailor it to meet their own needs. As a result there is no standard protocol or model for the implementation of a CSH approach (Veuglers & Schwartz, 2010). Whether a school jurisdiction has a well-articulated policy platform or not, each school is considered to be a distinct community with its own priorities for action and varying levels of desire, understanding, and passion for CSH (Baugh Littlejohns, 2006). The result is the establishment of school health promotion programs that are more likely to be complex, multi-factorial, intensive interventions involving activities across the curriculum, school environment, and community. They are likely to be implemented over a long period of time and are more effective in changing young people's health or health-related behaviour (Stewart-Brown, 2006).

A specific example of a whole-school health promotion model that incorporates key aspects of the CSH framework is Action Schools! British Columbia (AS!BC). AS!BC seeks to systematically change school environments through knowledge exchange and multi-level, inter-sectoral partnerships (Naylor et

al., 2006a). It integrates classroom learning, environmental change strategies, and family/community components to promote and enhance children's levels of PA and overall consumption of fruits and vegetables, (Day, Strange, MacKay, & Naylor, 2008; Naylor, Macdonald, Zebedee, Reed, & MacKay, 2006b). Day et al. (2008) conducted a pilot study to evaluate the efficacy of the 12 week AS!BC Healthy Eating intervention on Grades 4 and 5 students' fruit and vegetable intake. Students from five geographically and socioeconomically representative schools received nutritional resources, 1.5 hours of training and support, and engaged in two weekly classroom activities and one monthly tasting activity over the 12 weeks. In addition, school wide healthy vending policies and school meal programs, healthy fundraising policies, and healthy eating campaigns were implemented. Self reported recall of fruit and vegetable servings and variety, food frequency, and willingness to try new fruits and vegetables were collected and the results were compared to those of students from five matched schools who engaged in their usual eating practices. Significant differences were detected in fruit intake, explained by a seasonal decrease in fruit intake by usual practice schools and a coinciding moderate increase at the intervention schools. There was a small increase in the number of servings of fruits and vegetables at the interventions schools, but no change in the willingness to try new fruits and vegetables. Day et al. (2008) suggested that their modest findings may have been influenced by implementation issues, including the short duration of the intervention. The researchers were left to question: (a) the optimal intervention dose and duration needed to effect behaviour change, (b) the dose of activity exposure feasible for teachers to achieve, and (c) the amount of internal support needed for teachers to achieve this dose (Day et al., 2008).

In another study evaluating the impact of an AS!BC initiative on school provision of PA, Naylor et al. (2006b) implemented an 11 month PA intervention involving 10 elementary schools randomly assigned to one of three conditions. Teachers in three schools continued their usual PA and PE practices (i.e., usual practice schools). Those in four schools were given AS!BC training and resources plus weekly access to a school facilitator who provided mentorship, demonstrated

classroom activities, and provided classroom action bins enhanced with specific resources requested by the teachers (i.e., liaison schools). Teachers at the remaining three schools received AS!BC training and resources, and classroom action bins containing basic resources. In addition, a designated “champion” teacher who volunteered to activate and support the rest of his or her colleagues was provided initial training and support by the school facilitator (i.e., champion schools). The findings revealed that teachers who received AS!BC training and resources provided on average 55 to 67 more minutes of PA per week relative to those at usual practice schools. Liaison schools delivered an average of 67.4 more minutes of PA per week and champion schools delivered an average of 55.2 more minutes of PA per week, compared to usual practice schools. Moreover, teachers were highly satisfied with training, support, and the benefits of AS!BC. The results support the integration of PA across the school day and engagement of the teachers and school community to positively alter the school environment, increase PA opportunities, and provide health benefits to elementary school children (Naylor et al., 2006b).

Veuglers and Fitzgerald (2005) conducted a study with a large sample (N=5200) of Grade 5 students from schools across Nova Scotia. Data collected included height and weight, dietary intake, PA, and PIA behaviours of students. This study was conducted in three types of schools across Nova Scotia: (1) schools that had healthy menu alternatives, (2) schools that had coordinated programs for school based healthy eating, and (3) schools that had no nutrition promotion program in place. Results showed that schools with a health promotion program (either those with healthy menu alternatives or those with coordinated health eating programs) had fewer incidences of obesity. In addition, students at these schools had better nutrition habits and overall significantly greater participation in PA when compared to the students who attended schools with no nutrition program in place.

Overall, the provision of supportive physical and social environments as well as high-quality health and PE programs, have been shown to have positive effects on fostering healthy lifestyle habits (Chomitz et al., 2009; Sallis et al., 1999; Tremblay, Inman, & Willms, 2000). Students attending CSH schools have been

shown to have more healthy eating habits, to be more active, and less likely to be overweight (Veuglers & Fitzgerald, 2005; Day et al., 2008). Though CSH shows significant promise in promoting healthy eating and active living among children, a stronger evidence base is needed to support the identification of benefits and best practice of this approach. This evidence will better inform the decisions about devoting more time and resources towards promoting health behaviours at school (Veuglers & Schwartz, 2010) and will help to define what it means to be a well-designed or well-implemented school based program to effectively promote and increase children's PA levels.

Findings from research investigating the correlates of children's PA have begun to shed light on the characteristics of schools that are associated with childhood PA. In terms of the school's physical setting, the availability of sports equipment, the functionability of the equipment, and access to athletic facilities at school have been associated with higher levels of self-reported PA behaviour (Fein et al., 2004). Length of recess and the availability of balls in the playground were identified as correlates of higher PA engagement by Lindquist, Reynolds, and Goran (1999). There are also research findings to suggest that the presence of playground markings (e.g., hopscotch, court and field lines) can significantly and positively influence children's energy expenditure (Stratton & Leonard, 2002). Larger school campuses, school buildings, and play areas relative to the number of enrolled students have also been associated with higher levels of physical activity in youth (Cradock, Melly, Allen, Morris, & Gortmaker, 2007).

In terms of geographical setting, there has been some research undertaken to assess differences in PA between rural and urban school children. However, the evidence of rural-urban differences in children's PA has been mixed and contradictory (Hodgkin, Hamlin, Ross, Peters, 2010). A cross-sectional study of American adolescents (Lui, Bennet, Harun & Probst, 2008) found that rural children had higher obesity levels (16.5%) compared with urban children (14.3%). This study also reported that urban children had higher levels of PIA compared with rural children. There is some evidence to support higher levels of PA in younger rural children with differences attributable to greater time spent outdoors

engaged in unstructured PA (Loucaides, Chedzoy, & Bennett, 2004; Joens-Matre et al., 2008). When studied as a discrete group, suburban children have also been reported to be most active (Joens-Matre et al., 2008; Springer, Hoelscher, Castrucci, Perez, & Kelder, 2009), attributable to the favourable mixture of rural (open spaces, large gardens) and urban (access to facilities, sports clubs, school sports) environments these children have access to. Three Canadian studies, however, have reported no rural-urban differences for PA participation (Bruner, Lawson, Pickett, & Boyce, 2008; Plotnikoff, Bercovitz, & Loucaides, 2004; Tremblay, Barnes, Copeland, & Esliger, 2005). Given the research findings, it is not surprising that Sallis et al. (2000) concluded that whether children live in urban or rural areas per se is an indeterminate predictor of PA. Similarly, a recent review of the available literature assessing differences in PA levels of children living in different geographical areas by Sandercock, Angus, and Barton (2010) concluded that there is no clear difference in the PA levels of children from rural versus urban built environments.

In relation to the organizational structure and functioning of a school, it has been demonstrated that students who participate in a higher frequency of PE classes throughout their school week have higher levels of PA (Cradock et al., 2007). McKenzie, Marshall, Sallis, and Conway (2000a) reported that middle school student PA levels varied with PE class lesson context and class size, and Sallis et al. (2001) reported that PA levels increased with an increase in teacher supervision and facility access at recess. Children in specialist-led PE classes also tend to spend more time in PA, engage in more moderate to vigorous PA, and expend twice as many calories in weekly PE classes than those in PE classes led by a non-specialist leader or generalist (Sallis & Owen, 1997). Some reports indicate that PE programs taught by teachers with more PA education expose children to more vigorous forms of PA and are associated with higher levels of children PA as a result (Luepker et al., 1996; Simons-Morton et al., 1997).

Recess and free time are also associated with the organizational structure and functioning of a school. Access to, and the duration of, recess and free play have been shown to have the potential to positively influence children's energy

expenditure (Fromel et al., 2008; Stratton & Leonard, 2002). However, not all schools ensure recess periods and students are not always active during recess time (Wechsler, Devereaux, Davis, & Collins, 2000). For instance, Sallis et al. (2001) found that fewer than 2% of girls and 6% of boys chose to be physically active during unstructured time that was associated with an absence of environmental support. Children were more likely to be active during recess when larger numbers of activity-related equipment (e.g., balls) and permanent activity structures (e.g. basketball hoops) were available. The introduction of environmental and structural interventions into the recess period has been found to increase PA levels of children (Verstraete, Cardon, De Clercq, & De Bourdeaudhuij, 2006), while the potential for injury, lack of available supervision and inclement weather can also limit PA during recess. Available resources and school staff who are willing to provide support toward intramural, activity, and sport opportunities also impact PA levels of children while at school (Pate et al., 2006).

The social-environmental and interpersonal influences of a school include significant others (peers and teachers) who directly and indirectly influence and encourage activity behaviour (Welk, Schaben, & Shelley, 2004; Welk & Schaben, 2004). As interpreters, supporters, and providers of activity experiences for children, the beliefs, attitudes, and behaviours of significant others increase the likelihood that youth will increase and maintain their activity behaviours (Welk & Schaben, 2004).

Peers are thought to influence activity through a variety of mechanisms in PA contexts, including peer acceptance, perceptions of peer relationships, physical self-worth, and affective responses (Smith, 1999). Weiss & Stuntz's (2004) extensive review of the significance of peers in the childhood PA domain confirms the strong source of self-concept development, emotional experiences, and motivation peers provide to youth involved in PA. Social support provided by peers affects self-evaluations, affect, and motivational processes in PA settings through features such as esteem enhancement, intimate self-disclosure, loyalty, and companionship (Weiss & Stuntz, 2004). Research has also shown that peers are

especially important during early adolescence, the developmental period where PA behaviours tend to decrease (Pate, Long & Heath, 1994).

The influence of school staff on PA and the school environment has been shown to occur through role modelling behaviours, the priority given to PA within the setting, and the decision-making processes used in relation to PA (Barnett et al., 2006). Through relationships established with students, teachers have the potential to promote PA by encouraging and motivating students to participate in activities, thereby reinforcing health behaviours and active lifestyles (Davis, 2003). The relationships and interactions between teachers and students also have the potential to influence the social environment of the school. Blum, McNeely, and Rinehart (2002) have demonstrated that students' connection to their school is largely dependant upon the interpersonal relationships established between students, teachers, and administrators at the school.

Cognitive Appraisal: Child Perceptions of their School's Environment.

There appears to be little knowledge about the relationships between children's perceptions of specific features of the social and physical environments relate, their individual characteristics, and activity behaviours (Salmon et al., 2008). For example, one study that examined the relationships among a variety of health behaviours (including PA) and perceptions of the school climate (e.g., feeling safe, sense of belonging), perceptions of teacher support (e.g., teacher is fair, teacher provides extra help), and perceptions of peer support (e.g., peers accept me, peers are kind) revealed that only peer support was correlated with PA frequency (McLellan, Rissel, Donnelly, Bauman, 1999). Bauer, Yang, and Austin (2004) used focus groups and interviews with middle school children and school staff to examine factors in the social and physical environments perceived to facilitate or undermine students' PA at school. Although descriptive in nature, this study did highlight the potential relation between PA behaviour and students' PA-specific perceptions of the school physical and social environment. Competition, skill level, time, safety, and teasing and bullying were described as major barriers to PA for students in the seventh and eighth grade during PE classes, on sports teams, and before and after school time.

More recently, Fein et al. (2004) assessed perceived availability of environmental resources in the home, neighbourhood, and school, and the perceived importance of these resources in relation to PA and energy expenditure among rural high school students. Perceived availability of resources explained 5% of the variance in energy expenditure or PA level while perceived importance of these resources explained 8% and was the only variable significantly associated with PA. The results support the notion that it is not just the perceived presence or absence of equipment or opportunities to be active that are important to PA levels. Rather, the value (i.e., a child's perceptions of the importance) of the resources and opportunities within the school environment are more important to PA levels.

Through a series of focus groups with children in Grades 6, 7, and 8 at nine schools, Robertson-Wilson et al. (2007) revealed that student perceptions of PA barriers and facilitators centered around the characteristics of their schools (e.g., competition, facilities, sport and PA equipment, PE classes, other school sports, school recess and lunch breaks, school policy, and organization) and interactions with significant others (parents, peers, staff, and school volunteers). A 28 item questionnaire titled "Assessing School Physical Activity Environment" (Q-Space) was developed based on the focus group findings, and subsequent exploratory factor analysis identified the presence of two factors. The physical environment (PE) subscale assesses students' perceptions of facility and equipment conditions, quantity and access, as well as programming (physical education and extracurricular opportunities). The social environment subscale (SE) assesses student perceptions of safety, supervision, encouragement by teachers and peers, quality of coaches, and teacher value of physical activity. Six items that did not load on either factor were perceptions of PA opportunities during school hours, school equipment availability, transportation home, other students making negative comments, seeing others be active, and having an active gym teacher. Robertson-Wilson et al. (2007) reported their regression analyses results showed that higher scores on the PE and SE subscales were linked to both higher levels of participation on school teams and greater use of school equipment during recess.

Summary

Bandura's (1986, 1997) SCT and Moos (1976, 1979, 1979b) social ecological framework are representative of the shift in research focus from individual-level determinants towards broader social, physical, cultural, and economic influences. This shift acknowledges the complexity of the relationships between an individual, their multiple levels of the environment, and behaviour. Understanding that the person, the environment, and the behaviour have constant influence on each other and that a change in one component has implications for change in the others can assist in forming our understanding of when, how, and why youth engage themselves in PA and PIA behaviours.

Clearly there are many factors that have the potential to influence the behaviour of youth PA. There has been a greater focus on targeting these factors within school environments using multilevel frameworks or ecological approaches, so that the multitude of factors influencing youth PA behaviours are taken into consideration in combination with the integral complexities of a school setting. Focusing on the multi level nature of these variables through the use of ecological approaches, such as the CSH approach, is believed to have greater potential to facilitate a broader understanding of the mechanisms of child and school environment factors in shaping PA behaviour. However, further, and more rigorous, evaluations of integrated approaches are still needed to provide evidence and justification that schools should devote more time, effort, and resources to promote PA and health at school. A social ecological exploration into children's perceptions of specific social and physical environment influences at school, and how they relate to and impact their activity behaviours, is therefore justified.

CHAPTER 3

METHOD

Approach to Inquiry

As a way of adding to the literature related to the school's influence on children's PA and PIA behaviours, the purpose of this qualitative case study was to gain insight into the relationships among school setting, student perceptions of that setting, and PA and PIA behaviour. Children's perceptions of various aspects of the school environment were explored to uncover components perceived by children to have influence on their PA and PIA behaviour while they are at school. Qualitative research affords the opportunity to study problems through a process of inquiry into the meanings individuals or groups ascribe to a social or human problem. Data are collected in a natural setting that is sensitive to the people and places under study, and the voices of participants are included in the final written report or presentation (Creswell, 2007). As a result, the ideal choice for this study was a qualitative approach to inquiry because of the methodological fit between the purposes of this study and qualitative methods. The value of a qualitative approach for this research stems largely from the fact that

... if the purpose is to learn from the participants in a setting or a process the way they experience it, the meanings they put on it, and how they interpret what they experience, you need methods that will allow you to discover and do justice to their perceptions and the complexity of their interpretations. Qualitative methods have in common the goal of generating new ways of seeing existing data. (Richards & Morse, 2007, p.29-30)

In particular, qualitative case study methodology was employed. Qualitative case study research has been described as "a qualitative approach in which the investigator explores a bounded system (a case) ... over time, through detailed, in-depth data collection involving multiple sources of information (e.g. observations, interviews, and documents) and reports a case description and case-based themes" (Creswell, 2007, p. 73). In this study, the phenomenon of interest was school's influence on PA and PIA behaviours of children, which evolved into the question

of how do elementary school-aged children perceive their school's environment and its influence on their active and inactive behaviours while at school? By studying one school case in a comprehensive, detailed, and holistic manner, thick and rich information could be gained in order to answer the research question. This detailed information could help to shed light on the wider phenomenon that was of interest, of which the case was an example (Cohen & Court, 2003). Through the use of case study, place and time were attended to, context was brought to the structures and relationships of interest (Merriam, 1988), and a systematic, highly detailed, contextualized analysis of a situation was developed (Yin, 2003).

Through a case study, various active and inactive opportunities available at a school were explored to determine the school factors children perceived as influential to their active and inactive behaviours. Stake (1995) categorizes this type of case study as an *instrumental* case study, where the case is used to learn about something else. In other words, the case is instrumental in accomplishing something other than just understanding the particular case itself. Accordingly, for the purpose of this study, the case of a school was used to study the issue of how a school can potentially influence the PA and PIA behaviour of its children.

Case studies routinely use multiple sources of data and evidence such as tests, surveys, interviews, and participant observation to develop converging lines of inquiry, facilitate triangulation, and offer convincing and accurate findings (Yin, 2003). This approach allows the researcher "... to coalesce and articulate the complex social interactions and relationships of the phenomenon in context..." (VanWynsberghe & Khan, 2007, p. 4). A qualitative case study methodology was used in this study to access school or local knowledge that could help to develop the personal and environmental concepts most suited for the school. Participant children's PA and PIA behaviours were explored from multiple perspectives and at multiple levels to enrich understanding by allowing for potentially new or deeper dimensions to emerge (Jick, 1979).

The Researcher's Role

In qualitative research the researcher is the key instrument of data collection (Creswell, 2007). Because the quality of the data is based on the skill and

discernment of the researcher (Denzin & Lincoln, 2000), it is important to prepare and develop a self-awareness as a qualitative researcher (Patton, 2002). An examination of personal experience and perceptions helps to develop this awareness. This reflexivity illuminates what has guided the research process and the context of perspective through which the analysis of data occurred.

This research project was conducted from a social constructivist world view and operated under the assumption that there is a relationship between the participant and researcher, this relationship always exists, and meaning is formed through this interaction. Because I operated from this point of view, I engaged myself fully in a participatory and collaborative inquiry process and tried to minimize the status and power differentials between my self as researcher and participants as much as possible. In an attempt to accomplish this, I positioned myself in the case researcher role that Stake (1995) refers to as biographer. That is, I was there as someone to observe and chronicle the life of the school, while recognizing that life is dynamic, changing, full of problems, patterns, and phases, but at the same time has its uniqueness. I emphasized that my focus was not to evaluate or judge what was being done, but more to find out what they were doing and how children were responding to this. When I spoke with the children, presented project activities to them, or asked questions of them, I tried to position them as the 'experts' and told them often that I was there to learn from them.

While at the school I took on the role of overt observer where the extent of my participation in the setting varied from complete immersion to complete separation from the setting as spectator (Patton, 2002). I assumed from the outset that the degree of my participation and the nature of my observations would vary along a wide continuum of possibilities (Patton, 2002), depending on the nature and dynamics of the school. The ability to build "in-but-not-in" relationships with participants (Richards & Morse, 2007, p.110), where the researcher attempts to maintain a delicate balance in which he or she is both in (a part of the scene) and out (not dominant), was an important skill to possess in this process and one that I continued to develop over the course of the project.

To help develop the perspective of an insider, I participated as a volunteer (one of the adult roles children were familiar with at school) in order to observe the daily occurrences at this school. I made as many authentic attempts as I could to capture not only the planned objective observables in the school setting but also the unstructured, unplanned, and informal interactions that can be difficult to organize or capture. I played games organized for the children or by the children, went on field trips, participated in classroom activities, helped teachers put up displays in the hallways, delivered messages, and ate lunch with the children or the teachers. I tried to remain open to as many opportunities as possible that could potentially deepen my understanding of these students and the environment around them.

My academic journey has always been within the realm of physical education. I have a Bachelor's of Physical Education Degree in Physical Activity Leadership, a Master's Degree in Physical Education, and at the PhD level I have continued my studies framed within this domain. Throughout this journey, I have had extensive training and experiences teaching in the areas of physical activity leadership, pedagogy, PA teacher education, fundamental movement skills, physical literacy, conceptual foundations of movement, and psychosocial behaviour change theory, all in relation to the PA behaviours of children and youth. I have observed and participated with many children and youth in a variety of PA settings, and through this have developed a variety of communication skills. In the two years previous to the undertaking of this project, I also immersed myself in various areas of Qualitative Inquiry. During this time I engaged in an intensive training program in qualitative methodology at the International Institute of Qualitative Methodology at the University of Alberta and was involved in various qualitative projects in preparation for this project. Given my background, I felt comfortable in a school environment, working on a study related to children's PA behaviours. My background and experiences had provided a sense of confidence in my ability to establish rapport in a school setting and to conduct a qualitative project.

Participants

Purposeful sampling (Patton, 2002) was used to select a case school based on two key determinants: (1) the school was likely to provide opportunity to learn a

great deal about the issues central to the purposes of the research; and (2) the school had an enrolment of children in Grades 1 to 6. A rural school with classes from kindergarten to Grade 9 was selected to be the focus of this case study. The school had an enrolment of 115 elementary children in five classes from Grades 1 to 6, with 22 children in Grade 1, 23 children in Grade 2, 20 children in Grade 3, 24 children in a Grade 4/5 split class, and 24 children in a Grade 5/6 split class. All students were informally observed during observations of the school context and setting during Phase 1 of data collection. All children were also invited to participate in the pre-interview drawing activity in Phase 2, but only those drawings completed by the 69 children (i.e., 60% of the total school enrolment) who returned parental consent to participate in the study were retained and copied for research purposes; all others were left with the child's teacher. The consent letters also provided permission for the children to potentially be selected for interviews during Phase 2.

Purposeful sampling was used to identify and select focal children from the 69 children who returned completed consent forms. The approach was similar to a maximum variation sampling approach (Patton, 2002), whereby "any common patterns that emerge from great variation will be of particular interest and value in capturing the core experiences and central, shared dimensions of a setting or phenomenon" (p.235). Specifically, categorizations of PA and PIA behaviour were used as a way to include a wide variation of children across the behavioural continuum. Children's PA and PIA behaviours were conceptualized as existing along and at opposite ends of a continuum of behaviour. At one end, children were identified and categorized as HPA (high physical activity) if their behaviours were representative of high levels of PA and low levels of PIA. Towards the middle of the continuum, children were identified and categorized as XPA (average PA) if their behaviours were representative of average levels of PA and PIA. At the other end of the continuum, children were identified and categorized as LPA (low PA) if their behaviours were representative of low levels of PA and high levels of PIA. During the observations of the school context and setting, 32 children stood out as representing particular levels of PA and PIA behaviour and were noted as potential

focal children. Of these 32 children, 21 were ultimately asked to participate in an in-depth interview and therefore were the focal children for the purposes of this study. These 21 children were selected because they satisfied the following criteria: (a) they were judged by teachers to be developmentally and emotionally capable of participating in an individual in-depth interview setting, (b) they had participated in the drawing activity, and (c) they had returned completed consent forms.

The 21 focal children who participated in an interview included 10 males and 11 females from Grades 1 to 6. One female child from Grade 1 and one male child from Grade 6 participated in pilot interviews, but their responses were not included in the analysis of data. The remaining 19 focal children (Appendix A) whose responses were included in the analysis exhibited varying levels of PA and PIA behaviour: 1 male and 5 females with LPA levels, 4 males and 2 females with XPA levels, and 4 males and 3 females with HPA Levels. Three children were selected from each grade except Grade 3, from which 4 children were selected.

Five female elementary teachers, a male principal, and a female coordinator of school health were also participants in this study to help inform the description of the case (Appendix B). The teachers included four homeroom or classroom teachers and one teacher who delivered the elementary music program and also taught PE.¹

Procedures

Preliminary work to define PA and PIA. The terms physical activity and physical inactivity, and our understanding of them, are somewhat ambiguous (Marshall & Welk, 2008), and these seemingly adult terms may have little meaning for children (MacDougall, Schiller, & Darbyshire, 2004). Prior to beginning the study, child-friendly definitions of PA and PIA were developed with the assistance of a class of 15 Grade 2 children at a school within the same School District as the school chosen for the study. The results showed that these Grade 2 students used phrases to describe PA and PIA that were oppositional to one another, based upon how much energy they used, and descriptive of how they moved when engaged in

¹ One homeroom teacher withdrew her participation from the study and as a result was removed from subsequent data analysis and reporting of this case.

the two behaviours. Words and phrases such as running, playing tag and games, moving, using up energy, sweating, breathing heavy, using lots of my body, and exercise were used to describe what physical activity meant to them. Words and phrases such as sitting, relaxing, hanging out, playing video games, reading, being still, breathing normally, and watching TV were used by these children to describe what it meant to them to be physically inactive.

Based upon the results of this preliminary work, PA and PIA were conceptualized for the current study as being on a continuum of movement. On one end of the continuum is PA that requires higher levels of energy use, a lot of body movements, and use of a large number of muscles. On the other end is PIA, characterized by low levels of energy use, little to no body movements, and few to no muscles used. The conceptualization of PA and PIA along a continuum is consistent with the unifying framework of total energy expenditure (TEE). The degree of full body movement and degree of engagement of skeletal muscles helps to define and distinguish the difference between PA and PIA and, as a result, can be conceptualized as a continuum of movement. According to Marshall and Welk (2008), all forms of movement contribute to TEE, however PA requires a higher rate of energy expenditure relative to PIA, which has a lower rate of energy expenditure.

By discussing the differences between PA and PIA with children in this manner and asking them to provide examples that match the characteristics at each end of the continuum, the definitions of PA & PIA were operationalized in a manner more meaningful to children. Accordingly, *physical activity* was defined in this project as all leisure and non-leisure body movements from the resting position resulting in an increased energy output (Warburton, Whitney, & Bredin, 2006) produced through the utilization of skeletal muscles (Casperson, Powell, & Christenson, 1985, p.234). In child friendly terms: “play, move around and work up a sweat, breathe harder, use lots of your muscles, or get your heart beating faster while you are at school” (definition based upon the words and phrases provided by 15 Grade 2 children, April 2010). *Physical Inactivity* was defined as all leisure and non-leisure behaviours that involve resting positions (e.g., sitting, standing, lying),

minimal movement, low rates of energy expenditure, and little to no utilization of skeletal muscles (Marshall & Welk, 2008). In child friendly terms: “hang out, sit, relax, be still, don’t move a lot, use very few muscles, and breathe slowly or your heart beats normal while you are at school” (definition based upon the words and phrases provided by Grade 2 children, April 2010).

A second purpose of this pilot work was to test both the proposed pre-interview drawing activity and interview guide. Finally, it was also an opportunity for me to develop and practice my interviewing skills.

Informed Consent. Informed and written consent was obtained from adult participants (principal, elementary program teachers, coordinator of school health), children, and their parent/guardian. Children were asked to sign consent forms using the forms of signature outlined by Danby and Farrell (2004). The strategies I employed to help children make decisions about their involvement were those recommended by Dockett and Perry (2007). These included reading aloud to the children an information statement about the research and the informed consent form, discussing any and all questions the children had, providing a period of time for children to think about the research, and allowing opportunities for the children to consult with parents or guardians about their involvement in the research. Assent of the children and consent from the adult participants was reaffirmed prior to each interview. Similar to Flewitt’s (2005, p. 556) strategy of “provisional consent”, I operated on the premise and participants were informed that the agreement to participate was understood to be provisional on participants’ comfort levels, and both the establishment of consent and the option to withdraw were ongoing throughout the duration of the research project. The explanation of participant recruitment is explained on page 38.

Ethical Considerations. Participants were assured the right to privacy and confidentiality, and that the data collected would be used for the stated purposes of this project. To protect anonymity, the names of the participants were removed from each piece of data that was collected as soon as it was feasibly possible. The assurance of confidentiality, however, was a bit more problematic when describing the contextual features of the school site, the roles of individuals within that site,

and when highlighting certain demographics or characteristics of individual participants. There is a slight possibility that participants may identify each other, and that members of the community could identify participants, when reading or listening to the reported findings from the study. However, this possible breach of confidentiality is limited to the school community. Using member checking, I gave participants the opportunity to check the data generated through their participation, as well as how they were represented, in an attempt to lessen the degree of impact of an actual breach of confidentiality.

Other elements of confidentiality (i.e., network confidentiality or third party breach of confidentiality) were constantly monitored. Participants were assured that information gathered from one group of participants (e.g., the children) would not be shared with another group of participants (e.g., the teacher, the principal, the parents) in such a way that individuals could become identifiable by the other group. I was conscious not to disclose sensitive information about one or more participants within a group to another individual or group.

Lastly, the notion of power and the inherent imbalance of power between researcher and participant was a serious and important ethical consideration that was negotiated throughout this research project. Undertaking the research in locations that were comfortable and familiar for the participants, actively engaging the participants within the research plan, assuring the ownership of artefacts created by the participants (i.e., child drawings), coming to the research project from a place of wanting to learn and experience, and positioning myself within the research context as someone who was seriously interested in how the world looks from the perspective of the participant without making dubious attempts to be a participant, were key to negotiating the research space ethically.

University research ethics board approval was obtained (Appendix C), followed by approval from the school district. Data collection took place over 26 weeks via three phases of fieldwork. A summary of the data collection activities and associated timelines is provided in Figure 3.1.

Figure 3.1 – Data Collection Timeline

Data Collection Timeline

Task	Phase 1					Phase 2					Phase 3																			
	January					February					March					April					May					June				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26				
Enter Setting																														
Develop Rapport																														
Observation																														
Identify Focal Children & Recruitment																														
Mapping Activity																														
Student Interviews																														
Transcription & Analysis (student response aggregation)																														
Teacher/Staff Interviews																														

Phase 1: Entrance into the Setting & Observations. The first phase of data collection took place over 5 weeks. The first week was spent getting to know key stakeholders within the school (students, teachers, school staff, and the principal), establishing my role in the setting, becoming familiar with the daily timetable and procedures, and establishing rapport with students and teachers. In addition, students in the elementary grades were given a letter of introduction to take home to their parent or guardian (Appendix D), and a letter of introduction was given to each elementary teacher (Appendix E). To minimize the ‘sticking out like a sore thumb syndrome’ (Patton, 2002), I entered the setting at the same time the participants were returning from the Christmas break. I made efforts to situate myself within the setting and build relationships with students, teachers, and staff so that they felt comfortable having me, a researcher, present in their school. I began actively participating within the school during PE programs, during recess, school events, field trips, and classroom activities, as well as assisting teachers. In effect, rapport building was ongoing over my six months at the school through contributions to the school community in a variety of ways that were not necessarily directly related to the purposes of the project (e.g., sharing my connections with various community resources, participating in staff workshops, meetings, school projects, celebrations and events).

During week 2, I began the assessment and documentation of the environment, completed a first-level description of the scene, set the parameters for the research, and noted overt characteristics of the school and its members that related to PA or PIA behaviours. My observations of the environment continued throughout my time at the school and were guided by Moos (1979) four major environmental domains of the Environmental System. Specifically observations of the environment were related to physical setting, organization, human aggregate, and social climate. Assessment of *physical setting* included the determination of the number of active and inactive spaces, how these spaces were used, type and the variety of playground apparatus, variety of playground apparatus, equipment variety and choice, amount of equipment, facilities for equipment storage, and weather. *Organizational factors* were observed in the total number of students in

the school; the proportion of students who remained at school during lunch time; school policies; the clarity of expectations around PA and PIA behaviour; time of access to playground, facilities, and equipment; frequency of student exemption from gym class; school schedule; and, PE schedule. *Human aggregate* factors were comprised of an in-depth look at the PE and health-related training of the teachers and principal, their years of service as a whole and at the school, and their personal participation in and value for PA. Finally *social climate* was assessed by focusing on relationships, personal growth or goal orientation, and system maintenance and change. I observed aspects of the environment such as how involved various members of the community were in PA initiatives at the school; levels of participation; supportiveness of the setting for children's PA behaviour; the kinds of things that were rewarded, encouraged, and emphasized, and; the style of life that was valued and most visibly expressed as being important to the school community.

