



A Cultural Approach to Promoting Physical Activity in Secondary Schools

Une approche culturelle pour promouvoir l'activité physique à l'école secondaire

Greg Rickwood
Nipissing University

Ellen Singleton
Western University

Abstract

This case study examined the influence of physical education teacher beliefs on school-based physical activity opportunities. Seven teachers from one secondary school in southwestern Ontario were asked about their beliefs concerning school practices and policies that influenced student enrolment in physical education classes, and student and teacher participation in leisure time intramurals and inter-murals. Collectively, participants discussed the importance of supportive guidance counselors that promoted physical education courses to students beyond the mandatory grade nine; hiring new teachers with a sport background and/or genuine interest in promoting physical activity; and matching intramural and inter-mural sport opportunities to student interests when attempting to maximize school-based opportunities for physical activity. In turn, these teachers believed their efforts to advance physical activity at the school were negligible when the aforementioned practices were not engrained into the school's cultural system.

Overall, this inquiry found that if physical education teachers' beliefs about the policies and practices perceived to accentuate the physical activity culture of the studied school were not acknowledged and/or accepted by school leaders (i.e. principal, vice-principals, guidance counselors, department heads), motivation to promote and participate in school-based physical activity opportunities waned, and the number and quality of physical activity opportunities diminished.

Résumé

Cette étude tentait d'expliquer les liens entre les croyances qu'avaient de l'activité physique les enseignants d'éducation physique d'une école secondaire de l'Ontario et les occasions qui s'offraient de s'adonner à l'activité physique à l'école. Pour ce faire, chaque enseignant (n = 7) a répondu à un sondage de neuf questions sur les occasions de pratique d'activités physiques, mettant l'accent sur les politiques scolaires existantes en

matière d'activité physique. L'analyse des données a fait ressortir trois facteurs clés associés à ces occasions : la culture actuelle de l'école en matière d'activité physique, l'absence d'une définition claire de l'activité physique et les stratégies de promotion de l'activité physique. Par conséquent, les personnes responsables de l'activité physique dans les écoles secondaires sont plus à même de comprendre les éléments et attributs fondamentaux d'une culture scolaire pleinement axée sur l'activité physique.

Introduction

A majority of Canadian children and adolescents (93%) are falling short of public health guidelines recommending at least 60 minutes of moderate-to-vigorous daily physical activity (Active Healthy Kids Canada, 2012). Schools have been identified as key teaching environments for counteracting physical inactivity among this population due to the time children spend in this setting schools (Pate et al., 2005) and because the vast majority of children and youth, including high risk groups, attend public schools. Prior evidence confirms that school environments influence academic and behavioural outcomes for their members (Dobbins, DeCorby, Robeson, Husson, & Tirillis, 2009). Ostensibly, school settings may also influence daily student physical activity levels.

Most Canadian schools offer physical activity opportunities through Physical Education (PE) classes, access to playing fields and gymnasiums during leisure times, connections with community recreation facilities and programs, and intramural activities and interschool sports (DeWit, McKee, Fjeld, & Karioja, 2003; DeWit et al., 2000). In general, school-based physical activity opportunities positively influence the physical activity patterns of non-active, children and adolescents (Belanger et al., 2009; Cooper, Page, Foster, & Qahwaji, 2003). For example, elementary and middle schools that paint playground equipment (Barnett, O'Loughlin, Gauvin, Paradis, & Hanley, 2006; Barnett et al., 2009) and provide sports equipment to accompany organized physical activities during leisure times (Cradock, Melly, Allen, Morris, & Gortmaker, 2007; Ridgers & Stratton, 2005) are effective strategies significantly associated with daily increases in student physical activity levels. In the secondary school context, students in schools with daily leisure periods (before school, during, and after school) were more active during these times than any other points throughout the school day (Haug, Torsheim, Sallis, & Samdal, 2008; Nichol, Pickett, & Janssen, 2009).

However, not all secondary schools present a diverse array of physical activity options for students. School-based physical activity opportunities are restricted in some schools because of budgetary constraints, school policies that reduce the time dedicated to PE (Cooper et al., 2003; Gavarry et al., 1998) and limited physical activity equipment and time associated with leisure times (i.e. recess and lunch periods) (Datar & Sturm, 2004). Previous evidence indicates that students in schools with fewer opportunities for physical activity are less active daily than students attending schools with multiple opportunities for physical activity (Koplan, Liverman, & Kraak, 2005; Rosenfeld, 2004; Trudeau & Shephard, 2005).

A Call for a Cultural Approach

To date, several studies investigating the relationship between daily student physical activity levels and the school context have largely focused on the built

environment (Bocarro, Kanters, Casper, & Forrester, 2008; Trudeau & Shephard, 2005) rather than a broader conceptualization of school culture (i.e. member beliefs). Recently, Cohen et al. (2008) outlined the need for studies that reach beyond a school's physical environment to understand how the 'whole school' influences student physical activity levels. The methodological approach of exploring a school's cultural system is supported by findings from a few secondary, school-based intervention studies that have enhanced daily physical activity opportunities and minutes of physical activity for periods of six weeks to six months. Perhaps the most widely recognized studies in this area are the LEAP intervention (Lifestyle Education for Activity Program) (Leatherdale, Manske, Faulkner, Arbour, & Bredin, 2010) which altered the instructional programming and school environment to increase grade nine girls' physical activity levels, and the CATCH (Child and Adolescent Trial for Cardiovascular Health) (Pate et al., 2005) and SPARK (Sports, Play, and Active Recreation for Kids) (Mckenzie, Nader, Stikmiller, & al., 1996) interventions that aimed to increase the number of moderate to vigorous minutes of physical activity in PE classes. Overall, the sustainability of these programs were credited to internal support from teachers and principals through physical activity practices and policies and regular professional development (Mckenzie, Sallis, Kolody, & Faucette, 1997).

In Canada, teachers in ten schools (elementary and middle schools) associated with the Alberta Project Promoting Active Living and Healthy Eating in Schools (APPLE) attributed the success of the project over the first 18 months to the involvement of stakeholders (i.e. teachers, students, administrators) and entrenching the practices into the school culture (Dowda, Sallis, Mckenzie, Rosengard, & Kohl, 2005; Kelder et al., 2003). For example, the teachers outlined that the project was part of everyday school life; as a result, it changed the personal physical activity behaviours of the entire school population. Another on-going physical activity intervention (Action Schools) that continues to maximize physical activity opportunities in British Columbia secondary schools bases its post-intervention success on the teachers and administrators who have accepted the changes as part of their daily practice (Storey, Spitters, Cunningham, Schwartz, & Veugelers, 2011). In contrast, the main reason why several schools ceased intervention implementation was not the absence of fitness equipment and/or inadequate physical activity facilities but the teachers/administrators who viewed the physical activity enhancements as detrimental to academic achievement. Ironically, increased time for PE, physical activity or leisure times does not affect academic success and, in some cases, may improve academic grades (Naylor, Macdonald, Zebedee, Reed, & McKay, 2006).

Characteristics of School Culture

The concept of school culture evolved from the study of organizational cultures (i.e. corporate business) (Wilkins et al., 2003). Essentially, researchers found that principles present in successfully managed businesses (i.e. McDonalds, IBM) were also evident in academically effective schools (Deal & Kennedy, 1982). For example, effective cultures were continually adapting to meet on-going internal and external demands, outsiders perceived cultural members to be working collaboratively towards mutually established goals, and members of the culture knew what was expected of them and how their actions influenced the entire culture. Although, some researchers resisted

this correlation stating that schools were not organizations as no objective product was produced, and schools were far more complicated institutions socially and politically (Finn, 1989; Holland & Andre, 1987; Kelly & Bredeson, 1989).

In the late 1990's, Prosser (1999) published a 12 year study that examined the characteristics of academically effective school cultures in the United States and Europe. Educators within the investigated schools stated their school's successes were attributed to a shared sense of purpose among staff members, underlying norms of collegiality, improvement and hard work, and positive relationships between teachers and students. Peterson and Deal (1998) enhanced these cultural characteristics to include the understanding by cultural members of special meanings attached to certain words and unique rituals that defined membership. In essence, the power of culture was a result of shared assumptions mutually reinforced by all school culture members.

