Reconnecting with Body and Space:
How Teachers in British Columbia are Reconstructing the Traditional Classroom to Engage Students' Bodies in Learning

by

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Bachelor of Education, University of British Columbia, 2009
Bachelor of Arts, Okanagan University College, 2001

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Supervisory Committee

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Abstract

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Embodied learning is a holistic approach to education that takes into consideration the inclusion of the body in learning, students' awareness of self, and their connection with place and those around them. The current study sought to uncover ways in which elementary school teachers in British Columbia were adapting classroom spaces to engage student bodies in learning process. Two teachers from different regions of the province were interviewed about their experiences with embodied learning. Physical hurdles such as the restrictive nature of the space within which they worked, and systemic hurdles such as student / teacher expectations about teaching and learning experiences and relationships, assessment and pedagogy practices, and a lack of clarity about the purpose of education were identified as challenges that teachers hoping to embrace embodied learning would have to overcome.

Keywords: embodied learning; embodiment; holistic learning; movement

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Acknowledgments

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Dedication

This work is dedicated to my daughter Imogen Diane and the hope I have that she may see a brighter future.

Chapter 1: Introduction

Statement of Problem

Embodied learning is a holistic approach to teaching and learning that equally emphasizes the importance of the mind and body in learning (Nguyen & Larson, 2015; O'Loughlin,1998). This paper is an attempt to explore what, if anything, is currently being done by teachers in British Columbia to engage students' bodies in the learning experience through the incorporation of movement in the classroom.

"I think, therefore I am" (Descartes, 1892). Since the development of the first modern school in as early as the 1600s, it is arguable that any words have had as significant an impact on shaping education as those of Rene Descartes. The implications of his writings have shaped the development and engagement focused solely on the mind in teaching and learning. This has led to the devaluing of the role of the experiencing, living body in learning / teaching strategies and in learning / teaching spaces as evidenced by teachers' continued insistence on sedentary deskwork in classrooms in BC. When one considers that the body is our first point of contact with the surrounding world, it should be troubling that we disregard any role it may play in learning.

Numerous authors (Alibali & Nathan, 2012; Allerby, Hagstrom, & Westman, 2014; Dixon & Senior, 2011; Lindgren & Johnson-Glenberg, 2013; Matthews, 2002; Merleau-Ponty, 1962; Nguyen & Larson, 2015; O'Loughlin, 1998 Stolz, 2014) suggest that the writings of Merleau-Ponty offer an alternate perspective that considers the significant role the body plays in learning. He asserts that the mind and body cannot be separated (Merleau-Ponty, 1962). Any and all understanding that we develop comes

about through the interaction between the experiencing mind and body, and the surrounding environment.

Influenced by the work of Merleau-Ponty, educational researchers (Lindgren & Johnson-Glenberg, 2013; Nguyen & Larson, 2015; O'Loughlin, 1998; Stolz, 2014). consistently identify three main principles for embodied learning First, students need to be reconnected with self. They need to learn to become aware of their bodies and their physical states (O'Loughlin, 1998). Second, the mind/body link needs to be reestablished in schooling (Nguyen & Larson, 2015). The body can no longer be ignored, but must be re-envisioned as an integral part of the learning experience. Finally, embodied learning considers the interconnected nature of learners with each other and with their environment (Nguyen & Larson, 2015; Stolz, 2014).

Children are naturally active, imaginative beings. From the day we are born we are connected to the world through our bodily engagement with it. From an early age, we engage with our world through our senses. Doctors promote the importance of skin-on-skin contact and eye contact between parents and their babies (Moore, Anderson, Bergman, & Dowswell, 2012; Olsson, Erikssen, & Anderzen-Carlsson, 2017; Rutgers & Meyers, 2015). As they age, children's natural curiosity drives them to actively engage with and explore the world through sight, sound, smell, taste, and touch. Before they enter school, children are constantly learning through movement and hands-on activity. However, a shift occurs when children enter into formal education. Movement and exploration are no longer encouraged. Instead they are expected to quell their active, experiencing nature and are required to sit still and listen.

The classroom places certain behavioural expectations on both student and teacher alike. As a result of the emphasis placed on the mind in education, the classroom as we know it has changed very little in the last several centuries. The implication, of course, is that teachers and students, upon entering a classroom, implicitly know what is expected of them. The room itself shapes how we teach and learn. As the modern classroom has evolved little since its inception nearly four centuries ago, our expectations for behaviour have likewise shifted very little.

As the Six Year Dogwood Completion Rate[1] and Grade 12 graduation rates in British Columbia (BC) are still higher than the dropout rate (BC Ministry of Education, 2017), it would appear that the majority of students seem to accept, perhaps begrudgingly, the restrictions the classroom environment imposes on them. But what of the students who cannot make the adjustment? The data for the 2015/2016 school year indicates a nearly 17% non-completion rate for students in BC (BC Ministry of Education, 2017?). When factors such as aboriginal ancestry and special needs are considered, the non-completion rate jumps to between 30% and 40% (BC Ministry of Education, 2017). The current classroom model is clearly not meeting the needs of all students that walk through the doors. Perhaps it is time to stop asking how to adapt the student to the classroom, and start asking how to adapt the classroom to the student.

The new BC curriculum (2017) also hints at a shift away from traditional teaching / learning dichotomies. “What and how we teach our students has been redesigned to

[1] An estimation of the percentage of students who enter Grade 8 and graduate Grade 12 within a six year period. This takes into consideration that some students may take longer than the usual 5-year period to complete all necessary credits to earn a Dogwood certificate (BC Ministry of Education, 2016).

provide greater flexibility for teachers, while allowing space and time for students to develop their skills and explore their passions and interests" (BC Ministry of Education, 2017, para 3). The new curriculum emphasizes the process of learning over the content of what is learned and focuses on flexibility for teachers to allow students to pursue their own interests (BC Ministry of Education, 2017). A quick scan of the new curriculum is all it takes to realize that there are significantly fewer 'prescribed learning outcomes'. With fewer outcomes teachers are afforded more opportunity to explore ways to engage students differently.

"Deep understanding and application of knowledge is at the centre of the new model, as opposed to the memory and recall of facts that previously shaped education around the globe for many decades" (BC Ministry of Education, 2017, para 3). The new curriculum presents the opportunity for a dramatic departure from the traditional emphasis on memorizing facts in order to demonstrate competency through testing. Doing takes precedence. No longer are students expected to be passive recipients of knowledge passed down from a more knowledgeable teacher / expert. Rather, as described in the new curriculum, learning is supposed to become individualized through the ability of students to pursue their own interests. It is no longer enough for students to sit quietly at their desks and copy notes from the board. They need to be given the option to pursue learning, content as well as approach, in the manner that suits their individual needs. Whether this means they sit at their desk, or as experience has demonstrated for me, they are given the freedom to move about and find alternative places to work.

My teaching experience has been in a rural school, in the very isolated community of Wuikinuxv[2]. Wuikinuxv is a First Nations community situated at the head of Rivers Inlet on the central coast of British Columbia. It is part of the traditional territory of the Wuikinuxv people. The population of the village is approximately 50 people and it is accessible by boat or float plane only. There are no amenities in the community. A community member operates a small "store" out of her basement but selection is limited to frozen foods and candy. There is a community hall that has fallen into disrepair and is unsafe for use.

There is a strong drive to revitalize the culture in the community. The Big House is used regularly for informal social events such as community potlucks and culture nights where community members gather to learn about traditional dances and songs, as well as more formal events such as Potlatches. There has also been a push to create jobs for people in the community. The Wuikinuxv Nation has partnered with the Department of Fisheries and Oceans and recently finished construction of a fish hatchery in their territory that will enable Rivers Inlet Salmon to stay in Rivers Inlet instead of eggs being flown from hatcheries in Bella Coola. The community has also recently begun construction on a hydroelectric project that will enable them to reduce the dependency on diesel generators for energy.

Education services are provided by District 49 based in Bella Coola. The school building itself is about 14 years old and has two classrooms. Each classroom has a row of windows along the west-facing wall. The school is well-maintained and stocked with an abundance of learning resources that include a modest but modern student library, a well-

[2] Pronounced oo-WI-kee-no

equipped Physical Education (PE) room, well-stocked arts and music cabinets, and a well-maintained resource room for maths, language arts, and science texts and manipulatives. The school is also stocked with modern computers and personal electronics such as iPads with programs tailored to meet the individual needs of the students. There is no gymnasium so classrooms are rearranged to provide indoor space for physical activity. Library space occupies the back quarter of the main classroom, while computer space occupies the back quarter of the second classroom.

During my six years as a teacher and administrator in Wuikinuxv enrolment has been as high as 15 students, ranging from Kindergarten to Grade 12. At present there are five students (80% First Nations), one each in grades 1, 3, 4, 6, and 7. There are generally a high number of students on individual education plans (IEP) with Ministry of Education categories ranging from chronic health to severe behavioural challenges. The school is staffed by one full-time teacher, and a language and culture teacher who provides instruction for one hour four afternoons per week. There may be an education assistant employed but this is not always the case.

Given the lack of amenities in the community, and my desire to not spend every moment of the day in the classroom, I spent a significant amount of time doing lessons that involved physical activity outdoors. It was amazing to see the inquisitive nature of the children emerge as we left the physical confines and expectations of the classroom behind and ventured forth into the outdoors. However, due to issues related mainly to poverty, many of the children lacked appropriate gear to spend significant amounts of time in the extremely wet climate of The Great Bear Rainforest. Inevitably, we could not spend every class outdoors and a good 75% of the time was spent indoors in a traditional

classroom setting. Once indoors, in their desks I noticed an immediate change in the students' behaviour. Their energy levels dropped. They were not engaging in lessons. They just seemed plain uninterested.

Recognizing something was not working in the classroom I began to play with ways of increasing opportunities for movement in the class and to experiment with the shape that lessons took. I was trying to capture the students' enthusiasm for learning while they were outdoors and active, and bring it inside. Math became my testing ground and soon began to resemble more of a PE class than a math class. The students were soon engaged and actively participating in class. They also appeared more confident and less self-conscious when they got stuck.

While my solution worked fine in a class with only 5 students I began to wonder how, or if, this could be adopted in larger classrooms. I turned to colleagues that worked in schools with larger class sizes for ideas. However, when I presented my ideas about encouraging more movement in the classroom I was inevitably met with the same, or similar comments about it not being practical due to concerns about student safety and behaviour management. Having seen how the students were more engaged in my small classroom, and noting that I had experienced no significant issues with behaviour as a result of allowing students to be more active, I felt that it must be possible to allow students more freedom to move in a larger class as well.

Purpose of the Study

In the literature review section of this paper I will explore historical foundations and attempt to track the development of the classroom in western culture. Through this process my intention is to demonstrate how the classroom itself has come to shape how

we teach and learn in a way that minimizes the importance of the body and movement. The writings of Merleau-Ponty will then provide the framework for my exploration of how teachers in British Columbia are attempting to challenge the historically sedentary nature of the classroom by providing students with the opportunity to move and acknowledge the presence of their bodies in learning.

Chapter 2: Literature Review

The importance placed on the mind in educational settings has been perpetuated by the development and maintenance of the classroom as the primary "building block" (Weisser, 2006, p.200) of schools over the past several centuries and has created a significant hurdle to overcome for proponents of embodied learning (Allerby, Hagstrom, & Westman, 2014). If pedagogical reform is to occur, educators need to become aware of the history of the classroom as a primary learning space and the power of that physical space to shape behaviours and expectations about learning.

There is a growing body of cognitive neuroscience research that establishes neurological connections between actively engaging the body and improved learning outcomes (Have, et. al. 2016; Howie, Shatz, & Pate, 2015; Stevens-Smith, 2016). These studies provide a research-based rationale for challenging conventional teaching strategies in 'core' subject areas. Indeed the very notion of 'core' subjects itself is challenged by embodiment as it demands a shift in emphasis from cognitively based content areas to a more holistic view of education that equally values the physical, cognitive, artistic, and emotional components of learning.

The case for incorporating physical engagement in educational settings is grounded in the philosophy of Maurice Merleau-Ponty (Allerby, Hagstrom, & Westman, 2014; O'Loughlin, 1998; Stolz, 2014). His ideas about embodiment provide the foundation for the work of many researchers interested in the area and provides a jumping off point for investigations into the plausibility and effectiveness of the integration of physical engagement with traditionally non-physical areas of learning, primarily the 'core' subject areas math, language arts, science, and social studies. (Alibali

& Nathan, 2012; Allerby, 2014; Johnson, 1990; Nguyen & Larson, 2015; O'Loughlin, 1998; Stolz, 2014).

Marginalization of the Body

Though not writing on education, Abram (1996) traces the source of human separation from nature and the rise of the importance of the mind to the advent of alphabetic writing in ancient Greece. Abram (1996) suggests that the development of alphabetic writing represents the first time in history that the transmission of knowledge became a solely 'rational' endeavour with no connection to the surrounding physical world. Our bodies are the means by which humans are connected to place, so as the importance of our connection to place in knowledge transmission diminished, so too did the importance of the body (Abram, 1996).

Prior to the advent of the alphabet, knowledge was passed on by means of oral tradition, storytelling (Abram, 1996). Using modern examples from tribal cultures around the world, Abram (1996) cites numerous examples of the important role that a physical connection to place plays in storytelling. He then traces the development of 'writing', starting with the most basic, human hand and footprints, through cave markings, and petroglyphs, to the Greek alphabet, and demonstrates how text gradually shifted from representations of the natural world to an abstract system of symbols no longer tied in any way to nature (Abram, 1996). As human thought and communication became less tied to the natural world, human awareness turned inward, neglecting the importance of experience and our "interconnectedness" to the "living world" (Abram, 1996).

It was during the time of the Greek philosophers, primarily Plato and Aristotle, that the separation of "idea/essence/mind" and "phenomena/matter/body," began to take

shape, providing the foundations for Rationalism and Empiricism in western philosophy (Butts, 1955). To Greek philosophers the body was no longer considered an essential component in the discovery of truths (Abram, 1996). The body, if it played any role at all, became little more than a sensory tool for collecting information that would later be interpreted by the mind (Butts, 1955).