The observational data (including context, ideas, impressions, and reminders) were collected and recorded as field notes and memos that were then transcribed, integrated, and transformed into research journal entries. Notes and memos included comments I wrote about what I perceived to be important activities and events within the school while looking for PA and PIA behaviours, and interactions that occurred at school in relation to these behaviours. Observational notes also included unplanned or random interactions with children, parents, teachers, and administrative or support staff that I perceived as significant and important to the purposes of the study. Informal conversations with participants provided an invaluable source of contextual information that assisted in making sense of participant meanings (Dewalt & Dewalt, 2002). In addition, these conversations also served as a way of member checking (see Rigor p.54).

To build toward the development of a thick descriptive case study, the essential features or characteristics of the school environment in relation to PA and PIA behaviour were extracted, synthesized, and recorded on a daily basis. I used a daily process of spending time at the school and writing field notes and memos in a small notebook while there. At the end of each day I reflected on that day, added to,

and thickened the notes by filling in gaps and adding further recollections. Finally, I condensed the notes and memos into one journal entry per day. This process not only allowed me to document a large number of experiences and observations, but it also enabled me to be reflective about the data being recorded. It became a continuous circle of daily readjustment, re-evaluation, and re-focusing based on the summary of observations I had compiled the previous day (Spradley, 1980). As a result, my observations became increasingly narrowed and focused over time. Themes or categories began to emerge, further contributing to the narrowing and focusing of my observations.

Beginning with week 3, I spent three weeks engaged in informal observations of PE classes and recess periods to identify children representative of varying levels of PA and PIA behaviour at school relative to their peers. Students who stood out during informal observations as representing a wide range of PA and PIA behaviours were identified as potential focal children. In week 5, during visits to each elementary classroom, consent letters were sent home with all elementary students at the school (Appendix F). Information letters and consent forms (Appendix G) were given to the teachers during week 5. Impromptu conversations with teachers at convenient times during the school day were used to ask teachers for their permission to conduct the mapping activity in their classrooms, participate in a formal interview, and complete a short demographic survey (Appendix H).

Phase 2: Interviews with Children. Phase 2 of data collection began in week 6. Information provided by the children about how they perceived and gave meaning to their PA and PIA behaviours was collected in a two-step process that included a pre-interview activity and the interview itself.

For the pre-interview activity, children in each of the elementary classrooms were asked to complete two drawings: (1) “the places at your school (both inside and outside) where you can be physically active; places where you play, move around and work up a sweat, breathe harder, or get your heart beating faster” and (2) “the places at your school (both inside and outside) where you can be physically inactive. Places where you hang out, sit, relax, are still and breathe slowly or your heart beats normal”. This activity provided a way to get to know the children and

build trust, create a relaxed atmosphere, and facilitate a friendly child-centred conversation (Ellis, 2006). Drawings have been recognized as a meaningful form of expression for children (Malchiodi, 1998). They enable children to teach the researcher about the context of interest, and provide an opportunity to recall and select memories, experiences, and/or topics that are of importance to them (Ellis, 2006). Through drawings children are able to express feelings and perceptions that are difficult to verbalize (Silverman, 2001). They have the potential to evoke narrative accounts both through what is present in the image and the child's response to what is in the image (Cummings, 1986). According to Ellis (2006), stories about their drawings can be useful with children as young as 7 or 8 years of age. Typically by this age, language and communication skills are well established and children are able to convey their thoughts and emotions, can understand the perspective of others, and can describe the actions of others (Stone & Lenmark, 1990).

The pre-interview drawing activity employed a mental mapping technique similar to that used by Holt et al. (2008) in their project with children aged 6-12 from Grades K to 6 who were asked to "draw a map of all the places in your neighbourhood where you can play and be physically active" (p. 7). Mental mapping combines spatial and environmental cognition (Kitchin, 1994) as a process of forming mental representations of one's spatial environment (O'Laughlin & Brubaker, 1998). Mapping activities have proven valuable in studies of children's perceptions of their environment (Morrow, 2003) and can uniquely convey the diverse, contextual, and spatial sense of children's PA environments (Darbyshire, MacDougall, & Schiller, 2005). Children as young as four years old have exhibited mapping abilities that include the perceptual and scale interpretation abilities needed to read and understand simple maps (Blaut, Stea, Spencer, & Blades, 2003). Mapping exercises allow children to graphically portray activity, places, and spaces in their lives, to visually site themselves within their social environments, and to expand freely and individually on their verbal accounts (Darbyshire et al., 2005).

Each elementary classroom at the school took part in the mapping activity during the sixth week of data collection. During one class period (approximately 45 minutes), instructions were written on the whiteboard and children were given two large pieces of paper. Children were asked to use supplies such as felts and crayons in their desks (though I also carried extras of these with me) to color their maps if they wanted. Before starting the children on their drawings, an explanation of the task was given to the children that included a discussion of what a map is and the meaning of PA and PIA (Appendix I). The children were instructed to raise their hands if they needed assistance and I circulated around the classroom throughout the activity providing assistance as needed. They were periodically reminded that the spaces they were drawing could be inside and outside, that they should be drawing two maps, and that they needed to label the spaces they drew. The children were also asked to write or print their names on their maps in pencil prior to handing them in. Although all children in attendance at the school participated in the activity ($n = 99$; 16 children were absent from their class on the date the drawing activity took place), only the maps drawn by 53 children who had parental consent and provided assent were retained.

The second component of Phase 2 took place during weeks 7 to 10 of data collection, and involved the 21 focal children. The two pilot interviews were completed, as well as seven interviews with children who represented HPA behaviour, six interviews with children who represented XPA behaviour, and six interviews with children who represented LPA behaviour. For each level of behaviour, at least one child from each of Grades 1 to 6, participated in an interview.

Individual interviews were conducted at the school in a meeting room assigned to me as a work space. This room was familiar to the children as it was otherwise used by the school counsellor and educational assistants as a reading room space. It contained a long table that seated six people, shelves with books on it, carpet on the floors, and had a large shuttered window that looked out towards the library.

All interviews were recorded using a digital voice recording device and very brief notes were taken during the interviews. Prior to starting the recorder, permission was sought from each participant to do so. A combination of semi-structured and informal conversational styles of interviewing (Patton, 2002) was used to talk with the children about their PA & PIA behaviours, and the possible factors that they perceived as influencing these behaviours. The children's drawings were used as a rapport building tool as well as a starting point, catalyst, and contextual reference point for the interviews. The conversational interview offers "... flexibility to pursue information in whatever direction appears to be appropriate, depends on what emerges from observing a particular setting or from talking with one or more individuals in that setting. Most of the questions will flow from the immediate context" (Patton, 2002, p. 342). The interviews were semi-structured in that the basic components of SCT (person, environment, and person) and the major components of the environmental system outlined by Moos (1979) Social Ecological Framework were used to prepare a guide of open-ended and probing questions (Appendix J). The interview guide consisted of 37 potential questions but not all of the questions were asked of every child due to the highly conversational nature of the interviews.

Conversations began after explanation of the interview process informing the participant that they did not have to answer anything that they do not want to, that there were no right or wrong answers, that I was interested in learning from them, and after reestablishment of assent for participation had occurred. General questions about the drawings recommended by Malchiodi (1998) were asked first, followed by open-ended probing questions.

To explore behaviour, children were asked to talk about how active or inactive they felt they were, how often they engaged in the behaviours they had drawn, ways in which they symbolized their PA & PIA behaviour in their drawings, and to describe any activities they had drawn on their maps. To explore personal characteristics, children were asked to talk about the activities they like and do not like, as well as their personal reasons for these preferences. Questions about perceptions of personal control over their participation and discussion about

the choices they would make in a given hypothetical circumstance were also pursued, to explore the factors that played an important role in the activities they chose. Environment was explored through questions that probed the objective factors external to the children but within and around the school environment, that may or may not affect their PA & PIA behaviours. Questions about the social environment (e.g., who is in the picture? how often does this person do the activity with you? who initiated the activity?) and the physical environment (e.g., the size and number of active spaces, where and what these spaces were, the availability of equipment in these spaces) were also asked.

The interviews lasted between 16 and 51 minutes, with an average length of 35 minutes. Key points and a summary of the mood or essence of what was said were jotted down after each interview concluded, as a supplement to the audio-recording.

Phase 3: Interviews with Teachers, Coordinator of School Health, and Principal. Phase 3 of data collection occurred between weeks 16 and 26. Interviews were conducted with the principal, one coordinator of school health, and five teachers who were involved in the elementary program, taught elementary classes, or were considered to be key in providing PA to the students (i.e., during PE, recess, intramurals, or any other school initiative). The purpose of these interviews was to add to and thicken the description of the case. The interviews took place individually either in homerooms, offices, or in my work space, but ultimately it was left up to the adults to choose a space where they felt comfortable and that was free from distractions. Again, a combination of semi-structured and informal conversational styles of interviewing (Patton, 2002) was used. The interviews were intended to explore inconsistencies, confusions, or gaps resulting from the interviews with children and my own personal observations, to more fully inform what the children had told me from an administrative, implementational, or instructional point of view. Questions posed also probed the perceived value of PA at the school, struggles and successes with promoting PA, school policies, issues surrounding budget and resources, perceptions of the level of PA and PIA behaviours of the students, and what the adult participants perceived to be the key

influences of PA and PIA behaviour at their school to further inform my observations of the school setting (Appendix K).

The interviews lasted between 38 and 81 minutes, with an average length of 56 minutes. Again, key points and a summary of the mood or essence of what was said were jotted down after each interview concluded, as a supplement to the audio-recording.

Data Analyses

Data were created by preparing transcripts for each interview, and by summarizing the notes related to each interview and observational journal entry. To help store and manage the data, the qualitative software program NVIVO 9 was used. All observational notes and transcribed interviews were imported into the program. As well, it is important to note that data collection and analysis was a simultaneous process during the course of this study as recommended by numerous researchers (Mayan, 2009; Merriam, 1988; Patton, 2002).

To analyze the interview and observational data, a process of content analysis as described by Patton (2002) was used. This process involves analyzing the core content of both interviews and observations by coding, categorizing, and labelling the primary patterns or themes in the data (Patton, 2002). In generating categories, I began by reading and rereading the data I had collected and looked for words, phrases, and patterns that tended to repeat themselves or stand out. I then wrote down words or phrases in the margins of the field notes and transcripts to represent these topics and patterns, and these words and phrases became my categorizations. I also recorded these categorizations in a notebook that was organized into three sections (namely “the children”, “the teachers”, “me”) and made reference to the identifying file number, page, and line number.

As the categories seemed to emerge, I created category names that represented the concept being illustrated. Sometimes the words or phrases from participants were used but often they were more abstract codes denoting more than the example itself. These categories then became the means of sorting the descriptive data I collected over the six months. These categories were also used to

create Nodes in the NVIVO program to see the distinctions and the relationships between the categories.

Subcategories or themes emerged when I sorted or clustered the preliminary categories I had identified. Clustering is essentially a sorting process where the researcher asks if two units of information are alike in any way and can be clustered together or if it makes more sense to separate them. Clustering allows for movement towards higher levels of abstraction by analyzing, resorting, and sifting through the clusters themselves (Merriam, 1988).

To complete the data analysis, an abductive process (Levin-Rozalis, 2000) of interpretation of the interview data was completed. The method of abduction combines the deductive and inductive models of proposition development and theory construction. The observer records the occurrence of an event or behaviour (inductive) and then works back to reconstruct the events that are related to the behaviour in question (deductive). Once I began to identify issues and themes within the data, I was able to explore the literature related to SCT and the issues I had identified. By going to SCT and the social-ecological research literature, I attempted to provide explanations of, and propositions for, the inductively identified variables children perceived as enabling and constraining their PA and PIA behaviours. I found that this enhanced my analysis as I was able to broaden my understanding of the issue at hand. This interplay between reading the literature and doing an analysis of it also allowed me to gain an integrated view of SCT and ecological theory that would enhance the conceptual richness of my study.

For the purposes of answering the second question related to the issue at hand (namely, how are perceptions of the school environment similar or dissimilar for children with different levels of PA and PIA engagement?), specific questions from the student interviews were used to create categories of data similar to what Stake (1995) refers to as a categorical aggregation. For each category of data, a table of responses was created according to level of PA and PIA behaviour (i.e., HPA, XPA, or LPA) and Grade. These tables provided a visual summarization of the children's responses and were used to assist in the examination of similarities

and differences between children according to how I had categorized their PA and PIA behaviour.

Relationships

As a social constructivist I was interested in the experiences and sense-making of children in relation to their PA and PIA behaviours while at school. As a result, I committed myself to a narrative approach and research that required dialectical engagement and the development of relationships with participants (Ellis, 2006). Participants in this study were asked to engage in this sense-making process and were encouraged to share their own experiences, contribute to the research situation, and assist in the interpretation of their experiences (Dockett & Perry, 2007). The co-construction of interpretation and knowledge, and the work that was done with the participants as a result, was highly reliant on ongoing interactions and relationships that were developed with the people within this research setting (Dockett & Perry, 2007).

Although I could not predict what relationships I would form, how important these relationships would be, or how difficult it would be to end these relationships at the conclusion of the project, I prepared and expected that the new relationships developed throughout the project would likely make it difficult to leave the field at the end of the research process. In collaborative research, developing relationships is part of the process of research and it is inevitable that these relationships will have deepened. An exit or disengagement strategy is needed (Patton, 2002) to soften the sense of loss that may be experienced by all of those involved in the complex relationships that form during fieldwork once the relationship comes to an end.

In an effort to guard against and soften the possible feelings of loss, the monitoring and clarification of expectations throughout the research project is recommended (Cutcliffe & Ramcharan, 2002). I established an exit date with the school at the outset of the project that coincided with a natural break in the school calendar. The principal and I determined together that my end date would be at the end of the school year, during the last week of June. This exit time frame gave me clarity and allowed me to prepare myself emotionally for the departure in that I

knew it was coming. It also allowed me to prepare, be consistent and clear with the children when answering their questions, like how long I was going to be at the school, when I was leaving, or if I would be back next year to soften the sense of loss they may have experienced.

Ramcharan and Cutcliffe (2001) state that researchers should approach their research with an “ethics-as-process approach” and be actively aware of the ethical issues (e.g., ending of relationships) that are possible and can arise at any point in the research process. I am grateful that I took the time to at least contemplate the issue of departure. Leaving the school on Tuesday, June 28, 2011 was difficult, but I think this difficulty was lessened by being open and clear about my departure with the participants and with my self.

Rigor

The traditional concepts of reliability and validity are often problematic in qualitative research because of the quantitatively associated assumptions about the nature of research and data (Dockett & Perry, 2007). Validity in research deals with the accurate interpretability of the results (internal validity) and with the generalizability of those results (external validity). The underlying assumptions here are that there is only one accurate and unchanging interpretation of results and that this interpretation can be applied across populations (Wiersma & Jurs, 2005). However, rather than seeking one truthful perspective from children, I assumed and accepted that children would have many different perspectives on one issue and that these perspectives would be reflective of the context in which the interviews took place or the larger context within which the interaction or behaviour occurred.

Yin (2003) argues that case study’s intentions are not to engage in statistical generalization, but rather in analytic generalization. Analytical generalization is a process where the case study researcher strives to generalize the results to a broader theory, where explanations are built and patterns are constructed in relation to that broader theory. Rather than trying to seek the generalization of my results across all schools, I conducted my research using SCT as a guide, observed and collected data in relation to a social ecological framework, and built, constructed, and reported the patterns and explanations of the children’s PA and PIA behaviours in

relation to the theory and the framework. I tried to construct the case in a well-argued, logical, well-documented, thick and richly detailed manner so that my work would be accessible and open to a range of interpretations for those who read it.

Though a great deal of variability is expected in a naturalistic form of research such as case study, the work should be consistent and dependable. Dependability is influenced by the quality of field notes or transcripts based on raw data such as audio recordings. The use of prolonged and persistent field work, multi-method strategies, and the consistent and persistent recording of data (McMillan & Schumacher, 2006) were all strategies employed in this project to promote quality. As well, data were analyzed in multiple ways. Through constant memo writing and keeping separate notes in a journal, I kept track of what and when, where, how the data was collected, kept notes on personal thoughts outside of what was actually being said and observed, and was in a constant process of differentiating between what I was observing and my own personal biases that were arising.

Furthermore, I also worked closely with my thesis advisor and members of my supervisory committee so that my findings were reviewed through a process of peer review (Thompson, 2004). I consistently involved participants in reviewing the findings and data collected as a form of respondent validation (Thompson, 2004) and carried out my research in a real life situation using methods that included direct observation (Polit & Hungler, 2003). Prolonged periods of time were also spent with the individuals under study so that data was collected over a longer period of time thus enabling variables to be observed and recorded at several points in time (Woods & Catanzaro, 1998).

Rigor was also established through the use of triangulation (Mayan, 2009), where multiple sources of data can illuminate or disconfirm emerging patterns and explanations (Thompson, 2004). Methodological triangulation (Stake, 1995; Yin, 2003) is a way of checking and balancing bias through the use of multiple sources of data. This process brings data together to both confirm and disconfirm claims, interpretations, and assertions. I employed theoretical triangulation where I compared data and results back to related theory (Yin, 2003). I utilized a form of

investigator triangulation where the data and results are taken to the participants and they are given opportunity to assess and have input in regards to the data (Stake, 1995). Member checking was completed with 4 adult participants and 7 child participants during a return visit to the school. I engaged in one on one conversations with these participants and spoke with them about descriptions of the case and direct quotes intended for use in the final report. I asked participants to check for language and accurate representation. I engaged two adult participants in member checking through email. As a result of the member checking I cleaned up two quotations from two separate adult participants. One adult participant was uncomfortable with how often she said the word like and asked me to remove the word from her quotation. The other adult participant wanted to elaborate upon a statement within her quotation. I also became more aware and cognizant of particular words and phrase perceived as evaluative or judgmental by participants and attended to their concerns by rewording where appropriate in the document with the guidance of the participant.

Establishing rigor also requires an awareness of the self (Lichtman, 2006). Using the principle of reflexivity, I engaged in a constant state of examination of how my subjectivities as a researcher were impacting the research process and vice versa. I clearly recognized, acknowledged, and positioned myself within the research process (Bryar, 2000). I engaged constantly in a reflexive analysis of my own preconceived notions, biases and influences as well as the potential influences that existed between myself and the participants and on the place of my own perceptions and biases in what I was seeing, collecting as data, analyzing, and ultimately reporting. Knowing my own values by understanding my own ontological, epistemological, and methodological stances all influenced what I value as a researcher and the work that I did. These are all important to giving credibility to the research project (Greene, 2007).

The last criterion with which to establish the rigor of this project is through the consideration of one very common concern expressed about research with children. This concern relates to the extent to which the findings are the results of the participants in, and conditions of, the research and not the result of other

influences, biases, or perspectives. There is often a sense that children will tell researchers what they want to hear, or that their responses change often. Dockett and Perry (2007) argue that this is not a phenomenon restricted to children, and they suggest that whether or not we can trust what the participant is telling us is a question for all research. In order to make judgments about the nature of responses, Dockett and Perry (2007) recommend the researcher's involvement in ongoing interactions within the context of the research, the building of relationships that support this involvement, the researcher knowing children and them knowing the researcher, involving children actively in the research process, and examining the research in a variety of ways as essential to constructing meaning and interpreting the data. I implemented these strategies in the approach I took when interviewing the children, when I was observing the children, and during the day to day interactions I had with the children.

CHAPTER 4

FINDINGS PART I: The School

The findings of this investigation are presented in two chapters. This first chapter provides an introduction to the school and a detailed description of the school's physical setting, organizational and human aggregate factors, and social climate, to describe environmental components of the school influential to children's PA and PIA behaviours. Throughout the presentation and description of the context of this case, contextual variables of the school that appear to influence or interact with PA and PIA behaviours are highlighted. The second findings chapter provides a description of the children at the school and the perceptions of focal children in relation to factors of the school environment that were influential to their PA and PIA behaviours.

Description of the Case

The school under study was located in a small hamlet in Western Canada, about a 15 minute school bus ride (19km) from the nearest major urban centre. This small rural community, or hamlet, was a community made up of homes, small acreages, a diner, service centre, day use park, community hall with seniors' centre, a county road maintenance station, and the school itself. As of 2009, the population of this hamlet was approximately 300 inhabitants. The school offered Grades K to 9 and was one of 16 schools in a relatively small denominational school board, with a total enrolment of approximately 5,300 students in five communities.

Upon the commencement of this research project, the school was in the third year of implementing a CSH approach towards improving the nutritional and PA habits of the entire school community (parents, students, teachers, and staff), by increasing knowledge about healthy living and creating a healthy school environment. Implementation began during the 2008-2009 school year around the same time that the School District was planning and developing its student and staff wellness initiative.

Activities related to the CSH approach, implemented at the school during this school year, were identified by the school district as: healthier options in

vending machines, weekly healthy hot lunches, indoor gardening programs, scheduled daily PE activities, active assemblies and events, and implementation of the reverse lunch-recess. The school was also provided with a full-time staff member on-site at the school to coordinate and facilitate changes to the school environment. Working with everyone in the school community, this staff member (referred to from this point forward as the coordinator of school health or CSH) implemented various activities and strategies to impact students' knowledge, skills, attitudes, and behaviour to improve children's health. In the spring of 2009, the school received a provincial award recognizing their exemplary achievement under the guidance of the CSH, for the promotion of healthy lifestyles for school staff, students, and the community-at-large.

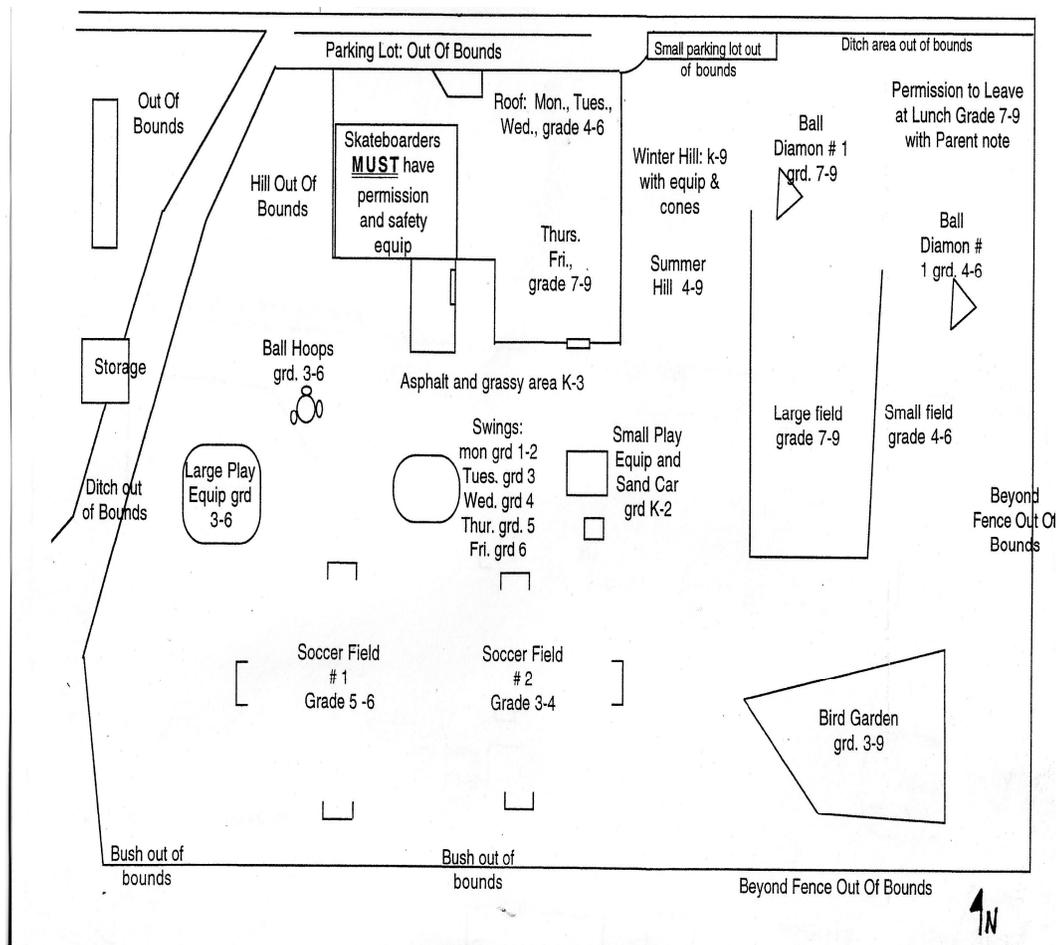
The Physical Space

The school's outdoor playground space is shaped like a backwards capital letter L that wraps around the backside of the school from east to west (Figure 4.1; generated and provided by the school secretary). The outdoor or playground space felt both large and expansive to me the first time I saw it. I immediately saw varied opportunities for children to be PA here, because of the numerous treed areas, wide open spaces, smaller enclosed spaces, permanent structures, hills, and mounds that made up this space. The roof of the school was a flat black tar surface, ideal for games like hopscotch and foursquare. There were also two basketball hoops and a storage room for track and field equipment up on the roof. Access to the roof was from a hill that starts from the east side of the playground. This side of the playground was reserved mostly for 'big kids' in Grades 4 to 9, though with permission children from younger grades could use the hill and play on top of the school. This side of the playground also had two large baseball diamonds and fields. A large open field with a small dip or mound that lowered down into the ball diamond was located at the eastern edge of the playground.

The south side of the playground, where the younger children of Grades K to 3 mostly played, had three soccer fields with permanent goal structures marking out their boundaries. Two were medium sized soccer fields that ran north to south and one large soccer field ran east to west. The soccer fields were reserved for

children in grades 3 to 6 to play on during recess time. Also on the south side of the playground were two play areas with playground equipment. To the far west of this area was the 'big kids' playground reserved for children in Grades 3 and above. This larger playground, set in an enclosed sand area, had ladders, poles, 2 different slides, monkey bars, and bridges. Nearer to the middle of this area, almost straight out the south exit of the school, was the 'little kids' playground reserved for children in grades K to 2. Set within an enclosed sandbox, this smaller playground had a slide, a tube, a pole, a step ladder, and a metal car structure for the kids to play on. In between these two playgrounds was a swing set with four swings set within an enclosed sand box, along with a ball hoop. To the very south east edge of the playground was the 'bird garden' that had a small picnic area, with table and garbage can, set within a small stand of trees.

Figure 4.1 – The Outside Space at the School



My time at the school spanned across the winter and spring seasons and weather had an impact on the use of this space. Winter of 2011 was very cold with both record breaking temperatures and snowfall amounts. The first of many indoor recesses began on Monday, January 11, 2011. This was also my first snow day (30 cm snowfall, buses not running, and children not allowed outside when day time temperatures are below minus 20 degrees Celsius including the effects of wind chill). The colder temperatures and heavy amounts of snow during this time made going outside and using the playground space for recess or classes infrequent, as reflected by a girl in Grade 1.

I: How often do you get to go outside?

P(18): Twice a day until the bell rings.

I: And when was the last time you were outside?

P(18): Aaahhhh, I don't remember. A couple of days I think.

I: Has it been awhile?

P(18): (Laughs). Yeah. I can't remember. Not this week.

I: Why can't you go outside?

P(18): When it's too cold and (says principal's name) won't let us because we could get frostbite.

The colder temperatures and heavy amounts of snow during this time also made going outside and using the playground space difficult, as reflected by a boy in Grade 3.

I: How often would you say you get to use the soccer fields outside?

P(19): Twice every day. If it was in the summer. Twice every day.

I: How about recently? How often have you used the soccer fields in the last month or so?

P(19): We never done it. We don't do it in winter, just in the summer.

I: How come?

P(19) We only use soccer balls when there's no snow. Well in the fall time we do, like (pause) every, well, every time, well, well every year except for when it's winter. When there's heavy snow.

During times over the colder months of January, February, and March, when they were able to go outside, the children chose what to do during their two daily recess times (15 minute AM recess from 10:07 to 10:22 am and a 25 minute LUNCH recess from 11:54 to 12:19 pm) and the type of PA varied. There were usually two teachers on supervision (one for each side of the playground) with educational assistants helping out during each recess. There was no structured programming. Inside both elementary wing exits from the school, there were big blue equipment bins with equipment that children could play with outside. There were soccer balls, pylons, ankle skipping ropes, sand toys, and Frisbees.

A girl in Grade 4 described the outside active space and how this space was typically used:

I: What are some of the things you can do outside?

P(7): I can swing on the swings, you can go down slides, we have big fields, you can play soccer, there's we have a monkey bar set, we have this glider thing, we have this thing that you can bounce on type of thing, we have sand, yeah we have a lot of things we can do.

I: I haven't seen the sand yet. I've only seen the outside space with snow on everything.

P(7): (Laughs) The sand. Do you know where the jungle gyms are? The sand is underneath them under the snow.

I: Do you play any games outside?

P(7): Outside everybody is running around and they are having fun and so in the school there's not as many as active places. Basically besides the gym it's more a sitting place and listening place type of thing. Being outside it's not really a listening sitting place, you can move around and play and all that.

I observed a variety of spaces, equipment, and activities out on the playground as well. I saw children "running up and down the hill on the east side of the school, children lining up next to a teacher on supervision near pylons they had set up at the top of the hill to take their turn sliding down on sleds they had brought

from home, some standing and talking near the ball diamond #1 fence, and a large group of kids playing with a ball on top of the school” (Tuesday, January 4, 2011). “Children playing with match box cars in the snow, playing on the swing set, chasing and playing tag, digging and crawling around in deep trenches built in the snow” (Tuesday, January 25, 2011). “Students playing kick baseball with a soccer ball, children burying each other in the snow, building snow forts, jumping off the edge of the hill into the deep snow, playing imaginary make believe games, and reading a book just outside the entrance door” (Monday, March 7, 2011). During the weeks of January 17 to 21 and January 24 to 28, 2011, I also observed Grade 3, 4/5, and 5/6 teachers making attempts at going outside with their students for PE and during regular class times to snowshoe (the school has one set of 26 ‘one-size-fits-all’ blue plastic snowshoes), play games like capture the flag, and have snowman building competitions.

Once the weather began to change and the temperatures began to rise, everything about the use of the outside space began to change as reflected in a journal entry:

I spent this recess outside near the primary elementary side of the playground. I stood up on the hill just to the left of the south entrance to the school where I could see both sides of the playground. The weather is beautiful!! The sun is shining and feels very warm. The children and the teachers feel like they are much happier to be outside on a day like today. The talk of spring is everywhere. I have not heard a single complaint about not wanting to be outside. It is warm and really nice to be out here. There seems to be a lot of PA and a lot of different activities going on. The children seem to be less limited to what they can do because of the warmer temperatures (less clothing on, the equipment they play with is not as hard, and it appears easier for them to move around as the snow has been packed down quite a bit). At the Grade 4 to 6 ball diamond there is a game of kick ball going on with 20 kids involved. There are Grade 5/6 children running down the hill. Far out in the trees on the north east edge of the playground are some boys playing in their snow forts. Right in front of me are Grade

one students rolling down the hill rather than sledding. I can see kids playing in the large snow fort just on the other side of the metal car. There feels like a lot of energy out here today. There are children on the swings, the large playground apparatus, and the small apparatus, everything looks full and the children look like swarming bees. When the bell rings to go back into the school there is little hustle going on. It is as though they really don't want to go back inside because it is so nice out here. There is way less urgency to get back into the school than when it is colder outside ... What a transformation" (Tuesday, March 15, 2011).

As the children were lined up by their grades just outside the south exit, I asked one of the boys at the back of the Grade 3 line if he was liking being outside in the warmer temperatures. He replied, "This is awesome!" with a huge smile on his face, jacket opened up, and big red rose coloured cheeks. Previously, during the colder temperatures, when I had asked this same boy if he liked outdoor recess and being outside he replied, "I hate going outside. It's too cold to do anything."

I began to see footballs appear on the playground, mini games of soccer popping up. I also saw "children play on the big kids' playground, girls play in the snow collecting and hiding ice chunks they call crystals, and boys play mini sticks hockey just to the right as you come out of the south exit" (Wednesday, March 23, 2011), there was "a lot more running, vigorous games of tag and catch, and the PA levels really start to pick up" (Tuesday, April 19, 2011). As the weather continued to warm and get nicer I started seeing "sitting on the side of the hill reading books, talking with each other, and taking in the warm sun. Relay races back and forth across the top of the school, and children playing with stuffies and Barbies. Some log rolling down the hill and playing small games of 500 using hacky sacks" (Thursday, April 21, 2011).

