



New Directions in Daily Physical Activity: Integral Education, Yoga and Physical Literacy

Nouvelles orientations pour l'éducation physique quotidienne: éducation intégrale, yoga et savoir-faire physique

Karen Ragoonaden
University of British Columbia
Okanagan Campus

Sabre Cherkowski
University of British Columbia
Okanagan Campus

Stephen Berg
University of British Columbia
Okanagan Campus

Abstract

The aim of this pilot project was to determine if Yoga, as a daily physical activity (DPA), promotes elements of physical literacy in primary school children. Using an Integral Education framework, we examined educational behaviours, educational experiences, educational cultures and educational systems of the teacher and the students. Within the parameters of a short-term observational study, one co-researcher observed the Yoga practice and a second co-researcher observed the level of physical literacy of the grade one students. We found that Yoga can be an innovative way of engaging grade one students in daily physical activity, that the development of certain types of physical literacy can engender positive self esteem and self confidence, and can promote the development of perceptive and empathetic interaction with the self and with others.

Résumé

Ce projet pilote a fait l'étude du yoga et le savoir-faire physique comme composantes du programme de l'éducation physique quotidienne (EPQ). En se référant au cadre conceptuel de l'éducation intégrale, nous avons examiné les comportements éducatifs, les expériences éducatives, les cultures éducatives et les systèmes éducatifs de l'enseignant et des étudiants. Selon les paramètres d'une étude observationnelle, un co-chercheur a observé les sessions de yoga et un deuxième co-chercheur a observé le savoir-faire physique des participants. Nous avons constaté que le savoir-faire physique et le yoga sont des approches innovatrices qui servent à engager les enfants dans l'éducation physique

quotidienne, contribuent au développement d'un estime de soi positif et une confiance en soi et peuvent favoriser le développement d'une interaction empathique entre l'enfant et son environnement.

Introduction

It is widely accepted that physical activity is a vital component of a healthy lifestyle that helps promote personal well-being, prevents disease, and through participation contributes to stronger, more cohesive and sustainable communities (Rink, Hall & Williams, 2010). Despite these benefits, over the past decade Canadians' participation in physical activity has declined significantly (Berg, Hickson, & Fishburne, 2010). To combat low levels of physical activity and the ever-growing concern of childhood obesity, several Ministries of Education in Canada have implemented programs in schools called the Daily Physical Activity initiative (DPA). In response to these initiatives, boards of education and/or school authorities are required to provide 30 minutes of daily physical activity for students up to Grade 9. This pilot project investigated new areas: Yoga, Integral Education and physical literacy as sustainable components of the Daily Physical Activity initiative.

Whitehead (2007) identifies physical literacy as the motivation, confidence, physical competence, understanding and knowledge to maintain physical activity at an individually appropriate level, throughout life. She states that "physical literacy requires a holistic engagement that encompasses physical capacities that are embedded in perception, experience, memory, anticipation and decision making" (Whitehead, 2001 p.4). Along with this definition, Whitehead has developed a set of seven characteristics used to establish physical literacy in the classroom. These characteristics range from an ability to use our movement to make a contribution to our quality of life to an understanding of the principles of embodied health, such as exercise and nutrition. In particular, the fifth characteristic describes an established sense of self as embodied in the world which engenders self esteem and self confidence. Accordingly, the sixth characteristic states that this sensitivity to our embodied state leads to fluent self-expression and to empathetic interaction with others.

Similar to Whitehead's (2001; 2007) concept of embodiment as a significant aspect of confident interaction between self and society, Integral Education provides an approach to understanding and providing educational experiences from a holistic perspective. Based on Ken Wilber's (1997) Integral approach, Integral Education includes and values the best of traditional pedagogical approaches and marries it to the insights of alternative education (Esbjorn-Hargens 2007). Steeped in a holistic understanding of the world, this experiential and collaborative approach to teaching and learning focuses on four quadrants: the educational experiences (I), the educational cultures (You/We), the *educational behaviours* (practical and active) and the educational systems (social, global and ecological) (See Figure 1). Although it is difficult to identify each of the quadrants in every educational outcome, an awareness of these four realities can forge a new space for understanding and transforming teaching and learning. Due to its emphasis on mind and body, Yoga is a practice which is well-suited to the alternative education framework of Integral Education and to Whitehead's (2007) embodied concepts of the fifth and the sixth characteristic of physical literacy (Ryan, 2005). Yoga is a practice that incorporates a holistic approach to

physical activity by focusing on overall mind-emotional-body-spiritual connections through *pranayama* (breath-control exercises), *asana* (physical yoga), and *chanda* (meditation). Modelled upon the world of fauna and flora, the physical postures of Yoga reflect a natural flow in movement, breath, mind, heart and spirit. In light of the focus on the multiple aspects of the human being Yoga, a practice which utilizes mental and physical exercises, is a natural pedagogical extension of Integral Education (Ryan, 2005). Like Integral Education, Yoga provides a holistic, transformative approach to the human reality and to our interactions with the world. Consequently, Yoga, within an Integral framework, has the potential to positively impact the educational context by creating interconnectedness and interdependency between the multiple dimensions of educational behaviours, experiences, cultures and systems.