The traditions of Greek philosophers was carried on through the rise of Christianity (Butts, 1955). Butts (1955) argues that there is a distinct Platonic dualism apparent in Christian theology. Through the second to sixth century AD, church leaders cemented Christian theology, basing their writings on the "teachings of Jesus, Biblical writings and commentaries, the decrees and writings of the bishops and the decisions of church councils, and Greek philosophical writings" (Butts, 1955, p. 97).

Butts (1955) also cites the significant lack of "political stability" during the middle ages as a motivating factor for peoples' draw to religion. It is this uncertainty that he suggests plays a significant role in the rise of the power of the church. The church provided a "large measure of security and stability in the difficult days of the middle ages" (Butts, 1955, p.123). As the Christian church began to play a larger role in the lives of ordinary people, the teachings of the church, based in part on Greek philosophies, began to be more influential in the development of western culture. The idea that the mind is pure and the body impure starts to become a more prominent feature in western cultural beliefs through the rise, and accessibility, of church teachings.

In Christian doctrine, the body is further devalued through notions of good and evil (Butts, 1955). Butts (1955) notes how under the new belief system the world is ruled by an "all-wise, all-good, all-powerful God whose essence is spirit who wages perpetual

war against the world of matter, of evil, of the devil" (p. 97). The body, and the physical realm begins to be associated with evil and the devil, and thus all things bodily and physical become evil and are to be avoided. Conversely, the value of the mind is further increased as the only way to achieve salvation and eternal happiness is to deny the physical and become one with God, who is represented as beyond the physical realm (Butts, 1955).

In western thought, sparked by the Greeks, and spread by Christianity, full marginalization of the body was finally achieved through the works of Rene Descartes (Butts, 1955; Tokuhama-Espinosa, 2010). Descartes is credited with developing a "compromise" between theology and science which gave rise to the idea of dualism (Butts, 1955, p. 220). Descartes asserted that the universe is composed of "two absolutely separate and distinct substances,…, mind and matter" (Butts, 1955, p. 220). For Descartes, both mind and matter are ultimately controlled by God but are independent of each other. Mind is associated with the spiritual realm and thinking, whereas matter is purely a part of the physical realm (Butts, 1955). Applied to human nature, Descartes asserted that the mind was able to "exert free will and control the body" (Butts, 1955, p. 221). While humans could control the body and physical components of existence, the spiritual realm, strongly associated with the mind, remained firmly in the hands of God (Butts, 1955). His proclamation "Cogito, ergo sum" (I think, therefore I am) in 1637 cemented dualist views of the mind/body debate in western culture by balancing the interests of theology and science, and influenced western educational practices through to the present. "Thinking, not just being, constituted the definition of one's purpose in the world, [implying] that maximizing one's individual potential to think, create, and produce

intellectually justified one's existence" (Tokuhama Espinosa, 2010, p. 42). By this point, through the foundations laid by Aristotle, Plato and others, as well as the prominent role that Christianity had come to play in the development and expansions of "western culture," the body had been reduced to little more than an object of study in the acquisition of knowledge.

Marginalization of the Body Through Structures

The classroom is a safe place for teachers (Allerby, Hagstrom, & Westman, 2014). It has a power to deny the body that dates back several hundred years to the development of the first schoolhouses (Gislason, 2009). Expectations for the behaviour of students and teachers alike has been defined and perpetuated by the enduring model of the classroom and the dualist principles of learning that it was founded upon (Allerby, Hagstrom, & Westman, 2014). Sommer (1977) suggests that the way a classroom is set up communicates messages to students about the teacher's expectations of them and Hennings (1975) argues that students are quick to notice the way the layout of the classroom covertly defines the power relationship.

Historical foundations of the classroom. The influence of Greek and renaissance philosophers on western thought is apparent in the development of the physical space of the classroom as well as on curriculum and pedagogy. As the classroom developed as a place *for* learning, beliefs about the importance of the mind, developed by the Greeks, spread by Christianity, and cemented by Descartes, shaped the space. Implicit in the notion that the goal of education is to enrich the mind is the idea that the body does not matter. This notion dictated that space for movement was not important in educational settings. As the classroom as a place *of* learning further evolved, the space

itself began to influence behaviours and expectations (Allerby, Hagstrom, & Westman, 2014).

At its inception in the western world, formal education focused on religious studies and catered primarily to the wealthy (Tokuhama-Espinosa, 2010). Churches and temples served as the first formal classrooms and teachings were devoted to religious readings (Butts, 1955; Graff, 1983; Tokuhama-Espinosa, 2010). The focus of study being the immaterial realm of spiritual teachings, little attention was paid to the body or the need for students to move (Butts, 1955). Learning involved the study of text and required little more than a table to sit at and a chair to sit in. These early church schools represent the first classrooms and are the basis for the modern western classroom (Butts, 1955; Tokuhama-Espinosa, 2010).

According to Spring (as cited in Gislason, 2009) as early as the 1600's, with the development of greater access to, and mandatory participation in education, schools began to develop that were no longer associated with the church. Tokuhama-Espinosa (2011) notes a similar shift away from church-run schools around the same time. However, concerning pedagogy and physical design these new schools were strongly influenced by the development of earlier schools run by the church and located in church facilities. They were typically one room, with some arrangement of desks set in rows (Gislason, 2009; Weisser, 2006). Students' attention was forcibly directed toward the teacher at the front of the room by the arrangement of the desks (Allerby, Hagstrom, & Westman, 2014; Weisser, 2006). Furthermore, desks were designed to accommodate the 'average' student body and were not adjustable to meet the needs of the individual

student (Weisser, 2006). In this configuration the ability for students to move, or even be comfortable, was greatly restricted, and reinforced the negation of the body in learning.

The ‘modern' classroom. Gislason (2009) argues that though schools have grown and expanded from one room to many, and their basic footprint has been altered over the course of the last several hundred years, the classroom, as the basic building block remains virtually unchanged. Original classroom designs restricted opportunity for movement, and negated the role the body plays in learning (Gislason, 2009; Weisser, 2006). The restriction of movement and devaluation of the body in learning has been carried forward in modern school design, and similar messages about expectations for behaviour and how learning should look are conveyed (Allerby, Hagstrom, & Westman, 2014). Classrooms in modern schools share many similarities to their historical counterparts, from desk arrangement to square footage (Gislason, 2009; Weisser, 2006).

Marginalization of the Body Through Systems

Coinciding with the role that the development of the physical structure of schools plays in nullifying the value of the body in learning, the role that the body plays in learning has also been purposefully overlooked in educational practice for hundreds of years as a means of control. Education has served as a means of transmission and perpetuation of cultural and societal norms since prehistoric times (Butts, 1955), and according to Willis (as cited in Warren, 2004) since the industrial revolution, as means of developing and maintaining a steady supply of workers to meet the needs of the economy. Several other authors also note the role education plays in supplying workers to the workforce (Butts, 1955; Fine 1991; Lingwell, 2014; McLaren, 1993; McNeil, 1986; Willis, 1997).

Roughly paralleling the evolution of philosophical beliefs about the mind/body split in western culture was the development of settlements and the transition away from a nomadic, tribal lifestyle (Butts, 1955). According to Butts (1955), prehistoric education was built into daily activity and served the purpose of "preserv[ing] the tribal culture" (p. 6). As populations shifted away from nomadic lifestyles, settlements began to develop in Egypt, Mesopotamia, and Persia. Butts (1955) suggests that the need for "organized institutions [such as education, to transmit culture] arose" (p.6) as a result of the shift away from smaller tribal groups in which informal transmission of culture through daily activities was possible. With clearly defined institutions, distinct social classes began to develop, with education falling into the realm of "the privileged class" (Butts, 1955, p. 8).

However, influenced by the Greeks, as well as serving the role of transmitting culture, education also began to assume a more "broadly political function…devoted to the general welfare…and [obedience to] the state" (Butts, 1955, p.19). It is through the demand for obedience to the state under the Greek system that education begins to assume, among other things, a more prominent role as a tool of control.

Through the middle ages and renaissance to the industrial revolution, as society became increasingly class-based, the states' needed to develop and maintain a system of "class cultural control" (Miller & Davy, 1990, p. 84) and workforce training increased (McNeil, 1986). Availability of education expanded from primarily the wealthy to all social classes (Miller & Davy, 1990; Warren, 2004). No longer were attendees of school exclusively members of the wealthy and ruling class with a vested interest in maintenance of power who readily conformed to the school environment. With the rise of industrialization, a need developed to produce and maintain a steady supply of workers,

and arising from this, the eventual need to get children out of dangerous factory settings (Lingwell, 2014; Miller & Davy, 1990). Initially, in order to ensure a ready supply of workers, and to get homeless children off the streets, children were 'apprenticed' into the workforce and it became an employers' obligation by law to ensure that child workers were provided with an education (Lingwell, 2014). This of course also served the function of ensuring that the workforce was trained to sufficient levels to meet the employers' needs (McNeil, 1986).

However, employers' responsibility for educating child labor was short lived due to pressure from social activists, and changing views on the role of the family (Lingwell, 2014). Eventually legislation came about that required all children between the ages of six or seven and fourteen, regardless of social class, to attend schools (Lingwell, 2014). The new public schools replaced the employers' role of meeting training demands for an unskilled factory labour force (Benavot, 1983). With compulsory participation in public education came significant increases in enrolment and the need to develop a system to manage the growing population.

Warren (2004) suggests that the body was "strategically erased in classroom practices" (p. 84) in order to maintain power and to control the increasing student population. To maintain order, schools as a system rely on a high degree of structure in regard to the space, time, and behaviour (Warren, 2004). As it is easier to control the physical body than the immaterial mind, structures of control were most easily aimed at the body (Warren, 2004). This is evident in analysis of the high degree of structure imposed on student bodies during the school day, from bells signaling to students when it is time to sit in class, the arrangement of desks that focus students attention and bodies in

specific directions (e.g., the front of the class), to asking permission to go to the washroom (Warren, 2004). Even during recess and lunch, students' supposedly 'own' time, movements and behaviour are highly monitored through a system of staff and social monitors alike (Warren, 2004). Virtually all physical aspects of a student's day were, and continue to be, strictly controlled.

The body has thus become an unwelcome, yet unavoidable presence in formal education (Warren, 2004). Leder (1990) suggests that it is the unpredictable emotional and animal aspects of human nature that the body represents that has led to this systemic insistence on regulating the body. In order to keep the system (society) running smoothly the body must remain "docile and controlled" (Warren, 2004, p. 89). As a result, in schools the focus is shifted almost exclusively to the development of the mind, effectively denying the body's presence, and ultimately making it easier to maintain order and control in a large population (Warren, 2004). The disembodiment of learning is not linked to specific benefits to learning, but simply to population management.

The result of focusing solely on the mind is the precedence given to certain curricular areas that have become synonymous with cognitive work. These areas include math, language arts, social studies and science, and are labelled 'core' subject areas. This creates a cycle in which the identification of these subjects as 'core' implicitly reinforces the value given to the mind. McPherson and O'Neill (2010) found in a study that involved over 24 000 students aged nine to twenty-one across eight different countries, 'core subject areas' such as maths and science were more highly valued than areas such as music and art. By placing subjects which are most closely associated with cognitive work in higher esteem, the body is effectively erased by devaluing subjects such as art,

music, drama, and physical education that engage the physical and emotional components of experience.

The Case for the Body

There is a significant amount of evidence that suggests a link between physical activity and improved cognitive function. Hannaford (2005), using evidence from brain scans, found that children learn better when they are active because movement stimulates neural activity in regions of the brain associated with learning. This research has built on work by Jenson (2000) that linked areas of the brain that process movement with areas associated with learning. Studies conducted in a lab setting (Ellemberg & St-Louis-Deschenes, 2010) have found that moderate duration physical activity has been linked to improvements in cognitive function.

Studies have also tested the effect of physical activity routines incorporated into the school day and have observed cognitive improvements. These studies have looked at both activity that occurs during a scheduled "physical activity break" (Bunketorp Kall, Malmgren, Olsson, & Linden, 2015; Have et al., 2016; Howie, Shatz, & Pate, 2015; Kall, Nilsson, & Linden, 2014; McClelland, Pitt, & Stein, 2014) and physical activity incorporated into lessons (Erwin, Abel, Beighle, & Beets, 2011). In both situations researchers found that students performed better in class on assigned tasks, whether they be attention or performance based, after having participated in physical activity.

While all of the above mentioned studies provide evidence to support a role for the body in learning, they all suffer from a similar shortcoming in that they all ascribe to a cognitivist or behaviourist, psychology-based description of learning which diminishes the bodies' role to nothing more than a sensory tool for collecting data, as opposed to

considering it as intertwined with, and influencing the environment within which learners exist. These theories of learning are predicated on an epistemology that leads to a duality that privileges the mind over the body. Cognitivist attempts to explain learning reduce the role of the body to nothing more than a tool for collecting information from the surrounding environment (Stolz, 2014). Understanding, though dependent upon experience, remains a purely rational endeavour. Conversely, behaviourist explanations reduce learning to conditioned responses and fail to "provide an account of the processes by which students come to understand or make sense of something" (Stolz, 2014, p. 476). As Stolz (2014) and Light (2008) suggest, psychology-based definitions conceive of knowledge as pre-existing, and reduce learning to a cause and effect relationship, negating the role of individual's perception of themselves and others, and abrogating their embeddedness in the more than human world.

A different approach to teaching and learning is necessary. For learning to become more authentic it must reflect the realities of the lived world and not be confined to the artificial environment of the classroom. Any reconsidered notion of what learning in school looks like must relocate the individual not just mentally, but physically within their environment. A broader definition that includes a deeper consideration of physical placement and interaction with and within the environment is needed. The ideas of Maurice Merleau-Ponty provide the philosophical framework for just such a definition.