Therefore, the culture of a school is its individuality; it is something that a cultural member can sense as part of the collective, but is difficult to clearly define to outsiders. The complex nature of any school culture requires an investigative strategy that is equally as intricate.

Theoretical Framework

While contemplating the findings of earlier school culture theorists, I was unable to form a consensus around the specific components of a school's cultural system; therefore, I sought out additional literature for clarification. In this search, I discovered Edgar Schein's theory of organizational culture (Schein, 1985); a theory grounded in other theories of group behavior, social systems, and organizational functional analysis (Homans, 1950; Merton, 1968; Parsons, 1951) that categorized culture into distinct and measurable levels. Schein (1985) found that as an organization evolved and became more resilient, its culture became embedded into members' sub-conscious. Once a cultural system was established, it became more visible to outsiders, newcomers conformed without debate, and member behaviors dictated how the environment was perceived. In 1999, Schein refined his theory to include the understanding that behaviors within an organization could only be interpreted in the specific context in which the cultural system existed (Schein, 1999).

Schein's theory is transferable to the study of schools because it embraces a systems approach and offers a holistic definition of culture that defines the internal and external components of an organization. Schein (1985) believed that an organization's cultural system existed at three distinct levels, some more visible than others, that influenced member behaviors. The outermost level of a school's cultural system is its artifacts; this includes any tangible components of a school such as the physical layout, how people dress, smells in the hallways, and even visuals hanging on school walls (i.e. posters, trophy cases) (Schein, 1999). To an outsider, these artifacts may be difficult to decipher, but they are external representations of school members' beliefs and values. The second more internal level contains the less tangible components of a school's cultural system such as its policies and practices derived from school strategies, goals and philosophies. The innermost and least tangible level of a school's cultural system is its underlying member assumptions or taken for granted beliefs that provide the foundation for school values and member behaviours. In turn, Schein's multi-level systems' approach was particularly appropriate for this study because it imparted distinct lenses

into the less tangible components of school culture. In turn, facilitating a deeper analysis of the factors associated with school-based physical activity.

The Importance of the Intangibles

According to the handful of studies that have examined school-based physical activity opportunities in relation to school member beliefs, there is evidence of a strong association (Barnett et al., 2006; Bauer, Patel, Prokop, & Austin, 2006; Dymont & Bell, 2007; Groft, Hagen, Miller, Cooper, & Brown, 2005; MacQuarrie, Murnaghan, & MacLellan, 2008). Specifically, some studies found that when teachers were encouraged to facilitate physical activity opportunities during leisure times at elementary schools, daily physical activity levels of students were positively and significantly influenced (Loucaides, Jago, & Charalambous, 2009; Mahar et al., 2006; Verstraete, Cardon, De Clercq, & DeBourdeaudhuij, 2006). Furthermore, middle school students believed they were more active if a teacher was present and supervising physical activity spaces on school grounds (Haug, 2008; Sallis, 2001).

Fewer studies have explored this relationship at the secondary school level but one study found that students who identified their PE teachers and coaches as their role models were more active throughout the school day (Thompson, Rehman, & Humbert, 2005, p. 432). Other researchers who have examined the facilitators and barriers to student physical activity levels at school have found that in schools where teachers value physical activity, and model behaviour indicative of an active lifestyle, student physical activity levels were higher (Barnett et al., 2006; Bauer et al., 2006; Dymont & Bell, 2007; Groft et al., 2005; MacQuarrie et al., 2008). Recently, ten secondary school PE teachers from Ottawa were asked about the transition to the new PE curriculum instituted in 1999; they felt that their supportive beliefs towards the new curriculum helped them adapt more effectively to Ontario's Ministry of Education's revisions (Bowins & Beaudoin, 2011). These findings simulated prior evidence that determined when secondary teacher beliefs supported new initiatives in PE, adaptation was fluid and sustainable (Bechtel & O'Sullivan, 2007; Ha, Lee, Chan, & Sum, 2004; Wirszyla, 2002). However, more research is required to justify these initial findings, particularly at the secondary level.

In summation, the number and quality of school-based physical activity opportunities, and daily student physical activity levels, seem to be associated with the physical activity interests and beliefs of teachers (Pate, 2006). Although teachers recognize they are role models for students (Fullan, 1999; St. Leger, 2000), very little research has linked teacher beliefs and behaviours to physical activity practices and/or policies in schools (Storey et al., 2011). Thus, employing a multi-level, cultural approach (physical and social) to investigate the relationship between school settings, student physical activity levels and physical activity opportunities is warranted.

Research Questions

In order to further explore the connection among secondary teacher beliefs and school-based physical activity opportunities, I posed four research questions to help me satisfy this study's objectives and address the dearth of evidence in this area:

1. What are the beliefs of secondary PE teachers concerning physical activity within their school?
2. What are the beliefs of secondary PE teachers concerning access to, and opportunities for physical activity within their school?

3. What is the relationship between secondary school PE teacher beliefs around school-based physical activity and the physical activity opportunities available to students?
4. What are the factors that facilitate and/or inhibit PE teacher participation in school-based physical activity opportunities within secondary schools?

Method

Contemplating the multiple methodologies conducive to the research questions presented in this study, the case study method was most favourable. Due to the small number of participants ($n = 7$) from one urban secondary school, and Schein's (1985) theoretical interpretation of a school's cultural system, the case study methodology was the most efficient way to maximize learning around the study inquiries. In particular, case studies focus on how and why things happen and allow for the examination of cultural realities and differences between intentions and actual behavioural outcomes (Anderson, 1993). Moreover, case studies are useful when one needs to understand the breadth and width of particular relationships within an organization (i.e. schools) (Noor, 2008; Patton, 1987). In turn, this methodology encouraged the use of multiple data collection strategies (i.e. data triangulation) and more robust results (Stake, 1995). In short, valid and reliable case studies analyze evidence in contrasting ways to expose conflicting events (Yin, 2003). Additional strengths include its abilities to present the researcher with a holistic vision of a phenomenon or event (Gummesson, 1991) and to provide an inward perspective into a dynamic organizational culture (Hartley, 1994). Feagin, Orum, and Sjoberg (1991) believed that case studies helped researchers understand the system of actions in a culture rather than an individual or group of individuals.

Participants

A purposive sample of secondary PE teachers (males = 5, females = 2) agreed to participation. Purposive sampling was chosen over random sampling because the aim of a case study is to select participants who can best inform the researcher around study goals, in effect, to maximize learning (Feagin et al., 1991). The primary reason for recruiting these particular school members was their inherent knowledge of school policies and practices relative to school-based physical activity opportunities. With a few exceptions, the participants were long-standing members of the school culture (\geq five years) and held well-established beliefs concerning access to, and opportunities for physical activity. As well, the total number and gender diversity of the participants supported my inquiry into the factors that influenced physical activity opportunities at this school. Both a male and female perspective allowed access to gender-specific factors that may not have surfaced if one gender was isolated. To protect the anonymity of each person, pseudonyms replaced actual names.

Teacher Biographies

One of two female teachers involved in this study was Beth. Beth had taught two years at this school and was a supply teacher in the local school board for two years previous to her current post. Beth was a Physical Education specialist who taught grades

9-11 girls' Physical Education classes (regular, English as a Second Language, Livefit) and coached the school's junior girls' volleyball and soccer teams. She was one of two, school-based teacher champions of the Specialist High Skills Major Program: Health and Wellness Sector. In addition, Beth taught in Learning Services for one of her teaching sections and was branching out into Special Education. Prior to her position at this school, Beth taught internationally in Egypt, Russia and Venezuela.