Using a short-term observational study we explored the following: that Yoga, within an Integral Education framework, can be an innovative way of engaging children in mind-body awareness and in developing Whitehead's (2007) fifth and sixth characteristics of physical literacy. For example, within a daily Yoga practice, students have the opportunity to work on developing physical literacy through the asanas (behaviours/physical postures), learn how to focus on breath to attain clarity of mind and heart (experiences) and practise respectful and inclusive behaviours within and outside the classroom (culture and systems). In accordance with the established parameters of Integral Education, a Yoga practice was observed through the framework of educational behaviours, experiences, cultures and systems.

1. Educational behaviours (asanas)
2. Educational experiences (pranayama)
3. Educational cultures (effect on class, shared meanings, group values)
4. Educational systems (effect on school policies)

The pilot study focused on this ancient practice's impact on the participants' experience (students and teacher), the culture (relationship, values) established in the classroom and the effect on the school system (policies, directives emanating from this practice). In this manner, we observed how this physical practice impacts on the 'whole child' that is the physical, the cognitive and affective domains of the participant. Reflecting on the impact of a holistic physical practice and in recognition of the importance of research-based knowledge to address the decline in physical activity in school children, the following question framed our study: In what ways does Yoga, as a daily physical activity, promote the development of Whitehead's (2007) fifth and sixth characteristics of physical literacy as explored through an Integral Education framework?

As part of their DPA, grade one students participated in a five session Yoga practice. This practice was led by the principal investigator, a certified Yoga teacher. Using Integral Education as a theoretical framework, one co-researcher observed the Yoga practice and a second co-researcher observed the level of physical literacy of the grade one students. The participants began their day by focusing on breathing exercises followed by strength and stability postures and concluded the practice with a restful period. In the following section we provide an overview of Integral Education, Yoga and physical literacy.

Integral Education and Yoga

As indicated, Integral Education is an alternative approach to understanding and providing educational experiences from a holistic perspective. By drawing on the framework of educational behaviours, educational experiences, educational cultures and education systems, the Integral Education model provides an effective template to design pedagogy, classroom activities, assessment methods and course curriculum. Integral Education provides a tool for teachers to critically reflect on a holistic and balanced approach to curriculum development, pedagogy and classroom practices. The four dimensions of Integral Education, with their inherent complexities, relate to educational contexts. They can be seen as various modes of interaction and ways of knowing the world.

<p>Educational Experiences (I)</p> <p>Contemplative Critical Imagination Emotions, intellect</p>	<p>Educational Behaviours (It)</p> <p>Physical activity in the classroom, interaction with self and society</p>
<p>Educational Cultures (You/We)</p> <p>Relationship with self and others inside the classroom and outside the classroom Shared meanings, group values</p>	<p>Educational Systems (Its)</p> <p>Relationship with Educational administration classroom, school, school district, city, province, country Curriculum, school policy</p>

Figure 1. Integral Education (adapted from Estbjorn-Hargens Figure 4, p.10)

One of the key principles of Integral Education is the recognition that these four dimensions are present in how the teacher, the students, and the classroom all develop and transform together. By recognizing that every moment in the classroom contains the above four dimensions, teachers and students interact with a fuller capacity for connectivity and responsiveness on physical, emotional and intellectual levels.

In this section, we describe Yoga and Integral Education and the relationship to physical literacy. Since a Yoga practice promotes concentration, self discipline, and self confidence, regular sessions on a daily basis can help children develop the necessary sensitivity, confidence, knowledge, skills, and attitudes to lead embodied active, healthy lives and to develop empathetic interactions with self and with society. In terms of physical development, Yoga can also help develop flexibility, strength, endurance, agility, balance, coordination and cardiovascular health (Birdee, Legedza, Philips, 2007; Khalsa, 2007; Moliver et al., 2011; Tran, Holly, Lashbrook, Amsterdam, 2001).

Most research supports the positive effects of Yoga on adults in beginner classes over a short term (Moliver, 2010). Few studies look at the effect of Yoga as a component of daily physical activity on children enrolled in classes during the school day. For example, studies which focus on Yoga and children tend to centre around disenfranchised urban youth and their search to maintain active lives, reduce stress, learn skills about behavioural control, emotional regulation and social connection (Cohen Harper, 2010).