Merleau-Ponty and Phenomenology

The phenomenology of Merleau-Ponty offers an intriguing theoretical base from which to challenge the psychology-based understanding of learning that is presently the norm in education. Expanding on the phenomenology of Edmund Husserl, Merleau-

Ponty challenged the tendencies of the rationalist and empiricist philosophical perspectives to view knowledge of the world as a set of preexisting conditions to be discovered (Locke & McCann, 2015). He understood phenomenology as "a style of thinking about our experiences in time, space, and the world as we live in it rather than theorizing about it in some abstract sense" (Stolz, 2014, p. 477). As we are situated physically in this world, it became apparent to him that it is impossible to discuss perception without consideration for our relationship with the surrounding world and the necessity to "return to the things themselves" (Merleau-Ponty, 1962, p. ix). Consideration must be given to not only how the individual interacts with the environment, but how the environment interacts with the individual. "Contemplation about [reality], should come second to our experience in any account of reality, as humans give meaning to their world before we begin to theorize about it" (Stolz, 2014, p. 478). As our body is what anchors us in the world, it was only logical to him that any account of perception must take into account the role of our corporeal being as well as our mind. Ultimately, as beings situated physically within this world, we need to return to the world by overcoming the omniscient, objective, disconnected perspectives espoused by the dominant existing empiricist and rationalist philosophies of knowing and being. To learn about the world we must place ourselves within the world instead of trying to analyze it from an objective perspective that seeks to remove us from it. This involves rethinking how learning and teaching are approached in schools.

Merleau-Ponty believed rationalism ignores the role of the body in developing knowledge. For the rationalist, knowledge is developed through intuition and reason alone (Stolz, 2014). In negating the role of the senses, rationalism fails to account for the

role of experience and situational circumstances in the search for knowledge (Stolz, 2014). Empiricists, on the other hand reduce knowledge to that which can be perceived through the senses (Stolz, 2014) -- the role of the mind is to reflect upon that which has been perceived by the senses. The body therefore is reduced to an instrument to gather data about the world (Stolz, 2014).

Central to both rational and empirical philosophies is a pre-existing, objective world ready to be discovered. Though differing on the means of discovering truths about our world, both philosophies remove the seeker of knowledge from direct experience with what they are trying to understand. They are required to become detached, third person observers. Neither advocates for a holistic understanding of perception that takes into account the situational experience of the individual.

'Body schema' and 'the flesh' are two components of Merleau-Ponty's philosophy that are key to understanding embodiment and embodied learning as they apply to education.

Body schema. Merleau-Ponty's beliefs about the role of the body in experience shaped his philosophical discussion on subjectivity and objectivity. He draws a distinction between 'body-object' and 'body-subject.' By 'body-object' he refers to the body as viewed by medical science (Matthews, 2002). 'Body-object' defines the body as a thing, separate from our experience, that can be studied and looked upon from a third person perspective. It would be little different than if one were to look upon a rock or a dog. In contrast, 'body-subject' refers to the body as we experience it, even before we are aware of it. This is the body through which we experience the world, yet can never be fully consciously aware as parts are perpetually obscured from our direct view

(Matthews, 2002). For example, my face, though I know I have one, can never be viewed directly unless I use a mirror. Even with a mirror I am never able to directly view my own face as all I can observe in the mirror is a reflection.

The gap between the objective and subjective is where 'schematism' fits for Merleau-Ponty (Matthews, 2002). If a ball is thrown at me, I can react and catch or dodge it. This reaction is not something that occurs because I am able to step out of my body, view the situation from a third person perspective, then determine the best course of action from afar. Nor is it a matter of me subjectively gathering all the sense data, analyzing it, then consciously plotting the best reaction. Rather, as Matthews (2002) describes it, "the body schema is not a representation of the body, then, but our ability to anticipate and (literally) incorporate the world prior to applying concepts to objects…[it] constitutes our precognitive familiarity with ourselves and the world we inhabit" (p.106). For Merleau-Ponty then, it is from our pre-reflective body that we derive and give meaning to the world.

The flesh and chiasm. Though the concept of "flesh of the world" does not appear until his final work, The Visible and the Invisible (1964), it is another key component to understanding embodiment from Merleau-Ponty's perspective. In his earlier writing he described human experience as "being *in* the world"; with the introduction of "the flesh," he insisted that experience is *of* the world (Carman, 2008). Instead of beings placed in their environment, Merleau-Ponty suggested that the

environment within which we dwell is composed of the same material as we are, essentially we are the environment. As Carman (2008) notes, however:

> [flesh] is not just another name for physical or material stuff. [It is] the sensibility of things, the perceptibility of both the perceptual environment and of ourselves as perceivers — the visibility of vision, the tangibility of touch, the exposure of anything to which the world itself can be exposed in experience, including the bodily sense or experience of motor intentionality (p. 123).

We are at the same time perceiver and perceived and experience is the continual interplay between being both subject perceiving and object perceived at any given time. Merleau-Ponty incorporates this into his philosophy of embodiment through what he called "chiasm" (Abram, 1996; Carman, 2008; Matthews, 2002).

A 'chiasm' refers to an x-shaped structure, or a crossing over. It is the point where two lines become one. Therefore, it is for Merleau-Ponty with body and world. The two cannot be considered as separate and distinct, but must be viewed as "sinews of a common flesh, threads in the same fabric, related to one another not as situation and reaction, but as a single woven texture" (Matthews, 2002, p.124). Matthews (2002) uses the works of Escher to illustrate this concept best. In the example provided in appendix A, the images of seahorses represent the elements of mind, body, and place. Each element is so thoroughly dependent on the elements surrounding it that it would be impossible to remove one image without destroying those surrounding it, which in so doing would result in a chain reaction destroying the entire image.

In education, the separation of the physical and the cognitive has further removed learners from the world that they are part of and attempting to learn about. From

Merleau-Ponty's perspective, body, mind, and place cannot be treated as separate entities and must be considered as a unity. Carman (2008) writes:

> Merleau-Ponty is neither reporting a subjective appearance nor advancing an empirical theory about the underlying nature of reality. He is instead describing, articulating, and clarifying the ordinary intuitive point of view from which we understand ourselves as neither disembodied intellects nor physical mechanisms, but living, bodily subjects (p. 132).

As our body is what places us in this world, we cannot dismiss the role that the body plays in the development of knowledge. The Oxford Dictionary (2017) defines knowledge as "facts, information, and skills acquired through experience or education." I think more specifically, knowledge refers to the generally accepted ideas of a population at a specific point in time and within a specific place. The population could be the larger population of the world, in which case knowledge would refer to (almost) universally accepted truths such as the world is round. It could also be based on cultural, geographic, and other divisions, creating subgroups of knowledge that are specific to certain regions, or pockets within the lager populations, such as First Nations' oral traditions of the West Coast of BC. In this sense knowledge is linked to place and is not static. It is constantly evolving, and shifting to meet the needs of those who are living and creating it through experience.

We interact with, learn, and create meaning about our world through being located in it physically. This interaction directs our experience and shapes our perceptions. Theories of learning have been negligent in acknowledging this important interplay, choosing to value the mind while negating the body.

Embodiment beyond Merleau-Ponty

In Nguyen and Larson's recent article (2015), embodiment, as defined by Bresler (2004), is the "integration of the physical or biological body and the phenomenological or experiential body", indicating "a seamless, though often elusive, matrix of body/mind worlds, a web that integrates thinking, being, doing, and interacting." The body becomes more than just a physical entity and blends seamlessly with mind and place. Embodiment can be seen as a situating of the mental, physical, emotional, and spiritual, not as distinct and separate entities, but as a unified whole in which one cannot exist without the other.

In line with this definition, Johnson (1990) suggests that understanding develops through the development of image schemata that arise through our bodily experience in the world. Johnson (1990) cites Hobbes' (1651) principle that "there is no conception in a man's [sic] mind, which hath not at first, totally, or by parts, been begotten by the organs of sense" (p. 1). Our senses act as a conduit for which all that surrounds us may enter our internal world. Image schemata represent the parts of our whole understanding. He contends that we understand through the "metaphorical projection," the bringing together of various image schemata "from the realm of physical bodily interactions, onto [our] so-called rational processes" (p. 29). Simply put, our understanding of abstract concepts is grounded in our physical placement, and experiences, in reality. For example, we come to understand the abstract concept of "addition" in terms of our physical referent to "up," as we add numbers get bigger. Likewise, we come to understand the abstract mathematical concept of a "set" due to our experience of physically bringing things together to make a group. While Johnson's (1990) idea of embodiment captures the important role the body

plays in developing meaning through movement, it fails to account for the important role of our placement in, and interaction with, the physical space.

Embodiment in Education

Several researchers (Nguyen, 2015; O'Loughlin, 1998; Stolz, 2014) have built on the work of Merleau-Ponty and others to suggest ways of reintroducing the body in learning. They suggest that current educational practice needs to change to reflect the growing recognition that the body does indeed play a role in the formation of knowledge.

Nguyen and Larson (2015) view embodiment as a joining of the body and mind through thoughtful awareness of body, space, and context. They propose several essential components of embodied pedagogy, key to which are "bodily and spatial awareness" and "unification of mind and body".

Creating 'bodily and spatial awareness.' The first component, bodily and spatial awareness, refers to an awareness of the spaces (Nguyen & Larson, 2015). Due to the prevalent dualistic tendencies of our schooling system, students and teachers alike are unaware of the influence that 'space' exerts. Nguyen and Larson (2015) suggest that the shape and arrangement of objects within a space shapes our behaviour at an unconscious level and can either promote or hinder movement. They give the example of desks in a classroom all facing toward where the teacher sits or stands at the front of the room. This arrangement focuses attention to the power at the front and suggests that students should be passive recipients of knowledge instead of active participants in learning (Nguyen & Larson, 2015). Further, the restrictive arrangement of desks not only implies passive

reception of knowledge, but also limits the opportunity for movement, further diminishing the body's role in learning (Nguyen & Larson, 2015).

As well as a general lack of awareness of the influence of space, individuals are also unaware of their own bodily positioning within the space of the classroom (Nguyen & Larson, 2015). O'Loughlin (1998) suggests that individuals become habituated to routine movement and activity and as a result, individuals become unaware of their own bodies within learning environments (Nguyen & Larson, 2015). Learners become accustomed to being told how to "be" physically in order to learn. Classrooms and teachers present the message that in order to learn students must be still and quiet. While this may apply to any given student at any given time, it is highly unlikely, in a classroom full of diverse individuals, that all students' needs will be met by this practice all the time, or even at the same time.

'Unification of mind and body.' According to Nguyen and Larson (2015), re-engaging the body in learning by itself is not enough to constitute embodiment. Unification of the mind and body is the second essential component (Nguyen & Larson, 2015). This involves two processes: mindful action and reflection (Nguyen & Larson, 2015). Mindful action necessitates the development of "awareness concurrent with movement and sensation" (Nguyen & Larson, 2015, p. 344) and requires overcoming one's habituation to the body by being present both physically and spatially. Mindful action needs to be followed by the second process, reflection, which involves post hoc

"thoughtful analysis" of events that directs future mindful action (Nguyen & Larson, 2015, p. 344).

Interrelated nature of learning. Paralleling the ideas of Nguyen and Larson (2015), Stolz's (2014) idea of embodied learning is that it must take into account, not just of the lived experience of each individual, but also how our individual experiences relate to, and interact with the experiences of those around us. It comes from learning to view the body as a living, sensing being, not as an abstract concept, or as a physical object.

He argues that we need to "re-learn to look at the world" and goes on to state that we take much of our perception for granted because we accept the information that we receive through our sense as "self-evident." We are not taught to question our senses, and rarely are we asked to consider the larger picture in which our subjectivities influence our perception.

Stolz (2014) suggests that individuals need to re-consider themselves as 'beings in the world' in order to develop a better understanding of others' perspectives. Reinserting the body in the world, and removing the self from an objective third-person perspective, will enable a better understanding of the other. In so doing, individuals will come to know themselves better through the ongoing process of understanding of their relation to others.

Stolz (2014) argues that in education, one of the primary roles of teachers is to help students gradually come to understand how things relate to each other, and to themselves, by providing a variety of opportunities to explore different learning environments from their own perspective. The classroom in its current manifestation is not designed to provide sufficient opportunity or significantly varied experience to

develop this meaningful understanding. As noted by Allerby, Hagstrom, and Westman (2014), “in a traditional (western) classroom, time, space, body and relations often have been -- and still are -- strictly regulated” (p. 16).

Towards ‘practical vs discursive consciousness.'

Educators need to overcome the cultural devaluation of the body in pedagogy and “[re-locate] the body as the focal point in the production of the lived experience, and also recognize the role corporeal movement and embodiment plays in learning” (Stolz, 2014, p. 484). O’Loughlin (1998) suggests that for an embodied pedagogy to develop there needs to be a shift from the discursive consciousness that, due to predominant cultural Cartesian dualist beliefs, dominates research and writing on teaching and learning, to a practical consciousness, in which attention is directed to that which we know but are usually unaware. Practical consciousness refers to automatic knowledge, knowledge that isn't verbalized and is demonstrated through everyday action (Giddens, 1979). Activities that a person can perform without thinking about the process involved, such as walking, are an example of practical consciousness.

In contrast, discursive consciousness refers to knowledge that is demonstrated through verbalization (Giddens, 1979). The dominance of this perspective is evident in classrooms in which students are asked to demonstrate their learning through written or spoken means. As a result of its focus on discursive consciousness, the current curriculum has negated the body in learning through its division between cognitive and physical subject areas (O’Loughlin, 1998). Value of the core subject areas, math, language arts, science, and social studies is emphasized, while other subject areas, those more corporeally engaging, are pushed to the periphery. Within the core areas content is

reduced to abstractions, segmented and separated from its application in the physical world (O'Loughlin, 1998). This provides students little opportunity to engage with content in meaningful ways that are more attuned to the complex, interrelated nature of learning.

By focusing primarily on discursive consciousness, O'Loughlin (1998) claims that students do not develop their ability to detect the subtle, underlying contextual cues that are communicated nonverbally through bodies and space. Over the course of several years, Dixon and Senior (2011), applying Deleuze's concept of matter energies, analyzed hundreds of photographs of teacher-student interactions. They identified and traced instances of teachers' "bodies reaching beyond [their] apparent borders" (p.476) to connect with and influence the bodies of students in learning environments. They went on to identify and provide analysis of how the physical presence of the teacher in a class affects the way that the bodies of the students situate themselves and interact in a classroom.

To challenge discursive consciousness, and for an embodied pedagogy to develop, O'Loughlin (1998) makes several suggestions. Teaching needs to engage the "expressive" elements of the body (O'Loughlin, 1998). This hints at rich integration of subject areas to incorporate elements from both the cognitive and physical side of the curricular divide. She suggests that educational drama and creative dance are areas that show the most promise as they provide more opportunity for the "exploration of tactility" (p.292) and negate some of the negative consequences of team sport.