Lisa was the other participating female teacher who had taught three years at the studied school, and was also a supply teacher in the local school board for two years before this position. Lisa was the other school-based, teacher champion of the Specialist High Skills Major Program: Health and Wellness Sector and was the Physical Education department's leader in blended learning courses. Above these duties, Lisa taught grades 9 and 10 girls' (regular and Livefit) Physical Education, grade 12 co-educational Physical Education and grade 9 Geography. She helped coach the school's cross-country, track and field, junior girls' volleyball and soccer teams. Furthermore, Lisa was completing her first year of an on-line, Master's of Education program.

Mike had been a teacher at the school for six years. He was the current head of the Physical Education department teaching grade 9-12 boys' Physical Education courses, grade 9 Science and grade 12 Kinesiology. Mike coached the boys' and girls' junior and senior basketball teams for the previous six years and during this time period, also assisted with the boys' and girls' rugby and soccer teams. Mike was the founder of the school-based intramural organization team responsible for organizing and delivering leisure-time sport and club programs. In addition, Mike was an Associate Teacher to pre-service, teacher education students from Europe, the United States and Canada.

Peter had been a member of the Physical Education department for two years and previously worked as a long-haul transport driver and tree planter. He came to the department with exceptional skills in Outdoor Education; thus, Peter taught the grade 12 Outdoor Education course along with grades 9-11 boys' and girls' (regular and English as a Second Language) Physical Education courses. Peter also taught grade 9 Science, head coached the boys' junior football team, track and field and the junior girls' volleyball teams. Peter trained for marathons and trail runs, rode his bike to school every day and was a consistent fixture in all school-based, teacher-student charity sport competitions.

One of the most experienced school culture members in this case study was Sean. Sean taught 21 years at the school instructing grades 9-12 boys' regular Physical Education, grade 10 History and a variety of Co-operative Education courses. Over his tenure, Sean coached the girls' and boys' volleyball, hockey, badminton, rugby and tennis teams at the school. Moreover, Sean was the school's teacher union representative for the past ten years and sat on several negotiating and debate committees. Also, he was the school's "handy-man" completing jobs ranging from hanging achievement plaques on school walls to installing flat-screen televisions in classrooms. Sean instituted and maintained the Sports' Hall of Fame corridor in the Physical Education wing of the school that honoured past students' achievements in sport and physical activity.

Working with Sean throughout his 21 years at the school was Jason. Jason started teaching the same month as Sean in 1991; he taught grades 9-12 boys' regular Physical Education courses and was the current head of Co-operative Studies. Jason also volunteered many years to inter-school sports' teams coaching the boys' and girls' volleyball, hockey and badminton teams. In addition, he also coached the track and field

and boys' junior football teams. Similar to Sean, Jason was heavily involved with the board negotiation committee that interacted with Ministry of Education. As well, Jason led the current events' committee that highlighted recent academic and athletic student achievements, and was regularly engaged in promoting school intramural programs.

Another long-standing cultural member was John; he had 13 years experience teaching grades 9-12 boys' regular Physical Education including Outdoor Education, grade 12 Native Studies and grade 11 Economics. John had been the head coach and/or on the coaching staff of girls' and boys' volleyball, basketball and swimming teams over his tenure. He was the school's Marital Arts' teacher and often offered introductory training sessions during leisure periods. John was also the teacher sponsor for the student-led intramural organization club the past two years and annually organized the school's athletic banquet.

The School and its Programs

The studied secondary school was in the downtown core of a mid-size, urban center in southwestern Ontario. It was home to 100 teachers and support staff and approximately 1500 students. In terms of academic programs, the school was an Integrated Arts and English Language Learners (ELL) magnet school that attracted students from across the local community and up to 60 kilometers outside its catchment area.

From the outside, it looked its 55 years (i.e. red brick, squared corners, flat roof) helping it fit unobtrusively into the established neighbourhood around it. A recent library addition and main office upgrade modernized the school's main front entrance. The green space encompassing the school included two sports' fields and a small seating area with picnic tables. There were two tennis courts on school grounds but the nets were broken and the playing surface was cracked and weathered. The football uprights and the soccer nets were brand new and both sports' fields were re-seeded last year. Also, there were less than five mature trees on school property and very few areas existed for students to congregate safely outside the school walls on school property. At the back of the school, six portables expanded across what used to be a student parking lot. The school was enclosed on its south and western sides by busy city streets. To access the smaller sports' field, students had to cross over one of these streets. The north and eastern sides of the school were defined by single-family homes.

Data Collection

Focus Interviews Using the Modified Active PASS Survey.

Teacher and administrator beliefs were primarily obtained through researcher-participant interviews. The interviews occurred after school hours in the PE office on school grounds for participant convenience and to reduce distractions that would normally occur before or during school hours. The focus interview method was chosen because it allowed for flexibility when asking individual participants the same questions (Noor, 2008). The interview items (n = 9) were selected from the, "School Policies and Practices" section of the Modified Active PASS (Physically Active School Settings) survey (MAPS) (Rickwood, Temple, & Meldrum, 2011). This modified survey is a valid and reliable tool for examining factors associated with school settings that influence school-based physical activity opportunities (Rickwood et al., 2011). Participants were

given five response prompts: strongly disagree, disagree, undecided, agree, and strongly agree. At first, responses were brief but probing questions such as: (i) “Why do you feel this way?” (ii) “What experiences have solidified your beliefs on this issue?” and (iii) “Have your beliefs changed over your time spent in this school? If so, what circumstances or experiences have altered your beliefs?” helped access the deepest layers of teacher beliefs. As well, if someone strongly disagreed with a statement, he/she was asked to think of school policies or practices that might alter their beliefs. In turn, when a teacher strongly agreed with a statement, they were asked to give reasons why they believed the school was achieving success in this area.

Drawing a Mind Map as Part of the Interview Process.

Mind maps are perceived as visual representations (i.e. flow chart, brainstorming bubble) of one’s main thoughts about a research theme (Warren & Karner, 2010). Instead of responding verbally, participants were instructed to create a physical activity opportunities belief mind map that utilized Schein’s three levels of a school’s cultural system (Schein, 1985) (Figure1). To complete the mind map, participants were asked to consider the factors that facilitated and/or inhibited their involvement in school-based physical activity opportunities. Before they began, each participant was instructed that the top circle symbolized factors linked to teacher/administrator beliefs concerning school-based physical activity opportunities; the right circle represented factors associated with school policies and practices around physical activity; and the remaining circle signified factors linked to school artifacts (i.e. physical environment). After this brief overview, participants wrote their thoughts into the proper circle using a colour-coded system: facilitators (green) and barriers (red) to teacher/administrator involvement in school-based physical activity opportunities.