As the snow disappeared from the playground, the mud and grass dried and temperatures stayed warmer. Teachers began bringing students outside during class times much more frequently. In a journal entry for Tuesday, April 26, 2011, I noted that an elementary class had come outside for PE for the first time since my arrival

at the school and "... practiced the 'ready, set, go' part of sprinting as well as the standing and running long jump, and running ball throw, events in the upcoming track and field day. After they practice these skills, the teacher lets them set up a game of soccer or play on the big kids' playground". During the last period of this same day, Grades 1 and 3 also came outside during their scheduled PE class and one of the teachers told me "that it will be pretty much outside for PE everyday now and it'll be rare that they'll be inside for PE from now until the end of the year."

During PE classes outside from April 26 to June 28, 2011 I observed practicing of track and field events (high jump on the roof of the school, running events on the large soccer field, standing and running long jump at the jumping pits next to the swing set, comet ball toss, noodle toss, golf putting and chipping, long baseball throw) up until the Track and Field Day on Wednesday, May 11, 2011. On May 2, 2011 a PALs (physical activity leaders) program started up and began to run daily during the AM and Lunch recesses. Grade 5 and 6 PALs would teach and play playground games, like home free, chuck the chicken, Frisbee toss, and arms length tag, with children in Grades 1 to 3. As spring took hold, "the PALs program runs up on the roof, sand toys are out, three games of soccer, mini sticks, and grounders at the big kids playground, are played, despite the field being covered in dandelions and mosquitoes" (Tuesday, June 21, 2011). There were soccer games, tag games, rugby instruction, drills, and games for Grades 4 to 6 during the first week of June, games of hopscotch and four square up on the school roof for Grades 1 to 3, hot dog tag, and periods of free time on the playground equipment. Teachers also started to bring the children outside during non-PE class times in June as a reward after class work had been completed. In these instances I primarily observed games of soccer, capture the flag, and free time on the playground. A water balloon fight even broke out on Tuesday, June 21, 2011 during a Grade 4/5 class time outside.

In terms of the indoor space at the school, it was a one level school with no stairs, shaped like a box (Figure 4.2; generated and provided by the school secretary). As you walk in the front entrance of the school, the cafeteria and the

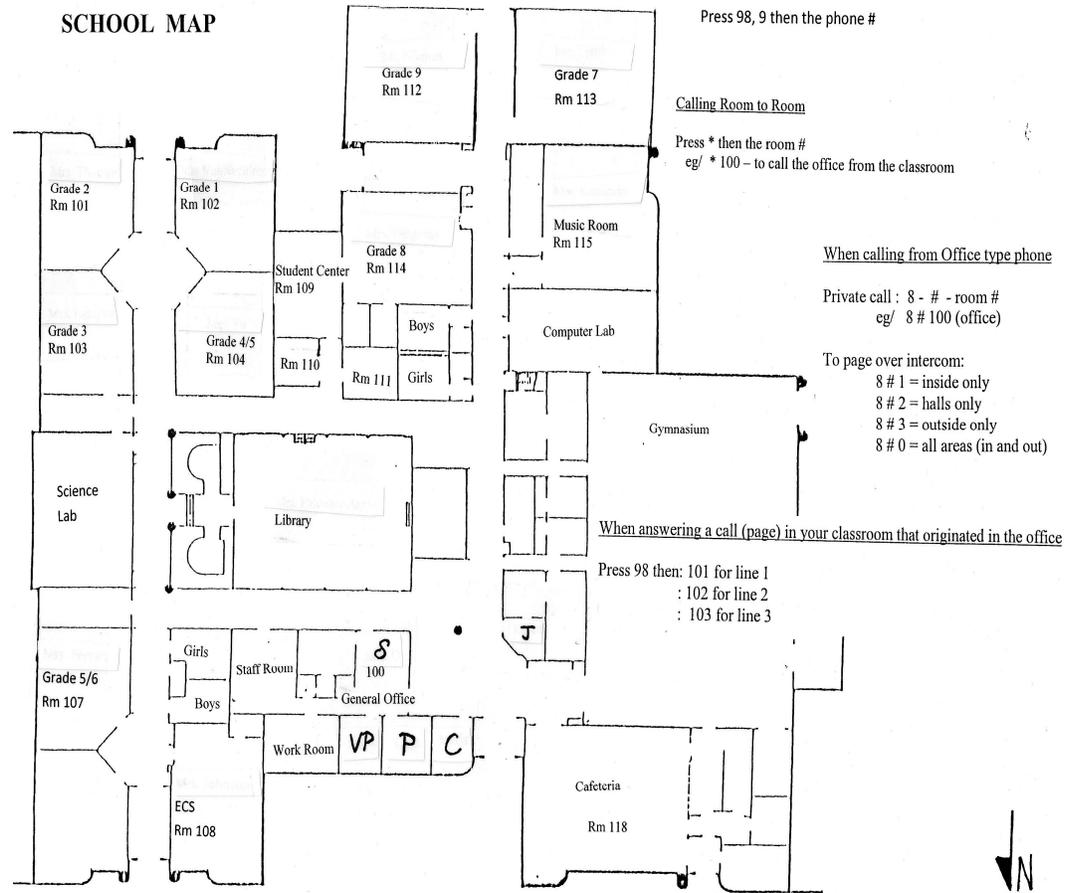
only gym space at the school are to the right. Straight ahead is a long corridor that is the 'Junior High Wing' for Grades 7 to 9. To the left are the administration offices. My very first morning at the school I spent some time with the principal touring through the school. I recorded in my journal how the principal described and explained the physical structure of the school:

This morning when I met with the principal we talked a bit about the configuration and layout of the school. I am told the library is like the central hub or anchor for the school because it is located right in the middle of the school structure and all of the hallways in the school, circle around it. The Elementary Wing and classrooms, as well as the science room, are to the east side of the library and the Junior High Wing and classrooms, cafeteria, gymnasium, computer room, and music room are all to the west side of the library. When going to the outside playground space, Grades 4 to 6 are to use the northeast exit of the elementary wing and the Grades 1 to 3 use the southeast exit of the elementary wing. This is to relieve some of the congestion at the south exit and it also helps to get the Grade 4/5 split class walking a bit more (Monday, January 3, 2011).

My first impressions of the inside space at the school was that it seemed "to be like a well-oiled machine with everything in its place and everyone knowing where they belong. It was organic and moving but also seemed regimented, organized, and very clean. There were messages hanging on bulletin boards through out the school about health and well-being and balanced living. When classes were in session, this school was very quiet." (Monday, January 3, 2011). The hallways, though lined with lockers, were quite wide. The majority of the elementary students were very close to one another, well connected, and could be found in the south east corner of the school in the elementary wing rooms 101 to 104. Directly north, straight down the hall in room 107 of the northeast corner of the school, was the Grade 5/6 split classroom.

Figure 4.2 – The Inside Space at the School

When making an outside call from classroom phones



The elementary classrooms were equipped with either traditional style desks with chairs attached to a tabletop or tables and separate moveable chairs. The most common formation of the desks within the classrooms were traditional rows of four or five desks lined up side by side horizontally across the width of the room or set one behind the other, lengthwise in the rooms. At times I would see pods of three or four desks put together facing each other and spread out in the room. In each of the elementary classrooms the teacher's desk was at the front of the room and off to one corner of the room. The Grade 1 (room 102) and Grade 2 (room 101) rooms were the only elementary classrooms to have a window providing natural light. The rest were lit with fluorescent lighting only (no windows).

All of the elementary classrooms were smart classrooms, equipped with both smart boards and projectors. These rooms were also equipped with playground equipment bins or bags that students could use during indoor recess or free time

with permission from their classroom teacher. The equipment included items like traditional and ankle skipping ropes, bungee cords to play Chinese skipping rope, cones, foam balls, floor mats, tennis balls, whiffle balls, Velcro catching pads, and pinnies. The Grade 1 and 2 classrooms also had buckets of Lego, building blocks, trucks and cars for the children to play with. Each elementary classroom also had its own small library of books.

The school's gymnasium was bright, clean, and spacious (472 m²). There were six standard height basketball hoops spread out and hung on the walls of the gym and a large score clock that hung on the south west corner. Collapsible bleachers lined the east side of the gym, and a large heavy curtain that could be pulled out to divide the gym into two equal halves. Black lines on the floor marked a large basketball court lengthwise in the gym and two smaller courts across its width. Yellow lines marked a large volleyball court lengthwise in the gym and two smaller courts across the width of the gym. Green lines on the floor also marked 3 badminton courts across the width of the gym.

The gymnasium had two rooms to access equipment from. The one on the east side of the gym, in the hallway to the girls change room, was considered to be the elementary equipment room. As described by a girl in Grade 3, there was a wide variety of equipment at this school.

I: And what about over here in the active spaces? What equipment do you use in these spaces?

P(2): There's like, when it's like Friday we usually have free Friday and we get to pull out centres. I think it's my favourite. I got two favourite centres and it's doing tug o war rope and the parachutes.

I: Any other equipment?

P(2): I like playing sponge ball.

I: Does your school have enough equipment?

P(2): Probably, I haven't seen enough of it, 'cause there's so much stuff.

There were DPA kits (e.g., 50 things to do with tennis balls, pvc pipes and whiffle balls, scarves, stacking cups, jacks cards and dice, Fitness Scholastic) and

equipment such as pinnies, bean bags, scoops, air flow or whiffle balls, skipping ropes, a rolling box of 14 medium sized playground balls, soccer and footballs (both hard and soft), paddles, tennis balls, hand balls, beach balls, sponge ball sticks, hula-hoop, scooters, small plastic bats and floor hockey sticks, parachutes, rings, Frisbees, rubber chickens, wood blocks, and a full bag of elephant skin balls. The other equipment room was right off the northwest corner of the gym. Floor hockey equipment was kept here including sticks, pucks, nets, and goalie equipment. There were also blue gymnastic mats, badminton racquets and birdies, more hula-hoops, footballs, soccer balls, rugby balls, a rolling cart of basketballs (small and large), handballs, and wooden skittles kept here. In this northwest corner of the gym there was also a storage room where a sound system was kept (and frequently brought for use during PE classes).

Inside the school I observed PA most often, and with the greatest amount of variety, in the gymnasium. This occurred most often during scheduled PE times. As described by a boy in Grade 6, there was a wide variety of equipment for use in the gymnasium at this school and the children didn't appear to see a need for more.

I: Do you think your school has enough gym equipment here?

P(11): Yeah, we have a lot. We have three sets of goalie equipment. Maybe one more set of goalie equipment because if we're playing teams and two games are going at the same time, one of the teams will have an extra player but no goalie, so it's harder for them.

I: Is there any other equipment you think the school could use more of?

P(11): Um, not really because we have tonnes and tonnes of equipment, maybe three more scooters but that's all only because we have twenty three, twenty one scooters and we have twenty four students in our class, but that's just selfish, like just for our class.

During PE classes I observed calisthenics and fitness building activities (e.g., stretching, running laps and lengths of the gym, sit-ups, push-ups, jumping jacks, burpies, planks), numerous games (e.g., various forms of rock paper scissors,

tag games, relay games, dodge ball games, dance, individual games and manipulative tasks, competitive and cooperative team games, Simon Says games, various games created by students themselves that I don't have names for, capture the flag, Simon says, red light green light), some skill instruction, and the provision of free time for students. According to a boy in Grade 4, during PE they participated in a wide variety of games and types of activities.

I: What kinds of things do you do during PE?

P(5): Dodge ball, floor hockey, or we'll do whatever we want during free time. Cowboy tag, doctor dodge ball, jailhouse rock. Ah, we usually get active and play stuff, games. We play a lot of different games.

Children at this school were also encouraged to move and be active in the gym during school assemblies that typically had an active component to them. The following journal (Thursday, February 17, 2011) entry provides an example of one of these instances:

Everyone was called to the gym assembly over the intercom at 12:50 pm ... the vice principal went around the gym and asked teachers one by one if there were any other announcements. A Grade five student suddenly gets up and starts some music and then another student gets up and starts dancing at the front of the assembly ... an impromptu dance had started. Once the dance was started and most of the Grade 4 to 6 students were up and dancing, they began to start pulling other students and teachers up to get involved in the dance. A boy from Grade 4 came over and invited me to dance. The majority of the school got up and involved. A handful of kids refused and sat and watched. I would have to estimate though that at least 90% of everyone in the gym were up and dancing. This included the office staff, the hot lunch staff, even a couple parents joined in. All of the teachers were up dancing. Everyone seemed to be enjoying it and having fun. The Grades 4 to 6 led the dance and got people involved. Their enthusiasm was infectious. When the dance was completed and the music stopped there was quite a bit of excitement (yelling, cheering, screaming, clapping). The

assembly ended at 1:20pm, everyone exited the gym while the elementary Lead-Champion teacher continued singing and playing the guitar.

During periods of indoor recess, the gymnasium however, was not frequently used, as a boy in Grade 5 described.

I: Is the gym open to be used for indoor recess?

P(9): (Pauses). Yes, but they're not using it that much.

I: Why do you think it's not being used that much?

P(9): Because at lunch, like little recess we ask, we always ask if we can go in the gym and they always need a supervisor so, yeah.

I: So there isn't a teacher to supervise so you can use the gym?

P(9): Yeah.

I: So what do you do during indoor recess instead?

P(9): We just go out, we sit in the classroom, we go in the boot room.

A voluntary intramurals floor hockey program did run in the gymnasium during March for students in Grades 4 to 6 and the gym space was used during indoor recess a few times when teacher supervision was available. When this occurred the space was available for either the Grades 1 to 3 students or the Grades 4 to 6 students, not both. On days that the gym space was opened up to elementary students during indoor recess, only a handful of students seemed to take advantage and used the gym. What follows is a journal entry describing what a typical day of indoor recess was like at the School:

Today was an indoor recess day due to the cold wind chill outside (-27C). I spent recess touring through the elementary wing classrooms and hallway. In the AM recess, Grades 4, 5, and 6 are told they are allowed to go into the gym (announced over the intercom) because it is not being used. I see some head off to the gym. Those that I see go towards the gym are older elementary students. I am surprised the exodus to the gym is small ... Not many choose to go to the gym as I would have thought. So I decide to hang out in the elementary wing rather than go to the gym. Very few of the

Grades 1-4 have left their classroom area. I see six boys in the south boot room playing a game of hand hockey. The Grade 1 classroom is full of students coloring, drawing on the white board, and playing with Lego. In the Grade 2 classroom they are playing with Lego, building spaceships and doing more arts and crafts activities. In the Grade 3 classroom there is more arts and crafts type of activities. In the Grade 5/6 classroom, six are in the classroom playing video games on iPods and hand held video game systems and some listening to music on headphones. About eight are in the north boot room playing a game of dodge ball of some kind ... During the lunch recess, the gym is not available but it seems as though there is way more PA going on right now than this morning. Both boot rooms filled with children playing active games, in the Grade 5/6 end of the hallway there is a group of four boys playing mini sticks with two off to the side waiting to get into the game as subs. One group of four girls playing MISSISSIPPI with a Chinese skipping rope. Inside the classroom at this end there are six playing video games on hand held devices (iPod touch and Nintendo DS). At the south end of the hallway there are two games of hand hockey going on, two boys skipping rope with ankle ropes (Wednesday, February 16, 2011).

Though the PA levels I observed during indoor recess were moderate in regards to TEE and the gym space sat empty for a lot of indoor recesses, there was an initiative demonstrated by some children and the LCT at the school to have more active indoor recesses and get children moving during these times. A journal entry about indoor recess illustrates the equipment available to the children and the initiative some children were demonstrating to be PA:

Indoor recess again so I walk around the elementary wing and it is more of the same. Boys are in both boot rooms. Four in the North boot room playing soccer and six in the South boot room playing tennis ball soccer. One game of hand hockey with four boys playing in the Grade 3 classroom. Five girls ankle skipping in the hallways. A Grade 3 girl leads them through the hallway and they skip around the entire square hallway of the school ...

Two Grade 5/6 girls play Chinese skipping in their classroom. There's sitting in the classrooms doing arts and crafts, playing with Lego, some in the library working on projects. I go to the gym just to see what is happening in there, the gym is closed again with no one in there utilizing the space (Friday, February 25, 2011).

It seemed like children, who wanted some form of PA during indoor recess, created games to play in the boot rooms at the north and south exits of the elementary wing, the hallway of the elementary wing, and the classrooms. As a girl in Grade 5 explained, the children used equipment they brought from home, got out of an indoor recess activity bin made available by the LCT, or got from their classroom activity bins/bags to attempt to be somewhat active during indoor recess.

I: How active are you during indoor recess?

P(8): That kinda depends.

I: On what?

P(8): If there's room in the boot room or if it's girls' day or boys' day in the boot room.

I: You take turns using the boot room?

P(8): Yeah.

I: And if it's your turn to have the boot room, what do you do there?

P(8): Well in the boot room we um, I um, the boys invented a game and I like playing it. They like throw a ball that's there in the boot room and we try not to get hit. And then if you would you're the person, you're the person it and then you try to hit someone.

I: Are there any more active things you can do during indoor recess?

P(8): Well the boys, they, some of them bring mini sticks and play mini sticks in the class or in the hall. I don't play that. I play Chinese skipping rope sometimes that <says LCT name> lets us use. Or the boys play hand hockey in the hall with a tennis ball. The little kids, sometimes they do ankle rope or skipping with that rope thing you put on your ankle.

I did observe some forms of movement opportunities more frequently in the music room. These movements however, in terms of how PA and PIA had been conceptualized for this study (i.e., TEE). The music room was a larger space in the shape of a square box, with carpet, a high ceiling, sound proofed walls, a piano and keyboard, guitars, drums, various musical instruments like triangles, rhythm sticks, tambourines, a smart screen, sound system, and music related posters and art work covering the walls. The room was bright and neatly organized with risers at the back of the room, an open area to move around in at the centre, the teacher's desk off to the northwest corner of the room, and a white board at the front of the room. In the music room I observed and heard about activities like

...children playing 'Wolf are you there?' which is an action song with one wolf and the rest trying to get past the wolf. The teacher plays music on the piano that the children sing along with and perform actions to. When the wolf says 'I am going to get you' everyone tried to scramble and get to the other side of the room without being caught by the wolf. They had to move to an action like hopping, galloping, skipping that was given to them by the teacher. Everyone is moving, and engaged. The room is loud with giggling and yelling (Thursday, January 27, 2011).

I also spent time with each class in the academic courses (i.e., math, science, religion, language arts) that took place in their classrooms, so that I could observe opportunities for PA throughout the entire school day. I did observe attempts to get children moving during class times, but overall PA during class time felt infrequent and done mostly through the use of activities that were not really active in terms of how PA and PIA had been conceptualized for this study. Teachers did appear to be trying to at least get students up and out of their chairs during class times, as a reward for completion of work and positive behaviour. As an example, one teacher explained during her interview how she was trying to incorporate PA as part of what she was doing in regular class times:

I feel like I need to speak for myself for sure. So for myself, teaching both physical education and math, I try to do both. I try to do – as a school, for

sure, we're committed to 45 minutes a day, or what 30 minutes, I guess, is what some teachers are thinking. But having physical education in the gym or as a subject every day, then also being active in our academic pursuits. So if we're doing fractions in grade four math, we are going to work with stuff. We're going to move in spaces. We're going to go up on the tarmac and draw it on tarmac. We're going to do movement – just because I really believe it makes a difference in how they think, especially at that age level. So active in music, for sure ... That is one of the things, like trying to be gross motor for example, trying as much as I can to use dance and movement (P22).

The incorporation of PA into the classroom as a teaching tool or classroom activity, however, did not seem to be natural, comfortable, or frequently used by teachers. I reflected on some of the PA opportunities I observed during class times at the school:

The teacher asks the children to get ready to play a game of bean bag boogie. The teacher gets a basket of bean bags, tosses a bean bag to each one of the students, and asks everyone to stand on the outside of all the desks so they can move around the classroom. A song is played and everyone moves in a circular pathway around the outside of all the desks. We do the actions with the bean bag as instructed by directions given in the song playing. We march, dance, stomp, bounce up and down all while balancing our bean bags on various body parts. It is fun, active, and challenging as it requires balance skills. I feel stretched and my HR is elevated slightly (Friday, February 4, 2011).

The children are asked to pull out their reflection journals and begin working on the two reflections they began yesterday. When they complete these they can then move on to reading or spelling. As they work independently, the teacher takes the children one by one out into the hallway where there is a table and chairs just outside their door to do

reading evaluations ... At 11:48am the teacher returns to class room and tells them because they were so awesome while the teacher was doing the reading evaluations, they can play a game of four corners. The teacher says yesterday they played silent ball so today they will play four corners. One person is selected by the teacher to stand at the front of the room with their backs turned to the room and their eyes closed. They count out loud to 10. While they are counting everyone else in the room everyone else moves quietly to a corner in the room. The counter calls out a corner number and whoever is in that corner is eliminated and sits down. The last one standing becomes the new counter. They play 2 rounds. The lunch bell rings at 11:54 am and the class is dismissed (Tuesday, March 8, 2011).

Classroom spaces were limiting in teachers' and students' to move actively. As well, traditionally held views on what successfully managed or productive classes look and sound like (e.g., quiet, every one sitting at their desks working) seemed to be pervasive in each of the elementary classrooms I observed, as reflected in a journal entry:

This week I have followed a couple classes for extended periods of time outside of PE and recess to see and get a sense for the entire day and the activity that occurs outside of the gymnasium ... I am interested to see if the DPA or activity is evident in any other parts of their teaching day for their students ... I start in their class first thing and their first period is math. There are six rows all facing the front of the classroom with anywhere from two to five desks in a row. They begin the period by self-reflecting and reviewing a math test they just wrote that will be used as part of their math evaluations for this term. The activity they begin is called a test reflection ... Everyone is seated in their desks. The teacher does ask one of the boys to turn their legs under their desks or stand if they need to. I am thinking to myself that during these forms of activities there needs to be a more creative way to include activity. There just feels like there's this traditional held view that maintaining control means harnessing these children and keeping

them glued to their desks. As I watch the children they seem focused and on task with little fidgeting or holding heads up with hands. When they finish the reflection they're allowed to get up to get a book and read at their desks as they wait for everyone to finish. The class remains quiet and seated at their desks. When the bell rings and they are asked to put down their pencils and that gym is next, everyone immediately pops up and heads quickly to the door (Monday, March 7, 2011).

When asked about their thoughts on using PA as a teaching tool or incorporating PA as a part of regular core classes, teachers' responses reflected this traditionally held view of what productive classrooms look like and how it can limit the amount of PA in the classroom during core subject class times:

To be honest, I honestly think that -- I'm not generalizing for all teachers, but your idea of a productive classroom is sitting and looking at the teacher. I think that still is in everyone's mind, that to have a classroom that is productive -- it needs to be quiet, the kids need to be looking at you, they can't be moving, they can't be touching, they can't be doing anything. And I know I have moments in my time when that's what needs to be required, but I think that's where the fear comes in -- that if you put them on an exercise ball, they're going to go nuts, they're going to go crazy ... the inability to -- yeah, I guess it is control, I don't know. I can see that being a fear though, I could easily (P21).

Teachers' responses regarding PA in the classroom also reflected the impact of building and classroom design and the associated risks as reasons why PA in the classroom is difficult for them:

I am always very concerned about safety. And so moving that many bodies in a safe way when there's, you know you have been in my classroom, between the tables and the desks and all that stuff that's in there. It's very limited into like what you possibly can do. So I don't know. I think there's more, I would say that there's more and I would say if I look back on my

own teaching career whatever, I am more the person of like if you need to stand, stand if you need to whatever like go for a walk like I understand I think I am more aware of that kinetic learner and some kids really do need to move. But it's hard, classrooms are setup how they were built to design 60 years ago. You know and until you can re-envision that space or get rid of your desks or something like fundamentally I don't think education has changed. So I think that to live within the bounds of how school is designed incorporating that much moving in your classroom is not, is difficult for a teacher. It's risks ... (P27).

Teachers' responses regarding PA in the classroom also reflected the impact of curricular demands and children receiving DPE at the school as reasons why PA in the classroom had not been frequently utilized at the school:

... Because of the setting of the building ... And also the curriculum I have to deliver. I have <Province> telling me I need to cover all of these things because they are such a heavy mandate ... In a short amount of time it will be nice to spend more time doing more active things but sometimes it's the time constraints. It would be nice. I would love to see it. I think at our school it's different than most schools if you compare it to most schools. We have way more time in PE than most schools do. And yes I think they are trying to promote, schools are trying to promote more healthy habits just not only the nutrition but physical activity. But with curriculum mandates and the way they are, it's tough (P23).

As a result of the above mentioned reasons for PA being relatively absent in the classrooms during regular core subjects, children spent large portions of their day seated in desks as reflected by a boy in Grade 4.

I: Are you active during class time?

P(4): No. We're always sitting around in our desks. No way. They teach us. But not to be active. If you need to get your brain back then yeah. It's really small and hot too.

I: In a typical or any given day at school, how much time do you think you spend sitting in a desk?

P(8): 6 classes. 45 minutes each.

Organizational Factors

As a Grades K to 9 School, the school had both an elementary and junior high program that ran simultaneously within the school. Each program had its own space, in and outside of the school, as well as its own timetable. Though these programs did share some of the spaces at the school (gym, cafeteria, library, computer room, music room, science lab, east side of playground, soccer fields, and big kids playground), they were in the same space at the same time on very few occasions. The most frequent place and time the two programs were together in the same space was on the playground during the lunch recess and in the gymnasium during assemblies and when changing classes.

The elementary program daily schedule (Figure 4.3) began each day at 8:30 AM with announcements from the school principal and the front office, followed by a morning prayer. Classes began at 8:35 AM. During the regular elementary schedule, the seven period days consisted of four 46 minute morning periods and three 45 minute afternoon periods. Between periods 2 and 3, students were given 15 minutes for recess in the morning and after period 4 the students were given 30 minutes for their last recess period of the day, before eating their lunch during a 20 minute period from 12:25 to 12:45 PM. On early dismissal days, each period was reduced by 7 minutes; morning periods became 39 minutes in length and afternoon periods became 38 minutes in length. The AM recess remained 15 minutes in length but the Lunch Recess was reduced by 10 minutes to 20 minutes (11:26 – 11:46 AM).

Figure 4.3 – Elementary Program Daily Schedule

	Regular Schedule	Early Dismissal Schedule (1st Wed. each month)
Assembly Bell	8:30 AM	8:30 AM
Period 1	8:35 - 9:21AM	8:35 - 9:14 AM
Period 2	9:21 - 10:07 AM	9:14 - 9:53 AM
AM Recess	10:07 – 10:22 AM (15 minutes)	9:53 – 10:08 AM (15 minutes)
Period 3	10:22 – 11:08 AM	10:08 – 10:47 AM
Period 4	11:08 – 11:54 AM	10:47 – 11:26 AM
Lunch Recess & Lunch	11:54 AM – 12:45 PM (51 minutes)	11:26 AM – 12:06 PM (40 minutes)
Period 5	12:45 – 1:30 PM	12:06 – 12:44 PM
Period 6	1:30 – 2:15 PM	12:44 – 1:22 PM
Period 7	2:15 – 3:00 PM	1:22 – 2:00 PM

A key policy related to PA at the school was the implementation of daily physical education (DPE) into the schedule. The school had committed to scheduling a 45 minute period of PE for every class in the elementary program, every day of the week (Figure 4.4). To accommodate for this within the schedule, the Grade 1 and 3 classes had scheduled PE at the same time every day for the duration of the school year. They frequently shared the gym space at these times, with approximately 42 children in the PE space at the same time. On Tuesday mornings the 4/5 and 5/6 classes also had scheduled PE together and approximately 48 students shared the gym space during this time.

Through my observations, and after experiencing how and where PA was being promoted at the school, it became clear that the scheduled periods of PE were a key time and place in the school day where DPA could be implemented and PA opportunities provided. Supported by the two recess periods during the day, the school seemed to have developed and adopted a DPA through DPE approach, as a way for children to be active. In an interview, the LCT stated that she saw PE as

“the backbone of the system” and that she would be worried about a reduction in the amount of PE and PA that children would receive if PE “was not a mandated focus” at the school. Children also perceived the gym and DPE as influential to PA at school. Towards the end of each of the children’s interviews, I asked the children “what makes it really easy for you to be active at your school?” Twelve of the 19 focal children responded “having gym” (P2, P5, P6, P7, P9, P11, P13, P14, P15, P16, and P19) or “PE everyday” (P3).

Figure 4.4 – Elementary Gym Schedule

Period	Monday	Tuesday	Wednesday	Thursday	Friday
1	Grade 4/5	Grades 4/5 & 5/6 shared	Grades 5/6	Grades 4/5	Grade 1 & 3 shared
2	Grade 1 & 3 Shared		Grades 1 & 3 shared		Grades 5/6
Recess	15 Minutes				
3	Grade 2	Kindergarten	Grades 4/5	Grades 5/6	
4					Grade 2
Recess & Lunch	51 Minutes (40 minutes on early dismissal)				
5		Grade 2		Grade 2	
6			Grade 2	Grades 1 & 3 shared	Grade 4/5
7	Grade 5/6	Grade 1 & 3 shared			

I asked many of the teachers at the school if there had ever been a conversation about what the goals and objectives of the elementary PE program were, or a coordination of the elementary grades in establishing what they want to accomplish through the PE program. Teachers often responded that they were not aware of a specific conversation and that they were essentially “islands” (P22) who make choices about how they deliver their own PE programs according to the needs of their students, personal expertise, and curricular expectations. In a journal entry I reflect on an impromptu conversation I had with a teacher about the school’s elementary PE program:

... I ask about what the objective of the elementary PE program is here at this school ... The teacher replies that there has been no conversation here, as far as they know, about what the goal or objective of their PE program is. This teacher says they have talked with the Junior High PE teacher about this a couple of times, but has not spoken with other teachers in the elementary program ... doesn't know what is going on in other PE programs or what other teachers are doing. This teacher tells me that each teacher is doing their own thing whether their focus is on skill building or fitness and moving as their objectives. This teacher tells me about the recent HPEC conference they have attended and research they have read about how ball based skill building PE programs cut fitness building potential ... This teacher believes that their program is more focused on fitness and getting everyone moving as much as possible (participation and moving) but does believe in the importance of working on skills a little bit and try to put some skill building activities in the program ... (February 23, 2011).

The teachers' stated goals and objectives for the DPE/DPA program (Appendix B) were focused on maximizing participation and inclusion. The teachers used predictable systems and routines within the gym setting to deliver programs that were health related, similar to that of a Health Related Physical Education (HRPE) program. Through a variety of active games, the teachers focused on getting as many students as possible, as active as possible, for as long as possible during the PA times they were responsible for (e.g., PE). This HRPE participatory approach was being employed consistently throughout the elementary program. In PE classes I observed a lot of discussions between teachers and students of elevated HRs, the importance of being active, and emphasis on maximizing participation and effort. A journal entry provides an example of what I observed to be the focus for PE and PA at this school:

From what I have seen and heard here, the school has a PE program focused on actively engaging children and encouraging participation in an attempt to help build and increase fitness in the students ... providing opportunities to

be active and less of a focus on skill acquisition or skill improvement ... I would characterize the focus as more of trying to help children and staff here learn and understand the importance of daily movement in improving and maintaining health. The school as a result has become a place where there are opportunities embedded within every school day (i.e. daily PE, recess, and active assembly activities) in an attempt to help children establish daily movement in their lives. Perhaps the term more suitable to characterize this approach to PE here at this school, is a lifestyle, fitness, or participatory approach as opposed to a fundamental movement skill building approach (Friday, March 18, 2011).

The teachers consistently reaffirmed during their interviews what I had been observing. The assumption did surface in these conversations with teachers that through the engaged and maximized participation of students in PA and PE, they would learn and acquire physical skills. Fundamental movement skill acquisition was a part of what the teachers felt they were doing and attempting to achieve through PE, however it was not the focus. This again aligns with the notion of HRPE. Physical education's contribution to health is the explicit planned learning outcomes of health promotion and teaching skills for successful participation and fundamental movement skill acquisition is an implicit by-product of participation. Two excerpts from teacher interviews provide examples of how teachers at the school verbally described the PE goals and objectives:

... to make sure that the kids are active, they're getting their heart rate up, that they also enjoy it, and they're kind of building that love to be into the games and realizing that, hey, this is fun, I enjoy it, and then see the benefits of it themselves ... so that if they have a choice, they choose to be more active than to sit and play games or something like that (P21).