This study is an investigation of Yoga as a sustainable health and wellness practice in an educational context with a normative population. According to Moliver (2010), wellness is a dimension of health enhancement which applies to physical, mental, emotional and spiritual dimensions. This is consistent with the definition of health put forward by the World Health Organization (1946), “Health is a state of complete physical, mental and social well-being not merely the absence of disease and infirmity.” Since the wellness model represents health in terms of maximizing one’s potential, there is always the possibility of becoming healthier and to strive for better health by actively enhancing wellness strategies which become an integral part of classroom behaviour, experiences, culture and systems.

Physical Literacy

According to United Nations Education, Scientific, and Cultural Organization (UNESCO, 2003), literacy is concerned with how we communicate in society and the social practices and relationships, about knowledge, language and culture. The definition of literacy provided by UNESCO (2003) does not only refer to reading and writing but also focuses on the development of life long skills which impact on our interactions with self and society. This holistic notion incorporates sustainable practices which require that the learners assume both a personal and social responsibility to use the attained knowledge in ethical and just ways (Mandigo, Francis, Lodewyk & Lopez, 2009). In other words, the life skills that are formed, regardless of the type of literacy being developed, provide a critical feature of what it means to live and to contribute to greater society. In this way, the development of physical literacy supports sustainable health practices by focusing on the well-being of the individual and their interaction to the environment.

Mandigo et al. (2009) proposed the following working definition of physical literacy within a Canadian context:

Individuals who are physically literate move with competence in a wide variety of physical activities that benefit the development of the whole person.... They are able to demonstrate a variety of movements confidently, competently, creatively and strategically across a wide range of health-related physical activities. These skills enable individuals to make healthy, active choices throughout their life span that are both beneficial to and respectful of themselves, others, and their environment. (p.6)

While it is evident that the above definition emphasizes the development of a wide variety of physical skills, the role of Physical Education (PE) in Canada goes beyond the physical development of students. Current goals associated with PE are built around the “whole child,” that is the physical, cognitive, and affective domains of the participant (Mandigo et al., 2009). In accordance with the above definition, Whitehead (2007) identifies physical literacy as the motivation, confidence, physical competence, understanding and knowledge to maintain physical activity at an individually appropriate level, throughout life. Whitehead has developed a set of seven characteristics used to establish physical literacy in the classroom. These characteristics range from an ability to use our movement to make a contribution to our quality of life, to an understanding of the principles of embodied health, such as exercise and nutrition. Physical literacy encompasses a wide range of activities and attitudes for healthy living, a holistic

understanding of a physical way of being in the world. For the purpose of this research we focus on Whitehead's fifth and sixth characteristics of physical literacy (see Figure 2). As indicated, the fifth characteristic describes an established sense of self as embodied in the world which engenders self esteem and self confidence. According to the Integral Education framework, educational behaviours and educational experiences relating to this characteristic focus on an embodied self capitalising on the poised, confident movement in a wide variety of physically challenging situations. The sixth characteristic states that this sensitivity to our embodied state leads to fluent self-expression and to empathetic interaction with others. Integral Education states that educational cultures and educational systems relevant to the sixth characteristic promote awareness and empathetic interaction with others. These characteristics along with educational behaviours, experiences, cultures, and systems do not focus solely on the development of a physical activity but emphasize the complete individual's well-being and interactions with others.

5. A physically literate individual has a well established sense of self as embodied in the world. This together with an articulate interaction with the environment engenders positive self esteem and self confidence.

6. Sensitivity to and awareness of our embodied capacities leads to fluent self expression through non-verbal communication and to perceptive and empathetic interaction with others.

Figure 2. Whitehead's (2007) fifth and sixth characteristics of physical literacy

As stated, the above definitions and characteristics focus on the development of the whole person (mind/body/spirit) and the individual's interaction with their environment. This holistic approach to physical literacy promotes the idea that the Latin dictum "mens sana in corpore sano" (a healthy mind in a healthy body) should translate to a sense of personal and social responsibility. For example, Mandigo et al. (2009) identify the specific characteristic, "beneficial to and respectful of themselves, others, and their environment, (p.8)" as related to the process of becoming and being physically literate on a personal level and on a societal level.

Within educational contexts, the objectives of physical literacy are to go beyond the physical development of students and to focus on the whole child by incorporating physical, cognitive, and affective domains into the activity (BC Ministry of Education, 2006; 2008; Whitehead, 2007). To support this holistic approach to physical literacy, educators and researchers are acknowledging the importance of recognizing, respecting and developing each dimension of human well-being (mind, body, spirit) and the individual's interaction with the environment. In keeping with this holistic notion of physical literacy, a Yoga practice framed within the parameters of Integral Education meets the criteria established above by emphasizing physical exercises (asanas) to develop the connection between the mind/body/spirit (pranayama: breathing exercises) and by promoting harmony within the practitioner and the surrounding society (savasana: resting pose). It is to be noted that while a Yoga practice can provide

opportunities for developing Whitehead's fifth and sixth characteristics of physical literacy, it cannot be presumed to attend to all areas of physical literacy.