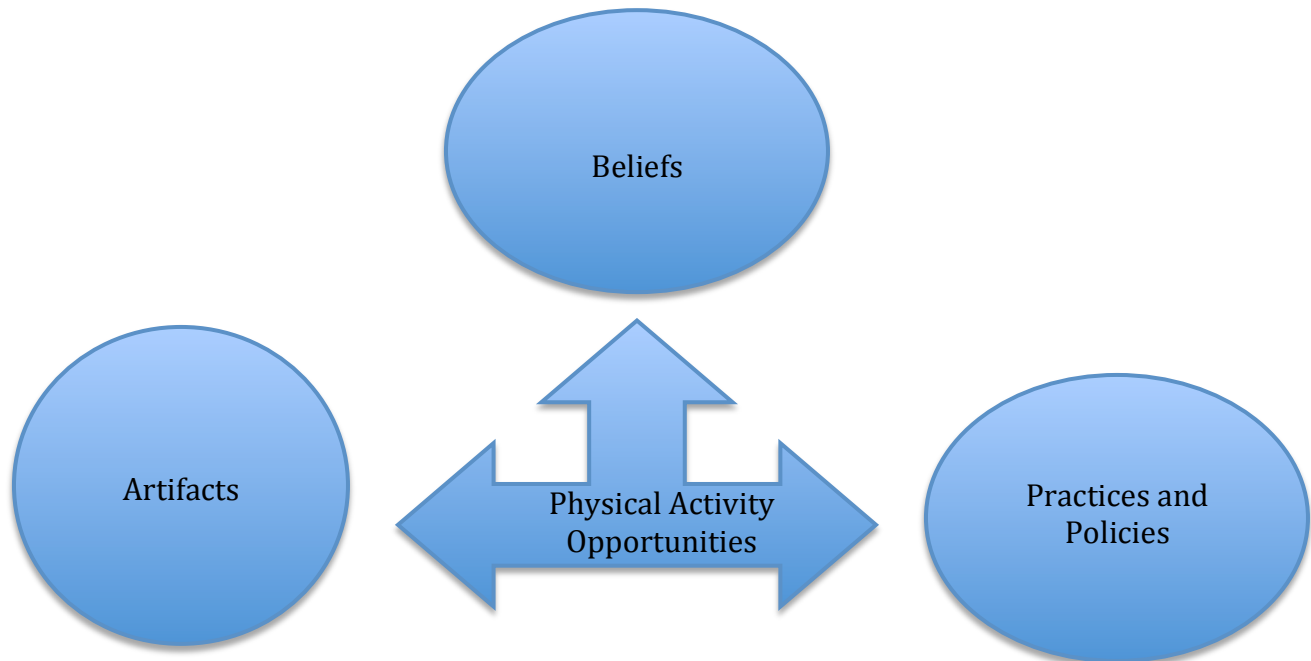


Figure 1 Belief Mind Map

Field Notes and Voice Recording Device.

The purpose of keeping field notes was to gain a descriptive, written account of what had been heard and observed (Warren & Karner, 2010). For efficiency, I used shorthand-writing techniques and anticipated response themes to achieve consistency and organization throughout the note-taking process. The response themes mirrored Schein's (1985) levels of school culture. Hammersley and Atkinson (1983) corroborated the use of pre-determined themes when collecting qualitative data to serve as key reference points for inscribing participant responses. To support and enhance my field notes, an electronic recording device recorded participants' responses. This device provided cues for event sequencing and allowed for replays of direct quotes (Hammersley & Atkinson, 1983; Warren & Karner, 2010).

Data Organization

Due to the breadth of qualitative data collected in this study (i.e. meanings, concepts), it was necessary to properly organize the data prior to analysis. I initially inputted participant quotes into the latest version of word-processing program *Microsoft Word* in search of thematic patterns, the preferred method of data organization in qualitative research (Warren & Karner, 2010). The next step involved clustering individual item responses according to the levels of school culture (Schein, 1985). To accomplish this, each level was afforded a singular colour (i.e. school artifacts = orange, school practices/policies = green, school member beliefs = yellow) for consistent transfer of participant quotes. The responses were colour-coded using the following definitions: school artifacts (i.e. tangible components of school culture - what one sees, hears, smells or tastes), school policies and practices (i.e. PE/physical activity related) and; school member beliefs (statements that included, but not limited by, phrases such as: "I think", "I believe", "I feel").

Additionally, written comments obtained from the mind map portion of the interview were organized by cultural level (artifacts, practices and/or policies and beliefs) and combined with verbal responses to gain a broader interpretation of participant beliefs relative to the proposed levels of school culture.

Data Analysis

After the data were organized by survey number and level of school culture, the next step was to search for thematic patterns. Some researchers have found that open coding (Stake, 1995) and focusing on the researcher's direct interpretation of events rather than the actual data are also effective tools for qualitative data analysis (Eisner & Peshkin, 1990). Generally, the value of case study findings is highly dependent on how intimate the researcher becomes with his/her data (Thomas & Nelson, 2001); if the analysis is executed properly, a case study can provide a holistic overview of an intricate relationship or problem (Thomas & Nelson, 2001). Therefore, I used analytic ordering and open coding to reduce the data further into sub-themes (Warren & Karner, 2010). Open coding identified key words and phrases; as such, quotes with similar syntax were physically cut out of the word-processed document and segregated into new sub-thematic categories. Goertz and LeCompte (1984) confirmed the importance of re-reading and dissecting qualitative data several times to determine analytical categories.

Procedure

In January 2011, the University, the local school board and the principal of the school selected for study approved my research proposal. Immediately thereafter, participants were invited to participate through a written letter of invitation. Interested participants provided informed consent and were individually briefed on study goals, benefits and expectations. Interviews occurred after school hours in the PE office on school grounds.

Results

In this section, participants' comments are discussed according to thematic trends. Overall, the data spoke to three major themes (factors) believed to be linked with school-based physical activity opportunities: (i) the existing physical activity culture, (ii) the absence of a common definition of physical activity and, (iii) philosophical differences: strategies for promotion of school-based physical activity opportunities.

Theme 1: Existing Physical Activity Culture***School Artifacts.***

The female PE teachers felt strongly about the influence of the school's built environment on student physical activity levels and school-based physical activity opportunities. For example, Beth said, "The lack of overall cleanliness in the gym area and girls' change rooms is unacceptable." She expanded by saying, "I coach after school and before I leave, I see the custodians always cleaning the traditional classrooms, workshops and hallways; I do not see this same effort dedicated to the physical activity areas of the school." Beth mentioned that the head of the PE department and administration had weekly discussions with the custodial staff about this issue but the problem still remained. She elaborated:

Knowing there is little support from the custodial staff and administration (the principal should demand that the physical activity areas be cleaned daily), it does have an impact on what I am willing to attempt and how much time I am willing to put into making improvements or volunteer my extra time to extracurricular physical activities.

The other female PE teacher at this school, Lisa, corroborated Beth's observations. Lisa agreed that, "The gym floor was always dirty which is a safety hazard for my students; the gym is my classroom – I know the floors are cleaned in regular classrooms, why not mine?" Furthermore, she believed, "The condition and age of our fitness facilities and change rooms are big reasons, I think, why more students and staff do not use the weight room."

Additionally, Peter believed the school's location hindered the promotion of an active school culture. He said:

It is hard to come up with ideas for more activities at this school because of its urban location; even with the Terry Fox Charity Run, it can be very dangerous for students walking across busy roads without supervision.

Another reason Peter believed very few students actively commuted to school was due to the lack of safe storage for bicycles and skateboards. He summarized his thoughts on this

topic by saying, “Encouraging students to actively commute to school promotes positive lifelong physical activity behaviours; the school, as it operates today, does not encourage active commuting to and from school for staff or students.”

However, the other four PE teachers did not focus on the school’s existing physical activity facilities as deterrents for school-based physical activity opportunities. The general belief among these particular male teachers was the willingness to work with what was available; the entire inventory of the school’s fitness and sports’ equipment and spaces was consistently incorporated into their daily PE classes, intramural and inter-mural activities.

School Practices and Policies.

In contrast to the lack of data provided by four of the seven study participants around the influence of school artifacts, rich, descriptive data was obtained from these specific PE teachers concerning the effects of recently adjusted or eliminated school physical activity practices and policies.

Mike, the current head of PE, discussed the inability to secure a dedicated health classroom for PE classes. He mentioned this was a serious issue because a five-day health unit could be delivered in five different classrooms; some rooms had the proper resources and space to conduct a Cardiopulmonary Resuscitation (CPR) module but many were not equipped. Mike said, “I brought up this concern at a department heads’ meeting this year with the principal; I cannot say whether one teacher agreed or disagreed, but the principal remained neutral in the conversation.” He was frustrated with this non-decision because the PE department consistently donated the gym for school assemblies. In addition to this school practice, Mike believed the Guidance department was hindering the promotion of PE. He commented:

The lack of support for PE from Guidance has had a major impact on our PE numbers. Our school has the lowest number of grade nine students taking PE in the school board; 65% of our grade nine students take PE whereas in most schools, it is 90% or more.

In line with decreasing PE numbers, Mike noticed a significant drop in teacher/coaches impacting the total number of interschool sports teams accessible to students. According to Mike, the lack of teacher/coaches was associated with administrator and teacher values linked to school-based physical activity. To increase the number of teacher/coaches, Mike has tried to hire new PE teachers that address the coaching needs of the school. For example, he said:

I had pre-selected a female PE teacher that was also going to coach the girls’ basketball teams for the upcoming year. I told the principal that I wanted this specific candidate for the job before she entered into summer interviews for the position. Administration ended up hiring someone they wanted who does nothing extracurricular for our school and ignored the needs of our department.