Somehow they have to be intrinsically motivated to move ... valuing it- knowing I need to move more. How do you get them to do that? Somehow I'm hoping giving them more joy in physical movement, getting them lots of experience outside of traditional sport. There are all sorts of ways to

move. Giving them the widest range of experiences, so eventually something will stick ... That's what I want to do. So that's why we've got to stay with daily physical activity. We've got to stay with trying – find out what they want to do, giving them choices, giving them leadership ... so that they will choose more often. Whether they're low physical activity or not, they will choose ... I've tried to teach skills for successful participation. So that even if it's just at the baseball game, I know how to throw a ball. I'm struggling with it in that – how do you focus on fundamental movement skills? I know there's a whole movement about making sure that kids have those skills. Still entrenching them in games and sometimes I can tend to overemphasize “Let's just have some fun and participate and be active.” How much time to do you spend actually “Okay, this is how you throw a ball. These are the steps in it”? Those are some things I'm exploring (P22).

Participation in PE on a daily basis was also a clear expectation for both students and teachers at the school. As reflected in a description of PE from a boy in Grade 3 (P3) explains, “We go every day. We get gym one, one time a day” and a girl in Grade 5 (P6) describes, “Everyday we have a gym period. We have to do gym, even if you're hurt or you've been sick or something you still got to walk around the perimeter of the gym”, children understood that they would receive and were required to participate in PE everyday.

Each of the elementary program teachers followed through and delivered DPE for each of their classes, with a focus on students' inclusion and participation. One teacher commented that there was an expectation of “... full participation, like it's not an option ...” (P27) when it came to PE. It was rare to see children sitting out on the sidelines during PE and I did not observe the elimination of PE class during my time at the school, that wasn't explained by either a rescheduling of the class somewhere else in the day or replacement by another activity such as swimming lessons or track and field day. When asked about the expectation of

DPE in an interview, the principal (P26, who implemented the 7 period day and DPE at the school) replied:

Myself as the leader of the school, you know, you have to set a tone for an expectation in the building ... when I started in this building one of the things I told my staff is I don't ever want to hear about your class, it's in for recess, or Phys Ed, because of the behaviours. You know, that's, you know, you don't take them out. They don't get to, you know, miss math because you didn't behave in Phys Ed. So why would you have them miss Phys Ed if they are misbehaving in math. So I think, you know, you sort of have to have that background and realize the importance of physical activity for our students. I think it has to be a tone set from the top but then the committee has to run it. I mean you have to get the buy in.

Despite the expectation of DPE being set at the school, there were instances of classes missing portions of PE because of behavioural issues, children not being allowed to join their PE class until work in other classes had been completed, and classes showing up late for their scheduled PE class or leaving early before the end of their scheduled time in PE. Elementary periods of PE were frequently cut short by 10 minutes in period 3 on Monday, Wednesday, and Thursday because of the overlap between the elementary and Junior High schedule. Weekly assemblies also cut anywhere from 15 to 30 minutes from the Grade 2 class scheduled PE in period 5 on Thursdays. As reflected by a girl in Grade 6, once in the gym or active space for PE, the time for PA and movement was not maximized.

I: Ok. So you get gym once every day?

P(12): Mmm hmm.

I: And how long do get for gym?

P(12): Aaah, 45 minutes. Yeah.

I: How much of that time do you think you are active or spend being active?

P(12): Um, well it depends 'cause sometimes we um learn new games so sometimes we go in the middle of the gym, in that circle area, and

we sit there and talk about activities of what we're going to do. And people ask so many questions. It's like, can we just play the game (laughs). Just do what the instructions said. I just play 'cause sometimes it takes up a lot of time because everyone's hands are up and they want to ask question after question after question, so. But it's usually we just play basic stuff, like we already know how to play dodge ball and stuff like that so we just go and then play that.

I: So new games or activities have to be explained?

P(12): Yeah, like um, when our um, yoga teacher was here, we just practically sat there for half a period 'cause she needed to go through, of what we needed to do, and the steps, and then we got up into lots of stuff, so.

During PE classes, provision of periods of time where students were the key decision makers about how to be active or what PA to engage in during PE, were often provided. As a girl in Grade 5 describes, during these periods of time there continued to be movement and PA, but the intensity of PA seemed to drop in comparison to when the teachers took the lead and directed students.

I: What happens during free time in PE?

P(6): We can just do whatever if we get free time or something or we're allowed to run around in there.

I: How active are you during free time?

P(6): Well if we have free time we're not as active as if we're playing dodge ball or something. But when we do dances like we did, just did, we got pretty active and we were all pretty sweaty. But like doing free time sometimes we just sit on the scooters and get cold or we just stand around or something.

I: When you are led by your teacher in an activity is it more active than if it's free time?

P(6): Mmm hmm.

Whether it was in the gymnasium or outside on the playground, the use of 'free time' in PE was somewhat prevalent and offered in a couple of different forms. Free time was offered for entire periods, or portions of the PE period. Students in the PE space were permitted to essentially choose what they wanted to do for that PE period.

The teacher announces to the group that they will be given free time for the rest of the period as they have not had a free period recently. They can choose what they want to do for the remainder of the class (8:50-9:21 AM). A group of 6 boys choose to set up a game of floor hockey, I see one girl also grab a floor hockey stick and puck and start stick handling around as if she would like to play floor hockey as well but does not receive an invite from the group of boys to play and no other girls join in. She puts the stick away and joins in on the scooters being played with by a group of 5 girls. Four girls sit on scooters and one girl is holding a sponge ball stick. The girls on the scooters hold onto the stick as the girl holding the stick pulls them around. I also see two boys playing catch together with a football, a girl and a boy play badminton together, and a group of 6 girls play something that I'm not sure what it is; they propel themselves on the scooter using plungers, sponge ball sticks, or their hands and feet to go as fast and as far as they can (Tuesday, January 25, 2011).

Some of the time free time was offered through the use of stations, teachers set up equipment throughout the active space and then split the students into groups that rotated through each of the stations. Teachers decided on the equipment to be used, the stations that were set up, and instructions as to how to rotate through. Student then decided for themselves how to use the equipment, what to do, and how to challenge themselves with it. The following journal entry provides an example of what I was often seeing:

... looks as though they are setting up some stations. Scooters, playground balls, skipping ropes, a large parachute, and scoops and balls are brought out and five stations are created. Each station is pointed out to the children

and they are asked to go to their assigned station according to the number they were given at the beginning of class. They are to go to their station holding up their number until everyone with their same number gets there. Students are rotated through each station. I joined in and just participated. Again it felt like free time or free play. The equipment has been laid out but everyone is pretty much left on their own to decide what they will do at the station with the equipment ... (Friday, March 11, 2011).

The use of these free time periods seemed to be offered by teachers with the intention of empowering children with choice at school, as well as to encourage them to take responsibility for their participation in PA. The use of free time also seemed to align with the health related approach to PE that was being used at the school. If children were given plenty of opportunities to choose activities (during free time), they would be doing the things they like to do and as a result experience more fun and enjoyment; two key objectives of PE programs at the school.

... we give the kids choices. They have a lot of choice in free Fridays, or what we're going to do today, or give them the opportunity to play the games that they love to do so that they enjoy it (P21).

Other policies important to discuss, because of their impact on PA behaviour, are those related to indoor and outdoor recess. When the weather was favourable (i.e., above minus 20 Degrees Celsius), everyone at the school was required to go outside for recess, and hand held digital or video devices were not allowed. There were some exceptions (e.g., library duties, working on computers at school to complete homework assignments that required internet access the student did not have at home), but for the most part everyone was expected to go (and did go) outside for recess when the weather permitted. Even when a child seemingly lacked the clothing, something was found so he or she could go outside for recess. The following is one example of how the expectation of children going outside for recess was built:

As recess began I stood near the south elementary exit and watched as the children got dressed to go outside ... Some of the younger children approached me and asked if they still have to go out if they don't have mitts, a toque, or snow pants. I defer to the teacher heading out for supervision and ask her. I'm told that yes they have to go out and they can go to the lost and found and find mitts, toque and snow pants to use. I'm told that the kids who ask me are known for pulling this 'stunt' to get out of going outside. As you watch them go towards the lost and found, some miraculously find their things at their lockers, and some find things to wear at the lost and found to go outside (Monday, March 7, 2011).

As the weather deteriorated, and recesses were spent indoors, rules preventing children from running in the hallways were loosened slightly so that small games of hand hockey, ankle skipping, mini sticks hockey, and Chinese skipping rope could be played. The boot rooms at each end of the elementary hallway, which were normally designated for storage of footwear and outdoor equipment, were also allowed to be transformed and became mini gymnasiums where 2 vs 2 games of soccer and modified games of dodge ball were played by students. Students in Grades 1 and 2, however, were not allowed to take advantage of the loosening of these rules during indoor recess and were required to remain in their classrooms. As a boy in Grade 1 describes, indoor recess was spent inside the school, in classrooms, engaged in mostly inactive behaviours.

I: What do you do when you are inside for recess?

P(17): Do centres. I always do Lego.

I: There are centres in your classroom?

P(17): Yeah.

I: What are some other centres that you have in your classroom?

P(17): There's Kinnex too that I sometimes play with when we can't play with the Lego.

I: Are there other things to do in the classroom during indoor recess?

P(17): Um, there's these little blocks that you can build higher and higher and higher 'cause there's lots of them.

The policy preventing the use of electronic devices was also loosened and many children throughout the elementary program could be found listening to MP3 players, iPods, story books on cassette, and playing games on hand held devices during indoor recess.

The CSH approach the school was using to create a healthy school environment is also an important organizational factor in relation to PA and PIA behaviours at the school. It was clear that the school was using a comprehensive approach to improve overall health and well-being of students, teachers, and staff. Everyone and everything seemed to be involved some how and in some way in developing a health consciousness. I called this organizational aspect a health consciousness because it seemed all of the choices and decisions made about various activities, events, or programs for students were done so with a conscious, thoughtful, and purposeful goal of having healthy options thread through all of them. In almost everything I observed at the school, messages of health and healthy choices were woven in to what teachers and students were doing at school.

For the most part, the CSH approach attempted to include PA as part of the educational dialogue it was using to create a healthy school environment. There were plenty of resources available to teachers and staff to help them plan and implement PA initiatives throughout the school community, and a framework seemed to be in place to guide the school through the process of promoting PA. However, there were times when the focus seemed to be more on the nutritional component of the CSH approach and nutrition received greater attention. As a result, PA appeared underdeveloped in comparison. Teachers commented in their interviews that the CSH approach did have PA as part of the mandate but came "more from the nutritional, that seems to where they put more of the focus" (P22). Nutrition appeared to have been identified as an area the school needed the most help with when originally implementing the CSH approach.

In interviews with elementary teachers, I asked them about the balance between nutrition and PA within the CSH approach. An excerpt from one of the teacher's comments provides some perspective on the evolution of the CSH approach as well as the role of the coordinator of school health:

... I think that's where we got a lot of our DPA bins and stuff in our storage room was through the <CSH approach> and I think at the beginning when they first came to our school there was a, more of a, a physical activity part to what was brought to our school but unfortunately I would say that's gone by the way side ... (P27).

Some elementary teachers expressed feeling that the school was likely less active now than they were a few years ago. This reduction in levels of PA was explained to me by one of the elementary teachers:

... the supervision is what's getting us as it's hindering us from being able to do those physical things with those kids. And that's where I have seen because we had a lot of physical activity going on our school even before the <CSH approach> I think the <CSH approach> has been nutrition. Awareness for us, I think nutrition has been the key. But physical not so much because I think we are doing less. In some instances I think we used to have way more fun days or spirit days where we would have older kids doing physical activities outside with the little kids ... we used to jump rope for heart. We don't do that anymore. We used to have a running club, we don't do that anymore. We used to go to the general games and do all of the running activities. We don't do that anymore. We used to have soccer teams, we don't do that anymore; it's all because our staff has been reduced so much and our supervision has increased. That's made those programs go. I think those are our problem areas ... Time and people ... We used to do a tonne way more intramurals, intramurals used to be something we started in October and ended in May. We don't do that anymore because there is no one to teach it because there's no one to supervise (P23).

Human Aggregate Factor

Of the elementary teachers and staff that I interviewed and observed, two teachers reported a PE or Kinesiology focus or education during completion of undergraduate degrees. One of these teachers was the principal and reported having a Bachelor of Education Degree (BEd) with a PE major. The LCT reported receiving a dance course and movement education course during her undergrad education, and attendance at numerous conferences and workshops to increase her knowledge and expertise in the PE and PA domains. One teacher reported receiving one PE course during her undergrad education and some attendance at PA and PE related conferences. The other three teachers reported receiving what I would refer to as 'learning on the job' through teaching PE and assistance from other teachers and school staff. Each of the elementary PE classes at this school was being delivered by elementary generalists with minimal education in PE and PA. They were "elementary generalists who try to get the kids active and moving" (P27) and had limited educational backgrounds in physical skill and PA instruction.

The teaching staff ranged from 4 to 21 years in teaching experience as a whole, and from 3 to 16 years at the school specifically. When asked about how active they were, teachers' responses again ranged from very active to not very active to somewhere in between. Some admitted that they wished to be and knew they should be doing more. One teacher came straight out and said that PA was and never had been her thing. But regardless of how active the teachers were themselves, they all said they valued PA and that promoting PA as a healthy lifestyle choice at school was something that as teachers they should be and were responsible for.

In the interviews with the teachers, conversations at one point or another, led to an issue pervasive during my time at the school. Many teachers felt that perhaps they were focusing a bit too much on PE, in terms of the amount of time being given to PE, and it was to the detriment of time that could be spent in the other 'core' classes. A key thought in this running dialogue was that PE does not have a provincial achievement test (PAT) that other core classes (i.e., Language Arts, Mathematics) have, so there was a questioning of whether PE should receive

as much time in the daily schedule as other classes. I also began to hear talk circulate amongst the teachers about reducing the DPE period to 30 minutes the next school year.

... and then there's you know of course the all over consuming pressure of the curriculum and my class has PATs, so I think it becomes very easy to say okay in this class period we are in the gym and this is what we are focusing on and we are focusing on being active. Then when we are in our classroom, we are focusing on classroom things. And you know partly, our students get a lot more physical activity time than actually is outlined by the guidelines of the government because they go for 45 minutes and I think it should only be about 30, 20, 30, when you get the breakdown of the minutes for each subject. So I am aware that they are spending a lot of extra time in the gym and then when we come back to our room this really is learning time (P27).

The CSH was open and honest with me about her education and expertise. In an interview she reflected on what her role at the school was and how her area of expertise influenced this role:

To facilitate, to guide, to give ideas. Not necessarily to do ... So with me being a dietitian with the physical activity part, I've really tried to outsource or really tried to get the experts to come in. I guess that's a challenge of my job because the physical activity part, I'm not as confident in. I can teach a game, but to do phys ed stuff – no ... it's what the school wants to do. The schools really use me in the nutritional capacity. So developing really cool hands-on experiential learning lesson plans. I've done a lot nutrition-wise ... I actually just left the phys ed – I did organize some initiatives and stuff. But I just left the actual curriculum part to the teachers, and said, "Here's just a reminder. I'm sure you know the curriculum. Here's the guide to implementation. Here's organizations." I've organized people to come in. I've organized trips to go out ... we originally did the DPE bins and the recess bins so they have equipment for recess. So I did an order for that. But

I think, yeah, for physical activity, I went by their requests because I'm not the specialist. I think that's a challenge as a facilitator (P25).

Social Climate

I was not privy to what this school was like before the school's shift towards the comprehensive approach to improving health and wellness. Nevertheless, based upon my experience at the school and, in particular, the reports from members of this community, it was evident that a change in the climate had taken place, and that it was still occurring. I was consistently told by teachers that a change in the social climate of the school had occurred, though many of the teachers felt the impact was focused more on the nutritional habits at the school (rather than PA habits). An excerpt from an interview with a teacher who began teaching at the school the year previous to the shift towards a CSH approach to improving health and wellness, reflected on the school's climate and its evolution:

I think having the <CSH approach> here has made a tremendous impact on our school. Like, health in general, not only physical activity, but eating healthy ... I just think we're promoting a lot of healthy aspects, including physical activity, which I think a lot of students are pretty receptive to -- even in cafeteria, they will talk about how great they're eating, and I don't see as much junk food as I used to ... I think there's just more of an awareness of what they're doing, and how they move affects what they will do later on in life, and I think we've really brought that to their attention. I know I've done that with class and setting healthy goals just, even in grade 4, I never used to do that before, but just setting goals for some of the students, and they will even ask, like, on their birthday, some students -- yes, will bring cupcakes, but some of them will be just be, what else can I bring instead of junk food ... it's in inner staff as well, we were told not to bring anymore junk food, but it's recognized why we shouldn't do it (P24).

I was able to witness the increase in prominence of the LCT as they took the lead role in delivering and promoting PA and health at the school. The LCT was

clearly the most involved adult in promoting PA for the elementary children at the school. This was also clearly recognized by other adults, teachers, and elementary students alike. I observed this teacher to be most frequent user and follower of prepared lesson plans in the gym, changed into gym clothing, engaged and actively participating herself in not only her own scheduled periods of PE, but also in other classes she taught. This teacher was also forefront in planning and leading during assemblies, indoor and outdoor recesses, school celebrations, track and field day, and other school events. The LCT was personable, energetic, and a team player committed to the health and well-being of the school community. The LCT also did not appear to feel like she was on her own in this process, but rather commented during her interview that the school had “a system of champions” where teachers who had expertise all collaborated together to lead and support PA initiatives at the school. The LCT was also well supported by other staff members in the community, as reflected by one elementary teacher’s comments:

... next year will be <LCT>, and ... I think that has a real potential of working because I believe the teachers here respect each other and we will jump on board to support that person even if we might not, even if we don’t support the initiative, we will do it to support that person and so I strongly believe that when <LCT> is involved and leading that and <LCT> focus is more on the physical activity than the nutrition and <LCT> is invested in this community ... (P27).

The LCT was also considered to be supportive of the other teachers in the elementary program, helping them out by sharing ideas with them and mentoring. One of the elementary teachers, who had very limited training or experience in leading PA or PE activities, commented in an interview on the support being given by the LCT:

I don't normally teach phys ed, so for me it's a lot of shadowing <LCT>, it's because I don't really know any games, or I don't remember any games when I was younger. I just forget phys ed, ... now that they are a part of the <CSH> program, it's amazing all the games that they've seen, and they say

they've gone to the HPEC conference ... There's a textbook that I've seen, and I don't know what it's called, but <LCT> also gave the books to me. Yeah, and it's just a matter of when -- like, I just got introduced to hot dog tag-- and it's still a hot ticket item in my class, so they like to do the hot dog tag, the buffalo tag. Anything learned from <LCT> is pretty much what I've been using, so whatever I see on Tuesday with them is what I probably use. You really need some lead teachers and some specialists, like, especially for me, who just got thrown into this position, it's difficult to make up your own games, or even know the technical -- I can't -- like, especially if I show volleyball or basketball or football, I can't show the moves because I don't know how ... (P24).

Teachers, students, and staff were all included in a dialogue used to generate ideas and set objectives to promote health. The team approach employed in the CSH approach to promoting health, and the importance of student ownership within this process, was mentioned in a number of my interviews when teachers were asked to describe the social climate of the school. An interview with one of the elementary teachers reflects what the social climate of this school was like:

... I think here our social climate we are a very small school. We are very close knit. The students know each other so they go from K to 9 knowing each other so there is no stress in terms of feeling awkward or uncomfortable about trying something new and feeling like you are going to be ostracized or condemned or being you know said you are not good at this so people tend to want to engage in activity because they are not afraid to do it ... at our school it's we try to promote them being involved and being active and getting involved and engaged with those types of recess play and swimming lessons and Phys Ed and so they don't sit out. They are part of the team ... the environment in which to do it ... it's more about having fun ... it's about teaching the kids to have fun and enjoy themselves so they are more, they are more apt to try out to be a part of things. Being involved ... it's expected. That you are going to participate and become involved, it's

not that you can sit out. And have fun doing it right it's all about enjoying yourself right ... And you know it's attitude, it's everything and that goes back to you need to teach those kids to build their attitude, and remember I said life skills, well the life skill is trying your best. And having fun, it's not about who wins or loses ... so it's like teaching them. It's all about life skills. And that's part of it (P23).

Overall I think I did find “a culture of health and well-being” and that this school was “trying to make an effort to impact the health of the children” (Wednesday, January 5, 2011). As a whole, members of this community appeared to believe their school had a role to play in promoting student health and combating problems associated with poor nutrition and physical inactivity. This climate and culture was built through the utilization of a comprehensive approach, by adult community members role modelling healthy behaviours, through constant messaging of healthy choices, by an emphasis on student spiritual and mental wellness, through encouraging students to make healthy choices and actively engaging themselves in PA, by establishing clear reinforced expectations that the healthy choice was going to be the first choice, and through the use of a team approach where every community member was included in the dialogue of health at the school.

The goal to have a health consciousness as an integral part of the total learning environment was explicit at the school and it was palpable while I was there. The attitudes and behaviours related to PA, however, as part of this integral total learning health consciousness, did seem to lag slightly. There was an *expressed* understanding of the importance of PA to student health, however the *support* given towards PA as a part of the total learning health consciousness varied from resistance, minimal acceptance, to real enthusiasm. The choice to be PA did not always seem available or easy for students or teachers at the school. There was a general sense of satisfaction with how much PA was being provided for students because of the DPE approach at the school. There was a sense that the school was in somewhat of a state of maintenance in what was being done to promote PA; they

were doing enough so no changes were needed. I did not observe, experience, or hear of a questioning of whether the school could do more to promote PA in any other way than through the health related DPE approach they were using. This approach to delivering DPA through DPE, supported by recess time, seemed to receive little reflection, examination, or evaluation in terms of how it was being delivered, or whether it was effective in promoting PA behaviours. The questioning seemed to be directed more toward fitting PE into the daily schedule, and the amount of time and focus being spent on DPE and PA promotion.

So although I did observe an environment that wanted and was trying to achieve a “daily active living culture” (February 1, 2011), it was clear that even though the culture of PA I experienced at this school was well into the process, it had not yet been fully developed, “continues its evolution” (June 10, 2011) and certainly had room for growth and development. As one teacher commented in her interview, when asked about how satisfied she was with what was being done at the school to promote PA behaviour, for this school, “There are places for us to go and think outside of the box” (P22).

As a whole, this school was an extremely welcoming, inclusive, supportive, and caring community. The vast majority of the community members I came into contact with at the school were open to me and what I was doing at the school during my entire six months there. Flexible and accommodating, the large majority of teachers had open door policies and participated unconditionally. I was honoured by the trust I was given and the relationships I was able to build with the school, teachers, students, and staff. A conversation I had with the vice principal (VP) about the climate of the school and my experience of it, summarizes and provides one example of, the many times I wrote about the social climate of the school:

This experience has become everything and more in terms of what I was looking for. This school and the openness of it, its sense of community and care for one another, and how I was really made to feel welcomed and a part of the community was a really amazing experience. From the teachers, to the kids, to the support staff, to administration, from top to bottom, I was accepted and allowed to see intimately their inner workings. I talked with

the VP about how much consistency there is between what I have been observing, what the children have been telling me, and what teachers have to say. It's almost eerie in a way because you would expect some inconsistencies I would think. It makes me feel like I really got to see the 'real' <school name> and no one was hiding anything from me (Friday, June10, 2011).

Conclusion

In observing this school environment and listening to what the teachers and these children had to say about their school, I came to realize that the school influenced student PIA behaviour in several key ways. The provision of DPA for students was focused mainly within the DPE initiative, augmented by two recess periods. Planned opportunities for PA in the classrooms were rare, resulting in children spending significant amounts of time throughout the day seated at desks. Attempts were made during indoor recesses to get children moving, but the majority of indoor recesses were spent in classrooms or small spaces where activities involved low levels of TEE and the gymnasium sat empty. At times there were difficulties in getting equipment outside to children, providing them with leadership in using the equipment, or making use of the large active spaces at the school due to an apparent lack of staff for supervision. In addition, the frequent use of free time during scheduled PE times resulted in a reduction in the intensity of PA relative to structured times lead by teachers. Finally, though not necessarily a PA constraint, the focus of the CSH program at this school appeared to emphasize the nutritional component and the promotion of PA seemed somewhat underdeveloped in comparison.

In observing this school environment and listening to what the teachers and these children had to say about their school, I also came to realize that the school attempted to increase and influence student PA behaviour in several key ways. Through the scheduling of DPE into the daily timetable and the establishment of a top-down expectation for delivery of DPE through a HRPE approach and the engaged participation in DPE by students, children were guaranteed one daily

period of PA, regardless of weather or other activities going on at the school. The school also supported the DPE policy and increasing the number of bouts or accumulated minutes of student PA per day through inclusion of PA components throughout the school day. This included indoor recess, during weekly assemblies, through random PA challenges and special school events spread out across the school calendar, and by establishing an expectation to go outside when the weather permitted. The school also had a variety of equipment and expansive spaces that were conducive to and available to promote PA, both in and around the school. And finally, through the use of a CSH framework, a culture of health was created at the school by a system of ‘champion’ community members who supported, cared for, and consciously encouraged other members of the community to make healthy choices. This included encouraging children to increase their PA participation.

CHAPTER 5

FINDINGS PART II: THE CHILDREN

The contents of this chapter provide descriptions of the children at the school and perceptions of the school environment influential to their PA and PIA behaviours reported by focal children. The information is presented in three sections titled *General Observations of the Children, PA & PIA Behaviour*, and *Perceptions of The Physical and Organizational Setting*. Children's perceptions of the environmental components of their school are presented and comparisons amongst children of varying levels of PA and PIA behaviour are made.

General Observations of the Children

As a school committed to an inclusive approach to education, the school offered programming for a wide cross section of children across the elementary grades. The students varied widely in educational needs, developmental, physical and emotional characteristics, personalities, socioeconomic backgrounds, interests, talents, and abilities. But of all the unique and widely different demographics that made up this group of students (Appendix A), they shared a few commonalities.

These children all lived in a rural area, which made riding to school in a bus or other motorized vehicle a necessity. Approximately 98% of the children rode the bus to school (Principal, personal communication, January, 2011) and it was not uncommon for children to tell me they spent an hour or more on the bus to and from school each day.

I found the children to be an "open, trusting, willing to share, engage, and participate, involved, great bunch of kids" (Tuesday, June 21, 2011). They looked out for each other, exhibited a great deal of care and concern for one another, and I did not witness a single fight or argument between children at the school. It was incredible to experience and I wrote about this sense of community frequently.

At times I was overwhelmed by how accepting the children were and by how welcomed they made me feel. I received hugs, high fives, knuckles, invitations to play, and salutations of hey 'Mrs. B.' on a daily basis. Nearing the end of my time at the school, I went to all of the elementary classrooms to thank the children

for their participation and talk with them about the next stages of my project. The journal entry from that day provides insight into what the children were like at this school and just how much I was affected by them.

I started with the grade 4/5 classroom. I pop in and ask the teacher if I could have 5 to 10 minutes of their time. The teacher says yes without hesitation, stops the class, and gets their attention for me. The class was very attentive and they thanked me for the things I've done for them while I've been here. They thank me for listening to them, playing with them, helping them when they're injured, and showing them how to do different skills in PE. I am really touched by this and a bit taken aback. Again I feel so grateful for how open, trusting, honest and accommodating these kids have been with me while I have been here. They have given me so much and taught me so much that I find it hard to even express this and put into words how thankful I am; and here they are thanking me. Next I move to the grade one class room. I pop my head in and ask for 10 minutes of the class' time. The teacher invites me in without hesitation. Stops the children and gains their attention for me and I feel very welcomed. The children are very attentive and involved (raising their hands to ask questions and give answers). The children once again start thanking me for being at their school, with all my ideas, the games I played with them, talking, listening and spending time with them. At one point they all get up out of their desks and come up to me giving me hugs, and high fives and thank yous. I get a bit emotional because again I am so thankful for what they have given me I hadn't even realized what I have given to them ...I finish up in the grade three classroom. I pop my head into the classroom and ask if I can have 5 minutes of their time ...The teacher invites me in, tells the students to put down their pencils, and gets their attention for me. This teacher makes me feel welcomed and engages in the conversation with me and the students ...We talk about the next steps in the process and what a thesis or dissertation is. I explain to them that I will be trying to bring all of my information together into one collective piece to tell a story about them and their school. I used

the story analogy because I remembered them working on story writing during my time here at the school. The children seem to relate well to the story analogy or writing a book as a way of explaining what I am going to do with all the things they have shared with me and what I have learned from them. They immediately become interested in what the name of my story is going to be. I tell them that I'm not sure right now what that will be but would welcome any suggestions they would have. These students had a tonne of questions and really engaged with me. The questions were really interesting and I was taken aback a little bit about how involved they were, the level of investment that my project seems to have for them. They want to know if they are going to be famous. This makes me laugh but mostly appreciative of the fact that they have contributed in a way that gives meaning to them personally, they are invested in my project, it has significant meaning to them and worth and I am so humbled by this. I again thank each and every one of them for their contributions, their participation, their openness, and their acceptance of me here at their school. I thank their teacher for the unconditional access to their class, the incredible participation, and everything they have shared with me. I again am overwhelmed with feeling so blessed to have been allowed to take on my project here at this school (Tuesday, June 21, 2011).

I did not feel as though the children were overly fazed by my presence at the school, my participation in and observation of their classes, or by my constant questions about what they were doing. A boy from Grade 3 (P19) responded "Nope. This is easy" when asked if my questions were too hard. A boy from Grade 4 (P4) responded "No, but this is good for me. I will be doing a lot in the future, when I'm a football star" when I asked him if he had ever participated in an interview before. Though it is difficult to establish this observation concretely, children commonly responded to me and the demands of the project in confident and easy-going ways as exemplified by these two examples.

The children also had a real sense of school pride and talked proudly about their school and what they did there. As a girl in Grade 1 (P18) described in her interview, her school was “the best because umm, we get to do a lot of stuff here, it’s really active, there’s a lot of stuff to do.” Often when children saw me in the hallways they would ask “Mrs. B, are you coming to watch us in gym today?” (Monday January 24, 2011) or “Hey look at me Mrs. B” (swimming lesson observation Friday June 10, 2011). The children also seemed interested in the research process, their role as ‘experts’ in the process, and teaching me about what happened at their school (e.g., what the rules were, who was allowed to play where, what the schedule was, what they did in certain spaces, how to play different games, etc.).

The use of the mapping activity proved to be a useful and valuable tool to build rapport with children as part of the interview process. The completed maps ranged from pictures of favourite spaces to be inactive or active in, to exact detailed maps of the school spaces. Some maps had people on them, some were illustrated with depictions of games, some included drawings of equipment, and some used color coding to illustrate PA and PIA spaces. The children talked easily about their maps and I was able build off of what had been drawn to generate conversation; the maps seemed to put them in a mindset of thinking about the components of their school. The children seemed prepared to answer questions about the school components related to PA and PIA after having participated in the mapping activity. As intended, the maps served as an excellent rapport building activity, helped to prepare the children for the interviews, and were a useful tool in generating conversation with the children during the interviews.

Overall, I personally found that the children handled the demands of an interview quite well, regardless of grade level or age. For the majority of the children, the interviews posed little to no challenge. Again this is difficult to quantify, but as evidenced by my notes related to these interviews, the children managed quite well in the interviews. My notes included descriptions of the children such as “focused, comfortable in the setting ... no difficulty with the process or the setting ... responses were lengthy, in depth, and quite well

verbalized ... handled probing of responses well and often would extend and expand upon responses on own without prompt or probe ... great sense of humour” (P1 Grade 2); “full of energy and is very talkative, has plenty to say and full of interesting thoughts that are freely expressed and is willing to share with me ... expands well when probed ... comes across as thoughtful” (P2 Grade 3); “an absolute delight ... calm, thoughtful, well-spoken and well-mannered. Not challenged at all by the questions or the interview process” (P5 Grade 4); “relaxed and quite forthright ... informative ... open and honest” (P9 Grade 5); and “forthright, open, honest ... basically just let them talk ... lots to say in lots of their responses to the point I didn’t have to probe their responses” (P11 Grade 6).