O'Loughlin (1998) cautions that the cooperative, practical element of team sport may be overshadowed by the competitive element. She suggests that through competition

bodies become “objects of scrutiny and control” which “produces a numbing process, leading to the emotional brutalization of young men” (O’Loughlin, 1998, p. 292). I suspect she identifies this concern about team sport over individual sport as greater due to the social pressure to ‘fit in’ being much higher when training and competing within a group than when doing so alone. There is less opportunity to explore ‘the self’ and “expressive elements of the body” (p. 292) in a team sport environment. In contrast, she considers the opportunities to examine the “expressive aspects of individual bodies” through areas which “deal with the performative life of body-subjects” (O’Loughlin, 1998, p. 292) as significantly greater than in team sport. Students are given time, and a safe environment within which to “experiment with, explore, and absorb the emotional characteristics of a fictional character” (p.292) through bodily movement. Ultimately this allows the student “to move that which was initially external to an inner realm” (O’Loughlin, 1998, p. 292).

Encouraging education about how individuals engage with, and how behaviour is shaped by, the lived environment is another key consideration for educators (O’Loughlin, 1998). By developing this awareness, teachers can begin to challenge the privileged position of the senses of vision and hearing by exploring different educational environments that allow for the interaction of all the senses. This will, according to O’Loughlin (1998), enrich students’ connections to their surroundings.

Furthermore, she suggests that we need to begin to teach about the body as a subject, not an object (O’Loughlin, 1998). She highlights how current curriculum involving the body treats the body as an object. A scan of the current BC curricula confirms this (BC Ministry of Education, 2017). In science the body is broken down into

its constituent parts and students learn about the systems such as the digestive, musculo-skeletal, and reproductive that make it function. In Personal and Health Education students learn about strategies to keep the body physically safe (BC Ministry of Education, 2017). These are just a few examples of how O'Loughlin (1998) suggests curricula removes students from their bodies, and makes the body something students *have*, but not something that students *are*. O'Loughlin (1998) goes on to suggest that:

> what is missing is the recognition of the role of the body as an agent within a world of bodies which are above all producing bodies, that is, not only bodies which are fed, clothed, shaped and groomed but crucially bodies which work and in so doing transform themselves and their world (p. 295).

While curriculum focuses on how to keep the body healthy, and presents the body as a machine that needs to be maintained, there is little consideration in the curriculum for how the body interacts with and influences, as well as is influenced by, others and the lived environment (O'Loughlin, 1998). The influence of others and the lived environment back upon the body is what I believe proponents of embodied learning would argue is missing in education concerning the body.

By embracing cooperation in learning, students will be given the opportunity to explore the interactions between self, other, and environment (O'Loughlin, 1998). "Bodies act together and by such actions construct worlds of meaning" (O'Loughlin, 1998, p.295). It is through cooperation that opportunities for "extended exploration of the significance of a multiplicity of experiences and behaviours" arise, which in turn gives rise to new meaning (O'Loughlin, 1998, p. 293). O'Loughlin (1998) suggests that it is

only through this "embodied sociality" (p. 294) that students are able to explore others' perspectives of the world and develop the "deepest meaning" (p. 294).

Summary

I have proposed that current models of teaching and learning that value the mind while neglecting the body find their roots in the works of Greek philosophers. As the purpose of education evolved with society from strictly a means of "cultural transmission" to fostering "obedience to the state," the emphasis on the mind and the purposeful erasure of the body from our consciousness further expanded and shaped not only the way students were taught, but it also began to shape the structures within which students were taught. This has led to a current classroom space that is capable of exerting considerable power in shaping student and teacher behaviours alike.

In response to the growing body of research on the important role that movement plays in learning, there is literature now that is re-evaluating what learning and teaching could look like if considered from an embodied perspective (McClelland, Pitt, & Stein, 2014; Salis, 2013; Stevens-Smith, 2016; Tomporowski, P., Davis, C., Miller, P., & Naglieri, J., 2008; Toumpaniari, K., Loyens, S., Mavilidi, M., & Paas, F., 2015). Much of this work is based, in -part, on the phenomenological writings of Maurice Merleau-Ponty. He insisted that perception was dependent upon the intimate relationship between mind body and place. Building from this assumption, educational researchers have begun to reflect on current pedagogy and challenge the model that negates the body's role in learning. From this work new beliefs about learning are evolving, beliefs that centre on the importance of connection to and awareness of one's physical self, the important link

between the mind and body in learning, and the importance of our interconnectedness with our environment and those around us.

Research Question

Given the evidence to support the role of movement and physical activity in the classroom an important question then becomes ‘Why do we so often expect children, these energetic, physical beings, to sit still, watch, and listen in a classroom while they are taught?’

My research question is: What are teachers in British Columbia doing to increase opportunities for movement in classrooms?

Chapter 3: Research Methodology

In Chapter Three, I provided an overview of the qualitative research design and case study that are the basis for my research. I described the process for the selection of participants and the procedures for collecting data. I then provided a brief overview and description of the data analysis procedure, including a description of the initial processes for developing coding categories.

Research Design

Qualitative research. The value of qualitative research lies in the ability for deep examination of a subject within context (O'Leary, 2014). A greater depth of understanding is afforded by studying the emerging phenomenon of embodied learning in educational settings through qualitative design. There is little available research that directly addresses the lived experience of teachers who are challenging established pedagogical traditions that privilege the mind over the body in public elementary education. I am particularly interested in what teachers are doing at the elementary level, as this is the age level of students with whom I work. In order to develop a deeper understanding of the phenomenon it is necessary to engage directly with those that are immersed in the experience. The acceptance of subjectivities and multiple perspectives within qualitative traditions will allow me, as the researcher, to capture and explore elements of teachers' current practice that will shape, and are shaping, the emerging embodied pedagogy.

As a concept, embodiment reflects the interconnected relationship that we as humans have with the surrounding world (Allerby, Hagstrom, & Westman, 2014; Nguyen, 2015; O'Loughlin, 1998; Stolz, 2014). To honour the idea of embodiment in

research is to approach it from a qualitative perspective. The emphasis on experimental and quasi-experimental methods in the quantitative tradition negates the embedded nature of experience within a natural setting (O'Leary, 2014). Through attempting to control variables and settings in experimental design, she suggests that the rich interplay between individuals and environments is lost and the essence of embodiment is diminished.

Case study. There are many methods that fall under the umbrella of qualitative design that would be appropriate to capture the spirit of embodiment in the classroom. I have chosen case study for this research.

Yin (2013) defines case study as an "in-depth inquiry into a specific and complex phenomenon (the case), set within its real world context" (p.321). In my study the specific phenomenon being explored is the incorporation of movement in student learning within the context of the modern, western classroom. Yin (2009) suggests that further value is derived from case study in its ability to "retain the holisitic and meaningful characteristics of real life events" (p.4).

My study is a multiple case study design in that each teacher's classroom represents an individual case. According to Yin (2013) using data from multiple designs enhances and supports the results obtained.

Creswell (2013) adds that a case study is an "in-depth exploration of a bounded system" (p.465). The two teachers' classrooms in which new means of including movement in learning represent the 'bounded system' in my study.

The exploratory nature of case study method is appropriate for this study (O'Leary, 2014). Embodiment as it relates to learning and learning environments in elementary schools is relatively unknown in the province of BC. This research will help

identify and clarify what constitutes embodied learning, and an embodied classroom. As well, it will tease out the strengths and weaknesses of an embodied approach.

Case study allows for a focused in-depth analysis of a small number of cases (Creswell, 2012). Given that the term "embodied pedagogy" appears to be a relatively unknown phenomenon in BC classrooms, it can be assumed that there will be few compatible participants. Considering the potential for a small sample, case study is most appropriate.

Due to my isolation while conducting this research, and the significant expense that would be required for travel in order to access the various teachers in different regions of BC I have chosen to use recorded phone interviews as my form of data collection. Case study values the depth of information that can be gleaned through the interview process which makes it appropriate for my application (O'Leary, 2014).

Stance of the researcher. 'Reflexive awareness' of our world views is a necessity when doing research (O'Leary, 2014). As she points out, this is especially the case for researchers in the social sciences, as:

> …it is society itself that is being researched, and as products of society, social science researchers need to recognize that their own worldview makes them value-bound. If who we are colours what we see and how we interpret it, then the need to hear, see and appreciate multiple perspectives or realities is essential to rigorous research (O'Leary, 2014, p. 51).

Sport has always played a role in my life. I have been involved in competitive or recreational, individual or team sports for as long as I can remember. This was possible due in large part to the disposable income generated by my middle-class upbringing. I

was active through school, both in the public system and through university, and vividly remember the mind-numbing sense of confinement I felt sitting in a stuffy classroom being "taught." This continued through my teacher education. The growing sense of frustration I felt when I was never given adequate answers to my questions about why, or how, we teach certain topics grew. When I began my career as a teacher, I fell into the same old patterns of teaching that I experienced as a student, and it got boring. The need to be active continued through my years of teaching, and I eventually began to experiment with ways of incorporating that into how I taught.

However, due to the isolation of the community within which I taught it was difficult to connect with other teachers. I began to run out of ideas on how I could incorporate movement in my classroom. This lead me to the research question that my study is designed to explore.

Around the same time that I recognized my boredom with teaching, and I would imagine my students' boredom with being taught, an interaction with one of my student's grandparents stands out clearly in my mind and compelled me to look at things differently.

One afternoon, myself, a fellow teacher, who just happens to be my wife, and the grandmother and grandfather of one of the student's in my class were sitting at a table after a parent conference. I had started to get to know these people quite well, as being a very small community we saw each other regularly, and in the one-room school setting in which I taught, I had the same students for as long as they lived in the village. In this particular instance, we were talking about how rare it was for community members to come into the school, regardless of how inviting we tried to make it. It was then that the

grandfather opened up about his residential school experiences and how much anxiety features of the school caused him. Even though the building we were in was virtually brand new and he had been out of school for decades, items in the school, and even the building itself caused him a significant amount of discomfort, he could feel his anxiety rise whenever he stepped into the school, or saw certain items lying around the classroom. This helped shed light on matters at the school, as this man, who in the school seemed nervous, tense, and uninvolved, always seemed very energetic and passionate about learning when he spoke in the Big House about language, culture and his experiences.

O'Leary (2014) calls what I was doing as being "self-centric," and it involves being "insensitive to issues of race, class, or gender; hearing only the dominant voice; and disregarding the power of language" (p. 51). Kelowna in the 1990's had a relatively homogeneously Caucasian population. During my teacher education, again in the Okanagan, there was very little diversity in our cohort of students or in the required coursework. With the exception of one course on aboriginal education which was not listed on my transcripts and which I vaguely even remember attending, my university classes focused on how to teach content within subject areas with little attention paid to who I would be teaching. Likewise, both of my practicum placements were in affluent schools with very little diversity in the classrooms. As a result my teacher education left me underprepared for the reality of teaching in classrooms with students from diverse backgrounds, let alone being fully immersed in a different culture as I was teaching in Wuikinuxv.

Finding ways to hear the voice of the other, and allowing the voice of the other to be heard, is a reality for me as a teacher as much as it is for me as a researcher. “Owning” my subjectivities and attempting to identify where they came from will result not only in more credible research, but identifying as a teacher first and foremost will result in a more balanced and responsible approach in the classroom with my students, which is why I got into teaching in the first place. Identifying and understanding how teachers in British Columbia are starting to give consideration to student bodies in the classrooms will not only provide opportunity to enhance learning by approaching it differently, but as O’Loughlin (1998) suggests, it will also provide an alternate outlet for the expression and exploration of student voice / diversity.

Research Context

This study was conducted within the province of BC. The interviews in this study were conducted by phone and targeted teachers working in the elementary school system, kindergarten to grade seven, and was open to participants from all school systems, public, private, and independent, that operate within the province.

Ethical considerations. Prior to commencing, this research received approval from the University of Victoria’s Human Research Ethics Board. During all phases of research precautions were taken to protect the confidentiality and anonymity of all participants. The primary researcher was responsible for the collection, storage, analysis, and destruction of all data throughout the course of this study. Participants’ names were

changed, and any potentially identifying characteristics of schools was omitted from the final report.

Participants and sampling. I sought the names of potential participants by emailing co-workers, friends, and friends of friends. Once several potential participants were identified they were then recruited by the researcher via email or phone, and given a brief introduction to the study. Participants were asked if they would be open to taking part in an interview that would take between 30 and 60 minutes. I sought to interview three to four participants; a small number of participants is acceptable in qualitative research, and allows the researcher to develop a deep, rich understanding of participants' experiences (Cresswell, 2012). Snowball sampling was used as participants were requested to forward my contact information to others who they knew were engaging in embodied learning/teaching.

Procedure. Once participants were identified, interview times and dates were established. Data was collected through semi-structured phone interviews. Interviews were recorded using the 'TapeACall' app for Apple iPhone. Participants were informed about the recording process and tools on the informed consent documentation. I then transcribed the content of each interview for further review.

Collection of Data

Several interview questions were initially developed based on readings in my literature review from Nguyen and Larson (2015), Stolz (2014), and O'Loughlin (1998). They identified three main themes in embodied learning: 1) development of a connection to self; 2) acknowledgement of a mind/body link; and 3) importance of the interconnectedness of the learner with others and their environment. Interview questions

were then developed that would help explore these themes as they applied to each participants' classroom.

Initially five questions were developed that included demographic information (age group worked with, teacher experience, socioeconomics), a physical description of the classroom, and a description of the teachers' interventions. The first question asked teachers to describe the community and school they worked in. The second question asked teachers to describe their teaching experience and what lead them to explore movement in the classroom. The third question asked teachers to describe the changes that they made to their classrooms. The fourth question asked teachers to describe their intervention. The fifth question asked teachers to reflect on the effectiveness of their intervention.

Further questions were developed during the course of the interviews in order to clarify and explore more specifically those mentioned above. For example, question four asked for a description of their intervention. Specific questions to explore this more deeply focussed on differentiating between the inclusion of movement during instruction time versus movement during work time. Again related to question four, teachers were asked about student work time and what role collaborative work played in their classrooms.