Similarly, John talked about how the school culture had changed since a recent administrative turnover. John recalled, “During my first few years at this school, administration were hiring people that would give time to athletics; for years now, this has not been the norm.” In the new culture, he has found that the administration have cancelled PE classes that were once pivotal to promoting school-based physical activity. For example, John said, “We need a leadership class again to help teach students how to

run physical activity programs.” On another note, he outlined the changes to the school’s intramural programs because of the current principal’s decision to adjust the daily timetable. He explained:

When I first came to teach at this school, intramurals were incredible; once the Ontario Academic Credit (grade 13) year was no longer, the administration changed the timetable to eliminate our common lunch. We lost lunch-time intramurals which killed the physical activity culture – I thought.

In accordance with John, Sean was struggling with the administrative turnover that, in his opinion, negatively influenced the school’s physical activity culture. His initial statement was, “Many of our previous male principals were former PE teachers – they were diligent promoters of sport and physical activity and positively shaped staff and students’ perceptions about the importance of physical activity.” He explained:

The various principals I have worked under at this school have contributed to the cultural shift; say what you want, they (administration) are a big influence on how sport or activity or fitness is translated through the school.

Moreover, Sean discussed the changes to before school physical activity sessions for the *casual user*; in the past five years, it had been difficult to find teachers willing to take their turn in supervising this session:

Many years ago, we did have a fair number of staff who were willing to volunteer their time to supervise the weight room before or after school; however, I do not see this anymore.

Sean also talked about the recent trend of hiring teachers for their academic qualifications only:

Unfortunately, I do not see the new hires bringing any more physical activity expertise to the school; when I got hired, I remember the first thing they asked me is what I was going to coach or what could I coach.

Jason’s beliefs about the physical activity culture mirrored Sean’s in many aspects. Jason strongly believed the current physical activity culture was a product of administrators’ values. He said:

When I first started at this school, we had great support from administration. We had an administrator that hired based on the teams you could coach. Since we went to a female administration, I have seen a significant drop in support for athletics. The backgrounds of the ladies in the front office (principal, vice-principals speaks volumes about their lack of support. They do not understand the importance of physical activity.

Likewise, Jason mentioned that most new teachers were not willing to put the effort into making physical activity opportunities what they should be. He found:

We have not got back to the intramural prowess we had years ago because of the lack of effort from the new staff. I see it in our own PE department, so not only is it in the kids, it is in the staff; staff used to be very involved.

He does not place the blame solely on the teachers. Jason stated:

Buy-outs to school sports' events used to be built right into the timetable to support the whole athletic idea. For example, on Thursday game days, it was a shortened timetable for everybody. This is no longer the case and I can understand why teacher support is down.

As said by Jason, staff participation in school-based physical activity opportunities should extend beyond attendance at interschool sporting events. However, he believed the current staff lacked the leadership qualities to organize and deliver effective physical activity events for students. He said:

I think there is a lack of staff leadership – years ago, we used to have an intramural organization team that was outstanding. In my opinion, the current PE staff are not taking a proactive role, they are taking a background role. I believe that valuable time is wasted during intramural activities.

He also expressed why his own involvement in physical activity promotion had decreased:

In the past, at lunch-time, I used to say if you (student) wanted to use the weight room, go get changed into PE clothes. Now, anybody can use the weight room – maybe I am wrong with my philosophy. I am old school but because of this change, I am no longer willing to supervise the weight room at lunch.

Theme 2: Absence of a Common Definition of Physical Activity

The second underlying theme emerging from data was the variance of meanings applied to physical activity. Certain teachers believed that student involvement in interschool sport was meaningful physical activity. In contrast, some participants believed that individualized, less competitive forms of physical should be available to those students who are unable or prefer not to take part in traditional forms of competitive team sports.

For example, Beth believed that, “Most of the intramural tournaments at the school are soccer and many of the students who participate are members on the interschool soccer team already.” Also, Beth felt that in order to get students into the gym, some rule concessions had to be made. She said, “It may be hard to see kids working out in their jeans, but it is more important to see that they are in the gym or weight room being active.” Lisa concurred with Beth’s beliefs concerning the importance of encouraging all students to participate in intramurals. She believed:

Maybe we should provide activities that are more tailored to non-competitive recreation. For example, the yoga club which encourages staff and students to participate together. There is nothing competitive about working out but how do we get the kids and staff to use this equipment?

Peter agreed with his female colleagues that non-competitive, lifestyle activities was the direction the school should be headed to recruit as many students as possible. His philosophy was:

I think we should involve more lifelong physical activities such as biking or walking – and just more activities – something like a school-wide run where we

are giving kids the opportunity to be involved even though they are not on a team.

Conversely, the other four male participants felt that meaningful physical activity was associated with participation in competitive team or intramural sports. Mike synthesized his experiences with alternative physical activity opportunities as follows:

I think interschool sports are very important. I have tried to start alternative activities like yoga and other lifestyle activities, but we could not get the girls to come out at lunch-time; there was just no interest – I am not sure why.

With the goal of improving student participation in intramural programs, he offered quidditch at lunch-time intramurals. He recalled, “I think one of the best things we ever did this year for intramurals is quidditch - it is the only time I’ve ever seen an Arts kid in the gym outside of PE class.” Based on the success of this alternative physical activity, he said he was going to survey his PE students to learn about other activities in this genre.

Moving on to Jason, his beliefs were grounded in the importance of student involvement in leisure-time intramurals. He said:

You know what, kids do not want unorganized activity – they want organized activity. Staff at this school think they can just open the gym for kids to have fun is just not the way it should be; students will get frustrated if activities are not organized during open gym times.

Jason did not think it was the activity being played but the lack of organization and unfamiliarity of the activity that made students *afraid* to get involved. Today he said, teachers who supervise and organize intramurals just open the doors and expect it to happen.

John expressed another perspective - he believed participation on interschool teams was most important:

I really did not want to drive 45 minutes to support the wrestling team this year at the city finals but I drove there because no one else is going to. I try to go to these events so when these kids see you in the hall, they appreciate you more, and know that you value their work ethic and commitment to the sport.

Sean also stated his values around student participation on interschool teams:

This is a reflection of the kids we are getting because they feel they cannot give up their time for a practice to play one or two games a week. The kids are fine with one practice if they really have to and if they can skip out of that practice, they will – they just want to play the game – but they don’t have the skills to play the game.

Sean’s recognition of the changing student demographic inspired him to seek unique ways to increase physical activity opportunities for students. In his role as a part-time Cooperative Education teacher, he had established relationships with many local businesses that, in turn, had rewarded the school with free or subsidized weight room equipment. Besides, these relationships had also benefitted PE classes; fitness instructors from a local fitness club led free fitness classes (i.e. aerobics, yoga, zumba) for all PE courses.

Theme 3: Differentiated Strategies for Promoting Physical Activity

The final theme extracted from the data pertained to the effective promotional strategies for school-based physical activity opportunities. Relative to the second theme, study participants were divided on the best methods to promote these opportunities to students.

Visual Cues.

Firstly, Peter believed that physical activity promotion was compartmentalized into one small physical area of the school outside of the PE office. He found that those involved in PE took it seriously because physical activity was a big part of their lives. Peter maintained:

I think we need more incentives for the new students who are just starting out – even something like professionally posting track and field records on school walls but we do not have that; it gives kids something to work towards.

Furthermore, Lisa felt that the school could do a much better job of campaigning for physical activity. One of her ideas involved the insertion of a slide show of each PE staff member engaged in their sport to be shown at the athletic banquet. She said, “It would be fun for kids to see their teacher/coach in the prime of their playing career in the same sport.”

A more recent promotional strategy was the use of the school’s website to inform parents and students of the opportunities for physical activity throughout the school year. Lisa designed the PE and Athletics website and figured if the Internet was where the students were spending their free time, it was important to exploit that media source for physical activity promotion. Additionally, Peter talked about the blog space on the website where teachers could comment on their personal physical activity or team successes. He discussed, “I think we have a long way to go with our website; it is great but I don’t think the rest of the school is on board so much in terms of promoting physical activity.”