For five of the children, however, the interviews appeared to be more challenging. Their struggles appeared to relate more to their personalities than their age, grade level, or developmental capabilities. For these interviews, my notes included descriptions of the children as “quiet and guarded ... if I could get them talking about their interests and things they liked and was in to, they talked quite openly and freely ... did not respond well to probing of their responses ... did not expand on or give more detail easily ... extremely quiet” (P15 Grade 2); “wonderful sense of humour and is not shy at all. Did hesitate with responses at times ... felt like they were more guarded in their responses rather than shy or overwhelmed by this situation ... when I found areas of real interest to them, things they really liked to do, they opened up hugely and responded with excitement and depth in their responses” (P19 Grade 3); “fidgety and somewhat distracted ... length of the interview seemed to be a challenge ... questions did not seem too difficult ... it was difficult to keep their focus ... struggled to stay interested and engaged” (P8 Grade 5); and “hard to probe and get them to expand on their responses ... very quiet ... soft spoken ... not shy ... guarded in a way” (P10 Grade 6). Of these five interviews, I stopped one (P17 Grade 1) before its completion. In my review notes I wrote about what happened:

I could see the child getting visibly upset about 15 minutes in. There was no warning and it came on suddenly. He had about three I don’t know responses in a row and was rubbing his eyes a lot and was squirming in the

chair. I asked him if he was OK and as soon as I saw his face and his eyes were reddened I asked him if he wanted to keep going or if he wanted the interview to be finished. He said he wanted it to be finished. I stopped the interview immediately and thanked him for showing me his maps and participating in the interview. I walked him back to his classroom and told the teacher that he wanted to come back and finish the drawings they were working on when I took him from class (Interview note February 25, 2011).

PA & PIA Behaviours

During my time at the school, the Grade 5/6 split class participated in a wellness challenge organized for schools in the local county. This challenge provided some insight into PA behaviour in that it provided an example of one of the many initiatives that children at the school were often exposed to as a way of attempting to increase their active behaviours at school. In this community initiative, classes were challenged to be active everyday and track their activities for two weeks between the middle of February to the middle of March, 2011. Classes from K to Grade 9, in schools throughout the county, were invited to participate. From all of the entries submitted, 10 classes were eligible to win a trip to a large recreation complex for a day that included bussing and healthy food. The following journal entry reflects how the students did:

Before I left for swimming this morning I chatted with the grade 5/6 homeroom teacher for a bit just outside the gym. The grade 5/6 class has won a *<prize in the challenge>* for the second straight year. They are off to *<recreation complex>* after swimming. There they get to go swimming again, play gymnasium games, and get lunch all provided by *<name of the county>*. I am told this is the only class to win in our school division. The grade 5/6 PE teacher will be taking them. To win the class had to track their PA for one week and tried to increase it if they could. Whatever they did it was successful and they were recognized for it. Their teacher was very proud of them and deservedly so (Friday, June 10, 2011).

In terms of the focal children who participated in formal interviews, each elementary grade had a wide range of children who exhibited varying degrees of engagement in PA while at school. Again, though I did not specifically measure children's levels of PA or PIA behaviour, I was able to identify one child from each Grade that were representative of the three levels of PA behaviour based upon my observations over a three week period. The main purpose was not to 'define' or precisely 'measure' how active children at this school were, but rather to generate responses from a wide range of children who I thought represented all levels of propensity towards PA behaviour. These identifications of a child's behaviour could surely have been incorrect or inaccurate, however I did spend a considerable amount of time observing these children in PA settings and consulting with teachers about these observations.

Children whom I identified as HPA were observed to be highly engaged children who, no matter where I observed them, seemed to be doing something active within the school setting when the situation allowed. They stood out in that their movement levels seemed high in terms of TEE or intensity because when they moved they moved vigorously. Children identified as XPA had engagement patterns that were less consistent. For example, they could be seen involved in games like soccer or activities like home free during recess one day, but the next time I observed them during recess they'd be reading a book or sitting on a bench with friends on the playground. The intensity of their movements varied from moderate to vigorous. Children identified as LPA could frequently be seen in PE hiding themselves in games, frequently getting water, going to the bathroom, walking when they had been asked to run, and watching instead of engaging. They were often observed volunteering to help out in the library so they wouldn't have to go outside, or sitting at their desks colouring during indoor recesses. The intensity of their movements, when they were active, was visibly low.

Of the seven children identified as HPA, in six instances my perception corresponded with the child's perception of their PA behaviour. For the children identified as XPA, results were again similar with five of six instances of corresponding perceptions. However, for children I had identified as LPA, the

results were completely opposite. Only one of these six categorizations corresponded with the child's own perception of his or her PA behaviour.

When looking at where all of the 19 focal children would have placed themselves in the categorizations I used, eight thought they were HPA (the most active in comparison to the peer group), ten felt they were XPA (somewhere in the middle), and only one thought she was LPA (the least active among the peer group). Across all 19 categorizations of PA behaviour, in the instances where my perception did not correspond with the child's own perception of his or her PA level, the majority of these children (5 out of 7) considered themselves 'somewhere in the middle' in comparison to peers. In fact, when completely removing my categorizations of the children's PA behaviours and looking only at how active the children perceived themselves to be, the majority of these children felt they were sufficiently active (18 of 19) in relation to peers.

When examining responses about how the focal children knew this about themselves, two interesting patterns emerged. First, almost all of the children I interviewed, perceived themselves to be sufficiently active at school because they did "a lot of active stuff" (P11) and active things at school. They talked about participating in PE every day, going outside a lot, and being expected to do these things while they were at school. The children seemed to have developed the notion that their school was an active place and everyone there was active. Phrases like "there's lots of people in my class that are active" (P9), "we run a lot" (P1), "we're always active" (P6), or "that's what we do here" (P16), were frequently used by the children during their interviews. The children's responses seemed to reflect an understanding that being a part of this school meant being active; they understood it was expected of them.

Second, the children's explanations reflected an understanding that their PA and PIA behaviours varied from space to space, across the daily timetable, between days, from week to week, month to month, and season to season, for a myriad of different reasons. To put themselves at the top or bottom of a behavioural spectrum didn't seem to make a lot of sense to them. At different times and in different places at school, they could fit into all three of the categorizations I was using to

ask them about how active they were at school. Sometimes they were active and sometimes they were inactive, so it seemed to make more sense for them to average it out and place them self towards the ‘somewhere in the middle’ category similar to how a boy in Grade 2 talked about how he knew he was “right in the middle.”

I: Would you say you are one of the most active kids in your class, the least active kids in your class, or somewhere in the middle?

P(13): Right in the middle. A three. Medium.

I: You’re medium.

P(13): Sometimes, sometimes I’d be very active.

I: Sometimes you’re a one and at other times you’re a ...?

P(13): Five. And at when we work, I’m a ten. Like when we work and do math I’m a ten.

I: So you’re all of these things in one boy?

P(13): Mmm hmm.

I: So when you’re a, ah a five, average and in the middle, what kinds of things are you doing when you’re a five?

P(13): Sometimes in gym because when I run in gym I have to walk again.

I: Sometimes you walk in gym.

P(13): Yeah. We run run run around and then walk. One in gym, uh five in recess, and a ten at math and working.

I: At recess you’re a ...?

P(13): Five.

The children spoke consistently about how the spaces they were in, the time of the day they were in those spaces, and the purposes of being in those spaces at any given time, impacted their PA and PIA behaviours. In some situations they were active, in others they were inactive; some spaces allowed for PA, and others did not because of rules or the size of the space. In some spaces they could be both PA and PIA, but at different times during their day so their behaviours varied in these spaces (i.e., in the classroom during indoor recess they could be a bit more

PA playing mini sticks or Chinese skipping rope, but during class time they were PIA sitting in their desks). Some days they were highly PA in a space, and on other days in the exact same space they were highly PIA for a variety of reasons (e.g., the friends they were playing with, the weather, other interests, no room for them to play, had home work to do, favourite movie was on, had downloaded new game on their IPod, etc.). A girl from Grade 5 (P6) described her PA behaviours as highly related to the seemingly endless range and combinations of possible times and potential places for PA and PIA while at school.

I: I just want to ask you a few questions about the colour code that you used on your maps. So, here you have the gym labelled as?

P(6): Really active.

I: Blue. Really active. And you have the green as ...?

P(6): Sometimes active.

I: Sometimes active. And then the purple?

P(6): Kind of active.

I: Kind of active. What are the differences between these three levels of activity? Can you explain that to me?

P(6): Well active, we're pretty active but sometimes we'll, like we'll sit outside or something and not be too active. The gym, we're always active. Um, the music room, we're only active once and awhile. And our classroom, we're kind of active because we do it, play games, but we can't really run that fast.

I: Ok. Thank you. That makes sense. And over here, same thing you have inactive, kind of inactive, and sometimes.

P(6): Inactive.

I: Oh right. Inactive. So can you explain that for me again? What happens in those spaces?

P(6): Well the music room is kind of inactive because once in awhile we'll play a game. Computer lab is inactive because we can't really run in there. The library is inactive because we're not allowed to run in there either. Same with the office. The cafeteria is sometimes

inactive ‘cause sometimes we move the tables and if we have centres, we’ll have one in there.

Perceptions of The Physical and Organizational Setting

The Active Spaces at School. The children’s responses to the interview question “what are all of the active spaces at your school?” indicated that the playground and the gym were thought to be *the* most active spaces at the school. Active spaces were described by the children as being spaces where they got their heart rates up, where they could run, throw, move, sweat, and not worry about being too loud. The classroom and music room were also considered to be active spaces, but only some of the time and to a lesser extent (i.e., by a fewer number of children). The hallway and the boot rooms were also considered active spaces some of the time, but in these spaces the children felt they were limited in how active they could be. These spaces were also identified as active by a fewer number of children, and with the caveat that they were active space only during indoor recess times.

Table 5.1 presents the seven spaces mentioned by the focal children during the interviews, as places they felt they could be active at school. The table information also includes whether or not the space was seen as an active space all the time, or just some of the time. The responses of children from across the three activity categories thicken the description of the findings. The focal children had similar perceptions about how active they can be in various spaces at their school, regardless of the level of behaviour I had assigned them.

When asked whether there were sufficient spaces to be active at school, the children responded with overwhelming agreement. Even children who indicated they were in PIA spaces more often than in PA spaces nevertheless felt the school had enough PA spaces. Similarly, the majority of the focal children (13 children total; 6 LPA children, 3 XPA children, and 4 HPA children) indicated they felt they were provided enough time in the active spaces. Despite this, they felt they spent more time engaged in inactive rather than active pursuits at school. A few of the children mentioned they had heard friends at other schools received fewer PE

classes or recess periods, and some of the children spoke about what it was like before DPE (i.e., when PE was scheduled about two or three times per week) in comparison to having PE every day.

Table 5.1 – Active School Spaces

	LPA /6			XPA /6			HPA /7			Total /19		
	*	<	Ttl	*	<	Ttl	*	<	Ttl	*	<	Ttl
Outside/Playground	6		6	6		6	7		7	19		19
Gym	5	1	6	6		6	7		7	18	1	19
Classroom	3	2	5	1	2	3	2	3	5	6	7	13
Music Room	2	2	4	2	1	3	1	5	6	5	8	13
Hallway	2	1	3	1	1	2	2	3	5	5	5	10
Boot Rooms	1		1		2	2	2		2	3	2	5
Library		1	1	1	1	1		2	2		4	4

* always an active space; < sometimes an active space

The responses of focal children who felt they did not receive enough time in the PA spaces (6 children total; 3 XPA children and 3 HPA children) reflected beliefs that some of the active spaces (particularly the gym) were not being utilized well, as a boy from Grade 4 (P4) describes.

I: Do you think your school has enough active spaces?

P(4): (Pauses) Yes, but they're not using it that much.

I: Can you tell me a little bit about that? Are there some examples you could tell me about?

P(4): Well, at lunch, we ask, can we use the gym to play floor hockey for intramurals or stuff and they always need a supervisor so yeah. We can't.

These children wanted more access to the gym during indoor recess rather than in the boot rooms and made suggestions like having one more recess period per day to break up the classroom time, shortening the PE class by 15 minutes and spreading this 15 minutes throughout the day as movement breaks during classes, focusing more time to move in the gym during PE, or adding five more minutes to the AM recess in winter to provide enough time to get dressed and still have

enough time to play once the children were outside. In contrast, the six children identified as LPA reported that they received enough time in their PA spaces. Two students did say they would like a bit more time outside and in the gym, but most stated a preference for the computer room, music room, and the library (with less time to be spent in the classroom, outside during winter, and in the gym).

Of the six focal children categorized as XPA, two felt they received enough time in their PA spaces because they went to PE and outside everyday. They nonetheless indicated a desire to spend even more time outside, in the gym, and in the computer lab, and less time in both the boot rooms and the classrooms. Three XPA children perceived they did not receive enough time in the PA spaces and they wanted additional time in the gym and outside. They also wanted more time in the library, science room, and computer lab, and less time in the boot rooms, outside, hallway, and classroom.

Finally, of the seven children categorized as HPA, four perceived they received enough time in PA spaces while three others did not. Those who indicated they received enough time in the PA spaces wanted more time in the computer room, music room, library, playground, and the gym, and less time to spend outside and in the classroom. Those who said they did not receive enough time in the PA spaces wanted more time was wanted in the gym, and less time spent sitting in desks and in classrooms.

The Inactive Spaces at School. Inactive spaces were described as spaces where the children sat in desks or chairs, where they couldn't do anything or get up to move around, and they had to be quiet, still, listen, learn, and work. The children's responses to the interview question "what are all of the inactive spaces at your school?" indicated that the library, office, washrooms, and computer room were seen as *the* most inactive spaces at the school. The perceptions regarding the classrooms, hallway, lunchroom, and music room were mixed. As described by a boy in Grade 5 (P9), the classrooms were inactive because "we don't do anything active. She wants to make us smarter and like do PE because we already have that every day, every week, and they think it's like way too much." Some children explained that the classrooms weren't always inactive spaces because they were

able to be active in these spaces during special occasions, periods of indoor recesses, and at times during regular classes. As a girl in Grade 1 (P18) describes, “there’s two different places, places in the classroom that you can be active and non-active. We sometimes play bean bag boogie I think it’s called or, or we play tag sometimes. And for non-active we, we usually do our spelling test or stuff like that.”

In terms of the gym space, though it was seen as *the* active space at the school, some children still identified the gym as inactive some of the time. Specifically, two of the XPA children and two of the HPA children believed that the gym space could be inactive at times. Some of the explanations provided were related to times during team games when children had to sit and watch other teams and other players play, when they had to wait for their turns to play, or during inactive parts of some of the games played in the gym (e.g., Doctor Dodge ball; graveyard). Other reasons the gym was perceived as a place that was sometimes inactive were due to the time it takes for people to learn new things, organize, make teams, and to sit and listen to instruction; some of focal children felt this took away from their PA time. For example, a boy in Grade 2 (P14) talked frequently about the gym as a space that was inactive some of the time because:

... you have to sit down or stand there and you just have to listen. ... I try to work hard but yeah, I don’t know. ‘Cause I don’t know if I’m working my hardest or what, like for dodge ball, when I get out, I *hate* that or doctor dodge ball I *hate* that because you’re sitting down, you can be sitting there for five or ten minutes and nobody’s going to tag you and get you up.

A Grade 3 girl (P2) identified as HPA also talked about how the gym was sometimes an inactive space because

...sometimes the only time we are unactive in the gym is like if we are watching the other team play, sitting on the risers ... if we’re just sitting on the risers or playing a game, or if we’re playing grave yard or something ... or statues ... Grave yard is where there’s um, there’s one person who is it,

and they walk around and if they see someone moving, then they have to help them find, and the last person who's still lying down wins.

Table 5.2 illustrates the spaces children indicated as inactive spaces at their school, and how frequently each space was seen as an inactive space all or some of the time.

Table 5.2 – Inactive School Spaces

	LPA /6			XPA /6			HPA /7			Total /19		
	*	<	Ttl	*	<	Ttl	*	<	Ttl	*	<	Ttl
Library	5	0	5	6	0	6	6	0	6	17	0	17
Classroom	2	2	4	5	0	5	6	1	7	13	3	16
Hallway	4	0	4	3	1	4	5	0	5	12	1	13
Office	2	0	2	4	0	4	6	0	6	12	0	12
Lunchroom	2	0	2	4	1	5	4	0	4	10	1	11
Washrooms	2	0	2	3	0	3	4	0	4	9	0	9
Music Room	1	1	2	2	1	3	4	0	4	7	2	9
Computer Room	2	0	2	3	0	3	3	0	3	8	0	8
Boot Rooms	0	0	0	1	1	2	0	0	0	1	1	2
Outside/Playground	0	2	2	0	0	0	0	2	2	0	4	4
Gym	0	0	0	0	2	2	0	2	2	1	3	4

* always an inactive space; < sometimes an inactive space

Favourite and Least Favourite Spaces. Overall, focal children reported that the gym was their favourite space at school. This was *the most* frequent response given by the children, particularly by XPA and HPA children. The reasons XPA provided were because “you get to run around and play games” (P17), “we do a lot of exercise and get our heart rates up” (P1), “we get to play games and get active and I just like it so much” (P5), and “we have lots of things we can play with in there and it’s so much fun” (P11). The reasons HPA students provided were because “I like running around” (P16), “you play lots of games and stuff” (P14), “we get to take a break from class and we get so much running around and getting exercise” (P2), “I like the sports we get to play there” (P3), “we get to do it every day; it’s active, I like the sports we get to play there” (P4), and “I like to learn and play games and I like to be active” (P12). In contrast, favourite spaces for LPA children tended to be more inactive spaces, such as the computer lab, library, and

classroom. The reasons provided were “the classroom I love to colour ... the music room I just like to play different instruments ... the computer room I just like to sit and play games” (P18), “the computer room, computers, going on websites and stuff” (P19), “it’s the things you get to do and free time ‘cause there’s kids picks on the computers I really like that where you can go onto the internet and stuff” (P7), and “the library it has books and I like to read” (P10)

The space focal children most frequently indicated as their least favourite space was the classroom. However, there was much more variation in the responses to this question than the question about most favourite spaces, and this variation was not tied to children’s PA level. Explanations for why the classroom is a least favourite space included, “because of the work” (P19), “always sitting in our desks and never really getting up and doing anything” (P8), “we’re always just sitting in our desks and don’t ever get up to do anything” (P1), “you had to do a lot of work in your desk” (P14), “it’s like boring, like working, just watching and listening not really doing anything, it’s boring” (P2), “because we’re always sitting around in the desks” (P4), and “ ‘cause we sit there lots in the day, in classrooms we don’t do anything active” (P9). The children understood that they were at school to do school work and to learn but struggled with the amount of stationary work as reflected by a boy in Grade 6 (11).

... Yeah I hate writing. Well I like learning but I don’t like sitting in a desk, just going like this all day, just staring at a board and writing notes every day. I don’t like that. We’re learning a lot in there but we’re not getting active in there. Fifteen minutes maybe of walking around the class room, talking, or something, well not talking but walking around stretching or something, ‘cause you get sore sitting there six, about six, I don’t know, five hours a day ...

When the library was mentioned as a least favourite space, reasons given were similar to those given for the classroom; you can’t “really do anything active” (P6) and “you have to sit down and be quiet” (P3). A girl from Grade 6 (P12)

suggested that time spent going to the library could be spent being active instead and recommended the following:

...I don't think we're active reading or anything like that. I don't know because like you can read and all that, but I'd rather them assign reading for home or something at home instead of doing something active at school. So instead of just like sitting there I'd rather do it at home. I still do active stuff at home but then you have all the time you want instead of the time that you could be active in school.

For two of the children I had identified as LPA, the gym was one of their least favourite spaces. The explanation from a girl in Grade 4 (P7) was that she was “not a big fan of the gym. I do like dancing in the gym. That's fun. The gym is a good place I just don't like having to run around and the gym is so big when you have to run around the gym. It's just not my thing.” A girl in Grade 5 (P8) explained that “in the gym we have stretches after we run and then we have a warm up game and then we play the game. So we don't get straight to the game.” One LPA and one XPA student said they didn't like the outside space because “I don't like the bugs and the cold” (P10) and “it's too cold” (P17). Table 5.3 illustrates the spaces children indicated as their most and least favourite spaces at their school.

Table 5.3 – Favourite and Least Favourite Spaces at School

	LPA /6		XPA /6		HPA /7		Total /19	
	Fav.	Lst Fav.	Fav.	Lst Fav.	Fav.	Lst Fav.	Fav.	Lst Fav.
Gym	2	2	5	0	6	0	12	2
Computer Lab	3	0	0	0	2	0	5	0
Outside/Playground	0	1	1	1	2	0	3	2
Classroom	2	2	0	2	0	4	2	8
Library	2	0	0	1	0	2	2	3
Music Room	1	0	0	0	0	0	1	0
Lunch Room	0	2	0	0	0	0	0	2
Hallway	0	1	0	0	0	1	0	2
Office	0	0	0	1	0	0	0	1
Boot Room	0	0	0	1	0	0	0	1

Perceptions About the Equipment at School. The focal children felt they had more than enough equipment at school, with a lot of variety and choice. However, they also indicated there wasn't access or opportunities to use the equipment (the floor hockey equipment in particular). In addition, their responses reflected a desire to receive more ideas about how to play with equipment and the games the equipment could be used for. Favourite pieces of equipment for the LPA students were soccer balls, basketballs, playground equipment such as the slide and swing, foam bats, skipping ropes, hoola-hoops, scooters, and the drama equipment. The XPA students preferred Lego and Kinnext building blocks, floor hockey equipment, soccer balls, elephant-skin balls to play dodge ball with, and footballs. Favourite pieces of equipment for the HPA children were musical instruments, badminton equipment, the slide on the playground, the tug o war rope, sponge ball equipment, books, ankle skipping ropes, bungee cords to play Chinese skipping rope with, baseball equipment, and the scooters. Three students spoke about pieces of equipment they did not like to use at school: hoola-hoops because they couldn't figure out how to use them, basketballs because they couldn't hit a target "if their life depended upon it" (P11), and the Fitness Scholastic game because it was "boring and too easy" (P3).

Perceptions About Being Active With Teachers. When the focal children were asked how active their teachers are, most said their teacher was somewhere in the middle of all of the teachers at the school. When asked how they knew this about their teachers, children commonly used phrase like "because they make us run but sometimes they run" (P13) or "'cause sometimes they just give us the game to play and watch and sometimes they'll join in to play with a team that has less players, she'll go in there and help them get other people, like for dodge ball" (P9). Five children (3 HPA, 1 XPA, and 1 LPA) thought their teacher was one of the most active teachers at the school and used phrases such as "because she always plays the games with us" (P10) or "she leads us but she always does it too with us" (P11) to explain how they knew this about their teachers. Three children (2 HPA children and 1 LPA child) said they had a teacher who was one of the least active teachers at the school because "she's not really dressed for it" (P4), "they just say it

and then we have to do it” (P16), and “she mostly assigns us, ok let’s play dodge ball; sometimes she might work on her computer or assignments like ah doing tests or something. Sometimes she’ll join in to play” (P12), and “she doesn’t really play with us” (P15).

Overall, most of the focal children felt that they did more inactive than active things with their teachers at school, but still they received enough time being active with their teachers at school. Often the children indicated time spent being active with their teachers usually occurred during PE. When they were asked to estimate the amount of time spent with their teachers being active at school during a typical day, responses included: “half an hour to an hour per day. Pretty much all day except for in the gym and in recess we’re inactive with our teacher” (P19); “Usually they come out for recess but they’re not running around on the swing set or anything, they are kinda just walking around type of thing. So I’d have to say in the gym. Most of the time we only have one block for like active things most of the time we are sitting in our desks ...” (P7); “Not much. Forty five minutes every day in gym” (P9); “... probably like every day. In the gym. They make us run, sometimes they run ...” (P16); and “...we only get gym one block and two periods well gym, recess and then lunch recess with our teacher being active. Most things we do with teachers are inactive” (P5).

Overall, the focal children also expressed feeling supported and encouraged by their teachers to participate and engage in PA during the scheduled PA times during the daily schedule such as PE or outside recess. When probed as to how they knew this about their teachers children explained that their teachers “want to make us moving, she wants to get us on our feet and start to move” (P18), “push us a lot, they make you, they push you to do the jumping jacks or play the games” (P6), and “don’t like to see us sitting down for 50 minutes a day” (P11).

Perceptions About Choice. The focal children were mixed in their perceptions of opportunities to choose their physical activities at school. Their responses indicated that the number of opportunities for choice varied depending on where the students were and what they were doing. During outdoor recess for example, there was the illusion of choice for children; children had freedom to

choose what their activities but at the same time this choice was restricted by where they were allowed to play on the playground. As well, the children spoke of how they often took turns with friends in deciding on activities during. Free time given during regular classes or during PE also gave children opportunities to exercise choice, but in general the PE the teacher made most of the decisions or gave a choice between two things. Nevertheless, the focal children felt that they had sufficient opportunity to exercise their say in what they were doing and the majority indicated they enjoyed or preferred opportunities to choose their activities. At a minimum, they at least wanted to offer an opinion or vote in the final decision. If there was no agreement among students or if there was the teacher's choice was something they liked to do, the students were willing to accept the teacher making the choice for them.

Some focal children acknowledged that when the activity choice was left up to them, they often chose less active pursuits, or PIA things rather than PA things, particularly when an alternative option was involved the use of technologically. When teachers made the choice for them, or if there was no choice to be made, students were more active. A girl in Grade 6 (P12) had an interesting comment about the impact of choice on her PA and PIA behaviours:

... if I have the choice I'm an active person but I don't like to be active all the time like, out of like 100, I'm probably active like 90 percent of the time, and the rest, what makes it challenging for me is if the computer lab is open at recess, if it's go outside most of the time I'd pick outside but some of the time I'm kind of tired so I wanna go in the computer lab ... if there's no option then I'll go outside and be active a hundred percent, but if I'm given an option that's kind of not really active then some of the time I do it but most of the time I don't do it.

The children who participated in this study talked about a wide variety of things they liked to do at school. A girl in Grade 1 (P7) told me "it's hard to pick just one thing" or to decide whether her favourite pursuit was active or inactive because she liked to draw, use the computers, go in the gym, go outside, and play

music. A boy in Grade 4 (P5) told me he loved to play goalie in floor hockey because he had “lots of skill”, liked saving the puck, and played hockey outside of school. However, he also liked to use the computer to go on the internet (to “play games”), and to read a favourite series of books; he was currently on the third book. A boy in Grade 5 (P9) told me that he preferred active pursuits like hockey and moving around a lot, but he also liked to play with his IPod Touch during indoor recess (when the boot room was full and because he had “awesome games on it”).

I: You mentioned that sometimes in indoor recess you have to be in your classroom. What do you do in this space?

P(9): Mmm, not much. I can’t really move around in there so I just go to the boot room and if there, if it’s full, so I just play my IPod.

Table 5.4 reflects the range and variety of PA & PIA items the children liked to do at school regardless of their identified level of PA behaviour. The table represents the total number of children who indicated during their interview that the item in the left hand column was one of their favourite things to do at school.

Table 5.4 – Frequency Count of Children’s Favourite Things At School

	LPA /6	XPA /6	HPA /7	Total /19
PA/Sports/Play Games/PE	3	6	7	16
Computers/Electronics/TV	3	3	4	10
Reading/Writing	1	3	2	6
Music/Singing/Drama	2	1	2	5
Art/Drawing/Coloring	2	1	-	3
Going Outside	1	1	1	3
Be with Friends	-	2	1	3
Lego/Blocks/Centres	-	1	1	2
Science	-	1	-	1

Overall, a larger proportion of students categorized as XPA or HPA liked PA, sports, playing games, and going to PE, compared to those identified as LPA. However, three out of six LPA students also reported that they liked PA pursuits at school. Though the majority of XPA and HPA children liked to engage in a greater variety of PA pursuits at school, these ‘more active’ children also liked PIA

pursuits such as surfing the internet on the computers at school. The variety of PA and PIA pursuits children like to do reflects not only the contextual nature of children's PA and PIA behaviours at school, but it also highlights a weakness of the 'all or nothing' approach used to categorize children's PA and PIA behaviour. Regardless of how active I thought a child was, or even how active the child perceived him or her self to be, all of the focal children had favourite things to do and participated in a variety of PA and PIA activities at school.

The impact of children's interests and the influence on PA behaviour came through frequently and consistently throughout my observations of focal children. A prime example of this was during one of my observations of a girl from Grade 4 (P7). In the interview the child was very up front about not being very physically active and needing "to be more active." She was also quite forthright about not enjoying PA, saying "... I don't like, 'cause I'm not really, I don't like being active really, it's not my thing." Nevertheless, during the interview she spoke about skipping as being a favourite thing to do at school, because she thought she was really good at skipping. She added that by doing it at school, it helped her practice to get better at it. I subsequently watched this child during a PE class and it was clear that she had spent a significant amount of time skipping.

...remainder of gym they have free time to choose whatever they want to do. <P#7 name> has a skipping rope. For someone who has professed themselves as being a non active person and activity as not being their "thing", this child is very good at skipping rope. She asks me if I'd like to see some of her skipping rope moves and I say yes. She skips so well, surprisingly well. She skips rhythmically with speed both forwards and backwards. She can do cross overs back and forth in front of her without breaking the rhythm. Very impressive ... very surprised by this ... are they just simply LPA? Is this a fair assessment of their PA behaviour? Does this use of a category tell the full story or provide a more complete picture of how active they are? NOPE!??? (Thursday, March 3, 2011).

Many children spoke about being interested in a game or activity and how this had influence on their PA behaviours, as described by a boy in Grade 6.

I: I see you have the gym on your inactive map as well?

P(11): Yeah.

I: Can you talk to me a little about why you think the gym is also an inactive space?

P(11): Well, the gym can be sometimes. Um, the gym sometimes 'cause you have to sit down and sometimes you have to listen in to what ah the teacher has to say, so you're just standing there. Or some other games like, ah, I know some games that I'm not very active in because I don't really like them.

I: Which games would those be?

P(11): Like um, I can't remember its name but ah, sometimes dodge ball because I'm just dodging it. I'm standing there catching the balls 'cause I'm on alert. I just stand there. And yeah.

Perceptions About Responsibility. The LPA and XPA children believed the teacher was primarily responsible for getting them moving at school, though one LPA girl (P15) responded “well um probably me” and one XPA boy (P5) responded “my teacher and my friends” when they were asked who's responsible for getting you moving at school. The HPA children were different from either the LPA or XPA children in that their responses seemed to reflect a much greater personal responsibility for getting and keeping themselves active at school. Their responses reflected a much more shared or distributed sense of responsibility among their teachers, their friends, and themselves; they were responsible for their own PA behaviour, but they also received support and encouragement to be active from teachers and their friends while at school. Responses to this line of questioning included “it's my job” (P14), “my friends at recess, my PE teacher and my classroom teacher for in gym, and me” (P2), “me” (P3, P4), and

Um probably my teacher or um like my friends say come on let's go play

this. I'm also always finding something to do, I'm not like just sitting there at recess thinking of something to do, I always like, I don't know, not pre think ahead of time 'cause I'm like I'm an active person so I'm always thinking active so I always play" (P12)

When I probed children and asked them to elaborate on how friends played a role in how active or inactive they were at school, the conversation often led towards how children had both active and inactive friends. How active they were would as a result depend on which 'type' of friend they were playing or spending time with, as a girl in grade one (P18) explains:

I: Would you say you are one of the most active kids, the least active kids, or somewhere in the middle of all the kids in your class?

P: Somewhere in the middle.

I: Somewhere in the middle. If the number 1 meant being the *most* active and the number 10 meant the *least* active, what number would you give yourself?

P: Aaa, five. That's kind of in the middle.

I: In the middle.

P: Maybe, at, a, um, maybe at a six.

I: Maybe at a six. Ok so five to a six, somewhere in there for yourself. Ok and how do you know that about yourself?

P: Um, I don't know, I just don't wanna be like, too much, like, like um, ... like, I'm treating the other people like, like I'm leaving out then. Yeah.

I: Ok. Can you talk to me a little bit about that? You don't wanna leave people out.

P: Sometimes I do, because like (says two friend's names) want to play with me and (says third friends name) gets left out a lot and so I start to play with them. And (says fourth friend's name) starts to cry because (says two friend's names) are kind of being a little bit mean to her.