In light of the similarities between Yoga, Integral Education and physical literacy, (the relationship with self and society and the development of sustainable physical practices which affect the moral and ethical interactions with the global society), we explored the development of two characteristics of physical literacy in primary age school children through the practice of Yoga as a component of the Daily Physical Activity program. We explored the potential for increasing the physical literacy of primary students by observing the effect of a Yoga practice on educational behaviours, educational experiences, educational cultures and educational systems. These observations allowed us to explore the feasibility that Yoga, within an Integral Education framework, can be an innovative way of engaging children in mind-body awareness and in developing Whitehead's (2007) fifth and sixth characteristics of physical literacy.

Methodology

Setting and Participants

In order to assess the physical literacy of grade one students within the context of a Yoga practice, a short-term observational method was used (Constable et al., 2005). An observational study is an investigation in which a researcher observes behaviour in a systematic manner without influencing or interfering with the behaviour. The major strength of this method is that it allows researchers to observe behaviour, experiences and culture in the context in which it normally occurs. In an educational environment, this would entail researcher observations made in the classroom of participants. Typically, in a qualitative observational study, researchers use informal interviews and conversations to gather further data to their field notes. During these informal discussions, the participants answer questions about their feelings or behaviour in their own environment. Therefore, using an observation design in a naturalistic setting, primary students and their teacher were observed during a Yoga practice in their classroom.

A total of 19 students took part in the research study. The eleven male students and the eight female students ranged in age from 6-7 years. Following human ethics approval by the affiliated university, parent consent and student assent were received. Some students did not fully participate in the study due to absenteeism related to ill health. The grade one teacher participating in the study is an experienced teacher, with 14 years of classroom teaching experience—eight of these in a grade one classroom. Data collection included journal responses from students, a semi-formal interview with the teacher, a group discussion with students on the last day of the Yoga sessions and researcher observation notes based on the frameworks of Integral Education and Whitehead's (2007) fifth and sixth characteristics of physical literacy.

Data Collection and Analysis Procedures

Based on the mandated 30 minutes of Daily Physical Activity, the principal investigator, a certified yoga instructor, led the students through five 30 minute Yoga practices during a one-week period. The participants began their day by focusing on breathing exercises (pranayama) followed by strength and stability postures (asanas) and concluded the session with a period of rest and silence

(savasana). The Yoga for Kids program (Imaginazium, 2010) was used to determine the flow of poses. Modifications were made to ensure the yoga poses were developmentally appropriate for the group of children. Sanskrit names were not used; instead each pose was given an animal name and often an animal sound would accompany the pose.

During the 30 minute sessions, one co-researcher observed the Yoga practice according to the framework of educational behaviours and educational experiences. Another co-researcher observed students physical literacy according to Whitehead's fifth and sixth characteristic. Data relating to educational culture and educational systems was collected from the journal responses, the group discussion and the semi-formal interview with the teacher.

At the end of each of the five sessions, students would sit quietly on their mats and respond in writing to a set of four reflective questions in a journal provided by the researchers. Mills (2003) states that journals provide a way to revisit, analyze, and evaluate experiences over time. This data was used to confirm observations made by the two co-researchers relating to educational behaviours, experiences, culture and systems. At the end of the week, a semi-structured interview with the teacher and a group discussion with the students, both based on the daily set of four questions, were done to corroborate the journal responses and co-researchers' observations (See Table 1).

Table 1

Journal Questions and Group Discussion with Students and Semi-formal Interview with Teacher

Journal questions, group discussions and semi-formal interview:

How do you feel after the Yoga session?
Explain

What poses did you like best?
Why?

Do you like doing Yoga with your friends/students?
Why?

Do you think that Yoga helps you with your school work?
Why?

Methodological triangulation was used to facilitate validation through cross-referencing of observations, journal responses, group discussion and a semi-formal interview with the teacher. According to Denzin (2006), the combination of multiple observers and multiple methods such as interviews, observations and questionnaires can overcome intrinsic biases that come from a single method, single observer and single theory studies.

In keeping with the systematic approach used in a short-term qualitative observational study, the co-researchers' field notes, student journals and group discussion, as well as the semi-formal interview with the teacher, were coded according to the four quadrants of Integral Education: educational behaviours,

educational experiences, educational cultures and educational systems. As stated, the physical literacy of grade one students were observed according to Whitehead's (2007) fifth characteristic (embodiment engenders self esteem and self confidence) and the sixth physical literacy characteristic (embodiment leads to self expression and empathetic interaction with others). In keeping with methodological triangulation, data was collected using journal responses, the semi-formal interview, the group discussion, and researcher field notes. Triangulation focused on identifying the students' established sense of confident self embodiment through the lens of educational behaviours and experiences. Students' fluent self-expression and empathetic interaction with others was assessed through written and oral responses relating to educational cultures and systems. As indicated, these characteristics do not focus solely on development of a physical activity but are a holistic expression of an individual's well-being and interactions with others.