When I talked to the other male PE teachers about physical activity promotion, they had mixed beliefs about the effectiveness of visual cues. For example, Mike said:

At the beginning of each year, we (PE teachers) hold a course carousel and a fall assembly to make physical activity options visible to students. In my opinion, it is a waste of time – the students tell me it is a waste of time because they know who is going to try out for a team anyway. I do not know if these assemblies draw any extra kids or not.

On the other hand, Jason talked about the significance of the student handbook:

Certainly with grade nine and ten, there is promotion of activities. The students see it in the student handbook – all the activities are outlined so parents know what is going on at the school.

Moreover, John’s impression was that current promotional strategies were attracting students to physical activities. He believed, “The athletic ministers are pushing to have

more things up and visible with regards to notifying the school community about physical activity clubs, sports, and intramurals.” He also praised the new PE teachers for consistently posting pictures of teams and students participating in PE classes.

Teacher Role Models.

An additional promotional technique believed by most participants to influence physical activity opportunities at this school was the presence of physically active teacher role models. Peter, for example, rode his bike to school every day and encouraged his students to do the same. He said it helped him connect with his students if they saw him outside of school actively engaged in physical activity. Another way that Peter led by example was during his PE classes:

I participate in my PE classes in the games and activities with my students. I try to get involved whenever I can especially in my Outdoor Education class. I like to talk about my own experiences that I have had – being physically active with my family.

Lisa strongly supported Peter’s approach but thought the non-PE teachers at the school could do more when it came to promoting healthy lifestyles. She stated:

I’ve seen at other schools that the physical activity levels of administration and teachers are much higher which translates into students being much more active. Kids see that and they are going to mimic that behaviour.

At this school, Lisa found:

We have, to a certain extent, some non-PE teachers that are physically active and are visible to students in the weight room. I think it is huge for PE teachers to model what they teach. Students need to see that you are willing to do whatever it is you are teaching. Students are not going to be motivated to do it if you are not willing to do it.

As well, she felt it was important to inform students about teachers’ personal physical activity accomplishments. She said, “I wish we (teachers) were encouraged to share our personal physical activity interests because we have staff that are doing great things – one staff member runs marathons.” Beth, like Lisa, felt that, “Teachers who personally see the benefit of sharing this information with their students will do it on their own; certainly, there is not any encouragement throughout our school community to advertise our accomplishments.”

Furthermore, Lisa was involved in promoting PE and physical activity to parents of students in feeder schools at grade nine parent information sessions. At these sessions, she presented a synopsis of what opportunities (PE, intramural, interschool) were available to incoming grade nine students. Through this undertaking, Lisa believed that parents learned about the PE teachers that their son/daughter was going to potentially work with for the next four years; consequently, it could persuade these parents to promote school-based physical activity opportunities to their child in advance of the school year.

Alternatively, Jason was not as excited to share his fitness accomplishments and/or personal life with his students. In his opinion, staff should be portrayed as equally important to the school culture. More specifically, he said:

In the right way, this is important to do. It can be done well and show that teachers are involved and active. It has got to be done in a way that promotes one's accomplishments so that some staff are not perceived as more important than others – it is important we achieve this balance.

Sean, on the other hand, believed that the PE department could do more to encourage teachers and students to be active together. For example:

We could be doing a lot more in terms of physical activity options – I know other things other schools do is they will run ski days; staff and students all go skiing for the day and it works. What happens on these days is that students see that physical activity is a good thing and teachers end up being seen on a different level.

However, Sean was unsure about other teacher's feelings on this school practice: "I do not know how comfortable some other teachers are with this – it is something I do on my own. In some cases, this may be a good thing, but how do you convince people to move toward this?"

Discussion

The purpose of this study was to conduct a detailed examination of the beliefs of PE teachers at one secondary school to fully investigate how access and opportunities for school-based physical activity were influenced by the beliefs of these participants. In line with other researchers, findings from this study reinforced that social factors (i.e. member beliefs) are also important when maximizing opportunities for school-based physical activity in secondary schools (Haug, Torsheim, & Samdal, 2008; Nichol et al., 2009; Sallis et al., 2001). Using the tangible components of Schein's cultural model (school artifacts, school policies/practices), the discussion outlines how teacher beliefs affect school-based physical activity opportunities.

School Artifacts.

A majority of the participants agreed that the quality and size of the school's physical activity facilities (i.e. gymnasium, outdoor track, weight room, sport fields) did not influence student use of these facilities and spaces. If physical activities were well organized, advertised and teacher supervised, most PE teachers believed that these conditions would attract student usage and participation during leisure times. This particular finding aligns with other studies that also found when teachers led school-based physical activities students were more likely to get involved (Faulkner, Adlaf, Irving, Allison, & Dwyer, 2009; Lei, Phillips, Allen, & Julian, 2004; Ommundsen, Klasson-Heggebo, & Anderssen, 2006). However, it deviates from earlier studies that determined a strong association between school artifacts and student participation in school-based physical activity (Loucaides et al., 2009; Pangrazi, Beighle, Vehige, & Vack, 2003).

School Policies and Practices.

By and large, participants were conflicted on whether this school should organize more team-oriented activities or increase the number of individual, non-competitive physical activities offered to students. The two female PE teachers and one male PE teacher were willing to explore alternative physical activity options that matched the physical activity desires of the changing student demographic at this school. Alternatively, the four other male PE teachers resisted the current student culture and continued to value mostly competitive, team-based physical activities. Peter summarized the PE department's philosophy around meaningful physical activity, "If the culture and practices around physical activity were well-defined – this is kind of our mission or our goals in terms of physical activity - I think that it would give us (PE department) more purpose." Ultimately, the PE teachers' beliefs were hindering their abilities to plan and promote meaningful physical activity programs.

Interestingly, the PE teachers did not emphasize PE classes as a valued physical activity opportunity for students. Also absent from participant feedback was any reference to collaborative organization of PE programs; course of studies for PE, pedagogical strategies, and culturally appropriate activities for PE classes were the responsibilities of the individual teacher. In turn, the content and delivery of PE courses across grade levels was dependent upon the instructional leader, not departmental values and goals.

Furthermore, this investigation identified the importance of a supportive school principal and guidance counselors when establishing, maintaining or sustaining a physically active secondary school the culture. The participants believed that the current practice of hiring teachers with little or no background and/or interest in physical activity was limiting the number of physically active teacher role models, and reducing the number of teacher-coaches willing to lead inter-schools sport teams. This trend caused experienced teacher-coaches to reduce their extracurricular sport involvement and in some cases, rescinded their services from intramural and inter-school sports. Furthermore, guidance counselors were directing students away from PE courses with approval from the principal; this precipitated a noticeable decline in total PE student numbers and led students to believe that PE was not an educational priority. In this same vein, students and staff were not receiving consistent messages from administration about the importance of physical activity. For example, initiatives to enhance the physical activity culture by PE teachers (i.e. Terry Fox Run, Jump Rope for Heart) were isolated from other school programs, disjointed and unsupported by any long-term planning or effective leadership.

Another social factor that encouraged some PE teachers at this school to organize and lead intramurals and/or inter-mural sports' teams were the active teachers who modeled healthy lifestyles. Specifically, the teachers who worked out at school or coached multiple sport seasons mentored the new teachers to do the same. However, when the more experienced teachers discontinued this modeling behaviour, it influenced the less experienced teachers' desire to follow in their colleagues' footsteps.

An additional practice believed to increase student and staff participation in school-based physical activities at this school was the presence of a common goal(s) for meaningful physical activity that reached across PE, intramural and inter-mural programs. When this shared vision was marketed to non-PE staff, parents and students,

school-based physical activity opportunities were positively received among the school population.