Data Analysis

Due to the qualitative nature of my study, I decided to use qualitative content analysis. Hsieh and Shanon (2005) define content analysis as "a research method for subjective interpretation of content from text data by systematic process classification of codification and to patterns and themes identification" (p.1278). Once data collection was

complete, I transcribed the interviews. Data was initially organized around themes identified in my literature review. These included: interaction with space, collaboration, and connection with self.

Interaction with place explored the elements in the classroom in which the teacher attempted to alter the layout, or work environment of the students in such a way as to convey positive messages about movement. This could involve details such as desk configuration, furniture removal, and alternative furniture.

Collaboration explored the interconnected nature of learners with others in their environment. This involved looking at ways in which the teacher promoted exploration of partner or group work.

Connection with self explored the way in which students began to reconnect and to become aware of their physical presence in the learning environment and the link between the mind and body in learning. This was demonstrated through activities in which students were given the opportunity to acknowledge such things as the need to be comfortable or the need to move.

In order to ensure the accuracy of the information, after the data analysis each participant was given the opportunity to review and offer input on the way the data from their interviews was reported. Excerpts from this paper that directly relate, or report on information from their interviews was emailed to them for review, and revisions were made based on their input. Neither participant responded with revisions.

Summary

In summary, in this chapter I provided an overview of my approach to the qualitative research design involved in the process of my research. I also explored the

lens through which I viewed the data, as well as outlining the processes for selecting participants and collecting and analyzing the data. In chapter four I provided a more in depth exploration of the data as it related directly to the experiences of the participants of my study. In chapter five I explored larger issues that may have impacted the experiences of the participants in my study.

Chapter 4: Results and Discussion

In this chapter, I will provide a more detailed description and discussion of the alterations that the teachers involved in my study made to their classrooms in order to welcome student bodies into the respective classrooms in which they teach. I will begin by providing some of the background information about the participants in the study, including their reasons for becoming involved in embodied learning, as well as a brief description of the environments in which they teach. My research question is what are teachers in BC doing to increase opportunities for movement in classrooms? To address this I will provide a detailed discussion of how the changes in their classrooms embrace the ideals of embodied learning. I will explore themes of interactions with space, creating an awareness of self through choice, understanding others through collaboration, and challenges associated with power that emerged during data collection. Finally, I will discuss some of the participants' reflections about the process of changing the way they teach.

Participants

Developing an awareness of the backgrounds of the participants in this study, including who they teach and the space within which they teach, was an important step in exploring and understanding the changes they made to the way they teach.

Given the uniqueness of the teaching practice that was the focus of this study, I was not expecting a large number of teachers to respond. From the original call for participants, I received three responses. After initial discussion, one respondent removed himself from the study, as he did not feel that what he was doing was relevant to this research. Two respondents agreed to participate. Sue (pseudonym) has been working as a

learning assistance teacher (L.A.T.), and classroom teacher in a large school district in the interior of the province for over ten years. The majority of her time has been spent as an L.A.T. and this is her first year back in a regular classroom. She is currently teaching grade 2. Mark (pseudonym) is a grade 4/5 teacher with an interest in outdoor education who teaches in an independent school in the southeast region of the province. His formal teacher education was in secondary education and he has taught for nearly 10 years. However, it was not until he moved to teaching at the elementary level that he "learned to enjoy teaching." It is also worth noting that the culture set by the principal and staff at both schools that I drew participants from was open to innovation and change in order to "meet the needs of students and …dove-tail with the new curriculum a little bit better" (Sue, personal communication, June 28, 2017).

By bringing to the fore what a small number of teachers in BC are doing differently, in respect to my research question, I will be able to highlight benefits and challenges of including student bodies in the learning process in classrooms, and demonstrate that an alternative to what Sue, one of the participants of my study, referred to as the "sit-and-get" model of learning is possible. While teachers may struggle with the challenge of overcoming the established traditions and power of the classroom, the focus of the new BC Curriculum has shifted from content to process which offers teachers a greater degree of flexibility in what and how they teach.

Rationale for Teachers' Interventions

Both teachers were clearly dedicated to their students' success as demonstrated through their comments and their commitment to exploring new learning environments to better meet the needs of their students. They both recognized that the traditional

transmission model in education was not working for a large number of their students so they sought better ways to meet the students' needs. During their interviews, both Sue and Mark identified students' difficulty paying attention as the largest obstacle that stood in the way of their success.

To Sue, it seemed as though her students "just need it, they seem to need to move" and "blow off some extra energy." Through self-reflection, Sue identified challenges that she had as an adult with being expected to sit still to learn, "I myself am not very good at it." She identified the students' need to move as something that is discouraged and denied in the traditional schooling model and that has ultimately led to students disengaging from their learning. She felt that there had to be a better way, a way to " shift things up" so that "kids can be given opportunities to meet their own needs."

Mark came from a high school/outdoor education background where he has done professional development relating to outdoor education and experiential learning. Based on work he has done with Cris Rowan, an Occupational Therapist from the Sunshine Coast in BC, he believed that the "attention challenges" his students develop might not necessarily be the result of students just needing to blow off extra energy. Instead, he suggested that students' ability to focus falls along a spectrum and that at any given time a student may be over- or under-stimulated. Thus, the need for students to move may serve a different purpose depending on the students' level of cognitive arousal.

The first group of students he identified were individuals who were overstimulated and need to use movement to release the excess energy that made it difficult for them to focus. The second type of student he identified were those who were under-stimulated. These students use movement to build up their energy in order to help

them focus. Expanding on this, he believed that depending on the students' state at any particular time, different types of movement may help or hinder their self-regulatory processes.

Movement ultimately serves the purpose of allowing students to return to a "balanced state" or optimal "zone" for learning (Mark, personal communication, June 28, 2017). According to Mark, this balanced state differs between learners. Some students have a wide "zone" across which they are able to concentrate and focus on doing their work, while others have a narrow "zone" within which they are able to concentrate sufficiently to finish their work (Mark, personal communication, June 28, 2017). For Mark, the denial of movement in traditional schooling restricts students' ability to achieve a balanced state where optimal learning can occur.

Class Composition

Both teachers reported class sizes between 18 and 23 students, and that they had more girls than boys in the class. In Sue's case, this was only a matter of 2 or 3 more girls than boys. Mark's class was nearly three quarters girls, with only 5 boys. Both teachers reported 2 students on individual education plans (IEP), though both had suspicions that if more testing were done there would be several more. They identified under-funding as the main culprit for the lack of testing.

Students in both classrooms were predominantly of European ancestry. In Mark's case this was somewhat surprising as his school was an independent, "Band-run school on-reserve" and most of his students were bussed from town to attend school (Personal communication, June 28, 2017).

Socioeconomically, the teachers rated their communities similarly. Sue described the community she worked in as “pretty much middle upper class.” Mark described his community as “pretty middle class” though he did preface this by noting that the surrounding communities were probably wealthier in general than the community that he worked in.

Sue’s class had one more student than the recently re-established class size guidelines for schools in British Columbia allows, though the Supreme Court of Canada ruling did not come into effect until the 2017-2018 school year (BCTF, 2017). Class sizes at the intermediate level are negotiated at the School District level and typically allow for between 25 and 30 students, whereas primary classroom student maximums are established by the provincial government and are set at 22 students for grades 1 through 3 (BCTF, 2017). Mark’s class fell well below guidelines for intermediate classrooms. Neither class had more than two students on an IEP. It is interesting to note that both teachers identified students’ “attention challenges” (Mark, personal communication, June 28, 2017) and having a “need to move” (Sue, personal communication, May 23, 2017) as the primary motivation for changing the way they delivered instruction given that there were more girls than boys in both these classes. A common perception is that boys tend to be more physically active than girls in classes yet neither teacher indicated that it was the boys more than the girls that were being challenged by sitting still (Moller, Tarp, Kamelarczyk, Brond, & Klakk, 2014; Telford, Telford, Olive, Cochrane, & Davey, 2016).

Physical Space

Traditional ideas of learning focus primarily on the development of the mind and little attention is given to the role of the body; as such there is little consideration for movement in the design of the classroom as students are generally expected to stay in their desks. Embodied learning, on the other hand, gives equal consideration to the body and mind in learning and by necessity students are expected to be able to move. Given the interrelation between place, learning, and student learning in an embodied pedagogy as noted above, a physical description of both classrooms is appropriate.

While neither teacher could provide exact measurements, Sue's description of her room as "standard classroom size" and Mark's of his room as "average…maybe 20 by 30 feet," speaks volumes to Gislason's (2009) assertion that as the "building block" of schools classrooms have changed very little over time. Weisser (2006) cites an article from 1916 that the "ideal classroom measured twenty-three by twenty-nine feet" (p. 202) giving the room on average an area of around 670 square feet. In comparison, the BC Ministry of Education Area Standards (2012) dictates that "the area of a new classroom including ancillary space shall not be less than 75 square meters [807 square feet]" (p. 7). This represents a 130 square foot gain in the footprint of the classroom over the last one hundred years. However, this is a gross classroom area calculation and includes all support spaces such as coatrooms, built in cabinetry and shelving, as well as any other storage spaces that are "directly accessible" (BC Ministry of Education, 2012, p. 6). The overall useable instructional space is poorly defined in the standard.

Further complicating comparisons of classroom space requirements in this study was that Mark's school is federally funded and governed by federal standards which take

into account the overall enrolment of a school in order to calculate minimum area requirements (Indigenous and Northern Affairs Canada, 2016). It was unclear from Weisser's article (2006) whether the ideal classroom area from 1916 included space that was used for storage. In addition, was that the standards were put into place in 2012 and 2016 respectively for provincial and federal guidelines and do not apply to schools built before that. This makes a more detailed comparison of the gains at a province-wide level challenging. However, the reported lack of development and change in the overall footprint of classrooms from one hundred years ago becomes immediately apparent as it concerns the two classrooms in this study. The limited space still suggests that the overall philosophy driving education is focused on the development of mind over body; though with the new curriculum and new area standards it is possible that this may be slowly changing.

While the overall size of the two classrooms is very similar, there are several differences that suggest a modest shift in thought surrounding classroom design and interaction with the space. However, this may also reflect different ideologies about learning that may exist between the public school system (and school design) and First Nations principles of learning (and building design). Key among First Peoples' principles of learning is the focus on relationships with not only each other, but also with the land and the importance of a sense of place (BC Ministry of Education, 2017). Douglas Cardinal (1998), a First Nations architect, suggested that it is important to "treat the building like it is a live being…so it has power" (p. 6), "that the forms should be entwined with male and female forms and natural forms to show that we evolved from nature and that our future is in living in harmony with nature" (p. 9). These are

considerations that, in conjunction with First Peoples' principles of learning (FNESC, 2015), would likely have been taken into account during the design phase of the school that Mark worked in and may account for the greater connection to the outdoors.

Sue teaches in a school that was built in the 1950's and has seen several additions through the years. These include "four portables, and three four-classroom pods that are permanent structures built out in the field in the 1970's." Sue teaches in one of the pods.

The pod classrooms effectively isolate teachers and learners, denying, or at the very least making collaborative learning between age groups and between teachers, very difficult. They are fairly "self-sufficient" and are stocked with most supplies that teachers require so it is not necessary that Sue goes into the main school building on a regular basis. This has an isolating effect for the teachers in the pods, as she admits she "has to work pretty hard to go out of [her] way to see adults." In an embodied pedagogy there is an emphasis placed on exploring the interrelated nature of learning (Stolz, 2014). Interaction and collaboration are key components of embodied learning. In the physical space of Sue's classroom, opportunity for interaction is limited to the fairly homogenous group that inhabits that pod, mainly white students from middle-class homes.

When asked about the space of her classroom, Sue's first descriptor was "terrible," followed closely with "it's not ideal." Lighting is mainly artificial, provided by overhead fluorescent tubes. A ventilation unit occupies space in one corner of the room, while a small one-foot wide window above the ventilation unit, and a half window in the exterior door, provide the only natural light. Doors occupy space on three of the walls. One door leads to the coatroom area, another to the adjoining classroom, and a third to the exterior. The door to the adjoining class hints at consideration for collaboration in the

design process, however Sue reports that in practice, this is not the case, and it is used infrequently. There are several permanent bookshelves that "serve little purpose as they aren't even a full binder deep so they are kind of useless to put anything on." Finally, there is asbestos in the ceiling so she has to be careful not to disturb that.

Mark, on the other hand, teaches in a school building that is less than two years old. His classroom is situated on the second floor. In contrast to Sue's room, Mark's classroom has ample natural light supplied by three walls of windows. Large windows occupy the west wall, and smaller windows are placed on the north and east walls. Access to the room is provided by two doors. One door leads to the main hallway, and a second leads to an outside staircase. While the outside door is technically an emergency exit, the class can, and does, use it regularly to access the outdoors.

Though both classrooms occupy roughly the same footprint, there is the suggestion that during the design process, more consideration was given to making the space more comfortable, and accessible for students in the newer classroom. The lack of a bulky ventilation unit, and built-in "permanent" furniture frees up space in Mark's classroom, providing the teacher with more useable floor space to engage students physically. The abundance of windows in Mark's room also allows more engagement with the natural environment for students. Sue's classroom has two very small windows. This effectively disconnects students from the physical space of the natural environment and isolates them within the confines of a built environment, a built environment which in general has over the years come to convey the message that in order to learn one must be still and indoors (Alerby, Hagstrom, & Westman, 2014; Power & Green, 2014). In Sue's classroom the number of built-in permanent furnishings is reminiscent of the

grammar schools of the 1800's in which desks were bolted to the floors. The fixed furnishings in Sue's class, likely a reflection of ideological differences that arise in a classroom built over 40 years ago, restrict the degree to which she is able to alter the learning space of her classroom, which in turn has a limiting effect on opportunity for student movement.