Findings

In this section, findings are presented according to the four dimensions identified by the Integral Education framework: behaviours, experiences, culture, and systems and Whitehead's fifth and sixth characteristics of physical literacy. In keeping with a qualitative observational study, results taken from the triangulation of the journal responses, group discussion, semi-formal interview and observations have been summarized.

Educational Behaviours (physical) and Physical Literacy

The findings relating to educational behaviours and experiences were derived from data collected from the observations, the journals, the group discussion and the semi-formal interview with the teacher. Responses in student journals indicated that participants enjoyed doing most of the poses including the balancing poses. For example, Dixie¹ wrote the following "on Tuesday at school when it was yoga I learned something cool and it was called the tree pose and I liked it. It was fun, it will help me with my school work." During the group discussion, students stated that some poses were more of a challenge. Observations and group discussions confirmed that participants had difficulty with the Peacock (sitting with legs outstretched), the balancing pose Tree (standing with one leg bent of foot or calf), Table (getting their spines aligned), Forward Bends (allowing their fingers to touch their mat). Overall, during the group discussion, students confirmed that their favourite pose was Candle (introductory pose with focus on breath). Researcher observations during the 30 minute Yoga sessions indicated that the students were respectful and listened to the Yoga instructor. They were enthusiastic and ready to learn. Many of them had seen their parents do Yoga or had done a little Yoga with parents. On Day 2 of the sessions, a new rule indicating that students had to stay on their mats and not reach out and touch classmates had to be introduced. For the most part, students followed this rule. Despite some incidents of restlessness, the majority participated in the 30 poses chosen by the principal investigator. Two students were completely disengaged during the sessions. One boy spent his time biting his toes and the other was very focused on the social dynamics of two classmates.

¹ Pseudonyms are used for all student names.

The asanas chosen were classic beginner poses that could easily be done by beginner practitioners/children. Students began the class in a focused manner with closed eyes and concentrating on their breath. During this pose, each student was invited to make an intention and was told to focus on this intention during challenging poses. Other observations indicated that some students could not distinguish between left and right. They mirrored the instructor's positioning and ended up on the opposite side. By the second session, students seemed to remember the flow of poses and by the end of the week, were doing the poses ahead of the instructor. The teacher participated actively in the Yoga sessions and was available to help students by modelling poses or by simply settling them down. The teacher's interview responses demonstrated that she liked the introductory poses because they allowed her to stretch.

Educational Experiences (emotional reactions, intuitions, thoughts) and Physical Literacy

Journal responses indicated that approximately 75% of students indicated that they felt good, comfortable or happy and enjoyed the Yoga practice. Approximately 25% indicated they felt bad or tired. Towards the end of the session, some students identified elements of discomfort: sore back, tiredness. Two students indicated that the practice was not beneficial. Declan wrote " my bak hrts [sic] every day of the week. Dylan stated that he was tired every day of the week. The group discussion indicated that the majority of students enjoyed the daily physical Yoga activity. Researcher observations noted that during the Yoga session the students came to their mats enthusiastically and were centered and quiet at the beginning of each Yoga session. They immediately sat in the Candle pose, brought their hands together, closed their eyes and began the breathing exercises. They were encouraged to take this time to themselves to make an intention for their practice and to enjoy the quietness and the silence.

As the class progressed, the physical flow was enhanced by animal sounds/movement (lion, snake, frog, waterfall, shark). Students reacted positively to this by using their voices loudly, jumping, leaping etc. However, this activity did become distracting and often resulted in a high energy level and restlessness. The instructor was always able to bring students back to silence by assuming the Candle pose (Namaste). During some poses, students became very focused (Mountain, Warrior) and worked hard to maintain alignment and balance with regular breath. Loud talking, laughter, shrieks of pain were evident in the class particularly when poses presented some element of difficulty (Peacock, Fish). Students who were disinterested in the class often turned to their classmates to converse, tickle etc. Once again, students came back to silence by assuming the Candle pose. Two students, one boy and one girl, were completely disengaged with the yoga practice during the course of the sessions. Observations indicated that all students were quiet during the resting pose (savasana), resting on their mats with eyes open or closed without interrupting their classmates. The teacher indicated that she felt "felt relaxed and peaceful due to the deep breathing and clearing the head of chatter."

Educational Cultures (shared meanings, group values) and Physical Literacy

The findings relating to educational culture and educational systems were derived from student journals, group discussion and the teacher's semi-formal interview. According to the data, the Yoga sessions had a positive impact on interpersonal relationships between the students and between the teacher and her students creating a shared experience (coming together in silence, learning new poses).