Finally, the school practice of positive collaboration between PE teachers, non-PE staff and administration regarding the promotion of PE, and other school-based physical activity programs, exacerbated the cumulative knowledge of the importance of physical activity. For instance, dance was major component of the Integrated Arts program and a curricular expectation within some of the offered Physical Education classes ; this situation presented the opportunity to marry the programs to fulfill mutually exclusive curricular goals. As in this circumstance, when physical activity was promoted across the curriculum, and teachers worked together to deliver consistent messages about the importance of physical activity, students understood that physical activity was valued in the school culture.

Concluding Remarks

Due to the small sample of Physical Education teachers interviewed from one public, secondary school in southwestern Ontario, study findings are not generalizable. However, the knowledge gained from this study has expanded the understanding around the cultural factors that influence school-based physical activity opportunities in secondary schools, but additional research is warranted.

Precisely, studies that stretch beyond the tangible (i.e. quality of sports' equipment, square footage of school facilities) to access the root of student and staff physical activity behaviours in secondary schools are needed. Also, there is a call for research that investigates the relationship between physically active, teacher and student role models and school-based physical activity opportunities. Thus far, some evidence suggests that secondary school students and teachers who value physical activity positively influence the number and quality of school-based physical activity opportunities and the daily physical activity levels of students (Stratton & Mullan, 2005; Varpalotai & Thomas, 2007, 2009). Moreover, descriptive studies that analyze the social characteristics (i.e. member relationships, collaborative curriculum, member beliefs) of schools that maximize opportunities for physical activity regardless of the physical environment are required to deepen the understanding of the influence of social factors on a school's culture of physical activity.

Nonetheless, interpreting the connection between a school's cultural system and school-based physical activity opportunities in any context remains a complex task and additional exploratory studies would bring greater clarity to this multifarious relationship.

References

- Active Healthy Kids Canada. (2012). Retrieved July 1, 2012, from <http://www.activehealthykids.ca/Report> Card/Physical Activity.aspx
- Anderson, G. (1993). *Fundamentals of Educational Research*. London: Falmer Press.
- Barnett, T. A., O'Loughlin, J. L., Gauvin, L., Paradis, G., & Hanley, J. (2006). Opportunities for student physical activity in elementary schools: A cross-sectional survey of frequency and correlates. *Health Education and Behavior, 33*, 215-232.
- Barnett, T. A., O'Loughlin, J. L., Gauvin, L., Paradis, G., Hanley, J., McGrath, J., & Lambert, M. (2009). School opportunities and physical activity frequency in nine year old children. *International Journal of Public Health, 54*, 1-8.
- Bauer, K. W., Patel, A., Prokop, L. A., & Austin, B. (2006). Swimming upstream: Faculty and staff members from urban middle schools in low income communities describe their experience implementing nutrition and physical activity initiatives. *Preventing Chronic Disorders, 3*, 1-9.
- Bechtel, P. A., & O'Sullivan, M. (2007). Enhancers and inhibitors of teacher change among secondary physical educators. *Journal of Teaching in Physical Education, 26*, 221-235.
- Belanger, M., Gray-Donald, K., O'Loughlin, J. L., Paradis, G., Hutcheon, J., Maximova, K., & Hanley, J. (2009). Participation in organized sports does not slow declines in physical activity during adolescence. *International Journal of Behavioral Nutrition and Physical Activity, 6*, doi: 10.1186/1479-5868.
- Bocarro, J., Kanters, M. A., Casper, J., & Forrester, S. (2008). School physical education, extracurricular sports, and lifelong active living. *Journal of Teaching in Physical Education, 27*, 155-166.
- Bowins, W., & Beaudoin, C. (2011). Experienced physical education teachers adapting to a new curriculum: Perceived facilitators and inhibitors. *Physical and Health Education Academic Journal, 3*.
- Cohen, D. A., Scott, M., Zhen Wang, F., McKenzie, T. L., & Porter, D. (2008). School design and physical activity among middle school girls. *Journal of Physical Activity and Health, 5*, 719-731.
- Cooper, A. C., Page, A. S., Foster, L. J., & Qahwaji, D. (2003). Commuting to school: Are children who walk more physically active? *American Journal of Preventive Medicine, 25*, 273-276.
- Cradock, A. L., Melly, S. J., Allen, J. G., Morris, J. S., & Gortmaker, S. L. (2007). Characteristics of school campuses and physical activity among youth. *American Journal of Preventive Medicine, 33*, 106-113.
- Datar, A., & Sturm, R. (2004). Physical education in elementary school and body mass index: Evidence from the early childhood longitudinal study. *American Journal of Public Health, 94*, 1501-1506.
- Deal, T. E., & Kennedy, A. A. (1982). *Corporate cultures: The rites and rituals of corporate life*. Reading, MA: Addison-Wesley.
- DeWit, D. J., McKee, C., Fjeld, J., & Karioja, K. (2003). The critical role of school culture in student success. *Centre for Addictions and Mental Health*. Retrieved from

- DeWit, D. J., Offord, D. R., Sanford, M., Rye, B. J., Shain, M., & Wright, R. (2000). The effect of school culture on adolescent behavioral problems: self-esteem, attachment to learning, and peer approval of deviance as mediating mechanisms. *Canadian Journal of Sport Psychology, 16*, 15-38.
- Dobbins, M., DeCorby, K., Robeson, P., Husson, H., & Tirillis, D. (2009). School-based physical activity programs for promoting physical activity and fitness in children and adolescents aged 6-18 (Review). *Cochrane Database of Systematic Reviews* (1), Art. No.: CD007651. DOI: 007610.001002/14651858.CD14007651.
- Dowda, M., Sallis, J., McKenzie, T. L., Rosengard, P., & Kohl, H. W. (2005). Evaluating the sustainability of SPARK physical education: a case study of translating research into practice. *Research Quarterly for Exercise and Sport, 76*, 11-19.
- Dyment, J. E., & Bell, A. C. (2007). Active by design: Promoting physical activity through school ground greening. *Children's Geographies, 4*, 463-477.
- Eisner, E., & Peshkin, A. (1990). *Qualitative Inquiry in Education*. New York: Teacher's College Press.
- Faulkner, G. E., Adlaf, E. M., Irving, J. M., Allison, K. R., & Dwyer, J. (2009). School disconnectedness: Identifying adolescents at risk in Ontario, Canada. *Journal of School Health, 79*, 312-318.
- Feagin, J., Orum, A., & Sjoberg, G. (1991). *A Case for Case Study*. Chapel Hill, NC: University of North Carolina Press.
- Finn, J. D. (1989). Withdrawing from school. *Review of Educational Research, 59*, 117-142.
- Fullan, M. (1999). *Change force - the sequel*. Philadelphia, PA: Falmer Press.
- Gavarry, O., Bernard, T., Giacomond, M., Seymat, M., Euzrt, J. P., & Falgairatte, G. (1998). Continuous heart rate monitoring over 1 week in teenagers aged 11-16 years. *European Journal of Applied Psychology, 77*, 125-132.
- Goertz, J., & LeCompte, M. (1984). *Ethnography and qualitative design in educational research*. Orlando, FL: Academic Press.
- Groft, J. N., Hagen, B., Miller, N. K., Cooper, N., & Brown, S. (2005). Adolescent health: a rural community's approach. *Rural and Remote Health, 5*, 366-378.
- Gummesson, E. (1991). *Qualitative Methods in Management*. California: Sage Publication.
- Ha, A. S., Lee, J. C., Chan, D. W., & Sum, R. K. (2004). Teacher's perceptions of in-service teaching training to support curriculum change in physical education: The Hong Kong experience. *Sport, Education and Society, 9*, 421-438.
- Hammersley, M., & Atkinson, P. (1983). *Ethnography: Principles in practice* (3rd ed.). New York: Routledge.
- Hartley, J. (1994). Case Studies in Organizational Research. In Casell & Symon (Eds.), *Qualitative Methods in Organizational Research* (pp. 208-229). London: Sage Publication.
- Haug, E., Torsheim, T., Sallis, J. F., & Samdal, O. (2008). The characteristics of the outdoor school environment associated with physical activity. *Health Education Research 10*, 1093-1101.
- Haug, E., Torsheim, T., & Samdal, O. (2008). Physical environmental characteristics and individual interests as correlates of physical activity in Norwegian secondary