In embodied learning, interaction with the physical space plays an important role. Abram (1996) even suggested that stories, and in turn learning, are intimately bound to place. Each time an individual is near to a place, exposure to the place helps to reinforce the learning that has occurred there. In Sue's class, students are cut-off from the surrounding world and isolated within the confines of their built environment as the lack of windows and issues with extremes of weather that Sue identified denies them the opportunity to connect with the world outside of their classroom. Their learning is tied almost exclusively to the confines of the four almost solid walls that give shape to the interior of their classroom. Mark's classroom, with its abundance of large windows, permits students regular connection to the natural world and allows an escape beyond the walls of the classroom. Alerby, Hagstrom, and Westman (2014) suggest that while students are learning, they are permitted the opportunity to cognitively escape the confines of the built classroom and engage with the surrounding natural world by being able to see outside. These authors also suggest that while the students may be physically confined to the classroom, there is nothing that prevents them from viewing outside as a means of escape (not paying attention) or connecting to the a broader lived environment. They also note that a classroom is only defined by the four walls of the physical space in the narrowest sense of the term and that even if the teacher were to take students outside,

he or she could set physical boundaries that would limit student movement and thus redefine the classroom outside (Alerby, Hagstrom, & Westman, 2014).

There are two factors that may have had an effect on the design differences between the two schools, and ultimately the two classrooms. The first is that the original structure of Sue's school was built nearly 70 years ago. The newest of the several additions that have been made to the school date back 40 years. Mark's school opened two years ago. It is possible that the lack of connection to the outside, and isolation of staff and students in Sue's school, and the increased availability to the outside in the design of Mark's school, are a result of a shift in beliefs surrounding school design in the 70 years between construction of the two schools.

The second factor that may account for the difference between the designs of the two classrooms is that Mark's school is not a public school. Mark's school is run by the Ktunaxa Nation. Consideration was given to incorporating First People's principles of learning during the design process (Mark, personal communication, May 2018). The belief that "learning is holistic, reflexive, experiential, and relational focused on connectedness, on reciprocal relations, and a sense of place" (BC Ministry of Education, 2017) features among these principles and reflects Indigenous beliefs about connection to the land. The importance of connection and access to the land are evident in Mark's classroom through the abundance of windows and natural lighting. It is unlikely that any consideration would have been made for First People's principles of learning 70 years ago when Sue's school was built.

Through the course of the data collection and analysis the themes that began to emerge centered around interaction with space, creating awareness of self through choice,

understanding others through collaboration, and challenges associated with power. I will explore these further in the next section.

Interaction with Space

Neither teacher was familiar with the term "embodied learning" prior to this study, but both have tapped into aspects of it in the way that they have chosen to meet the needs of their students by creating opportunities for student movement. Working within the constraints of their assigned classrooms, both teachers have explored different ways to engage students by connecting them with their environment, themselves, and each other. The use and placement of furniture, student choice, collaboration, and the application of power were aspects of embodied learning that were addressed in the development of both teachers' interventions.

As a learning assistance teacher, Sue was introduced and drawn to the idea of self-selected seating. Self-selected seating involves students having a variety of seating and workplace options available, then depending on their need at any given time, being able to choose the best work arrangement whether that means they choose to work alone, in groups, standing, sitting, or even laying down (Sue, personal communication, May 23, 2017). Though on the surface this may seem mundane, the practice challenges students to reconnect with their needs and gives them the option to do something about it.

Mark took a slightly different approach to his classroom. The workspaces (i.e., desks) in Mark's classroom were arranged more conventionally in pods, rows, or small groups depending upon various projects that the class may be working on at a given time in the year. Students had some input on the arrangement of the desks, and at which desk they choose to sit in, however, most of the students' classroom work was done at their

desk within their group (Mark, personal communication, June 28, 2017). In the classroom, the focus of Mark's intervention was to help students identify their level of cognitive arousal, then use that knowledge along with the resources he provided, such as the "gas station," treadmill, exercise balls, and exercise bike to use physical activity and movement to help regulate their cognitive state to a level at which they could concentrate better on their work.

Use and placement of furniture. Movement, as a means of interacting with space, is an important component of embodied learning. A major difficulty associated with the need for movement is the lack of space available in a traditional classroom setup. The use and placement of furniture in the class created a significant hurdle for the teachers in my study to overcome.

The first thing Sue did to adapt the classroom space was eliminate "a lot of the furniture that the previous teacher had in there because there was just so much of it." Once the room was cleared, she introduced several pieces of furniture that would allow for a variety of seating and working arrangements for the students to choose from.

The standard teacher's desk was replaced with a "horseshoe table" that offered not only a workplace for herself, but also room for several students. This change alone immediately set a different tone in Sue's classroom as she was inviting students to work alongside her.

In addition to the horseshoe desk Sue also provided more conventional work stations in the form of five circular tables, each about 4 feet in diameter. Bins were used to store student supplies such as pencils and erasers at each group workstation.

Aside from the shared teacher/student workplace, the classroom set-up was still fairly conventional. However, part of the teacher's role with self-selected seating is to anticipate the needs of the students. This was where Sue continued to differentiate her class workspace from others'. Instead of requiring all students to be seated in a uniform manner around tables, she elevated one of the circular tables to give students the opportunity to stand and work if they chose. Recognizing that not all students were comfortable working in groups, she also provided three single student desks, one of which was also set up as a stand-up desk.

Seating at the desks took the form of "really ancient chairs, which are not comfortable" (Sue, personal communication, May 23, 2017) and Hokki stools (Appendix B). Hokki stools are a pedestal-type stool with a convex base. The base enables the student sitting on the stool to wobble instead of being planted firmly in place. They are available in various sizes to ensure that the students get the best fit possible. While the students may still be seated, even the limited opportunity for movement permitted by the Hokki stools allowed students to address their need for physical movement. Students were also provided with a couch, a love seat, and one "big chair-and-a-half sort of thing" to sit and work at (Sue, personal communication, May 23, 2017).

In Mark's class students sat at conventional desks that were set up in various configurations of rows, pods, and groups throughout the year. Students in Mark's class were provided with exercise balls instead of chairs. Exercise balls come in a variety of sizes which allowed Mark to accommodate individual student need and to ensure they had the proper size ball to sit on. The exercise balls allowed the students the freedom to move while they worked. This is in contrast to the restrictive and uncomfortable nature of

standard plastic chairs. With the introduction of the exercise balls, Mark began the process of reintroducing students' bodies into the classroom. However, as the year progressed he decided to remove most of these and replace them with conventional chairs, as he noted that the exercise balls could potentially "hype" up students instead of helping them focus. Exercise balls were still available, but they became more of a tool to use only when necessary to find balance. Mark also moved a couch into the back of the classroom as an alternative to desks and chairs as a place for students to work.

Mark's introduction of the "gas station" is the main focus of his attempt to engage students physically in class. The "gas station" was essentially a workout station that he set up near his desk along the side, and towards the front of the classroom. It consisted of two two-foot by four-foot padded mats, and took up roughly an eight-foot by four-foot section of the floor. At the station, he had two improvised weight sets. The first he made out of Epsom salt jugs that the students could fill with "road grit" (gravel). The Epsom salt jugs were used as lighter weight dumbbells for doing exercises such as arms curls and triceps extensions. The second improvised equipment was made out of a milk crate that students could fill with rocks to do exercises that might require heavier weights. The milk crate weight could be used for doing exercises such as squats and deadlifts.

In addition to the "gas station," due to limited space in the classroom, Mark also had several pieces of equipment in the hallway. A treadmill and an exercise bike were set up for students who wanted to do more "cardio work."

Creating Awareness of Self through Student Choice

Student choice in how to engage with the classroom environment is one component of embodied learning that, to varying degrees, both teachers provided through the changes they made to their classrooms.

The various workspace options provided in Sue's class connect with embodied learning by permitting student choice in the classroom. Unlike a standard classroom where students are expected to sit in their assigned desks, all of which are typically the same, Sue's students were encouraged to acknowledge the presence of their bodies in the classroom by being permitted to identify what they needed in order to get the most from their work. They were then encouraged to take advantage of the various work station options Sue provided for them to get their work done. Once Sue was finished with instruction, during which time Sue's students also had a degree of freedom to make themselves comfortable, students were free to choose where they wanted to work. They could choose to stand at a desk, sit on chairs or Hokki stools, lie on the floor, or utilize the couches. Through the various seating arrangements in Sue's classroom she provided students with the opportunity to choose how and where they wanted to work. Having the power to choose is an example of how Sue enabled her students to reengage with their physical needs. Freeing students to acknowledge their bodies in class and allowing them opportunity to move and be comfortable is an example of how Sue introduced an element of embodied learning into her classroom in which students could begin to develop a connection with themselves and an awareness of their bodies in learning.

The provision of the Hokki stools in Sue's classroom allowed students to meet their needs physically. Rowan (2010) suggests that students use movement to either

energize themselves when they are understimulated or to focus themselves when they are overstimulated. Whether they were conscious of the cognitive state, they were in or if they knew how to go about adjusting that state is uncertain. However, Sue indicated that a significant amount of discussion occurred in her classroom around students' identifying, then acting on meeting their learning needs through being able to choose the best place to work. It is likely that the students in Sue's class had a basic awareness of what did and did not work best for them to get their work done.

The couch, loveseat, and big chair provided alternative sitting places to the typical desk and chair arrangement. The pieces of furniture offered students comfort as a choice for when they were working. Comfort is not something that is usually a consideration as the typical plastic student chairs are designed for "the average student" at a given grade level and do not account for the huge variety of body types that occur in any given classroom (Weisser, 2006).

In Sue's class the floor also served as a viable workplace option. There were three boys that really took to working on the floor under their desks, "that was the driver for them" (Sue, personal communication, May 23, 2017). Ultimately what it came down to for Sue was, "Is [this] supporting your learning?" Students were given the opportunity and the tools to be able to identify what was going to help their learning and what was going to hinder it.

While students were given a fair amount of flexibility on where and who they wanted to work with, once their assignment was given they were also granted a degree of choice when it came to how they could physically arrange themselves when a lesson was being presented. "Most of the lessons take place in front of the Smartboard because [Sue]

has a big open space" there. Sue admitted that students were not too often directly physically engaged during teaching. However, neither did she choose how the students would sit while she was teaching. They were given the choice of how to arrange themselves so they would be the most receptive to learning. They could choose to stand, bring a chair or stool, or sit on the floor.

Movement was not often tied directly to learning activities in Sue's lessons but on occasion she would do activities like "John Travolta spelling" in which the connection to embodied learning was more obvious. "John Travolta spelling" was an activity where students would emulate dancing from Saturday Night Fever while they spelled words aloud. For example, they would point up when they said a vowel and down for a consonant. This activity was the clearest example of embodied learning in her class as the physical movements were directly linked to the learning objective. She noted that this activity, and activities like it, were not a regular occurrence in the class as in grade two she felt that the trend was to move away from whole class activities and toward more independent work.

In Mark's class student choice was much less about where and with whom to work. His foray into embodied learning centered around developing students' awareness of their cognitive state, then developing strategies involving physical exercise to ensure that they stay in an optimal state for learning. Once the instructional portion of a class was completed, students were given some freedom to choose to move around the various fitness stations that were set up in the classroom and hallway.

The stations in Mark's classroom represent a mix of activities that were chosen to either wake students up or calm them down. They challenged students to develop an

awareness of their physical states and were based on the work Mark has done with Cris Rowan, an Occupational Therapist who works on the Sunshine Coast in BC. She believes that children are spending too much time connecting with technology and not enough time being active and connecting with those around them (Rowan, 2010). She developed the Zone'in program to help children learn to become more aware of their physical, cognitive, and emotional states (Rowan, 2010). Based on this work Mark believes that a spectrum exists along which students' levels of arousal moves throughout the day. At one end of the spectrum students may be overstimulated and at the other, students may be understimulated. Right in the middle is the optimal zone for learning and this is ideally where students want to be. Typically however, students, and people in general, are unaware of their state of arousal or how to get themselves back to "the zone" effectively (Rowan, 2010) .

Through training and the use of teaching aids such as videos, role plays, manipulatives, and what Rowan (2010) calls zone-o-meters, small strips of paper that children learn to use as a gauge of their mood (Appendix C), students need to learn to first recognize that they are out of "the zone," then identify whether they are feeling under- or over-stimulated. They can then use a variety of techniques that Mark taught them in order to get back to equilibrium. When students are over-stimulated, activities that involve putting pressure on the body such as lifting heavy things, pulling, or pushing help to decrease the level of cognitive and emotional arousal. Conversely, when students are under-stimulated, vigorous whole-body movements such as bouncing or running on a treadmill are more effective at raising their level of cognitive arousal. Mark did a lot of teaching in his classroom around helping students identify their level of arousal, how it

was adversely affecting their learning, then being able to effectively raise or lower themselves back to equilibrium through physical engagement.

Mark regularly engaged his class in in-depth discussion around reconnecting with their needs, and identifying their level of arousal. This was to ensure that students understood and were using the "body breaks" for the intended purpose of "recharging" or "blowing off steam so they could get back to work. He did not want exercise to be "used as an avoidance mechanism", which was one of the behaviours that he was trying to deal with when he first began the "gas station."

Understanding Others through Collaborative Work

Collaboration is another element of embodied learning that was evident in both Sue's and Mark's classrooms. For O'Loughlin (1998), it is through the collaborative element of embodied learning that students are given the opportunity to explore multiple perspectives which in turn leads to a deeper understanding of self. In an embodied learning classroom the move should not be from group learning and activities, but towards them.

The introduction of the circular tables in Sue's class established the expectation of group work. Students were given the option and were encouraged to work in groups through Sue's creation of group workstations. Not only did the circular tables transmit this message, but the inclusion of student workspace at her own desk may have also suggested to students that learning is a collaborative effort by everyone in the classroom. Students receive the message that learning is not an individual endeavor, as in traditional classrooms, rather it is a journey that they can partake of with others, including the teacher. By establishing a precedent for working together, Sue set the stage for

explorations of interconnectedness amongst learners, an important principle of embodied learning.

In Sue's class, students had the option of choosing whom they wanted to work with. By permitting group work, as well as individual work, Sue allowed the students to explore and develop an awareness of their interconnections with others. In her class, unlike more traditional classrooms, she promoted cooperative work. Sue developed this with her students through continued dialogue about how working together, or alone, could help or hurt learning. Early in the year, she talked with her students about being able to recognize when and how their learning was being affected positively or negatively by any given partner work groups.

Although Mark acknowledged that his preference was for collaborative work, and that preference played a large part in how he and the students went about organizing the groups sitting arrangements in the classroom, much of his intervention centered on individual physical activities. Beyond seating arrangement, Mark went into little detail about how collaborative work shaped his classroom.