Here is a brief overview of some of the student responses from the journal responses: "it mak mi happy" [sic] (Chelsey); "I liked it, it was fun because we scare people;" (Dixie); "I love it. It helps me with my scool wre" [sic](Hunter); "yes, it Hlps me" [sic] (Gabe). During the group discussion, the same types of positive comments emerged "Yes, I love it;" "It was good;" "Yeah, fun." During the semi-formal interview, the teacher indicated that she enjoyed doing the yoga with the students and stated, "It allowed for a more intimate setting than we might have had otherwise. Exercises and games in the dome (gym) are fun, but this felt like a more shared experience." The teacher noticed a difference in students' interactions with one another particularly during group work. According to the teacher, during the week, students were more patient and courteous with one another. The teacher described how she had been working on creating a respectful culture in the classroom prior to the Yoga sessions and that the Yoga practice provided an affirmation of the development of this respectful culture. She intends to use the Candle pose as a way of bringing silence back to the class and to incorporate the breathing exercises into the daily classroom to calm students during transitions. Though the teacher considers Yoga to be an alternative practice, she indicated that the Yoga sessions fit into the mandates of the DPA, and views Yoga as an activity that promotes and develops physical activity in grade one students. She noticed that the asanas encouraged students to explore new dimensions of physical literacy relating to strength, stability and balance. She also discussed the potential long term effects of a sustained regular practice. She observed during the week that the breathing exercises "help my students deal with personal relationships and created a soft, calm atmosphere." She intends to use the breathing practice (pranayama) when students are upset or disruptive by getting them to bring their hands together in the Candle pose and to go back to their intention (thinking about a special person /object) when the practice is challenging. She noted that the grade one students seemed to enjoy attempting these poses with their classmates. Most were able to get into a variation of the asanas. When students lost their balance, laughter ensued and variations of the failed posture were attempted by classmates. Sometimes, students looked to one another for modelling particularly if they did not understand the directions being given.

Educational Systems (curriculum, school policies) and Physical Literacy

As stated, the findings relating to educational culture and educational systems were derived from student journals, group discussion and the teacher's semi-formal interview. Reflecting on the Yoga practice experience in her grade one classroom, the teacher stated,

Yoga does fit into the school system. Teachers and students are interested. Other grade levels are interested in getting yoga into daily practice. The

school administration has bought Yoga mats and is committed to continuing this program. It is seen as an alternative physical activity.

In terms of the effect of the Yoga practice on the school system, the teacher stated that the principal decided to buy Yoga mats and to try to incorporate Yoga as a DPA within the school curriculum. The teacher in this study indicated that she looked forward to the Yoga sessions. These sessions left her feeling relaxed and able to focus on ensuing tasks rather than trying to rush through them. She will continue to make the effort to concentrate on her breathing, use the Yoga poses for transition activities and allow children the time required to complete their tasks. She will try, at some point, to integrate the Yoga poses and breathing into the daily routine of the class.

Journal responses and the group discussion with the students attempted to determine if Yoga helped with school work. A compilation of journal responses indicated that towards the end of the week the majority of students believed that Yoga helped with the school work. Most written responses were representative of the following quotation from Bridget " Yes. I do tink [sic] it will help me wok [sic]. And it was fun to do Yoga. "

Discussion

Our findings emphasize the development of Whitehead's (2007) fifth and sixth characteristics of physical literacy during a daily Yoga practice framed within an Integral analysis (behaviours, experiences, culture and systems). Triangulation focused on identifying the students' established sense of confident self embodiment through the lens of educational behaviours and experiences. Students' fluent self-expression and empathetic interaction with others was assessed through written and oral responses relating to educational cultures and systems. Using the Integral Education framework, we did note challenges for the students in terms of physical behaviours. For example, during the Yoga sessions problematic physical poses were evident (Peacock: intense hip opening) and students had difficulty with most balancing poses (Tree, Bird, Waterfall). It was noted that participants did have some directional issues with left and right. The use of Yoga was useful for determining some areas of physical literacy which needed to be addressed such as areas of movement and directional awareness (Gabbard, 2008). We were able to observe Whitehead's fifth characteristic, sense of self esteem and confidence engendered through an embodied self, as we observed the students interacting with each other through the Yoga practice. Results from the semi-formal interview with the teacher indicate that positive benefits of the Yoga practice (relaxed, calm) were experienced throughout the day in the classroom.

Within an Integral Education framework, educational behaviours and educational experiences focus on an embodied self capitalising on the poised, confident movement in a wide variety of physically challenging situations. Students were comfortable with the Yoga practice and attempted all poses, even the ones that were challenging. When they could not attempt the full expression of the asanas, they reacted with laughter and interacted positively with classmates. This positive reaction (laughter) and empathetic interaction resonates with Whitehead's sixth characteristic, self-expression and empathetic responses to others, viewed through the lens of the Integral Education framework of cultures and experiences.