- I: Ok, are some more active than others?
- P: Yeah.
- I: And then what happens when you make the choice to go with them?
- P: I tell them that, that um, sometimes I'll play with some and sometimes I'll play with the others or I'll play with them all.
- I: Ok, so are some active and some inactive?
- P: Yeah.
- I: So when you choose, play with your inactive friends, what happens?
- P: I'm going to stay inactive with them, I'm not going to like, make them do something.
- I: Right, and then when you play with your active friends?
- P: We will usually go out and play soccer and stuff.
- I: And then that means you are?
- P: More active.
- I: Hmm. Interesting. That's a really interesting point of view. Thank you for sharing that with me. That must be hard.
- P: Yeah. We can be, I can play with both.

Conclusion

Based on the findings of this study, comparisons of perceptions of children with different levels of PA behaviours did not emerge as clearly as had been originally anticipated. However, there were two slight and two more pronounced differences that emerged between children who I had perceived to be active versus those children I had perceived to be less active at school. The two more subtle or less pronounced differences were in their interests or favourite things to do at school and the amount of time they wanted to spend in PA spaces. The two more pronounced differences were the children's favourite and least favourite spaces, and recognition of personal responsibility for their PA behaviour.

The children who I had perceived to be less active at school indicated favourite things to do that were both active and inactive, however their expressed interests tended to favour more inactive things like computers and reading. The less

active children indicated they spent enough time in active spaces and did not ask for more time in these spaces. These children also indicated favourite spaces that were more related to inactive spaces like the computer room and the library. Unlike XPA and HPA children, a number of the LPA children did not indicate the gym as a favourite space with two even indicating the gym as being their least favourite space. Less active children also exhibited little recognition of personal responsibility for their own PA behaviour while they were at school. Rather, they believed it was their teacher who got them moving while at school.

Similarly to less active children, the children who I had perceived to be more active at school indicated favourite things to do that were both active and inactive, however their expressed interests tended to favour more active things such as playing sports and going into the gym. Both the XPA and HPA children indicated the gym was their favourite space. Unlike the less active children, the more active children expressed that they would like more time to spend in the active spaces at school, as well as spend a greater amount of that time being active while they were there. More active children also expressed a greater recognition of their own role in being physically active at school. These children acknowledged a personal responsibility for getting themselves moving while at school in combination with the help and support they received from their teachers and friends at school.

In an attempt to uncover children's perceptions of the components of the school that were most constraining to their PA behaviours at school, I asked the children to talk about the things (at their school) that made it really hard for them to be active at school. The most frequent response was the amount of time spent in PIA spaces where they were expected to sit, listen quietly, and do their work. In particular, the children spoke about how inactive spaces, such as the classroom, were constraining to their PA behaviours because of the amount of time they spent sitting in desks and not being able or allowed to do active things. The computer lab, science room, and library were spoken about in a similar vein. Talk of teachers was often included in the conversation about the classroom spaces, because the children felt teachers did not like it when they were moving or not quietly at their work

while in this space. Other school components the children thought made it difficult to engage in PA included having to try to be active in smaller spaces that did not allow for them to really move (e.g., the boot rooms, the hallways, and the classrooms), time spent having to learn new games or activities in PE, having to sit and watch while waiting for a turn during PE, insufficient time to get clothing on prior to recesses, the influence of friends who wanted to do inactive things, the negative impact of having to share the gym space on movement, and the impact choice sometimes had during periods of free time when inactive options were available (e.g., access to computers in the library rather than go outside during recess).

When the focal children were asked to talk about the things at their school that made it really easy for them to be active, the responses overwhelmingly indicated that having PE and the opportunity to go to the gym once a day, every day (i.e., DPE) was influential for increasing PA behaviour. However, when the focal children talked about DPE, their responses reflected an understanding that DPE was a scheduled component of the day, that teachers were required to make sure children received DPE and, that the teachers expected and encouraged them to participate and fully engage.

The children also frequently mentioned being active with, and receiving support and encouragement from, friends and teachers as things that made it really easy for them to be active at school. Children talked about friends energizing them during recess, encouraging them to move through invitations to play games, and just spending time with friends doing things they both liked to do. They also talked about teachers caring how active they were and not liking to see them engaged in PIA behaviours for extended periods of time. The children talked about teachers making them go to the gym, making them do “active stuff”, and being active with them as important ways to help them engage in PA at school.

Three children also spoke about having to go outside for recess as something about their school that made it easy to be active. These responses reflected an understanding that despite not really liking being cold or how the cold and outdoor clothing restricted how much they could move, being outside provided

them with a break from sitting at their desks, gave them time to spend with friends, and increased the likelihood they would do something active like play soccer, slide down the hill, run in the snow, build forts, or just play, when the weather permitted. In addition, two children spoke about being active in the music room and one talked about the amount of equipment they had at the school as components that made it easy to engage in PA at school.

CHAPTER 6

DISCUSSION AND CONCLUSIONS

The purpose of this qualitative case study was to gain insight into the relationships among school setting, student perceptions of that setting, and PA and PIA behaviour. Children's perceptions of various aspects of the school environment were explored to reveal components perceived by children to have influence on their PA and PIA behaviour while they are at school. The study explored the following central question of interest: "How do elementary school-aged children perceive their school's environment and its influence on their active and inactive behaviours while at school?" Three additional questions related to the issue at hand (Stake, 1995) were also explored to help in answering the central question: (1) What are the contextual variables of the school that appear to constrain or enable children's PA and PIA behaviours, (2) How are perceptions of the school environment similar or dissimilar for children with different levels of PA and PIA engagement, (3) How do perceptions of external physical and social supports influence the types of activity a child engages in at school? These questions were answered by exploring the PA and PIA context of one school environment, the perceptions students had about their PA and PIA behaviour and their school environment, and by identifying key components within the school environment the children perceived as influential to their PA and PIA behaviour.

The first part of the chapter presents a discussion of the findings in four sections. To begin are three sections that address the three questions that were related to, and helped in answering, the central question. Namely these sections are: *Environmental and Intrapersonal Variables Influential to PA and PIA* attends to question 1, *Comparisons Among Varying Levels of PA & PIA Engagement* attends to question 2, and *The Availability of Supports versus How Supports are Perceived* attends to question 3. This is followed by a discussion of the central question of interest to this study in the section titled *The Central Question*. In relation to the research literature, this discussion explores the complex nature of PA and PIA behaviours at this school by examining where relationships between the school

environment, children's perceptions of this environment, and children's activity behaviours at school were evident. To complete the chapter, the role of theory is discussed. The chapter is then brought to a close with a presentation of the limitations of this study, areas for further study, practical implications, and concluding remarks.

Environmental and Intrapersonal Variables Influential to PA and PIA

Through consideration of the school's environmental system and the children's perceptions of the factors within this environment, attempts were made to understand the factors children perceive as influential to their PA and PIA behaviours while at school. This exploration also helped to make sense of why children made the choices they did when they were in this environment.

In relation to the question, 'what are the contextual variables of the school that appear to constrain or enable children's PA and PIA behaviours?' findings from both the examination of the school setting (Chapter 4) and the children's perceptions about their school (Chapter 5) revealed four key factors that have influence on the PA and PIA behaviours of these children at school. These include DPE (environmental factor), PA throughout the school day (an organizational factor), social support (a social factor), and interest (a personal factor). According to Bandura's (1986) SCT and Moos' (1979) social ecological framework, personal and environmental factors of a setting influence each other. At the heart of these theories lies the principle assumption that behaviour, personal factors, and the environment all exert bidirectional influence on one another. The relationship among person, behaviour, and environment is referred to as *reciprocal determinism*. The principle assumes that these three components are constantly influencing each other and a change in one could have implications for change in the others (Baranowski et al., 2002). What follows is a discussion of components each of the four influential factors identified in this study, including attention to the principle of reciprocal determinism where appropriate.

DPE: An Environmental Factor. The provision of DPE at this school appeared to have had a significant impact on the children who participated in this study. I had determined, through my observations at the school, that the

establishment of an expectation for DPE for teachers and students at the school was a key support for student PA behaviour. The children's interview responses, irrespective of their level of PA behaviour, also indicated that DPE and having the opportunity to go to the gym every day was a key support for their PA behaviour while at school. Therefore, it appears that DPE was not only helping these children to engage in more PA, but DPE may also have been helping to 'anchor' the children's interest in PA by going to the gym at school.

Chen and Zhu (2005) have reported that the number of PE classes and recess sessions per week is positively related to interest in PA in children. As a result, it was recommended that school (and PE in particular) should play a dominant role in providing substantial opportunities for children to take part in physical activities. The DPE children received at the school in the current study could be considered as one example of the process of reciprocal determinism or how the relationship between person, behaviour, and environment can work. Providing children with daily hands-on PA through DPE helps to nurture their interest in PA, define the child-PA relationship that is anchored on PA, and evoke continued interest in PA. In light of how interest is influenced by the active engagement or participation in activities offered by an environment, providing daily opportunities for physical education can exert influence through the individual by evoking interest in and participation in PA.

The finding that participant children felt the DPE they received at school was a significant influence on their PA behaviour while at school is consistent with other reported findings regarding PE in the research based literature. Physical education has been shown to be a correlate of PA in youth (Van der Horst et al., 2007) and has been linked with favourable increases in school based, recreational, and overall PA of children and youth (Cavill, Biddle, & Sallis, 2001; Corbin & Pangrazi, 2003; Luepker, et al., 1996; McKenzie et al., 2000b, Myers, Strikmiller, Webber, & Berenson, 1996; Sullivan, 2002). Students who participate in more frequent PE classes throughout the school week have been reported to have higher levels of PA (Cradock et al., 2007). As reported by Castelli and Erwin (2007), who examined 9-year old children's PA engagement within the home and community

based-programs, regular participation in PE is a contributing factor to the PA of children. Literature on school based strategies and comprehensive approaches to promoting PA for children at school also present PE as an effective and promising policy for PA in schools (Lagarde & LeBlanc, 2010; McKenzie et al., 2000b; Myers et al., 1996; Naylor et al., 2006b). Findings from this study support the important role DPE has to play in promoting PA behaviour while at school.

My intentions for this study were never to evaluate or judge what the school was doing to promote student PA activity or how it was being done, but rather to identify components of the school that the children themselves perceived as influential to their PA behaviours. The DPE approach at this school became important to examine because of the significance it played as an organizational factor at the school. It also became clear that not only was the DPE program a significant component of what the school was doing to promote PA in the eyes of the teachers, it was also a significant environmental influence from the students' perceptions.

My characterization of the approach to PE at this school included comparisons to HRPE, programs that essentially encompass the skills, attitudes, and understandings associated with the adoption of active lifestyles. PE's contribution to health is an explicitly planned learning outcome, rather than an implicit by-product of participation (Harris & Cale, 1997). The focus of teachers at this school appeared to be more on getting as many kids as possible, as active as possible, for as long as possible, through a variety of active games. Fun, enjoyment, active participation, and high levels of PA were the observed and expressed goals and objectives for the large majority of the elementary teachers. Efforts to promote PA participation within this school also had an underlying, somewhat implicit objective of encouraging PA participation outside of school.

The characterization of what a 'daily, quality, safe PE' program is, what it consists of, or how it is delivered has been a persistent and at times contentious debate within the literature (Green, 2000; Kay, 2003). The extreme variety in the purposes, roles, goals, aims, and objectives for PE, that have been delivered through a range of contexts, has fuelled debate around the place of sport and

competitive games in PE, the role of PE in health promotion, and the extent to which PE can or should be viewed in an academic light (Cale, 2000; Reid, 1996). There are those who would characterize quality PE as lessons in which heart rates remain elevated for as long as possible (e.g. McKenzie et al., 2000a), where high levels of PA or exercise are focused on, and less focus is spent on skill development (Thomas et al., 2004). There are also those who believe quality PE should be a balance of skill development, PA, and health goals, where children learn a range of knowledge, understanding, awareness, skills, strategies, and attitudes which permit and promote current and future involvement in PA (Harris & Cale, 1997; Weiss, 2011). Still others believe PE should concentrate on the development and acquisition of physical skills through competitive, performance-oriented sports (Penney & Harris, 1997). The ideas, programs, and research findings related to school PE is seemingly endless. However, regardless of where one stands within the debate, there has been broad consensus across physical educators (myself included) that there are two universal, underlying, implicit, and explicit objectives of PE across schools: the promotion of ongoing, active, life long participation in PA (Green, Smith, & Roberts, 2005) and the positive development of youth (Weiss, 2011).

In attempts to understand the place of PA in the lives of youth, some qualitatively minded leisure studies researchers have asked youth to talk more generally about their lives. From this work, PA has emerged as being connected to young people's sense of themselves and their identity (Green, 2004; Wright, Macdonald, & Groom, 2003). Conclusions drawn from these findings have suggested that young people are not responding to factors or specific influences necessarily, but rather building images of themselves out of the variety of identities that Western culture make available to them. Out of this reasoning has surfaced the conceptual shift towards recasting and extending the notion of participation towards that of engagement with 'physical culture' as a way of explaining and exploring how and why young people use or avoid PA in their lives (Green, 2004; Wright et al., 2003). This work has called for the "Focusing on the broader concept of physical culture rather than physical activity ... to account for the complex

interactions of practice, space, subject, knowledge, and embodiment of understanding everyday experience.” (Wright et al., 2003, p.18).

As a result of this work, the suggestion has been made that lifelong participation in PA is likely to be achieved through a PE approach that emphasizes the establishment of a context in which young people are likely to acquire and routinize wide sporting repertoires that have a tendency to lead to ongoing participation. To promote life long participation in PA, PE would be better served if it moved “with the prevailing tide of young people’s leisure life styles” (Green, 2004). In other words, shift away from concentration on competitive and performance oriented sport in PE and concerns with the levels of PA youngsters attain. Move towards allowing degrees of choice that provide children with opportunities to exert some control over what, how, and with whom they do activities. As well, include more recreational activities that are likely to be participated in during adulthood and encourage the development of basic competencies in, and familiarity with, those activities. According to Roberts and Brodie (1992), it is the number of different activities that young people play regularly and become proficient in during childhood and youth that is critical. This is what constitutes the richness of some young people’s involvement and become the chief characteristic that marks out early socialization of those destined to become ‘locked-in’ to sport and PA as adults.

When looking closely at the call for PE contexts that provide routine, skill development, autonomy, and a variety of leisure based experiences, the DPE program delivered by the school in the current study was an efficacious approach towards promoting ongoing PA participation. Though there was not a primary focus on fundamental movement skill instruction through DPE at this school, the DPE program did provide routine by being scheduled into the daily timetable, encouraging student autonomy, and providing a variety of experiences. The DPE program was also delivered by teachers who fostered warm, caring, and respectful relationships with their students, which is considered to be important for effective school programs (Weiss, 2011).

Interestingly, many children indicated that they were not too happy when too great of an instructional focus interfered with their time to be active while in PE. In fact, a number of focal children expressed time taken for instruction or time needed to learn new things in PE as a constraint on their PA behaviour. A few of the teachers also stated in their interviews that they lacked implementation skills, and when presenting new games or skills they were often faced with resistance from the children who just wanted to play and get moving. During my time at the school, it was difficult to ascertain how the school had come to adopt the PE program they were using. However, perhaps this is another example of reciprocal determinism or activation and adaptation (Moos, 1979b), where the environment has been appraised and has been assessed as requiring a response.

Activation prompts effort by the individual to act by adapting or employing coping strategies, such as denying the situation in response to the appraisal. Ultimately, one's efforts to adapt have the potential to affect systems within the environment, the behaviour itself, and personal indexes like interests, values, self-concept, aspiration, and achievement levels (Moos, 1979). This behavioural, environmental, and personal process results in either stability or change in one or all of the behavioural outcomes, the environment, or the personal indexes (Moos, 1979). And as previously noted, these three components are constantly influencing each other; a change in one has implications for change in the others (Baranowski et al., 2002). The DPE at this school may perhaps be an example of this process. Children who see time used for instruction as time taken away from being active, may have become vocal about and resistant towards instruction during PE. Teachers who lacked the instructional and implementation skills to overcome the resistance put up by children may, as a result, have left skill instruction in PE behind, instead focusing on a variety of games, fun, enjoyment, active participation, and high levels of PA that these more vocal children respond more favourably to.

PA Throughout the School Day: An Environmental Factor. Through observations of the school context and interviews with focal children, the lack of PA for students across the school day and the significant amounts of time that

children spent seated at desks were identified as a significant constraint on the PA behaviours of children while at school. Responses from a large number of children who participated in this study indicated that they spent “a lot” of time seated in desks, felt they were more inactive than active at school, and wanted to spend smaller blocks of time sitting while at school. The children demonstrated an understanding and acceptance of being there to do school work and learn, but indicated that shorter bouts of PA and opportunities to get up out of their desks and engage in active learning spread out and woven through their school day would help them while at school.

Attempts made to promote PA participation at this school, interestingly enough, occurred in an environment where teachers were facing increasing pressure to achieve academically, while still attempting to deliver daily PE and PA with reduced manpower and staff, and minimal training in the field of PE and PA promotion. Time set aside for, and number of PE classes and recess sessions per week, as well as school sport opportunities (e.g., intramurals) were all being questioned at this school. How to balance and face these substantial pressures is an issue being faced by the vast majority of school administrators, teachers, parents, and children in schools today (Lidner, 2002), as was the case for this school community in the current study. I got the sense that it was becoming increasingly more difficult for these teachers and this school to devote school time to PE and PA. As a result, the school environment had areas with the potential to enable and support PIA behaviour. Factors such as school policy, lack of teacher education, rules in relation to safety, risk, and liability, and inconvenience have all been reported as having the potential to promote inactivity and create an educational environment where inactive messages outweigh active ones (Dollman, Norton, & Norton, 2005). Lack of teacher education and a mixing of PA expectations were certainly two factors evident at this school and that surfaced within the children’s responses.

Children are generally required to sit quietly for the majority of the day to receive academic lessons. In a typical school day, this represents approximately six hours, and may be extended by 30 minutes or longer if the child does not actively

commute to and from school (Donnelly et al., 2009). The sedentary components of a school present barriers for PA behaviour and have the potential to interfere with messages to promote PA and health. Unfortunately however, based on my observations and interviews with teachers, not only was it uncomfortable for teachers to include PA as part of what they did in the classroom, they also had significant curriculum, provincial exams, reporting, individualized educational planning, and risk-liability pressures on them that made it difficult to include PA in what they were doing in the classrooms. In addition, the teachers often spoke about their minimal educational backgrounds and implementation skills to integrate PA components into what they were doing in the classroom. They understood what was expected of them in terms of curricular requirements and had ample resources such as books, manuals, and guides, to the point where it was almost too much, but they expressed a minimal amount of practical knowledge and skills for implementation.

The children reflected thoughts that their teachers did not like it when they moved around during core class times while simultaneously they were getting messages and encouragement from the teachers to move and be PA. Considering the importance of messages children receive from significant others for their PA behaviour, I frequently wondered about the impact these mixed messages may have had on cementing the expectations of PA at the school and the change in attitudes and behaviours. I was frequently struck by how the children spoke of the two different messages they were receiving from teachers. Bandura (1998) asserts that a serious commitment by all teachers to increase children's daily activity by integrating movement into classroom activities could have a positive effect on the health status of children. That is, if classroom teachers could include bouts of physical activity into the total learning experience, they may significantly influence children's healthy behaviours and lifetime choices (Weinstein & Rosen, 2000). By aligning into one consistent message of PA throughout the day, teachers could have a strong impact on solidifying the expectation of active participation that they try to model and expect from their students while at school, not to mention the impact this could have on enhancing intellectual health and success at school by getting children moving more throughout their day at school.

Social Support: A Social Environmental Factor. I observed a culture of health that had been created at the school by teachers who appeared very supportive, caring, and encouraging of students to make healthy choices and increase PA participation. The children suggested that the amount of involvement and interaction with friends and teachers were significant influences on both their PA and PIA behaviours while at school. In fact, peers and teachers were the only influences children talked about in reference to reasons why they were both physically active and inactive while they were at school. This highlights the critical role and impact significant ‘others’ had on the active and inactive lives of the children at this school.

Social agents, such as peers and teachers, are conceptualized by Bandura’s (1986) SCT as features of an individual’s environment involved in the triadic reciprocity process. The reinforcement that social agents provide to individuals is considered to be an important influence on behaviour. Children in the current study reported receiving support and encouragement for PA from both their teachers and friends. In the literature, peers in particular are reported as playing important roles in the PA behaviour of children and youth (Smith & McDonough, 2008). Weiss and Stuntz (2004) provided an extensive review of the theoretical perspectives on peer relationships, the significance of peers during childhood and adolescence, sport related research on peer influence, and peer influence in the physical activity domain. Within this review, the authors discuss the influence of peers within PA contexts as occurring through peer acceptance and popularity status, peers as sources of self-perceptions, affective experiences and motivational processes, friendship, and moral development.

The work on peers and inactivity, however, is limited and somewhat equivocal. A few children who participated in the current study did discuss the impact of friends’ activity levels on their own activity levels at recess. They indicated that playing with more active friends during recess resulted in a higher personal level of activity whereas playing with less active friends meant they were less active themselves. Gyurcsik and colleagues (2006) reported similar results with older children and identified having inactive friends as a potential barrier to PA.

Smith (1999) has also reported the connection between perceptions of friendship and peer acceptance in the physical domain and preference for physical activities and one's degree of PA. Conversely, Taylor and colleagues (2002) reported that peer influences such as friends' PA frequency, friends' encouragement, and friends' participation in activity are not related to the sedentary behaviours of children.

The children of the current study reported that the PA participation of the people around them at school, their friends and teachers, were somewhere in the middle to high levels. These perceptions are similar to the children's perceptions of their own PA participation levels. The similarity between the children's perceptions of their own behaviours and their perceptions of the behaviours of others may be related to the concept of vicarious learning, otherwise known as modelling. Bandura (1986) introduced vicarious learning as an important contribution of social agents to the PA participation of youth. Vicarious learning is thought to be the process by which the visual or verbal information contained in the actions of others is perceived, stored as cognitions in memory, and then converted back to one's own thoughts, feelings, and actions. The modelling process, and the motor skill and psychological outcomes that result, have been extensively studied (see McCullagh & Weiss, 2001, for a review).

According to Bandura (1986) peers, in particular, operate as behaviour change agents for one another through the processes of modelling, reinforcement, and punishment. Starting at young ages, children often use each other as a means of learning social behaviours and a variety of skills, including motor skills. Peers also serve as a source of information by which children judge their abilities in specific achievement domains. In essence, peer 'models' serve as sources of information and motivation for similar age observers, and are standards of social comparison that allow children to determine their relative rank or standing within the peer group on certain skills, abilities, or behaviour. As the findings of the current study indicate, the children's explanations of their PA participation levels continuously and repeatedly went towards comparisons to others. Rarely if ever did their explanations turn inwards towards themselves or the specific things they did that

would inform their level of PA participation. Rather, they talked about how it was expected of them to be active at school, how active their best friends were, how active their class was, about watching how hard someone else worked in the gym, and comparing themselves to these standards. If the environment has established an expectation for PA and if people around the child are perceived as physically active, according to the process of vicarious learning, the child will be more likely to engage in PA him or her self. This is one of the more significant and important examples of how the reciprocal relationship between person, behaviour, and environment can work according to the process of reciprocal determinism.

Harter's (1978) competence motivation theory and original works on the development of the self, have been applied extensively in youth sport and also suggest pathways that social agents foster motivation in particular achievement domains. Competence motivation theory specifies that in a mastery domain such as PA, behaviours increase or decrease motivation for pursuing such behaviours in the future, as a result of the responses provided by significant others, affect, and self-perceptions. Significant others, who provide reinforcement, modeling, and approval of mastery attempts, foster a child's internalization of rewards and goals, enhancing their perceptions of competence and internal control. The result of this pathway is the generation of positive affect and the enhancement of motivation. Lack of reinforcement, modelling, or the expression of disapproval of mastery attempts results in child dependence on others for rewards and goals, increased perceptions of incompetence, and external control. The result of this pathway is the generation of negative affect and the undermining of motivation. Consequentially, how significant others respond to children in the PA domain has critical impact on a child's perceptions of self, affect, and motivation towards PA.

Teachers can reinforce affective objectives of PA they wish students to acquire through role modelling the behaviours themselves, making expectations clear and learning experiences positive for all students, and by helping students try new things, explore new perspectives, and begin to take responsibility for their actions and independence (Rink, 1998). The elementary teachers I observed at this school exhibited a high level of care for the well-being of their students and were

focused on ensuring each student was actively engaged and participating in the PA settings of the school, regardless of skill, ability, etc. The teachers appeared to be trying to create positive PA settings for the children by exposing them to a variety of traditional and non-traditional games, as well as by offering them plenty of choice and voice within these settings, establishing expectations for active engagement in PE and recess, encouraging ownership, providing opportunities for decision-making, and rewarding children for their full and active engagement in PA settings. The children who participated in this study frequently spoke of the support, motivation, and direction they received from their teachers as important reasons why they were active at school. They felt their teachers cared about how active they were, provided opportunities to make decisions about their own activity behaviour, encouraged them to fully participate, and at times teachers engaged in activity with the students. Children spoke often of how much they liked it when their teachers were active with them in playing games during PE classes, assemblies, and special school events like dances, and floor hockey games.

Throughout my time at the school I experienced a setting where there was a genuine care and concern for the emotional and physical safety of others, demonstrated at all levels of the social hierarchy of the school. The setting felt safe as it was clean, bright, and organized. The children who participated in this study spoke proudly of their school and reflected a sense of school pride. This high level of care for the well-being of the students and the focus teachers put on ensuring each student was actively engaged and participating in the PA settings of the school, may have contributed to the children's sense of safety and connectedness to their school and ultimately their PA behaviour. By trying to create the positive PA settings for the children, exposing them to a variety of traditional and non-traditional games, and offering them choice and voice within these setting, the teachers displayed instructional behaviours consistent with socializing processes associated with the development of pro-social behaviours in children (Catalano & Hawkins, 1996). The socializing process between adults and children, associated with development of pro-social behaviours and school connectedness, has been described by Catalano et al. (2003) as the following;

When socializing processes are consistent, a social bond develops between the child and the socializing unit. This social bond in turn inhibits behaviours inconsistent with the beliefs held by the socialization unit and encourages behaviours that are consistent with those beliefs. If those whom a child is bonded hold pro-social norms clearly opposed to the problem behaviours, these bonds are expected to promote positive youth development and subsequently inhibit problem behaviours ... (p.146)

There is evidence to support that overall school climate, or the general functioning of it, can have a positive affect on student health behaviours (Birnbaum et al., 2003). Though feelings of connectedness is not necessarily an obvious component of SCT, it does seem to align or fit with Moos' (1979) relationship dimension of the social climate domain which reflects how involved people are in the environment and how much they support one another. Connectedness is a term that has risen in the literature to refer to a school's climate, and has been defined as the extent to which students feel like they are part of the school, that the school supports them, has a fair discipline climate, and is a supportive culture (Waters, Cross, & Runions, 2009). The Wingspread definition of school connectiveness is the most widely accepted definition. It states that school connection is "the belief by students that adults in the school care about their learning as well as about them as individuals" (Wingspread, 2004, p.8). School connectedness has been strongly supported as an element in healthy youth development, as protection against health risk behaviours, and linked somewhat to the adoption of PA behaviours in youth (Anderman, 2002; Resnick, Harris, & Blum, 1993; Faulkner, Adlaf, Irving, Allison, & Dwyer, 2009). School communities that engage students in the development of programs and provide equitable opportunities for all students have been shown to increase the sense of engagement in the learning environment and increase health as a result (WHO, 2003).

There has been considerably less research into the effects of school climate on PA (Birnbaum et al., 2005), and investigations into school connectedness as a determinant of youth PA specifically have been rare (Faulkner et al., 2009).

Nevertheless, there is some evidence to show that students with high levels of school connectedness or engagement are twice as likely to be vigorously PA as students reporting low connectedness or engagement at school (Carter, McGee, Taylor, & Williams, 2007). The children in this study who reported perceptions of average to high levels of PA participation, also reported perceptions of teachers caring about how active they were and that they felt motivated by, and were given lots of opportunity for choice, by their teachers. This is certainly an area where teachers could have a significant impact on future PA behaviours of children.

Interest: A Personal Factor. The findings showed that participant children had a wide variety of interests at school. The children who participated in the current study spoke of a variety of interests or things they liked to do while they were at school (see p.121). The children's interests appeared to be split between two pursuits: (1) PA pursuits like recess time, drama games, and in particular going to the gym to play games and sports, and (2) PIA pursuits like reading, playing on iPods, and in particular using the computer to access and play on the internet. Though less active children tended to favour PIA pursuits and more active children tended to favour PA pursuits, all of the children indicated having favourite interests that were both active and inactive. Further, the school appeared to offer the children an environment for participation in both interests.

Interest is an important variable that drives children, especially young children, to adopt a certain behaviour in response to their immediate environment (Renninger, 1992). Children avoid or approach an activity based on their original interests in the activity, or the extent to which the activity appeals to them (Chen & Zhu, 2005). Interest has been conceptualized however, as both individually and situationally based. Individual interests are a person's psychological disposition or preference for an activity or action, based upon a high level of knowledge and value developed through positive interactions with the activity (Krapp, Hidi, & Renninger, 1992; Schiefele, 1991). Situational interest is the affect an activity's characteristics have on an individual, which they perceive through interactions with the activity and by experiencing its appealing characteristics (Hidi & Anderson, 1992; Mitchell, 1993).

Conceptualizing interest as influenced by both the individual and the environment could be considered similar to the activation or arousal component in Moos (1979) social ecological framework. Personal and environmental factors have influence on one another, creating what Moos (1979) refers to as the process of cognitive appraisal. When an environment has been appraised and has been assessed as requiring a response, usually activation or arousal will occur (Moos 1979b). Together, individual and situational interest has a combined impact on a child's decision about what to do and play. To make decisions about engaging in activities, children rely on their interests that result from the relationship between their developing individual interests as well as the opportunities afforded to them by their immediate environment to engage in the activity (Chen & Zhu, 2005). Activities that children choose are reflective of their interest that is *both* nurtured in and configured by the environment (Renninger, 1990).

As early as age 3 or 4, children have developed relatively strong individual interest in approximately two activities or content areas that are central to their play experiences (Renninger, 1990). They are able to identify themselves in the activities, will spend considerable time interacting with the activities, demonstrate a high level of attention to the specific details of the activities, and develop skills in these activities through a multiple of ways (Renninger, 1992). Active engagement or participation in activities has the potential to deepen a child's understanding of the activity, help to internalize the value of the activity, and consequentially lead to a greater interest in the activity (Renninger, 2000).

In a quantitative analysis of national survey data from over 21,000 kindergarten children, their parents, and teachers, Chen and Zhu (2005) reported that school and home environment variables have a stronger impact on children's interest in PA than personal variables. The authors refer to interest as the "anchor or center" (p.12) for the activity choices children make on a daily basis and suggest that the environment created around children determines where the anchor will be planted and how the anchor will function in the daily lives of children.

There were times when, on the surface, it did look and feel as though the children's behaviours were being driven by greater interest in electronics and

technologically based pursuits, even with children identified as HPA. However, as I continued to observe and talk with these children, it became less clear whether they were in fact choosing to do more PIA things than PA things, solely due to a greater interest in PIA related pursuits. In this particular environment, there were very few opportunities where the children were afforded opportunities for full autonomy, where they exclusively decided what they would do at school; teachers and organizational factors within the school setting largely dictated what the children participated in while they were at school. Moreover the children spoke about and demonstrated, over and over again, liking both PA and PIA pursuits at school. As a result, it would not be accurate to say that children's behaviours at school were being driven by a greater interest towards electronics and technologically based pursuits. A more accurate statement is likely that the children's behavioural choices at school were often steered by their interests in concert with what the environment afforded or allowed them to do.

Indoor recess was a prime example of reciprocal determinism and the relationship between person (i.e., interest), behaviour, and environment. Indoor recess was primarily spent in relatively small spaces (i.e., classrooms) that were filled with desks and chairs that limited opportunities for PA. Some children tried to engage in low TEE PA pursuits by breaching out into the hallway or boot rooms, but these spaces were also limited in size and to a small number of children. For the most part PA was very limited and a large majority of the children sat either at their desks or on the floor to colour, draw, read, or use portable hand held devices to play video games or listen to music. Were these behavioural choices made because they were more interested in PIA pursuits over PA pursuits? Or were the spaces they were given access to during these indoor recess times more conducive to their PIA interests rather than their PA interests? For the children in this study, the answer to this question is the latter.