- schools: The health behavior in school-aged children study. *International Journal of Behavioral Nutrition and Physical Activity*, 5, 47-56.
- Holland, A., & Andre, T. (1987). Participation in extracurricular activities in secondary school: What is known, what needs to be known? *Review of Educational Research*, 57, 437-466.
- Homans, G. (1950). *The Human Group*. New York: Harcourt Brace Jovanovich.
- Kelder, S. H., Mitchell, P. D., McKenzie, T. L., Derby, C., Strikmiller, P. K., Luepker, R. V., & Stone, E. J. (2003). Long-term implementation of the CATCH physical education program. *Health Education and Behavior*, 30, 463-475.
- Kelly, B. E., & Bredeson, P. V. (1989). Measures of meaning in a public and in a parochial school: Principals as symbol managers. *Journal of Educational Administration*, 29, 6-22.
- Koplan, J. P., Liverman, C. T., & Kraak, V. I. (2005). Preventing childhood obesity: Health in the balance. Washington, D.C.: National Academies Press.
- Leatherdale, S. T., Manske, S. R., Faulkner, G., Arbour, K., & Bredin, C. (2010). A multi-level examination of school programs, policies and resources associated with physical activity among elementary school youth in the PLAY-ON study. *International Journal of Behavior, Nutrition and Physical Activity*, 7, 6-19.
- Lei, W. G., Phillips, D., Allen, R., & Julian, A. (2004). An investigation to the relationships between environmental factors and physical activity among Taiwanese high students. *Journal of International Council for Health, Physical Education, Recreation, Sport, and Dance*, 40, 43-49.
- Loucaides, C., Jago, R., & Charalambous, I. (2009). Promoting physical activity during school break times: piloting a simple, low cost intervention. *Preventive Medicine*, 48, 332-334.
- MacQuarrie, C., Murnaghan, D., & MacLellan, D. (2008). Physical activity in intermediate schools: The interplay of school culture, adolescent challenges, and athletic elitism. *The Qualitative Report*, 13, 262-277.
- Mahar, M., Murphy, S., Rowe, D., Golden, J., Shields, A., & Raedeke, T. (2006). Effects of a classroom-based program on physical activity and on-task behavior. *Medicine and Science in Sports and Exercise*, 38, 2086-2094.
- McKenzie, T. L., Nader, P. R., Strikmiller, P. K., & al., e. (1996). School physical education: the effect of the Child and Adolescent Trial for Cardiovascular Health (Catch). *Preventive Medicine*, 25, 423-431.
- McKenzie, T. L., Sallis, J., Kolody, B., & Faucette, F. N. (1997). Long-term effects of a physical education curriculum and staff development program: SPARK. *Research Quarterly for Exercise and Sport*, 68, 280-291.
- Merton, R. K. (1968). *Social Theory and Social Structure*. Glencoe, IL: The Free Press.
- Naylor, P. J., Macdonald, H. M., Zebedee, J. A., Reed, K. E., & McKay, H. A. (2006). Lessons learned from Action Schools! BC - An 'active school' model to promote physical activity in elementary schools. *Journal of Science and Medicine in Sport*, 9, 413-423.
- Nichol, M., Pickett, W., & Janssen, I. (2009). Associations between school recreational environments and physical activity. *Journal of School Health*, 79, 247-254.
- Noor, K. B. (2008). Case study: a strategic research methodology. *American Journal of Applied Sciences*, 5, 1602-1604.

- Ommundsen, Y., Klasson-Heggebo, L., & Anderssen, S. A. (2006). Psycho-social and environmental correlates of location-specific physical activity among 9 and 15 year old Norwegian boys and girls: the European Youth Heart Study. *International Journal of Behavioral Nutrition and Physical Activity*, 3, 1-32.
- Pangrazi, R. P., Beighle, A., Vehige, T., & Vack, C. (2003). Impact of promoting lifestyle activity for youth (PLAY) on children's physical activity. *Journal of School Health*, 73, 317-321.
- Parsons, T. (1951). *The Social System*. New York: Free Press.
- Pate, Ward, D., Saunders, R. P., Felton, G., Dishman, R. K., & Dowda, M. (2005). Promotion of physical activity among high-school girls: A randomized controlled trial. *American Journal of Public Health*, 95, 1582-1587.
- Pate, R. R., Davis, M. G., Robinson, T. N., Stone, E. J., McKenzie, T. L., & Young, J. C. (2006). Promoting physical activity in children and youth. *Circulation*, 114, 1214-1224.
- Patton, M. (1987). *How to Use Qualitative Methods in Evaluation*. California: Sage Publications.
- Peterson, K. D., & Deal, T. E. (1998). How leaders influence the culture of schools. *Educational Leadership*, 56, 28-30.
- Prosser, J. (1999). *School culture*. London, England: Paul Chapman Publishing Ltd.
- Rickwood, G., Temple, V., & Meldrum, J. (2011). The reliability and validity of a school-based physical activity survey. *Physical and Health Education Academic Journal*, 2.
- Ridgers, N. D., & Stratton, G. (2005). Physical activity during school recess: the Liverpool sporting playgrounds project. *Pediatric Exercise Science*, 17, 281-290.
- Rosenfeld, A. (2004). Harvard, soccer and over-scheduled families. *Youth Studies Australia*, 23, 15-18.
- Sallis, J. F., Conway, T. L., Prochaska, J. J., McKenzie, T. L., Marshall, M. S., & Brown, M. (2001). The association of school environments with youth physical activity. *American Journal of Public Health*, 91, 618-620.
- St. Leger, L. (2000). Reducing the barriers to the expansion of the health-promoting schools by focusing on teachers. *Health Education*, 100, 81-87.
- Stake, R. (1995). *The Art of Case Research*. Thousand Oaks, CA: Sage Publications.
- Storey, K., Spitters, H., Cunningham, C., Schwartz, M., & Veugelers, P. (2011). Implementing comprehensive school health: Teachers' perceptions of the Alberta project promoting active living and healthy eating in schools - APPLE schools. *Physical and Health Education Academic Journal*, 3.
- Stratton, G., & Mullan, E. (2005). The effect of multi-colour playground markings on children's physical activity level during recess. *Preventive Medicine*, 41, 8258-8833.
- Thomas, J. R., & Nelson, J. K. (2001). *Research Methods in Physical Activity*. Champaign, IL: Human Kinetics.
- Thompson, A. M., Rehman, L. A., & Humbert, M. L. (2005). Factors influencing the physically active leisure of children and youth: a qualitative study. *Leisure Sciences*, 27, 421-438.
- Trudeau, F., & Shephard, R. J. (2005). Contribution of school programs to physical activity levels and attitudes in children and adults. *Sports Medicine* 25, 89-105.

- Varpalotai, A., & Thomas, M. (2007). The perceptions of stakeholders in Canada and Wales on health education in rural communities: A comparative study. *Education in Rural Australia, 17*, 59-69.
- Varpalotai, A., & Thomas, M. (2009). Final Report: West Elgin Secondary School Wellness Centre Survey (2007-2008). In F. o. Education (Ed.). London, ON: University of Western Ontario.
- Verstraete, S., Cardon, G. M., De Clercq, D., & DeBourdeaudhuij, I. (2006). Increasing children's physical activity levels during recess periods in elementary schools: the effects of providing game equipment. *European Journal of Public Health, 16*, 415-419.
- Warren, C. B., & Karner, T. X. (2010). *Discovering Qualitative Methods: Field research, Interviews, and Analysis* (Second ed.). New York: Oxford University Press.
- Wilkins, J. L., Graham, G., Parker, S., Westfall, S., Fraser, R. G., & Tembo, M. (2003). Time in the arts and physical education and school achievement. *Journal of Curriculum Studies, 35*, 721-735.
- Wirszyla, C. (2002). State-mandated curriculum change in three high school physical education programs. *Journal of Teaching in Physical Education, 22*, 4-19.
- Yin, R. (2003). *Case study research design and methods*. California, USA: Sage Publications.