This fluent self expression through non-verbal communication and empathetic interactions with others points to the development of positive attitudes and educational behaviours that contribute to a healthy, active lifestyle. In her interview, the teacher commented that she felt a connection to the more sensitive students and became aware of their needs. The group discussion indicated that educational cultures and educational systems can promote awareness and empathetic interaction with others. These characteristics along with educational behaviours, experiences, cultures and systems do not focus solely on the development of a physical activity but emphasize the complete individual's well-being and interactions with others. Data from the students' journal and the ensuing confirmation from the group discussion show their self esteem and confidence through their willingness to approach challenging poses with good humour. A further indication was their ability to make modifications to find the full expression of the poses. The increased humour and empathy during the course of the study indicated that this holistic approach to physical literacy promotes the idea of the Latin dictum "mens sana in corpore sano"—a healthy mind in a healthy body.

In terms of educational experiences, journal responses demonstrated an understanding and awareness of the impact of physical activity on mind and the body. This recognition emphasized the connection between the multiple dimensions of the educational context and its impact on teaching and learning. For example, based on the positive response to the Yoga sessions, the school administration made a commitment to continue with regular Yoga in the classroom. However, this is a challenging mandate to implement since not all teachers have the necessary knowledge to introduce this practice into their classrooms. Further research is required in order to determine the necessary parameters which would facilitate the implementation of Yoga as Daily Physical Activity.

Limitations

This pilot study in a grade one classroom provided many insights that will serve to inform a broader study. Some limitations, such as the size of the population and the duration of the practice were evident. These limitations were in direct relation to budgetary and time constraints and a lack of qualified personnel. However, despite these limitations, this study demonstrated that it is possible to introduce the Yoga poses to teachers and students, to establish the foundations of a daily practice, and to observe the positive effects on the educational framework of behaviours, experiences, culture and systems. For example, students setting an intention for strength and clarity throughout the day as they engage in the Candle pose affect their educational behaviours and experiences by promoting self-discipline and motivation.

However, it is to be noted that a daily Yoga practice does not address all the physical dimensions of physical literacy and of the DPA programme. This study did not address the question of moderate to vigorous intensity on anaerobic activity in a primary classroom, nor did we study the cardiovascular benefit to the practice. Despite the limited findings of this short-term observational study, and the recognition that a daily Yoga practice does not address all areas of physical literacy, the results do provide an important avenue for developing some areas of physical and inter-physical literacy.

Conclusion

The aim of this pilot project was to explore the possibility that Yoga, as a daily physical activity (DPA), promotes the development of two characteristics of physical literacy by examining the educational behaviours, educational experiences, educational culture & educational systems of teacher, the students and the pedagogical environment. The physical poses of the Yoga practice allowed students to leave their desks and to participate in a series of poses that did promote the development of physical literacy as indicated by Whitehead's (2007) fifth and sixth characteristics. Students were challenged by the balancing poses and the poses which incorporated intense stretches. The breathing exercises helped the students focus and often brought them back to silence and to self awareness. This was particularly notable with the Candle pose. The classroom teacher stated that Yoga brought about a shared intimate experience with her students and that she would be incorporating aspects of the practice into her classroom routine. In keeping with this holistic notion of physical literacy, the Yoga practice of the grade one students focused on physical exercises (asanas) to develop connection between the mind/body/spirit (pranayama: breathing exercises) and by promoting harmony within the practitioner and the surrounding society (savasana: resting pose).

Furthermore, in terms of an Integral practice, the Yoga sessions had an observable impact on the educational behaviours (developing physical literacy #5 and #6 through asanas), educational experiences (positive emotions which focused on interconnectivity), educational culture (creating a harmonious, empathetic environment) and educational systems (school administrators have committed to providing Yoga sessions as DPA to elementary age students).

Through this study, we explored the potential for increasing Whitehead's (2007) fifth and sixth characteristic of physical literacy of primary students, observed that Yoga can be an innovative way of engaging children in daily physical activity, that the classroom environment can engender positive self esteem and self confidence and that educational behaviours, experiences, cultures and systems can promote the development of perceptive and empathetic interaction with the self and with others.

Further studies that are longer in design are required to understand the full potential for Yoga as a component of daily physical activity (DPA) and its impact on all aspects of physical literacy. We also propose that an integral analysis based on the criteria of educational experiences, behaviours, cultures and systems provides an innovative framework to view directions for future research by those interested in further inquiry on the topic. Results from the observations demonstrated that the type of physical literacy being developed represented life skills (empathy, interconnectivity), that connect students to their embodied selves, to one another and to the school culture. In this way, the development of certain types of physical literacy, through a Yoga practice do support sustainable health practices by focusing on the well-being of the individual, creating self esteem and self confidence and by promoting perceptive and empathetic interactions with self and society.