There have been few studies that provide support for the importance of the relationship among student interests, the physical environment of the school, and PA behaviour. One cross-sectional ecologically based study in particular, utilized survey results from a national representative sample of Norwegian secondary

schools and 1347 Grade 8 students. The authors of the study (Haug, Torsheim, & Samdal, 2008) reported that both students' overall interests and the physical facilitation of the school environment significantly contributed to the prediction of recess physical activity. Their findings suggested that interest may moderate the effect of environmental facilities, and that this relationship is strongly associated with PA behaviour at school. The findings of the current study are similarly supportive of the relationship among student interest, physical environment of the school, and PA behaviour.

Comparisons Among Varying Levels of PA & PIA Engagement

One of the purposes of this study was to examine and compare the perceptions of children who have been 'categorized' into levels of behaviour indicative of how PA or PIA they were at school. Findings indicated that children who were perceived to be highly active at school versus those children perceived to be inactive at school were differentiated by a slight difference in interests or favourite things to do at school, and the amount of time they wanted to spend in PA spaces. More pronounced differences emerged between active and less active children in their favourite and least favourite spaces and the degree of recognition of responsibility for personal PA behaviour.

The responses to questions about most and least favourite spaces at school, from the children I had categorized as LPA, indicated that the gym was not one of their favourite spaces while at school. These responses do not mean that the children disliked PE necessarily, although reasons provided related to the specific activities they were asked to participate in during PE sessions, and a lack of interest in activities during PE. It appears as though less active children at this school had formed attitudes (i.e., lack of enjoyment) towards the gym, and potentially PE, that were not positive. In contrast, the more active children at this school had formed attitudes towards the gym and PE that were much more positive. Positive attitudes towards PE have been shown to be a strong predictor of PA participation across gender and grade subgroups in girls and boys from Grades 4 through 12 (Sallis, Prochaska, Taylor, Hill, & Geraci, 1999).

The finding that children categorized as highly active exhibited greater recognition of personal responsibility for their own PA behaviour was also one of the more pronounced differences between more active and less active children. Active children indicated that it was their responsibility to get themselves moving at school, in combination with help and support from teachers and friends at school. Inactive children indicated it was the responsibility of their teacher to get them moving at school. This finding again indicates the important role teachers and peers have to play in promoting student PA at school and highlights an influential attitudinal or motivational correlate that has been identified in active children. Though not extensively studied with children and youth, attitudes of personal responsibility and intrinsic motivation have received support in the youth PA literature as an important correlate of youth PA (Cavill et al., 2001; Van der Horst et al., 2007).

For the most part, however, the comparisons amongst children categorized at varying levels of PA and PIA behaviour did not emerge as clearly as I had originally anticipated. The findings indicated that the children's PA and PIA behaviours at this school were much more complex and contextually influenced than I initially understood them to be. The findings also suggest that PA and PIA behaviour cannot simply be conceptualized as opposite of one another, or neatly categorized in the way in which I attempted to do for this study.

The findings showed that across all 19 categorizations of PA behaviour for the children participating in this study, in instances where my perception did not correspond with the child's own perception of PA, the majority were categorized as LPA (5 out of 7) but considered themselves to be 'somewhere in the middle' relative to their peers. There may have been some degree of overestimation by the children that may have attributed to an exaggerated perception of time and effort. As well, perhaps the sporadic nature of children's activity patterns, and concrete thought processes used to judge them, may have caused the children to view even short bouts of activity at school more significantly than I did. However it is difficult to speculate on the degree of overestimation in children as this has not been clarified as a consistent trend for any or all children (Welk, Corbin, & Dale, 2000).

As well, three weeks of observations and consultations with teachers made it difficult to determine that my own underestimation of PA behaviour was responsible for the level of incongruency that existed between my perceptions and the children's perceptions of PA behaviour for the LPA category. Perhaps an alternative explanation makes more sense.

When I looked more holistically at *both* the children's perceptions of how PA they thought they were, as well as how they knew this about themselves, an alternate explanation did emerge. When I completely removed my categorizations of the children's PA behaviours, and looked only at how active the children perceived themselves to be, the majority of the participating children seemed to feel they were, at a minimum, somewhere in the middle (10 of 19) or one of the most active kids (8 of 19) in their class, in comparison to their peers. When asked how they knew this about themselves, the children supported these perceptions by explaining that it was because in this environment (their school), it was expected of them to be active while there, they were encouraged a lot by teachers and friends to be active at school, and the school was an active place where that's just what everybody did there and everyone was pretty active. It appeared that the majority of these focal children had internalized the messaging being sent out by the school that it was expected of students to engage and participate in the PA initiatives while at school. As a result, these children understood and indicated that they were PA while they were at school because it was expected of them.

The focal children's responses to other questions during the interview also indicated that their school was a place where the majority of the things they did were PIA and that they did enjoy PIA choices as well. The children appeared to be saying that not only were their PA and PIA behaviours contextually related, but they also thought of PA and PIA in much broader terms. Children clearly told and showed me that they were both PA and PIA at school at different times, in different places, and for different reasons. The switch between PA and PIA happened numerous times throughout the day and the two types of behaviours could occur within seconds of each other. Both PA and PIA behaviours, though variably constrained by influences in the environment, coexisted.

Even though the main purpose for categorizing children's PA was to generate responses from a wide variation of children across a behavioural spectrum, these findings do call into question the legitimacy of trying to fit a child's PA behaviour as being either PA or PIA or as existing along one continuum as I tried to do for this study. The students were clearly both PA and PIA at different times, for different reasons, and not necessarily to the detriment or reduction of the other. It has become apparent to me that PA and PIA behaviours at school exist on two different continuums that are superimposed one on the other. These behaviours at school are also highly influenced by context. As a stand alone method, the use of a singular category to 'define' or conceptualize children's PA and PIA behaviour, does not appear to provide either an accurate or holistic picture of a children's active and inactive behaviours while at school.

Frequently in the child and youth PA literature, activity and inactivity are often viewed as opposite sides of the same coin (Owen, Leslie, Salmon, & Fotheringham, 2000), which implies an underlying assumption that inactive behaviours must necessarily prevent more active ones. On the surface this may seem logical, but the results from this study as well as other research exist to support a claim that this is a false assertion. Marshall and colleagues (2002) have shown that there is in fact, time for both behaviours in the lives of children. Using cluster analysis, they found that three clusters reflected an interaction between physical activity and a profile of sedentary behaviours for both boys and girls. For example, approximately 40% of boys who were categorized in the techno-active group, characterized by higher than average TV and video game playing, also exhibited above average PA behaviour.

Surely it is naïve to think that the continued pursuit of inactive behaviours will not eventually preclude the pursuit of active behaviours. However, few correlations in the literature exist to connect individual PIA behaviours and PA (Biddle et al., 2004; Marshall et al., 2002). Systematic reviews of the correlates of PA and PIA in youth by Sallis et al. (2000) and Van Der Horst et al. (2007) revealed no association between PIA behaviour and PA that is consistent with the hypothesis that inactive behaviours replace PA. The assumption that time spent

being PIA necessarily displaces activity is highly mechanistic (Gard, 2008). A number of studies have shown that many children score highly on both PIA behaviour and PA scales (see Gard & Wright, 2005, for a summary). Findings from the current study support the assertion that we cannot continue to assume that inactive behaviours prevent more active ones, but that the two behaviours coexist and are highly influenced by contextual components of the setting in which the children find themselves. Given that we continue to struggle with fully understanding the principal correlates of PA or PIA, and little work has been done to explore these correlates at multiple levels or settings, it appears more intuitive for future investigations to examine both the PA & PIA behaviours of youth together as two separate and defined behaviours within settings that are of particular interest. Results will likely be improved if more attention is given to both behaviours, as well as the setting for assessment (Welk et al., 2000). The findings from this study suggest that the assessment of both behaviours together at the same time in specified settings should be done so that a more complete and accurate assessment of these behaviours can be ascertained.

Calls for improved specificity in the measurement of both the outcome variable and the exposure variables are also being made (Evenson & Mota, 2011) in the environmental correlates literature. The findings of this study are highly supportive of these calls. Many now argue for the need of studies of environmental correlates to include context-specific measures of behaviour as well as behaviour-specific environmental measures. Giles-Corti, Timperio, and Pikora (2005) hypothesize that the predictive capacity of ecological models may be even further advanced if the individual and social-environmental variables were also behaviour-specific and contextualized.

The Availability of Supports Versus How Supports are Perceived

Focal children had little to say about the amount and variety of equipment and the active spaces, other than that they felt they had plenty of equipment and enough spaces to be active in while at school. The children's responses indicated that what appeared to be more influential to their behaviours was how much or how little access they perceived they had to the equipment and the active spaces, the

perceived amount of time they were given to use the equipment and engage in PA within the active spaces, and the perceived amount of support they received while using equipment and when in the active spaces. For example, children indicated that their school did have a large gym, yet during indoor recess it was largely unavailable to them. They recognized that they were given two recess periods per day, however the time given for recess during the winter months was often not enough to get dressed to go outside and still have enough time to play. The children also indicated that they had daily scheduled periods of PE, but the teachers determined how long the DPE session lasted.

Not only do these findings indicate the school factors available to students that contribute to their PA levels, they also provide insight into how and in what circumstances children perceive these environmental influences to operate. These results suggest that it is not just the existence and equal availability of the external physical and social supports that increases the engagement of children in PA at school, but how these supports are perceived by the child also determines the active and inactive behaviours they engage in at school.

The Central Question

In the face of growing physical inactivity in children and youth, researchers have been faced with the challenge to find comprehensive explanations and workable solutions. This has proven to be difficult to say the least. Physical activity and PIA are complex behaviours (Sallis et al., 2000) determined by many factors identified mostly as a multitude of individual correlates believed to influence the PA (and at times) behaviour of children and youth (Biddle et al., 2004; Sallis et al., 2000; Welk, 1999).

In the present study, a qualitative exploration of environmental, personal, and social factors within the ecological system of a school were examined in a comprehensive, holistic, and contextually based manner. Attempts were also made to examine these influences from children's point of views. In relation to the central question "How do elementary school-aged children perceive their school's environment and its influence on their active and inactive behaviours while at school?" the findings of this investigation suggest that participant children were not

focused on a wide variety or multitude of factors, expansive facilities, elaborate pieces of equipment, or highly involved and complicated programming initiatives. These children indicated that what they need from their school in order to facilitate their PA is the provision of daily sessions of PE, PA opportunities throughout their entire day, the support of teachers and friends to be active, and participation in activities of interest to them. Though the school had a concentrated and comprehensive plan towards promoting health, facilities, and funding for these initiatives, the findings from this study suggest that it is not just about what supports are present in the environment, but rather how the supports are utilized and perceived by children that is important to understanding their behaviours at school.

I do not begin to suggest that the implementation of the factors that these children perceived as influential to their PA behaviours would be simple. The contextual nature of each individual school and the unique complexities of each of these factors in and of themselves would contribute to the challenge of implementation of these factors. However, what the findings suggest is that rather than focusing on searching for more equipment, more facilities, more alternatives in programming, or more initiatives to schools, an alternative would be to focus on what already exists at schools and how they are utilized, with a focus on the four environmental and personal factors children perceived as most influential to their PA and PIA behaviour. Schools could then attempt to engage and support children in activity while at school in a much more straightforward and perhaps focused manner. Further to this, the large majority of schools already have the environmental components and capabilities in place to attempt a focus on these factors.

The findings of this study also highlight the important interplay and dynamic reciprocal relationship between environment, person, and PA behaviour as outlined by the reciprocal determinism perspective. Human behaviour is not simply the result of the person or the context of the environment, but rather the reciprocal relationships among person, behaviour, and environment. This perspective proposes that people cannot be understood apart from their environmental context.

The physical as well as social and organizational environments together must be studied. Examining one while ignoring the other, significantly diminishes the likelihood of understanding the relevant factors that have influence on behaviour (Parke & Chappell, 2010). Based upon the responses of the children who participated in this study, these findings were highly reflective and supportive of this perspective. The children's responses did not reflect a singular focus on either their own characteristics or on components solely related to the context of their school environment. But rather their responses reflected an interplay between all three of the factors; environment, person, and behaviour.

The Role of Theory

Existing theory was used throughout the design and completion of this project. It was stated that SCT and a social ecological framework would serve as a guiding roadmap to be used to explore the phenomenon of a school's impact on children's PA and PIA perceptions and behaviours. The intention of using theory for this qualitative project was also to add to the descriptive literature on the phenomenon of school's impact on children's PA behaviour while at school. As a result of the important role that theory played in this project, reflection upon the role of theory in the current study is important to and completes the discussion.

Warnings of avoiding the use of theory are prevalent throughout the qualitative research literature (MacFarlane & O'Reilly-de Brun, 2011) because of the idea that researchers must preclude risking the threat of theoretical tunnel vision (Charmaz, 1990). Theoretical tunnel vision is argued as having the potential to restrict the researcher's ability to remain open to discovering concepts and hypotheses not accounted for in the original theoretical formations (Patton, 2002). Going into this research project, I had developed an informed awareness of the potential risks of the use of theory and tight research designs (Miles & Huberman, 1994). I also made conscious efforts to remind myself to be open to as much as I could and what was happening in the setting. Reviewing and being mindful of the research question was also helpful in the avoidance of theoretical tunnel vision. As well, SCT and the social ecological framework does not and did not preclude or

limit the examination of other theories in relation to children's PA and PIA behaviours at school.

A number of scholars (e.g., Anfara & Mertz, 2006; Sandelowski, 1993) propose that theory has many important functions in qualitative research. The use of theory in qualitative research can help to enhance, frame, and guide the research process by ensuring the investigation of constructs is not random but instead is based on established criteria that more clearly conceptualized the measures of constructs (Salmon et al., 2008). For the current project, theory was immensely helpful upon entry into the setting by providing direction for what to look for within the setting, as well as helping to determine the relevant from the irrelevant. The use of theory in this instance provided a useful framework for identifying, collecting, and organizing data (Sandelowski, 1993). I am scared to think what might have happened if I had entered this setting, where seemingly massive and endless amounts of data were being collected, without having had a plan for what I was looking for or the organizational framework to handle it.

There have also been those who have argued that theory allows researchers to develop deeper understandings about phenomenon (e.g. MacFarlane & O'Reilly-de Brun, 2011). Patton (2002) contends that qualitative data that expands upon previously completed research can also "put flesh on the bones of quantitative results, bringing the results to life through in-depth case elaboration." (p.193). In relation to the current study the use of theory helped in both the presentation and analysis of the data by fostering an exploration of relationships between the school environment, PA behaviours, and the children themselves. As a result I was able to go deep into the phenomenon and explore the complexities of the setting through the use of theory. Resultantly the use of theory helped to enlighten the story, more than I think I would have been able to on my own accord. By orienting concepts derived from social theory, the researcher is sensitized to relevant issues, processes, and interpretations that they might not have otherwise identified themselves using an inductive approach (Layder, 1998). Theory provided one more lense that lead towards the exploration of numerous other points of view and resulted in a full and rich exploration of the phenomenon I was interested in (Anfara & Mertz, 2006).

There were certainly other theories available in which to examine a school setting and the perceptions of children about this setting. However SCT and the social-ecological framework were more closely related to the research question because they offered a collection of concepts that, together, provided for a whole system analysis of a school. As well, perceptions of children in regards to this setting could be examined through SCT which allowed for the examination of the relationships between environment and perceptions. This examination offered alternative interpretations and ways of looking at the PA and PIA behaviours of children at this school. As Patton (2002) suggests, analytic deduction in qualitative inquiry allows for the examining and re-examining of those propositions that have come to dominate belief or explanatory paradigm within a discipline or group of practitioners. This is a significant contribution that I believe the analysis and subsequent findings of this research project adds to the current research literature on children's PA and PIA behaviour at school.

Limitations, Areas for Further Study, and Practical Implications

Limitations

Despite having many perceived strengths, this study is not without its limitations. The limitation most often placed upon case study research is the extent to which the methodological approach and/or findings are generalizable across settings or groups of people. Generalization was not the goal of this project or what case study has really been intended to be used for. However, in reference to the current study, the reader is advised to be cautious in limiting the application of the findings to other similar elementary school settings or students.

The point of time that I entered the school setting is also a potential limitation of this case study. I entered the school the beginning of January, immediately following the Christmas break. This is a time of year when the weather is typically colder and not ideal for getting elementary children outside for recess periods or other school related events. As well, this is a time of year where routines and expectations have been established (though possibly having to be re-established). Though I did observe the transition from Winter to Spring and its influence on behaviour, it is possible that if I had entered the setting at the

beginning of the school year, the observed PA and PIA behaviours of teachers and children may have been different in a time where routines are just beginning to be established and weather is much more conducive to going outside. Consequently, the results might have been different in terms of the influential factors I identified.

Another possible limitation of this study was the impact of the internal struggle that occurred as I was trying to write this dissertation in an ethical manner. As a researcher I felt responsible to report the case in a way that was accurate, void of judgment or condemnation. I wanted my descriptions of the school to be honest and in accordance with what I had observed and what the students had perceived to be influences on the PA and PIA behaviours of students at this school. At the same time however, I wanted to be certain that I represented the school in a way that was respectful. I felt so welcomed by the school and the community, and these community members gave so much of themselves to my project. I didn't want to violate the trust I had been given or damage the relationships I had built by representing the school in a negative or disrespectful manner. Though not intentional, dealing with this struggle may have had implications to the final reporting of this case

Areas for Further Study

As a result of the findings of this study, five key recommendations are presented as areas for further investigation.

When you look more holistically at the lives of children, as was done in this study, both sedentary and active behaviours do emerge and co-exist and the children's PA and PIA behaviours are both contextually influenced. As a stand alone method, the use of singular categories to 'define' or conceptualize children's PA or PIA behaviour, no longer appear to provide either an accurate or a holistic picture of a children's activity behaviours while at school. The findings from this study suggest that the assessment of both PA and PIA behaviours together, at the same time, and in specified settings should be assessed so that a more complete and accurate understanding of these behaviours can be ascertained. Thus the predictive capacity of future ecological studies of children's PA and PIA behaviours will be

better served if the individual and social-environmental variables are behaviourally specified and contextualized.

Peers and teachers were influences the children talked about in reference to reasons why they were both physically active and inactive while they were at school, highlighting the critical role and influence that significant others had on the active and inactive lives of these children at this school. In particular, the children spoke often of the influence their teachers had and it was hypothesized that the high level of care and support the children received from teachers may have also contributed to the children's sense of connectedness to their school and ultimately their PA behaviour. Evidence to show that students with high levels of school connectedness or engagement are more likely to be vigorously PA was presented and the findings of this study were definitely not proof of, but more so aligned with these assertions. As an area where teachers could have significant impact on future PA behaviours of children, school connectedness is certainly an area worthy of and suggested for consideration in future research of children's PA and PE behaviours at school.

The children who participated in this study spoke considerably about the significant amounts of time sitting in classrooms while they were at school and considered this to be a significant constraint on their PA behaviours at school. Teachers were also found to be hesitant towards allowing PA within classroom settings, but at the same time encouraged PA in other spaces. Considering the importance of messages children receive from significant others and its impact on their PA behaviour, the question of the impact of this mixed messaging was raised. Future research studies on PA in the classrooms, should address how alignment into one consistent message by teachers can solidify the expectation of active participation at school and ultimately the impact this has on students PA behaviour while at school.

The children who participated in the study spoke of a variety of interests or things they liked to do while they were at school. These things appeared to be split between PA pursuits and PIA pursuits. The school offered to the children an environment for participation in both of these interests. Though on the surface it

seemed that the children's behaviours were being driven by a greater interest towards electronics and technologically based pursuits, upon closer examination it appeared that a more accurate statement was that these children's behavioural choices at school were often steered by their interests in concert with what the environment would afford or allow for them to do. Future research is needed that includes an examination of the role interests in relation to context have in influencing behaviour, as a way to more fully understand the PA and PIA phenomena of children.

Finally, the DPE children received at school was an example of the reciprocal relationship between person (i.e., interest), behaviour, and environment. The provision of DPE at this school had a significant impact on the children who participated in this study. When asked about the things at school that made it easy for them to do PA things, the overwhelming response from the children was DPE and having the opportunity to go to the gym once a day, every day. Not only did it appear that DPE was helping the children at this school be more PA, the suggestion was made that DPE may have also been helping to 'anchor' the children's interest in PA by going to the gym at school on a very consistent basis. Future investigations of PA in schools should attempt to examine the importance of cementing expectations for PA across the school setting. As well, examinations of the role PE can play within the relationship between children's interests and context are needed. This study provided an example of one approach to PE and students perceptions of it, but continued examinations of approaches to PE are needed in order to determine the most efficacious ways to promote ongoing, active, life long participation in PA and the positive development of youth through school PE.

Practical Implications

Spending six months in a school that had a conscious, concentrated, and comprehensive approach to promoting children's PA at school has taught me so much about the ways a school can influence the PA behaviours of its children. By spending time with and listening to the voices of community members at this school, and in particular the children, I learned even more. Based upon the shear

amount of knowledge I have acquired as a result of completing this project, I would like to share some key 'take home' messages that emanate from this study, with researchers considering doing work in schools, administrators and policy makers, and teachers.

For Researchers. For researchers who are considering conducting research within a school setting, I have learned the importance of serious consideration and understanding of one's positioning within the research and the research space. Within this research project I positioned myself as a biographer, with the goal of chronicling the life of a school while in the research setting. To accomplish this goal, I took on the role of volunteer at the school. This was a role I knew, as a parent, elementary children would be familiar with and teachers would be appreciative of. I also thought the role of volunteer had the potential to develop rapport within the setting and gain an insiders view of the school. It would allow me to participate in and experience a variety of activities to come to know what life was like at this school. By taking on this role I could also contribute and give back to the school which was extremely important to me from the outset. For all of these reasons I spent time thinking about and as a result knowingly went into the setting with a role I wanted to take on at the school.

What I did not know was how absolutely crucial positioning and having had thought out the role as I did would become in establishing rapport, building relationships, collecting rich and detailed data, and the final reporting of the study. I am happy to report that positioning myself in the volunteer role was well received at the school. I lent a helping hand to teachers, wherever I could or where they would let me, even if it had nothing to do with the purposes of my project. There never seemed to be enough hands or adult supervisors to go around and teachers were very appreciative of the extra set of hands and pair of eyes that I could give. I was also able to contribute in a way that was productive and helpful to the school. Volunteering as I did also allowed me to spend significant amounts of time with the children. This was invaluable time spent getting to know the children and them getting to know me.

I shared with the vice principal, nearing the end of my time at the school, that I was completely overwhelmed by how much I had been given by this school and the people in it. The principal told me that “you really did it right! You gave of yourself, spent time with them, and you listened.” I gave of myself, just as the teachers and the children had given of themselves by agreeing to participate in my project. As a volunteer I still managed to research and learned a tremendous amount. The experience of positioning myself as a volunteer within the research process was highly valued, educational, and a position I highly recommend.

For Administrators and Policy Makers. The implications of this study clearly point towards the importance of DPE and the provision of as much time in the school timetable, as is feasibly possible, for children’s movement and PA while at school. I have learned that DPE and increasing the accumulated minutes in the day that children are moving does effect change in the amount of PA that children engage in at school. Children also view DPE and these accumulated minutes as significant influences on their PA behaviour while at school. There is also evidence to suggest the impact that increased movement and PA can have on academic performance, mental health, and success at school. For policy makers, creating policy like DPE that encourage and promote PA are highly encouraged. For administrators, establishing expectations within the school setting that PA policies will be carried out (e.g., abolishing discipline policies that deprive children of PE or recess) and creating cultures of PA where everyone moves, everyone is active, and it’s just what you do, are essential in meeting the total needs of children at school.

For Teachers. The six months I spent imbedded within a school has really increased my already high appreciation for the work of elementary teachers. I now have first hand knowledge and experience with the enormously full plate of responsibilities that teachers must wrestle with on a daily basis. This same six months however, also taught me that when it comes to getting children moving at school, the children’s focus is on four main areas: DPE, moving throughout their day, being supported by teachers and friends to be active, and doing things of interest to them. For teachers, it is my hope that the findings of this study not add to

their already plate full of responsibilities, but rather to reduce their work load by helping to focus their efforts in delivering and implementing PE and PA to children at school. I offer suggestions to encourage teachers and build their confidence in that what children need from them to be active is straightforward and achievable. Based on the findings of this study and what I learned from spending time in an elementary school on a daily basis for six months, I suggest and encourage teachers to: (1) advocate for DPE at their school; (2) ask students what physical activities they are interested in and include these interests in helping to engage children in PA; (3) encourage and support students in moving in as many ways as possible and move children throughout the entire school day; and (4) move along with them.

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APPENDIX A: Gender, Grade, and Behaviour Level of Participant Children

	Gender	Grade	Behaviour Level
P1	F	3	XPA
P2	F	3	HPA
P3	M	3	HPA
P4	M	4	HPA
P5	M	4	XPA
P6	F	5	XPA
P7	F	4	LPA
P8	F	5	LPA
P9	M	5	HPA
P10	F	6	LPA
P11	M	6	XPA
P12	F	6	HPA
P13	M	2	XPA
P14	M	2	HPA
P15	F	2	LPA
P16	F	1	HPA
P17	M	1	XPA
P18	F	1	LPA
P19	M	3	LPA

***P = Participant**

**APPENDIX B: SUMMARY OF ADULT PARTICIPANTS' RESPONSES
FROM COMPLETED BACKGROUND INFORMATION FORMS**

	Total Yrs as a Tchr	Total Yrs @ Schl	Degree/s Specializations	PA/PE Education	Subject Areas Currently Teaching	Stated PA/PE Goals & Objectives
P21	4	3	BA (Kinesiology major English minor); BEd; certificate in early childhood	<CSH Program Name> School workshops, coaching	All except for music	Active participation in numerous activities; to gain love of PA & PA knowledge
P22	20	5	BEd Elementary (Music major)	2 HPEC Conferences; 4 Ever Active Schools Conferences, University Dance, Movement Education Courses	Music, PE, Religion, Art, Math, Health, Guitar, Elementary Choir	Increase MVPA time, fitness, and wellness; fun experiences; teach skills; cooperative play; help them strive & excel, goal setting
P23	16	16	BEd (Social Studies major French minor)	Taught PE, K to 7, 4 yrs	LA, Health, Art, French 4 to 9	Get HR up, a variety of fun activities & games easily played with friends &/ at home
P24	6	4	BEd Secondary (Math major CTS minor)	CSH and <CSH Program Name> staff	Math, Science, PE, Religion, LA, Social, Health	Getting students more active
P25	NA	3	Trained & Certified Dietitians of Canada	None listed	N/A	Inclusion, Participation, Variety of Movements
P26	21	5	BEd (PE major Social minor); MEd (Educational Admin.)	BEd PE major training; HPEC workshops & conferences; taught PE, 1 to 9, 15 years	Not currently teaching	Participation; engaged students learn skills; but first students must have acquired basic skills for sports; PE be adapted to student needs

P27	11	11	BEd Generalist Music Focus; MEd (Educational Studies)	1 PE course during undergrad education; 2 HASS conferences; few DPA sessions	All except for music;	Going to the gym and having students get physically active; follow curriculum and implement program of studies into the classroom
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*P = Participant

APPENDIX C: NOTIFICATION OF ETHICS APPROVAL



Faculty of Physical Education and Recreation
Faculty of Agricultural, Life & Environmental Sciences
Faculty of Native Studies
Research Ethics Board

2-14 Agriculture-Forestry Centre
Edmonton, Alberta, Canada T6G 2P5

Tel: 780.492.8126
Fax: 780.492.8524

Notification of Ethics Approval

Study ID: Pro00010108
Study Title: Elementary Children's Perception of their School's Environment
Study Investigator: Angela Bayduza
Approval Expiry Date: October 26, 2011

I have received your application for research ethics review and conclude that your proposed research, including revisions received today, meet the University of Alberta standards for research involving human participants (GFC Policy Section 66). On behalf of the Physical Education and Recreation, Agricultural, Life & Environmental Sciences and Native Studies Research Ethics Board (PER-ALES-NS REB), I am providing **research ethics approval** for your proposed research.

The research ethics approval is valid for one year and will expire on October 26, 2011.

A renewal report must be submitted prior to the expiry of this approval if your study still requires ethics approval at that time. If you do not renew before the renewal expiry date, you will have to re-submit an ethics application. If there are changes to the project that need to be reviewed, please file an amendment. If any adverse effects to human participants are encountered in your research, please contact the undersigned immediately.

Sincerely,

Kelvin Jones, Ph.D.
Chair, Physical Education and Recreation (PER), Agricultural Life & Environmental Sciences (ALES) and Native Studies (NS)

Note: This correspondence includes an electronic signature (validation and approval via an online system).

APPENDIX D: PARENT & GUARDIAN INTRODUCTION LETTER



Faculty of Physical Education
and Recreation
E488 Van Vliet Centre
Edmonton, Alberta, Canada T6G 2H9

PARENT & GUARDIAN INTRODUCTION LETTER

- Title of Project:** Elementary children's perception of their school's environment and its influence on their active and inactive behaviours while at school.
- Principal Investigator:** Angela L. Bayduza, PhD Candidate
Faculty of PE & Recreation, University of Alberta
abayduza@ualberta.ca 780-232-9976
- Co-Investigator(s):** Dr. Janice Causgrove Dunn,
Faculty of PE & Recreation, University of Alberta
janice.causgrovedunn@ualberta.ca 780-492-0580

Dear Parent:

My name is Angela Bayduza and I am a graduate student at the University of Alberta. I am conducting a research project as part of my doctoral program with guidance from my supervisor and co-investigator Dr. Janice Causgrove Dunn. I will be the main researcher for this project.

The purpose of my project is to observe a school and learn about the parts of a school that increase how active children are while they are at school. My project will start at the beginning of January, 2011 and continue until late May or early June, 2011. For the next half of the school year I will be in the school on a daily basis observing the general routines and schedule of the school. I want to learn about the types of activities that occur and the parts of the school that appear to help get children moving in an active way. Towards the end of February I will be asking some children at the school to talk to me about what parts of their school they feel increase how active they are while at school. At this time I will send home more information with your child to explain the details further. For now, I just wanted to introduce myself and tell you a little about this study.

I hope that by hearing from children about what parts of their school are important to their activity, I will be able to better understand and shed more light on what key parts of a school have an important impact on the children and how active they are. This understanding could help other schools who may be struggling in this area or who want to make changes to improve the active lives of their children. Information I gather from this project may also help to make more improvements at your child's school.

If you have questions about this study, I can be reached by email (abayduza@ualberta.ca), by phone (780-232-9976), or in person at the school. Or you can contact my supervisor, and co-investigator, Dr. Janice Causgrove Dunn by either email (janice.causgrovedunn@ualberta.ca) or phone (780-492-0580). If there are any further questions or concerns about this project you may also contact Dr. Kelvin Jones, Acting Chair of the Faculty Research Ethics Board at the University of Alberta, (780) 492-0650. Dr. Jones has no direct involvement in this study.

The plan for this study has been reviewed for its adherence to ethical guidelines and approved by PER-ALES-NS REB (the Faculties of Physical Education and Recreation (PER), Agricultural Life & Environmental Sciences (ALES) and Native Studies (NS) Research Ethics Board) at the University of Alberta. Dr. Kelvin Jones can also be contacted if you have any questions regarding participant rights or the ethical conduct of research.

I look forward to the time I will have at your child's school and learning as much as I can from the people at this school. I thank you in advance for the participation of both you and your child and your help in this research project.

Yours Truly,

Angela L. Bayduza, BPE, M.A.
PhD Candidate

APPENDIX E: TEACHER INTRODUCTION LETTER



Faculty of Physical Education
and Recreation
E488 Van Vliet Centre
Edmonton, Alberta, Canada T6G 2H9

TEACHER INTRODUCTION LETTER

- Title of Project:** Elementary children's perception of their school's environment and its influence on their active and inactive behaviours while at school.
- Principal Investigator:** Angela L. Bayduza, PhD Candidate
Faculty of PE & Recreation, University of Alberta
abayduza@ualberta.ca 780-232-9976
- Co-Investigator(s):** Dr. Janice Causgrove Dunn,
Faculty of PE & Recreation, University of Alberta
janice.causgrovedunn@ualberta.ca 780-492-0580

Dear Teacher:

My name is Angela Bayduza and I am a PhD student at the University of Alberta. I am conducting a research project as part of my doctoral program under the guidance of my supervisor and co-investigator Dr. Janice Causgrove Dunn. I will be the primary investigator for this research. The purpose of this study is to observe the natural setting of a school in order to examine the perceptions children have about this setting and the influence it has on their active and inactive behaviours. Your school has agreed to participate in this study.