He indicated that he brought a couch into the classroom in hopes that it could be a place for students to sit and work together. However, when students began to use it for "social time" it failed to meet his definition of effective use of time and he began to place restrictions on its use.

O'Loughlin (1998) suggested that there is value in the social aspect of learning that is often overlooked in traditional classroom settings. The social time that Mark identified as non-productive is an important aspect of embodied learning as it is through these social interactions, deemed non-productive in traditional classrooms, that students

are able to explore ideas and begin to develop a deeper understanding of others' perspectives (O'Loughlin, 1998). Through the implementation of restrictions on, and his application of power to "non-productive social time" (personal communication, June 28, 2017) at the couch, Mark may have been reducing opportunities for meaningful collaborative work, and in the process neglecting an important component of embodied learning.

The physical interventions that Mark introduced in his class were very much about the individual's effort to balance their personal cognitive state. Mark's interaction with embodied learning was much more focused on the individual's connection with self. Indeed, the embodied aspect of what was happening in Mark's class almost seemed as if it were detached from the learning. Though the two were linked, as students were using exercise to manage their cognitive state, it felt like learning happened in one area of the classroom, and the physical component of managing cognitive state happened in another area.

Challenges associated with Power

Acknowledging the power dynamic, and giving up power in the classroom, is a challenging yet necessary component of embodied learning. Both teachers in my study struggled with how to effectively deal with issues surrounding power in their classes.

In a typical classroom, the teacher's desk is set apart from the students' desks, usually at the front of the room, and immediately establishes a division of power that dictates the hierarchy of the classroom. This arrangement dates back to at least the Grammar and Monitorial systems of the 16th and 17th Century, when one of the primary roles of the teacher was surveillance, and ensured that all students could be easily

observed and their attention was focused in the proper direction (Gislason, 2009). By inviting students to share a workplace with her, Sue began to reduce the power differential, established and maintained through creating a "teacher only" space in the class. This seating arrangement welcomed students to be partners in learning as they were able to work side by side with her. In turn this may have helped eliminate the students' expectations that Sue was simply there to give them the information that they were expected to learn.

Providing students with the choice of where and with whom to work not only allowed them to connect with their needs, but it also gave them a degree of power of their own learning. This is in contrast to the conventional arrangement where student movement is dictated and restricted by the teacher. The allowance of student choice provides another example of how Sue relinquished power by allowing students to choose and act on how to best physically meet their learning needs.

The application of power followed a much more traditional pattern in Mark's class. This likely played a role in the development of the physical component of his intervention seemingly being separated from learning activities, as previously discussed.

Mark did challenge the prevailing power structure of the classroom by giving students the power to decide when, how, and if they needed to move about the various fitness stations in order to help their learning. However, this power had limitations. While students had access to and could make use of the apparatus during work time, Mark imposed restrictions during instruction. He purposefully limited the amount of time that he was instructing at the front of the class, and asked that students stay off the equipment while he was speaking. He found that if students had free access to equipment during

instruction he would have to repeat himself too much. This was mainly a result of some of the equipment having to be located in the hallway. In order to keep things simple, he just applied the no-use-during-instruction-rule to all of the equipment. Once Mark was done speaking students were free to use the equipment as they deemed necessary.

The necessity to keep students off the equipment during instruction suggested that a transmission model of education was to a large degree still adhered to in Mark's class. Implicit in a transmission model is the need for students to be silent and still while the teacher delivers information; this relies on traditional power structures within the class. While Mark implemented activities that began to engage the bodily components of learning, the power dynamic in his classroom was still strongly influenced by the past.

Early in the school year, Mark also experimented with relinquishing degrees of power through unstructured collaborative time in the classroom with the introduction of a couch. His first idea was that the couch would be a place to work and students would be free to choose when they wanted to sit there. However, after a short time he began to realize that students were using it in a way he defined as non-productive, as a social gathering place to "sit and visit." His definition of social time as non-productive is indicative of traditional underlying power structures that fail to recognize the importance of social interaction in learning. While the couch remained in the classroom, access to it was limited to certain periods during the day and an important part of embodied learning was missed.

Teacher Reflections

It was important for my exploration of the research question to ensure that I included the voice of the teachers involved as it was their lived experience that I was

attempting to capture the essence of. This helped shed light on what worked and what did not work in their practice.

Student engagement. Upon reflection, both teachers reported feeling that their respective programs were successful in dealing with the behavioural issues they were trying to address, student engagement. Sue noted that her students really seemed to "enjoy" the freedom to move around the class and choose where, and with whom, they were going to work. Admittedly, she stated, it took a lot of time and training, but by about Christmas they seemed to have adjusted to their new freedoms. It was around this time, when the students really began to understand the program, that she noticed she was having to deal with far fewer issues of student disengagement. She noted, however, there were two or three boys that continually had difficulty staying focused and that she needed to have regular discussions with them about what was going to help their learning. She found with these students that it typically resulted in her having to reassert her control and remove their freedom to choose where and whom they work with, and to just assign them work spaces in order for them to finish a task.

Similarly, Mark began his program of activity in the classroom in order to deal with what he considered "too much off-task time," activities such as socializing that he deemed the students were engaging in solely to "avoid work" (Mark, personal communication, June 28, 2017). Unlike Sue, who dealt with younger students and was noticing excess energy that needed to be burned off, Mark dealt with older students and was dealing with students who seemed more interested in "socializing" and "lounging on the couch at the back of the classroom." Since beginning his program he noted a

significant decrease in the amount of "off-task time" in his classroom, but he stated he has not done any "objective measures."

Mark also reported that for the most part his students all "bought in," and enjoyed the opportunity to move in the classroom. He recalled that one of his students remarked in a humorous manner, "We go through a lot of band-aids in your class!" Mark reported that all of his students used the equipment appropriately, but again, there were one or two students that he found he was regularly having to remind about proper use of the apparatus. He suspected one of these students should have been on a behavioural IEP.

Input from parents. Both teachers reported that the feedback they received from parents was positive. Neither participant reported having any parents opposed to what they were doing in their respective classrooms. Sue had the impression that her students' parents appreciated that she was allowing their children opportunity to find comfort when they were learning. The one concern raised by parents in Sue's class was that some of their children were reporting feeling anxious about going to school because they felt like they had to compete for seating and that they never had a "home" in the classroom (Sue, personal communication, May 23, 2017).

Input from colleagues. The response that the two teachers interviewed received from the other teachers in their respective schools was quite different. Sue reported "lots of walk-throughs" from other teachers in her school that were curious about what she was doing with self-selected seating. Sue said the teachers that walked through her classroom would say things like, "it looks great" or comment on how they would like to have a couch in their classroom for when they needed a break. She felt like there would be more curiosity and she did not think there was much in the way of constructive or continuing

engagement. While many of her colleagues commented on features of the room, or its appearance, there was little questioning about how she taught with self-selected seating, or how it engaged the students differently. She reported that the lack of engagement by her colleagues could have been the result of the physical layout of the school. As noted earlier, her classroom was situated in one of the pods that was isolated from the rest of the school. As such, she did not see her colleagues on a regular basis, and continuing dialogue about what she was doing would have been made more difficult by this.

Mark's experience was different. The other teachers in his school "really bought in" to what he was doing. He reported that several of the other teachers in his school planned on developing "gas stations" in their own classrooms in the coming school year. In addition, his work caught the eye of the Band Council that runs the independent school in which he taught, and he was offered a principalship starting in the new school year. Mark acknowledged that the recognition he received at his school may in part be due to the fact that running and physicality figured so prominently into the culture of the local First Nation in whose school he taught. He felt that the program he was developing tied in very well with the Language and Culture program that the Nation was trying to establish and build in its school. Mark noted that especially running was a big part of Kutanaxa culture historically and his program was one means of reconnecting with that physicality of the past.

Challenges. Both teachers faced challenges when adapting their space to suit the needs of their particular programs. Space was the most common obstacle. Sue and Mark were both limited in terms of the amount of space afforded them by traditional classroom design. Sue's approach involved making the decision to forego large amounts of open

space for vigorous activity in order to ensure the students had a variety of workspace options that would allow them to be able to address their physical needs. Mark, on the other hand, opted to expand the boundaries of his classroom beyond the walls and incorporated part of the hallway to ensure adequate room for the required equipment. Both teachers stated that they would go outside as often as weather permitted in order to allow student movement. However, this was limited as both teachers work in the interior of the province and acknowledged that opportunities were severely limited by weather during the fall, winter, and spring.

Another challenge Sue noted having to deal with was how the students adapted to the freedoms she allowed them in her classroom. Understandably, she reported a "huge learning curve for both them and [her]" as the freedoms she was offering them were "not standard" at her school. She likened it to a pendulum, "when there is a big shift in how things are done the pendulum swings the whole other way" (personal communication, May 23, 2017). In her case, what she reported was that at first the students, having been given these freedoms, began acting like they had less responsibility in her classroom. A lot of "big conversations" were the result and she had to really help focus her students on the idea that even though they now had freedom to move around and choose who and where to work, their obligation was still to complete their work. It took until after Christmas, almost four months, until she finally noticed that the students were starting to really get the hang of it. This was evidenced by the reduction in the number of big conversations she found herself having to have with the class.

An "unexpected" challenge that Sue ran into was that her students reported feeling "disappointed they didn't have their own space." Apparently, what she had not

realized, and that her students let her know, was that being in grade two meant that they got to be more “grown up,” and this meant having their own desks and their own supplies.

Related to not having their own space, Sue also began receiving reports from some parents that their children were becoming increasingly anxious about going to class. Upon further investigation she learned that the children were having difficulty choosing their own spot to sit. She reported that she began to take note of how “they had to jockey every day for where they wanted to sit” (personal communication, May 23, 2017). Given that there was “a well-established pecking order” in the class, she began to notice that even if a student wanted to sit in a particular place, depending on where they fell in the class hierarchy, they were not necessarily going to get it.

Reflecting on her own experiences from a yoga class, Sue realized that she always set up in the exact same spot and always felt a “little bit thrown” when someone else set up in “[her] position”(personal communication, May 23, 2017). Realizing that it may be a challenge for her students to do something that even she found difficult, around Christmas, she had a class meeting and the students voted on whether they wanted to maintain the current seating arrangement, or go back to individual desks. The majority of the students chose individual desks. Many of the shared workstations were eliminated from the room due to space constraints, and individual desks were brought in. Sue did maintain some degree of student choice, perhaps even permitting more choice, as not only did the individual desks create an individual “home” for each student, but also they allowed students even more flexibility in choosing where and with whom they wanted to work. The smaller individual desks made it possible for students to move their “homes”

with them when they configured their workstations, and due to their smaller size, were easily moved around the class to create different seating and working arrangements, from individual workplaces, to large groups, to pods, and horseshoes. The increased flexibility even made it possible for the group of boys that liked to work under their desks to create a large "group bunker" (Sue, personal communication, May 23, 2017).

Mark also reported that it was challenging to get the students to use the equipment as a legitimate "I need a body break" and not merely as an "avoidance thing"(personal communication, June 28, 2017). At the beginning of the school year, Mark, much like Sue, spent significant amounts of time talking with the students about what he considered a "legitimate reason" for using the equipment in the classroom. Eventually, he reported, most of the students "got it" but he found there were still a few that would still use the equipment more than he felt they should in order to avoid having to do work in the class.

Changes for the Future

The 2016/2017 school year was the first year that both teachers tried the changes they made to their respective classrooms. Both Sue and Mark were satisfied with the outcomes of the changes they implemented in their classrooms and plan to continue these changes in the new school year. They made "small tweaks" to how they were doing things throughout the year such as Sue swapping out large desks for smaller ones so that students could have a "home," or Mark exchanging exercise balls for conventional chairs. Each considered how they could improve upon the changes that they had already made for the following school year.

Sue struggled with whether she wanted to attempt tables again, or if she wanted to keep the small individual desks. She reported that she liked the flexibility of the

individual desks as they could fairly easily be moved out of the way, or formed into groups, pairs, or left as individual workstations depending on how and where the students wanted to work. Most students were ultimately happier with the individual desks as they provided a home base to work at. From a classroom management position the pre-set seating arrangement with large desks made transition times easier as students moved themselves to already established work stations and did not have to move any furniture. Moving the individual desks took more time for students to get arranged, and was loud as students were generally not strong enough to lift the desks so had to resort to dragging them in order to move them.

She also considered that she might exert more control over the process next year. In the current year, she allowed students to pick both where and with whom they wanted to work. While she admitted this worked "okay," she wondered how it might work out if she permitted the students the choice of how they wanted to work, alone, in pairs, or small groups, then she would choose who they worked with. While this still permitted students some choice in the most comfortable work situation, it would potentially allow Sue more control over ensuring that students were working with who she deemed as appropriate partners in order to improve productivity and increase the time that students focused on the assignment they were given. She admitted this was only an issue for a small number of students in her class, so she was unsure of whether she would proceed down this path.

One last consideration Sue made was whether she needed to be stricter and offer fewer second chances before she chose where students sat if they were misbehaving, especially at the beginning of the year. She wondered whether the transition to her self-

selected seating program would have gone more smoothly had she approached her class with the "don't smile until Christmas" mentality that seems so common among teachers (Sue, personal communication, June 23, 2017). During her research on how to go about applying self-selected seating, she recalled how many comments she read about it being such a life-changing practice. While she enjoyed the process, she admitted that there were some definite challenges, and it was a significant amount of work to train the students. It is somewhat understandable that she would consider this given that the freedom she permitted the students in her classroom represented such a departure from the norm. The changes she made were difficult for the students, creating anxiety in some, so it is likely that such a drastic change created a degree of discomfort for Sue as well. In turn, this would have caused her to question the changes and considered drifting back towards "the norm."

In Mark's classroom, the existing equipment represented the starting point for his embodied classroom. Happy with the way the students were responding to the initial changes he made, Mark planned to add several more stations. The first of his planned expansions involved setting up climbing holds near the doorjamb that would lead to a hangboard (Appendix D) above the door so the students could do chin-ups. He mentioned he was also considering a small circular trampoline. He also intended to add exercise bands or tubing to the gas station that would allow more options for resistance workouts.