References

- Berg, S., Hickson, C., & Fishburne, G. (2010). *Teaching children about health and wellness*. Edmonton, AB: Ripon Publishing.
- Birdee, G.S., Legeza, A., & Philips, R.S. (2000). Characteristics of yoga users in the United States: Results from a national survey. *Journal of General Internal Medicine*, 23 1653-1658.
- British Columbia Ministry of Education (2008). *Program guide for daily physical activity. Kindergarten to grade 12*. Retrieved from http://www.bced.gov.bc.ca/irp/pdfs/daily_physical_activity/program_guide.pdf
- British Columbia Ministry of Education. (2006). *Physical education K to 7: Integrated resource package*. Retrieved from http://www.bced.gov.bc.ca/irp/pdfs/physical_education/2006pek7.pdf
- Cohen Harper, J. (2010). Teaching yoga in urban elementary schools. *International Journal of Yoga Therapy*, 20, 100-110. Retrieved from http://www.littlefloweryoga.com/images/IJYT-2010_Cohen_Harper_.pdf
- Constable, R., Cowell, M., Zornek Crawford, S., Golden, D., Hartvigsen, J., Morgan, K., & Palmquist, (2005). *Ethnography, observational research, and narrative inquiry*. Writing@CSU. Colorado State University Department of English. Retrieved from <http://writing.colostate.edu/guides/research/observe/>
- Denzin, N. (2006). *Sociological methods: A sourcebook* (5th ed.). Chicago, IL. Aldine Transaction.
- Esbjorn-Hargens, S. (2007). Integral teacher, integral students, integral classroom: Applying integral theory to education. *AQAL: Journal of Integral Theory and Practice*, 2 (2) 72-103. Retrieved from <http://nextstepintegral.org/resources/integral-education-resources>
- Gabbard, C.P., (2008). *Lifelong motor development* (5th ed.). New York: Pearson-Benjamin Cummings.
- Khalsa, S. (2007). Why do yoga research? Who cares and what good is it? *International Journal of Yoga Therapy*, 17, 19-20.
- Mandigo, J., Francis, N., Lodewyk, K., & Lopez, R. (2009). *Position paper physical literacy for educators*. Retrieved from <http://www.phcanada.ca/programs/physical-literacy/what-physical-literacy>
- Mills, G.E. (2003). *Action research: A guide for the teacher researcher* (2nd ed.). Upper Saddle River, NJ: Merrill, Prentice, Hall.
- Moliver, N., Mika, E.M., Chartrand, M.S., Burrus, S., Haussmann, R.E., & Khalsa, S. (2011). Increased hatha yoga experience predicts lower body mass index and reduced medication use in women over the age of 45 years. *International Yoga Journal*, 4 (2) 77-86. Retrieved from: <http://www.ijoy.org.in/text.asp?2011/4/2/77/85490>
- Moliver, N. (2010). *Psychological wellness, physical wellness, and subjective vitality in long-term yoginis over 45*. Published Thesis. ProQuest LCC. Retrieved from <http://www.docstoc.com/docs/77553690/Psychological-wellness-physical-wellness-and-subjective-vitality-in-long-term-yoginis-over-45>
- Rink, J., Hall, T., & Williams, L. (2010). *Schoolwide physical activity: A comprehensive guide to designing and conducting programs*. Champaign, Illinois: Human Kinetics.

- Ryan, J. (2005). The complete yoga. The lineage of integral education. *Revision*, 28 (2), 24-28.
- Tran, M., Holly, R., Lashbrook, J. & Amsterdam, E. (2001). Effects of hatha yoga practice on health-related aspects of physical fitness. *Preventive Cardiology*, 4 (4), 165-170. DOI: 10.1111/j.1520-037X.2001.00542.X
- United Nations Educational, Scientific and Cultural Organization (2003). *Literacy, a UNESCO perspective*. Retrieved from <http://unesdoc.unesco.org/images/0013/001318/131817eo.pdf>
- World Health Organization (2012). Preamble to the Constitution of the World Health Organization as adopted by the International Health Conference, New York, 19-22 June 1946; signed on 22 July 1946 by the representatives of 61 States (Official Records of the World Health Organization, no. 2, p. 100) and entered into force on 7 April 1948. Retrieved from http://www.who.int/kobe_centre/about/faq/en/
- Whitehead, M. (2001). The concept of physical literacy. *European Journal of Physical Education*. 6, 127-138. Retrieved from <http://www.physical-literacy.org.uk/ejpe-concept.pdf>
- Whitehead, M. (2007). *Physical literacy and its importance to every individual*. Presentation at the National Disability Association Ireland, Dublin, Ireland. Retrieved from <http://www.physical-literacy.org.uk/dublin2007.php>
- Wilber, K. (1997). *The eye of spirit: An integral vision for a world gone slightly mad*. Boston: Shambhala.