To achieve this purpose, I am using a case study approach to this research. I will be present within your school on a daily basis over a four to six month time period beginning in January, 2011 and ending late May to early June, 2011. I will begin the project by observing the school setting, indirectly and informally, documenting opportunities children have to be active and inactive while they are at school, identifying environmental influences or factors that appear to impact both the active and inactive behaviour of children while at school, and identifying focal children who appear to represent varying levels of active and inactive behaviour. After the observation concludes, focal children across grades one to six, who represent three levels of activity and inactivity (i.e. high active, average active, low active, high inactive, average inactive, low inactive), will then be asked to participate in an interview.

The entire classrooms of these focal children, who have been asked to participate in an interview, will be asked to participate in an in-class mapping activity. In this 45 min in-class activity that I will lead and arrange with the classroom teacher, the children will be asked to draw two maps meant to show all the physically active and physically inactive places and spaces in and around their school. Only the focal

children's drawings will be collected for the purposes of this study and then used as the topic of conversation during the requested interview. This interview, of between 30 and 45 minutes in length, will be used to ask children about the perceptions they have about their school environment and the key factors of this setting that have influence on their activity behaviours. After interview data with children has been collected, a 30 minute interview with the principal and the classroom teachers will be requested to further examine trends that arise from the children's responses in order to clarify or confirm these trends.

Benefits, Risks and Confidentiality

By looking at children's activity behaviours while they are at school and identifying parts of the school environment that impact different levels of activity behaviour, this project is meant to increase our understanding of the various ways school may be able to impact children's varying levels of active and inactive behaviour during a school day. I hope that by examining the school environment, the perceptions children have about this environment, and how children think the setting influences their active and inactive behaviours, we will be able to come to understand and identify the key parts of a school that have significant influence on the children and their activity behaviours. This understanding will lead to recommendations for schools who may be struggling in this area or who want to make changes to improve the active lives of their children. Information gathered may also improve the active lives of children in your own school.

There are no known risks involved with this study but given the way information for this study will be gathered through observations and interviews, a possible risk associated with participation in this study could be the disclosure of personal or sensitive information. Information that I collect will not be shared with others outside of the study. All information will be held private, your school name and all names of any of the participants of this project will be held in the strictest of confidence. Any information that may give away the school's identity or participants' identity to others will be removed. During the data collection and analysis, participants' privacy will remain one of my top priorities. Information will be coded and stored in locked filing cabinets in a private locked office at the University of Alberta to which only investigators will have access to.

Concerns

I am available to meet with you in person to further explain the project in greater detail and answer any questions that you may have. I can be reached at abayduza@ualberta.ca or (780) 232-9976 and my supervisor Dr. Janice Causgrove Dunn can be contacted at janice.causgrovedunn@ualberta.ca or (780) 492-0580. The plan for this study has been reviewed for its adherence to ethical guidelines and approved by PER-ALES-NS REB (the Faculties of Physical Education and Recreation (PER), Agricultural Life & Environmental Sciences (ALES) and Native Studies (NS) Research Ethics Board) at the University of Alberta. If you have any questions regarding participant rights, ethical conduct of research, or concerns about this study, you may contact Dr. Kelvin Jones, Acting Chair of the Faculty

Research Ethics Board at the University of Alberta, (780) 492-0650. Dr. Jones has no direct involvement in this study.

I Thank You in advance for your contributions to this project.

Yours Truly,

Angela L. Bayduza, BPE, M.A.
PhD Candidate

APPENDIX F: INFORMATION LETTER FOR GUARDIANS & THEIR CHILDREN



Faculty of Physical Education
and Recreation
E488 Van Vliet Centre
Edmonton, Alberta, Canada T6G 2H9

Information Letter for Guardians & Their Children

- Title of Project:** Elementary children's perception of their school's environment and its influence on their active and inactive behaviours while at school.
- Principal Investigator:** Angela L. Bayduza, PhD Candidate
Faculty of PE & Recreation, University of Alberta
abayduza@ualberta.ca 780-232-9976
- Co-Investigator(s):** Dr. Janice Causgrove Dunn,
Faculty of PE & Recreation, University of Alberta
janice.causgrovedunn@ualberta.ca 780-492-0580

Dear Parent:

My name is Angela Bayduza and I am a student at the University of Alberta. I have been the main researcher for this project with the help of my supervisor and co-investigator, Dr. Janice Causgrove Dunn. This project is part of my degree. The purpose of this project is to observe a school and learn about the parts of a school that increase how active children are while at school.

Over the past few weeks I have been observing the general routines and schedule of your child's school. I have been learning about the types of activities that occur and the parts of the school that appear to help get children moving in an active way. I have been looking for and documenting all the parts of the school that appear to influence children's participation in activity while they are at school. At this time I am asking children to participate in a drawing and interview activity. Through these activities I will be talking with children about the parts of their school they feel increase how active they are while at school. I would like to invite your child to participate in this very important part of the study.

The drawing activity will take place during one class time period at school. Children will be asked to draw two maps. One map will be of all the places in their school where they are active and the second map will be of all the places in their school where they are not active. Only the maps from the children who return the completed consent form will be collected. I ask that that you read and return the attached form, completed by both you and your child, if your child would like to participate in this mapping activity.

Following the in-class activity, your child may then be asked to take part in a one on one interview with me. The maps will be used as the topic of conversation for the interview and questions will be about what they have drawn on their maps. The interviews will take place at school, during school hours or during the lunch period and will take about 30 to 45 minutes. Interviews will be tape recorded. After I finish all the interviews with the children, they will be typed, names of the children removed, and the typed interview will be given a code or number. I will compare what each child said with what other children have said and I will look to see if I can find any similarities and/or differences in these opinions about the parts of the school that are important to children's activity. Only the children who return the completed consent form, that is attached, could be interviewed. Again, I ask that that you read and return the attached form, completed by both you and your child, if your child would like to participate in this interview activity.

Interviews with classroom teachers and the principle will take place after the children have been interviewed and their information has been collected. Teacher interviews will be used to clarify or confirm the grouped opinions that have been put together from the children interviews as a whole. At no time will the individual responses of a child be shared with a teacher or the principal and at no time will a teacher or the principal know from which children the opinions are coming from.

Benefits, Risks and Confidentiality

I hope that by hearing from children about what parts of their school are important to their activity, I will be able to understand the key parts of a school that have an important impact on the children and how active they are. This understanding could help other schools who may be struggling in this area or who want to make changes to improve the active lives of their children. Information gathered may also help to make more improvements at your child's school.

There are no known physical risks involved with the study. The information for this study will be gathered through observations and interviews, so a possible risk of participating in this study could be the disclosure of personal or sensitive information. Information your child gives me will not be shared with others outside of the study. All information will be held private. Student and school names will be changed in the research. Any information that may give away a student's identity will be removed. After the interviews, the participants' privacy will be a priority. All information will be coded and stored in a locked filing cabinet in a locked private office at the University of Alberta. The children's original drawings will be scanned and returned to them. All other information will be kept for 5 years after the study has been completed. It will continue to be stored in a locked filing cabinet in a locked private office at the University of Alberta. After 5 years the information will be destroyed. Only investigators in this study will have access to this information at any time.

The data from this study will be written as a Doctoral thesis. The data will also be shared with various public, professional, and academic audiences by way of

publications and presentations; however, your child's identity will be kept confidential. Although reports may include direct quotations from the interviews or copies of the child's original drawings, your child will be asked to choose a pseudonym (made up name) and all identifying information (name, address) will be removed from any report. In addition, the majority of data will be reported in combined form. Confidentiality will be of utmost importance throughout the whole research process.

Freedom to Withdraw

Children have the choice to participate. Children will be reminded that at any point during the study they can withdraw with no questions asked. They can tell or write me that they no longer want to be a part of the study. If they stop taking part, they will not be asked any other questions. Data from students that leave the study will be destroyed right away. Withdrawal is possible right up until writing of the Doctoral thesis has been completed.

Concerns

If you have any questions about this study I can be reached by email (abayduza@ualberta.ca), by phone (780-232-9976), or in person at the school. You can contact my supervisor, and co-investigator, Dr. Janice Causgrove Dunn by email (janice.causgrovedunn@ualberta.ca) or phone (780-492-0580). Any further questions or concerns about this project can be asked of Dr. Kelvin Jones, Acting Chair of the Faculty Research Ethics Board at the University of Alberta, (780) 492-0650. Dr. Jones has no direct involvement in this study.

The plan for this study has been reviewed for its adherence to ethical guidelines and approved by PER-ALES-NS REB (the Faculties of Physical Education and Recreation (PER), Agricultural Life & Environmental Sciences (ALES) and Native Studies (NS) Research Ethics Board) at the University of Alberta. Dr. Kelvin Jones can also be contacted if you have any questions regarding participant rights or the ethical conduct of research.

Thank You for your consideration.

Yours Truly,

Angela L. Bayduza, BPE, M.A.
PhD Candidate

GUARDIAN & CHILD INFORMED CONSENT FORM

Title of Project: Elementary children's perception of their school's environment and its influence on their active and inactive behaviours while at school.

Principal Investigator: Angela L. Bayduza, PhD Candidate
Faculty of PE & Recreation, University of Alberta
abayduza@ualberta.ca 780-232-9976

Co-Investigator: Dr. Janice Causgrove Dunn,
Faculty of PE & Recreation, University of Alberta
janice.causgrovedunn@ualberta.ca 780-492-0580

Do you understand that your child has been asked to be in a research study?

Yes No

Have you read and received a copy of the attached Information Sheet?

Yes No

Do you understand the benefits and risks involved in your child's participation in this research study?

Yes No

Do you understand that your child is free to refuse to participate, or to withdraw from the study at any time, without consequence, and that your child's information will be withdrawn at your request?

Yes No

Have the issues of confidentiality been explained to you?

Yes No

Do you understand who will have access to your child's information?

Yes No

I agree to allow my child to take part in the drawing activity: Yes No

I agree to allow my child to take part in the interview activity: Yes No

Signature of Parent/Guardian

Date

Printed Name

I agree to take part in the drawing activity: Yes No

I agree to take part in the interview activity: Yes No

Child's Signature (or printed name)

Date

I believe that the person signing this form understands what is involved in the study and voluntarily agrees to participate.

Signature of Investigator

Date

*I understand that I or my child may withdraw this consent at any time at any point in the research process by contacting the researcher in person at the school, by email at abayduza@ualberta, or by phone at 780-232-9976.

The plan for this study has been reviewed for its adherence to ethical guidelines and approved by the PER-ALES-NS REB (the Faculties of Physical Education and Recreation (PER), Agricultural Life & Environmental Sciences (ALES) and Native Studies (NS) Research Ethics Board) at the University of Alberta. For questions regarding participant rights and ethical conduct of research, contact the Chair of the ALES-NS REB, Dr. Kelvin Jones, at (780) 492-0650.

APPENDIX G: TEACHER INFORMATION LETTER



Faculty of Physical Education
and Recreation
E488 Van Vliet Centre
Edmonton, Alberta, Canada T6G 2H9

TEACHER INFORMATION LETTER

- Title of Project:** Elementary children's perception of their school's environment and its influence on their active and inactive behaviours while at school.
- Principal Investigator:** Angela L. Bayduza, PhD Candidate
Faculty of PE & Recreation, University of Alberta
abayduza@ualberta.ca 780-232-9976
- Co-Investigator:** Dr. Janice Causgrove Dunn,
Faculty of PE & Recreation, University of Alberta
janice.causgrovedunn@ualberta.ca 780-492-0580

Dear Teacher:

As you know, I have been observing the general routine and observing activities at your school to learn about the types of activities that occur, how long they last, where and when they take place. I have been looking for and documenting all the parts of the school that appear to help get children up and moving in an active way. Though there has been no direct observation of individual students or teachers, observations have been used to identify children of varying levels of physical activity. One or more of these identified children are students within your classroom. I would like to talk with these children about what parts of the school they feel increase how active they are while at school. As a way of accomplishing this task, I am asking your permission to come into your classroom and ask all of your children to take part in a drawing activity. Once the drawing activity has been completed I will then ask the identified children to participate in an interview with me.

Two meetings with you and your children at your classroom will be asked of you. A first meeting that will take approximately 10 to 15 minutes with your class, will be used to explain the project to the children, what I will be asking of them, and the consent form that I will ask them to take home with them to discuss with their parents, have the children and their parents sign, and return to you. The second meeting with you and your children at your classroom will be used to present an in-class activity where I will ask all of the children to draw two maps. One map will be of all the places in their school where they are active and the other will be of all the places in their school where they are not active. This activity will take about 30 to 45 minutes (one entire class period) to complete and will be presented as an activity for the entire class. However, I will only collect the maps from the

children who return the completed consent forms with both their own and their parent's signatures giving their consent to participate in this project.

In the week after the in-class activity, the children who return their forms, completed, with both their own and their parent's signature, may then be asked to take part in a one on one interview with me. The interviews will take place at school, during school hours or during the lunch period and will take about 30 to 45 minutes. I will again arrange these interviews with you and your schedule.

Once the interviews with the children have been completed and I have compared what each child said with what other children have said to see if I can find trends in the children's opinions about the parts of the school that are important to children's activity, I will be asking the classroom teachers to participate in a one on one interview with me. These interviews will be used to clarify or confirm the grouped opinions that have been put together from the children interviews as a whole. The interview will also consist of questions surrounding your thoughts on the school's role in promoting physical activity, the strategies your school uses, and the success your school has had promoting physical activity. The interviews will take place at school according to your schedule and will last roughly 45 minutes. Interviews will be tape recorded. Upon completion, all interviews will be typed. Information you provide in the interview will be kept completely confidential.

Please read and complete the attached consent form to indicate your agreement to participate in this part of my study and return to me **by Friday, February 4, 2011**. Please be sure to indicate on this form two options for upcoming class times in the month of February (that are not PE class times) that would work for you and your class where I can come and deliver the 45 minute in-class drawing activity.

Benefits, Risks and Confidentiality

I hope that by hearing from children about what parts of their school are important to their activity and talking with teachers about these responses, I will be able to understand the key parts of a school that have an important impact on the children and how active they are. This understanding could help other schools who may be struggling in this area or who want to make changes to improve the active lives of their children. Information you and your students give may help others succeed. Information gathered may also help to make more improvements at your school.

There are no known physical risks involved with the study. The information for this study will be gathered through observations and interviews, so a possible risk of participating in this study could be the disclosure of personal or sensitive information. Information you give me will not be shared with others outside of the study. All information will be held private. Student, teacher, and school names will be changed in the research. Any information that may give away a participant's identity will be removed. After the interviews, the participants' privacy will be a priority. All information will be coded and stored in a locked filing cabinet in a locked private office at the University of Alberta. All other information will be kept for 5 years after the study has been completed. It will continue to be stored in a

locked filing cabinet in a locked private office at the University of Alberta. After 5 years the information will be destroyed. Only investigators in this study will have access to this information at any time.

The data from this study will be written as a Doctoral thesis. The data will also be shared with various public, professional, and academic audiences by way of publications and presentations; however, your identity will be kept confidential. Although reports may include direct quotations from the interviews, all identifying information (name, address) will be removed from any report. In addition, the majority of data will be reported in a combined form. Confidentiality will be of utmost importance throughout the whole research process.

Freedom to Withdraw

You have the choice to participate in this project and will be reminded that at any point during the study that you can withdraw with no questions asked. You can tell or write me that you no longer want to be a part of the study. If you stop taking part, you will not be asked any other questions. Data from participants that leave the study will be destroyed right away. Withdrawal will be possible right up until writing of the Doctoral thesis has been completed.

Concerns

If you have any questions about this study please ask. I can be reached by email (abayduza@ualberta.ca), by phone (780-232-9976), or in person at the school. Or you can contact my supervisor, and co-investigator, Dr. Janice Causgrove Dunn by either email (janice.causgrovedunn@ualberta.ca) or phone (780-492-0580). If there are any further questions or concerns about this project you may also contact Dr. Kelvin Jones, Acting Chair of the Faculty Research Ethics Board at the University of Alberta, (780) 492-0650. Dr. Jones has no direct involvement in this study.

The plan for this study has been reviewed for its adherence to ethical guidelines and approved by PER-ALES-NS REB (the Faculties of Physical Education and Recreation (PER), Agricultural Life & Environmental Sciences (ALES) and Native Studies (NS) Research Ethics Board) at the University of Alberta. Dr. Kelvin Jones can also be contacted if you have any questions regarding participant rights or the ethical conduct of research.

Thank You so much for your consideration. I realize that your participation and the participation of your classroom in this request will require a significant disruption to your schedule and school work. I am extremely thankful for the significant contribution that your participation will make to the completion of this project.

Yours Truly,

Angela L. Bayduza, BPE, M.A.
PhD Candidate

TEACHER INFORMED CONSENT FORM

Title of Project: Elementary children's perception of their school's environment and its influence on their active and inactive behaviours while at school.

Principal Investigator: Angela L. Bayduza, PhD Candidate
abayduza@ualberta.ca 780-232-9976
Faculty of PE & Recreation, University of Alberta

Co-Investigator: Dr. Janice Causgrove Dunn,
janice.causgrovedunn@ualberta.ca 780-492-0580
Faculty of PE & Recreation, University of Alberta

Do you understand that you have been asked to be in a research study?

Yes No

Have you read and received a copy of the attached Information Sheet?

Yes No

Do you understand the benefits and risks involved in your participation in this research study?

Yes No

Do you understand that you are free to refuse to participate, or to withdraw from the study at any time, without consequence, and that your information will be withdrawn at your request?

Yes No

Have the issues of confidentiality been explained to you?

Yes No

Do you understand who will have access to your information?

Yes No

I agree to allow my classroom to take part in the in-class drawing activity.

Yes No

I agree to take part in the interview:

Yes No

Two class options to deliver the 45 minute in class drawing activity that would work for my class in the month of February (include day and period) are:

_____ and

Signature of Teacher

Date

Printed Name

*****Please return this form to the investigator by Friday, February 4, 2011**

I believe that the person signing this form understands what is involved in the study and voluntarily agrees to participate.

Signature of Investigator

Date

APPENDIX H: TEACHER BACKGROUND INFORMATION

Before your interview, I'd like to learn a little bit more about your teaching background and experience. Please take a minute to fill out this form and tell me a little bit about your teaching experience and your teaching background.

Name:

The total number of years that you have been a teacher? And years at this school?

The Grade level(s) that you are currently teaching:

The length of time spent teaching this Grade level:

Other grades that you have taught at this school; which ones and how long:

The subject area(s) that you are currently teaching:

Other subject areas you have taught in the past:

Your Background Education (Degree/s obtained; area/s of specialization):

Describe the courses, workshops, or training you have received or your level of experience in teaching physical activity and/or PE/Gym: _____

Describe your goals and objectives for the DPE program that you teach at your school. If you do not teach a DPE program, what do you feel should be the goals and objectives of the DPE program at your school? _____

If you do teach a DPE program at your school describe how you deliver your class on a daily basis. Try to think about and touch upon things like how you prepare for each class, the resources you frequently use to prepare for each class, the units you implement, the daily routine that you use, how you manage the class in the gym, the system that is in place for your children, the games you like to use, etc...

Principal Background Information

Before your interview, I'd like to learn a little bit more about your background and experience as a principal. Please take a minute to fill out this form and tell me a little bit about your experience and background as a teacher and principal.

Name:

The number of years that you have been a principal? And at this school:

The Grade level(s) that you are currently teaching:

The length of time spent teaching this Grade level:

Other grades that you have taught at this school; which ones and how long:

The subject area(s) that you are currently teaching:

Other subject areas you have taught in the past:

How many years total have you been employed as a teacher:

Your Background Education (Degree/s obtained; area/s of specialization):

Describe the courses, workshops, or training you have received or your level of experience in teaching physical activity and/or PE/Gym at your school:

Describe what your goals and objectives for the DPE program here at your school. As the principal at this school, what do you feel should be the goals and objectives of the DPE program at your school?

How are the DPE classes being delivered here at your school on a daily basis? Try to think about and touch upon things like how you've seen teachers prepare for classes, the resources that are frequently use to prepare for each class, the units that are implemented, the daily routines that are being used, how the classes are being managed in the gym, systems that are in place for the children, the games they like to play, etc...

APPENDIX I: MAPPING ACTIVITY INSTRUCTIONS

Today I am going to ask you to draw a map of your school. Let's discuss what a map is. (Show examples of a map of a home and yard drawn by a child; emphasize their drawings being THEIR MAPS not a copy of the one I show to them).

Your maps are meant to show me where all the physically active and physically inactive places and spaces are in and around your school. Let's talk about what physical activity and physical inactivity means (Discuss and generate examples from the children that define and clarify for the children what PA & PIA means).

Now, here's what I would like you to do:

(hand out the 1st piece of paper) First, **Draw ONE MAP of your school** that shows the places at your school, both inside and outside, where you think you can be PA. All the places where you play, move around and work up a sweat, breathe harder, use lots of your muscles, or get your heart beating faster while you are at school (EMPLOY CHILD GENERATED DEFINITION). **Remember** at your school means both inside and outside of your school and **this map** is of the active places at your school. Please make sure you label your drawings. When you are done raise your hand. Any questions?

(hand out the 2nd piece of paper) Now, **Draw ONE MORE MAP of your school** but this time it will show the places at your school, both inside and outside, where you think you can be PIA. All the places where you hang out, sit, relax, be still, don't move a lot, use very few muscles, and breathe slowly or your heart beats normal while you are at school (EMPLOY CHILD GENERATED DEFINITION). Again, **Remember** at your school means both inside and outside of your school and **this map** is of the inactive places at your school. Please make sure to label your drawings. Raise your hand once again when you are finished. Are there any questions?

APPENDIX J: CHILDREN'S INTERVIEW GUIDE

A. Rapport Building

- relax child with general conversation about how their day is going
- thank them for their participation
- discuss purpose of talking with them
- assure them that there are no right or wrong answers, not a test, their experiences are what I am interested in, and they are the experts when it comes to their experiences
- should take about 30 to 45 minutes but if feeling uncomfortable may stop the interview at any time
- ask for their permission to record interview and to begin

B. General Questions about the Drawings

“Do you remember the maps you drew for me the other day? I have them here with me today and was hoping that I could talk to you today about your maps. There is nothing wrong with your maps. In fact I think that they are really great and really interesting. I wanted to ask you some questions about them so I can learn from you what is on the maps, and what is happening in them. Is that Ok with you?”

1. What is going on in each of your drawings? Tell me about what you have drawn.

C. Probing Questions about the Drawings

Physical Environment

1. Without looking at your map, LIST for me all the spaces in your school where you think you are or can be:
 - = Active
 - = Inactive
2. Which of these spaces (both active and inactive) which you have just listed for me, have you drawn on your maps? Please point them out to me and show me on your maps.
3. How often do you get to use these spaces? In a day or in a week (active first, inactive second)
4. When was the last time you were in each of these spaces? (point to the spaces on the maps)
5. How much time are you usually given to use these spaces? (point to spaces on the maps)

6. Do you think you are given enough time to be able to use these spaces?
7. Which space (on the active map, then on the inactive map) would you to be able to use:
 - = more often
 - = less often
 - = about the same as you usually do
8. Of all the spaces, from both of your maps, which space is your most favourite space to use?
 - What is it about this space that makes it one of your favourite spaces to use?
 - Is this space being used well at this school (to its fullest)?
 - How well do your teachers use this space?
 - How well do you use this space?
 - Would you suggest any changes to this space so it is used better? What might these be?
 - Does your school have enough of, too many, or not enough of these kind of spaces?
9. Of all the spaces, from both of your maps, which space is your least favourite space to use?
 - What is it about this space that makes it one of your least favourite spaces to use?
 - Is this space being used well at this school (to its fullest)?
 - How well do your teachers use this space?
 - How well do you use this space?
 - Would you suggest any changes to this space so it is used better? What might these be?
 - Does your school have enough of, too many, or not enough of these kinds of spaces?
10. What are some of the rules at your school that tell you how a space can be used (refer to different spaces on their maps both active and inactive)?
11. What are some of the kinds or types of equipment that you use in some of these spaces (refer to places drawn on their maps both active and inactive)?
12. What kind or type of equipment do you really like to use? Don't really like to use?
13. Does your school have enough equipment here? Is there any equipment you think your school should have more of?

14. What type or kind of equipment would you like to have at school that you don't have right now?
15. If you were the principal or were given the power to create or build a new place at your school or change a space that is already here at the school, what would you create, build, or change? What are some of your reasons for creating, building, or changing this place?

Behaviour

1. Referring to the places drawn, tell me about what things you are doing or can do in these spaces?
 - are they games? What are the games? The rules? How they are played?
 - What are you doing in this space/what can you do in this space?
2. (Referring to the active map) Why did you draw these spaces on this map? (How do you know when you are active? How did you know to draw these spaces on this map?)
3. (Referring to the inactive map) Why did you draw these spaces on this map? (How do you know when you are inactive? How did you know to draw these spaces on this map?)

Personal Factors

1. Would you say you are one of the most active kids in your class, one of the least active kids in your class, or somewhere in the middle of everyone in your class?
 - how do you know this about yourself?
2. When you have the choice to do something, are you more likely to choose an active thing or an inactive thing to do? (do you do more active things in your free time or more inactive things?)
3. What is your most favourite thing to do while you are at school? (did you draw it on your map?)
 - what are some things about this activity that you really like? What makes it your favourite thing to do?
4. What is your least favourite thing to do while you are at school? (did you draw it on your map?)
 - what are some things about this activity that you don't really like? What makes it your Least favourite thing to do?
5. List for me all the times or places when you get to choose the things you want to do when you are at school.
 - tell me about these times
 - how often does this happen and you get to choose

-do you get enough chances to choose what you want to do when you are at school

6. Is it important to you that you get a say in what you are doing at school? Do you like it more when you get to choose and decide what you do or when someone else decides what you do when you are at school? In some of these spaces?
Who makes most of the choices or decisions while you are at school?
7. If you had the power to choose one thing to do at school for a whole day, what would you choose to do? (If I told you tomorrow when you come to school you are going to decide what everyone at school will do for the whole day, what would you choose for everyone to do?) -some of your reasons for making this choice?

Social Environment

1. Are you in any of these drawings? Where are you in these maps? Show me.
2. Who else is in these pictures? Have you drawn anyone else in these maps? (who are these people? What are they doing? If there are no people, why not?)
3. Who do you like playing your most favourite things with?
 - How often do you do these things with these people?
 - What is it about this person/these people you really like?
4. Who decides/ed what to do in this place? How about over here in this place? (on both maps)
5. Who would you say is most responsible for getting you moving or getting you active while you are at school? Who keeps you moving?
 - Who encourages/is most helpful/supports you the most to do these kinds of things?
 - Can you tell me about a time when this person encouraged you to do this kind of thing? (How do they encourage/helps/supports you? How did that make you feel? Give me some examples)
6. Who would you say prevents you or stops you from moving or being active while you are at school? Who stops you from moving?
 - Is there anyone who makes it hard for you to do these kinds of things?
 - Can you tell me about a time when this person made it hard for you to do this kind of thing? (Tell me what happened? How that made you feel? Examples)

7. How much time do you spend with teachers being active? How much time do you spend with teachers being inactive? Do you think you do more active or inactive things with your teacher? Do you think you get to spend enough time with your teacher being active?
8. Is your teacher one of the most active teachers at this school, the least active teachers at this school, or somewhere right in the middle?
 - how do you know this about your teacher?

Closing Activity

1. Take a close look at both of the maps you have drawn.
 - What (parts, things, spaces, rules) do you think are some of the things about your school that make it easy for you to be active? To be inactive?
 - What (parts, things, spaces, rules) do you think are some of the things about your school that make it hard for you to be active? To be inactive?
2. If there was anything you could do to make your school better (stop doing, change, or improve upon, do more of, do less of) what do you think you would do?

APPENDIX K: ADULT INTERVIEW GUIDE

A. Rapport Building

- general conversation about how their day is going
- thank them for their participation; collect pre-interview questionnaire
- discuss purpose of talking with them
- assure them that there are no right or wrong answers, their experiences are what I am interested in, and they are the experts when it comes to their experiences
- if uncomfortable may stop the interview at any time
- will take about 30-45 minutes
- ask their permission to record interview and to begin

B. Review the Aggregate of Responses from the Children's Interviews

- share some of the highlights and results from the analysis of the children's interviews
- address any questions regarding clarification or confirmation needed
- discuss trends and patterns I have found in the children interview data

C. General Questions about PA

Feelings toward physical activity and physical activity behaviour

- Review this adult's/teacher's responses from background information sheet.
 - goals and objectives for PE? DPA?
 - teaching style or delivery strategies for PE?
- How important is physical activity to you?
- Do you participate in physical activity in your own time? Tell me about these?
- If I asked you to rate how active you are, what rank would you give yourself (1 – Very PA. 5 – Average 10 – Not at all active)?
- Would you say you are one of the most active adults/teachers at school, one of the least active adults/teachers at school, or somewhere in the middle?
 - How do you know this about yourself?
- Would you say your class is one of the most active classes in the school, one of the least active classes in the school, or somewhere in the middle of all the classes in the school? (how active, in general, are your students?)

- Can you talk to me a little bit about how active and inactive you think children here at this school as a whole are?

-how PA would you say the children are at your school?

-how inactive are they?

-Do you think there are any benefits to you or to your children by having children moving more and being more PA while they are at school?

- what are some of the benefits you have seen personally in your students?

D. General Questions about the school's Role in Promoting PA

- What are the specific things your school does to promote PA in its children? (in other words ... What are some specific things being done here to increase PA in the children at this school?)

-what's working at your school?

-what's not working at your school?

- What role has the CSH approach implemented at this school played in promoting an increase in PA for the children at your school? for you personally?

- How do you know what your school is currently doing is increasing the daily PA of the children in this school? (probe for evidence they see of this)

-are children here more active as a result of what you have been doing to promote PA?

- Are you happy with what your school has been doing to promote PA? (is it enough? Too much? Too little?)

- What improvements/changes at your school do you think need to be made to increase the impact it is having on children's PA at school?

- Do you feel you have the necessary resources (support, training, money, equipment, etc.) needed to effectively promote or increase how PA students are at school? (like what? If not, what's needed? What could you use more of to help make it easier for you to achieve this goal?)

- In your opinion, in what ways can schools make a difference/have an impact on how active children are generally (in and out of school)?

-Could you provide some words or specific examples to describe what the "culture" is like here at your school? (or the social climate?)

-the school's overall atmosphere

-it's characteristics; most visibly expressed or felt

-what is rewarded, encouraged, emphasized

-the style of life here in this community

-how was this created; specific things you think helped to achieve this?

E. Children's Thinking

- How do you think the children in your school feel about what the school is doing?
 - Do you think the students like it/happy with it?
 - Do they realize or are aware of what you are doing (refer to what is mentioned above) is about promoting their PA behaviour?
 - Are children conscious/aware of the things the school is doing to help increase their PA levels?
 - Of the things you mentioned above, what things do they really pay attention to? (or have a significant impact on them?)

F. The Teacher's/Adult's Role

- Who is responsible at your school to promote daily PA? What is your role in this approach/system?

- probe regarding the system in place, a protocol, a schedule, regimen to promote DPA at this school? (1 PA leader; do they have a PAL in place or who organizes the PA events and scheduling at the school; how do they involve themselves in this process)

- Are there any changes that you would like to see made to this system? Or another system that you would like to see put in place?

- In considering the list of priorities you have (refer to their role) have at this school, where does increasing children's PA rank as a priority for teachers at this school? For you? For the school as a whole?

- should increasing children 'PA be on your list of priorities? Is this a responsibility the school or teachers should have?

- If you left this school and went to another school and when you arrived you saw that the school was struggling with low levels of PA engagement, what things that are being done here would you take with you to try to implement at the other school?

- attempt to get at what they think are the key factor(s) at their school that they feel appear to influence the PA of the children