Summary

Mind and body were, in general, not as clearly linked in Sue's classroom as they were in Mark's. Rather they were linked on a more subtle level. The idea behind self-selected seating is that students begin to identify their physical need for comfort or

movement, then seek out the most appropriate work place, which Sue provided a variety of in order to meet those needs. While self-selected seating did not overtly link the mind and body in the learning process through connection of the learning activity with vigorous movement, it did link the two on a more subtle level by allowing the existence of the body in both students' consciousness and in the learning process by giving them the freedom to acknowledge their bodies and attempt to accommodate their needs. In turn, it was hoped this would lead to the desired outcome of improving student learning. They were not tethered to their desks and compelled to stay still.

Through the possibilities for cooperation that self-selected seating permitted, students began to explore the interconnected nature of learning in Sue's class. Students were encouraged to move and partner with others or with their teacher in the learning process. Students were given the message in Sue's class that they were not alone in their learning endeavors and that it was just as valuable to work with a partner to try to solve a problem as it was to wait for the teacher to come around and help.

Sue attempted to alter the physical environment of her classroom but was limited in what she could do. She did change seating arrangements, which in turn affected the messages that students received about how they could learn. Gone were the rows that told students to sit still and learn by themselves, and while she ended up returning to independent desks, students were also given the message that the desks were not permanent fixtures and could be moved to accommodate their need for interaction or different working positions. While Sue's options for engaging students with the outdoors were limited due to the lack of windows, she did state that she kept the door open as often as possible, the weather being a major limiting factor through the winter and early spring.

During periods where the weather outside was agreeable, students were also permitted to go outside to work.

In Mark's class, similar to Sue's class, mind and body were not directly linked through learning activities. Unlike Sue's class in which students were free to move desks, and alter their seating and working arrangement quite significantly, Mark's students were expected to sit at their desks to work and receive instruction. However, Mark was still able to successfully engage students' minds and bodies through his introduction of what he called "the gas station." Once Mark was done instructing, which was an area he admitted he wanted to work on as it was mostly "sit-and-get" (personal communication, June 28, 2017), students were free to use a variety of workout stations around the classroom that were intended to either burn off extra energy or to build up energy. Teaching in Mark's class developed students' ability to identify their level of alertness then enabled them to identify and employ strategies to bring themselves back into a more suitable state for learning. Mark recognized that mind and body were linked and that the physical and the cognitive worked together to ensure that an individual was in a 'ready to learn state.'

Mark's intervention focused primarily on the individual, bodily aspect of embodied learning, and did little to reinforce the interconnectedness of the learners with each other. He allowed cooperative work, as students were seated in pods or small groups, but he did not allow students to shift up these groups on a regular basis which would have allowed them to more thoroughly explore the interrelated nature of their learning. Further, by limiting the amount of choice in group working arrangements Mark

was sending the message that he still ultimately had control over when student bodies could and would be permitted in learning.

Through the gas station, students received the message that the body plays an important role in learning. However, while his “no use during instruction” rule may have made behaviour management easier, it also conveyed the message that there was a time for the body, when they could use the gas station, and a time for the mind, when they had to sit and listen to the teacher. The presence of student bodies in the classroom was acknowledged but restricted. There were times, primarily during instruction, when the body was denied. The mind/body split evident in Mark’s class was an artefact of traditional teaching and learning models.

Chapter 5: Analysis

The transmission model of education in BC is well established and the structures associated with it are entrenched in the collective understanding of what it means to go to school. The physical and systemic structures represent formidable hurdles to overcome in order to see a larger scale implementation of embodied learning in public schools in BC. Both the physical layout, through the way the body is confined in a limited and restrictive space, and beliefs about teaching and learning, that have defined the patriarchal relationship and interaction between teacher and student, are rooted in the historical development of the school and continue to influence and shape how teaching and learning are approached in this province.

Physical Hurdles

There are several physical hurdles that teachers looking to effect change within the school system must overcome. When it involves increasing opportunity for movement in learning, inadequate space represents a significant obstacle.

Limitations of Space. Both teachers in my study reported that when they were trying to develop the programs in their classroom there was just simply not enough space (Sue, personal communication, May 23, 2017; Mark, personal communication, June 28, 2017). Though an analysis of all of the classrooms in BC was beyond the scope and purpose of the current study, it is interesting to note the similarities between the two classrooms involved. Even though both Sue's and Mark's schools were designed and built nearly 65 years apart, are in different parts of the province, and are managed by different governments (i.e., the Government of BC and the Lower Kootenay First Nation), both teachers reported that the classrooms had a similar footprint, layout, and design. Overall

there was little difference in the amount of space that was provided for students and teachers to work with and in between the two schools, which suggests there has been little change in the ideology that underlies the purpose and subsequent development of spaces within which learning occurs. I speculate that a comparison of schools around the province would result in similar findings about classroom size and layout.

Creating Space. Inadequate space restricts what the teachers are able to do in order to include meaningful, purposeful movement during learning. It is difficult for teachers to be innovative in their approach to teaching when they are restricted by the space that is provided within the classroom. The amount of available floor space in a classroom is further reduced once desks and furniture are in place. The traditional desk itself has a restrictive element to it, limiting opportunity for movement and confining the student to a single place. With classrooms full of desks, shelving, and in Sue's case, a heating unit, there is very little room to organize physically active lessons that involve large or vigorous student movements. The possibilities of collisions between students or involving students and furniture greatly increases which in turn increases the likelihood of injury.

There are several possibilities, working within the constraints of the current school environment, for teachers looking to increase the amount of room their students have for movement during learning. These include rethinking what is essential furniture in the classroom, the use of hallways as learning spaces, and the use of the outdoors.

To work within the space provided and allow for a significant increase in physical movement in the classroom would require reconsideration of what is essential in a classroom. Educators would need to look at the number of desks, tables, chairs, and

bookshelves and consider whether or not those particular items are necessary, and if so how many and what type. There is no doubt that students need somewhere to write but there are alternatives to what currently is available in classrooms that would still provide students an adequate place to write while at the same time providing the flexibility to quickly alter the space to create more room for movement. For example, there are more compact desk and chair combinations in which the desk and chair are connected and sit on a wheeled base. There are also stools, such as the Hokki stool, Swiss balls, standing desks, and treadmill and exercise bike desks that offer alternative seating and working alternatives. This would of course present management issues such as the noise associated with students moving themselves and the desks, or the whirring of exercise bikes and treadmills. Removing classroom furniture is another option to explore. Sue attempted this to some degree and found herself having to bring furniture back into the room because some of her students found it difficult to adjust to the change of not having a "home base" (personal communication, May 23, 2017).

Another possibility for altering classroom spaces would be to encourage teachers to expand the classroom into the hallways of schools as Mark did. This would effectively increase useable learning space for movement. While this option created more room for Mark to place equipment and freed up space within his classroom, he was only one teacher using the space. He was not competing for the space with any other teachers and there were only a very small number of students in the hall at one time. As the number of teachers using the hallway increases, concerns about supervision of students, the disruption of other classes as a result of noise generated by increased activity, and safety arise. Depending on the way that the hallway space is used by each teacher there is the

potential to have a large number of unsupervised students in the hallway at any given time as the teacher may be in the classroom working with another part of the group. This is not to say that students would not work if they are unsupervised, rather it raises the concern that if something were to go wrong there may not be an adult immediately present. For example, with the equipment Mark has set up in the hallway, if one student was on the treadmill and stumbled and fell it could be several minutes before anyone in the classroom knew something was wrong. While regular use of hallways as learning spaces would require another layer of planning and supervision, the challenges are far from insurmountable.

Another challenge that the use of the hallway presents is the increased noise that this use could create. Hallways act as a sound buffer between classrooms. With students and teachers more actively using the hallways there is the potential for an increase in noise. This of course flies in the face of convention and challenges the prevailing idea that would seem to suggest that learning needs to be a quiet endeavor. While a quiet work space is required at times throughout the day, it is not a full-time requirement. The new BC curriculum, on the surface, appears to call for a more hands-on approach to learning (BC Ministry of Education, 2017). This new curricular and subsequent pedagogical direction should lead to a shift toward more active hands-on learning which could effect a move away from the idea that schools and learning should be quiet and sedentary.

One final note on the use hallways and the placement of equipment or furniture relates to ‘area standards.’ According to the area standards established by the BC Ministry of Education (2012), hallways need to be a minimum of two metres wide. The placement of equipment and furniture cannot reduce the width of the hallway to less than

the specified two metres. This means that hallways would have to be more than two metres wide, or any equipment and furniture that is set up in the hallway would have to be moved in and out of the classroom with each use. This minimizes any benefit initially derived from using the hallway to free up space for movement.

Another option to increase space for movement would be to take classes outside where there are no walls to limit movement and no furniture to create unnecessary obstacles. Large group activities are not hindered by the same obstacles that are present inside. Students are able to move more freely and the opportunity for more vigorous movement is increased in the larger space outside. Outside there is ample opportunity for students to engage with their environment which, as Abram (1996) suggested, has a tremendous ability to reinforce learning.

By connecting learning to the physical landscape, the landscape becomes a constant reminder of the learning that has occurred there. Whenever the student re-experiences a particular place where learning has occurred, the learning is reinforced. This last point becomes problematic under the current model when one considers the artificiality of the classroom. Students will likely never experience the contrived environment of the classroom in the real world, and there is little opportunity for reinforcement of learning through re-exposure to a place.

Miller and Twum (2017) suggest that learning and teaching become fundamentally different when they occur outdoors. They found that when teachers take students outside, students' natural curiosity takes over and drives learning so long as the teacher learns to relinquish their perceived power to control learning (Miller & Twum, 2017). Students begin to explore and ask questions and become curious about things in

the natural environment. It then becomes the teacher's role to find the curriculum in the students' outdoor activities (Miller & Twum, 2017). When this happens learning becomes student-driven and helps students to connect more meaningfully with what they are learning as well as helps them connect more meaningfully with the natural environment that they inhabit (Miller & Twum, 2017).

However, Alerby, Hagstrom, and Westman (2014) point out that the outside is not the boundless learning environment that on the surface it appears to be. When a class goes outside there are limits set by the teacher as to where the students can and cannot go. This is to ensure that the potential for student injuries is kept to a minimum, and I suspect to some degree to protect districts from litigation in the event of student injury. While there may not be desks and furniture in the way there are other obstacles and dangers. A class held in the forest has the potential for injuries from trips and falls, likewise a class near a body of water holds the possibility of drowning. Thus, the outdoors is, and to a degree needs to be, a bounded space, much like an indoor classroom. The walls are not physical barriers, but imagined boundaries established by trees, playground equipment, and benches.

While the outside offers a much larger learning space and it is not impossible to simply go outside, it is not always practical. The use of the outdoors as a classroom seems convenient, just go outside. However, environmental factors also affect the suitability of the outdoors as a classroom. Weather becomes a limiting factor across much of BC for most of the year as noted by both participants in my study. There are extremes of both heat and cold, as well as a significant amount of precipitation that can make it uncomfortable to learn outside. While an easy solution would be to ask students to dress

for the weather, the reality is that there are children that come to school with barely enough to eat, let alone proper attire for the weather. In this case, schools would have to be prepared to provide proper attire for the various weather conditions that occur around the province.

Reconsidering the space within which learning occurs, whether it be a classroom with alternative seating, the hallways of a school, or the outdoors, begins to challenge what learning could and should look like. This challenges teachers to overcome not only the physical obstacle of a limited space but also to overcome several systemic obstacles.

Systemic Hurdles

In addition to the physical obstacles to implementing embodied learning programs in schools, there also exist systemic hurdles. These include such things as the expectations of teachers and students, challenges associated with assessment and pedagogy, as well as a lack of clarity and agreement surrounding the overall purpose of education.

Teachers' Expectations. The expectations of what school should like that exists in the minds of teachers, students, and parents alike is one of the most difficult hurdles to overcome in the move towards embodied learning. Expectations about how a class should operate are shaped by previous experiences within the education system. As noted earlier, something as seemingly innocuous as not having their own desk can create a great deal of anxiety in students (Sue, personal communication, My 23, 2017).

The development of schooling as a means of socializing children has had a significant impact on teachers and society in general, beliefs surrounding how school and learning should look. The transmission, or "sit and get" model of education, as Sue

referred to it (personal communication, May 23, 2017) is likely a remnant of the ideology that shaped Grammar and Monitorial schools back as early as the 1600's in England (Gislason, 2009). Under the Grammar and Monitorial models students were in class to receive the information that was delivered to them by the teacher (Butts, 1955). The teacher was the authority in the classroom and his or her role was to provide students with information (Butts, 1955). Under these models, the role of the teacher as the provider of knowledge, and the role of the student as the receiver of knowledge was well-established (Butts, 1955). The authority of the teacher was unquestioned and this created an environment in which students learned to be passive, silent recipients of the knowledge that the teacher presented to them (Butts, 1955). Elements of this are still very much observable in modern classrooms and to degrees even appeared in the classrooms involved in my study.

Likewise, there was to some degree the expectation on teachers' part that students would obediently receive the information. This belief was demonstrated in both Sue's and Mark's comments suggesting that the ability to be active in class was a privilege that was given to their students and could be taken away should the students fail to meet the expectation to listen. Both Sue and Mark had systems in place that promoted and permitted students to engage physically with their learning environments. However, the right to move was only an option once the instruction part of the class was completed. Movement was treated as a reward for complying with the existing requirement for receiving the information when it was presented.

Teacher-directed to student-focussed. In contrast to the transmission model, embodied learning can shift the balance of power in learning, creating an environment

where students have more choice about what and how they learn. This shift represents a move away from the traditional transmission model of education to a transformative model in which teaching is about helping learners develop on levels beyond just the cognitive (Johnson, 2010). In addition to cognitive development, transformational learning, at its core, focuses on development of the social, emotional, creative, and spiritual aspects of the learner (Miller, 1996). Student autonomy requires that teachers give up some degree of power and control in the classroom. The role of teacher becomes less focused on the delivery of curriculum and more focused on facilitation of learning. Transformational learning assumes that if the teacher can provide rich experiences and opportunities to learn, which may include, as both Mark and Sue commented on, non-productive social time (personal communications, May 23, 2017 and June 28, 2017), students will be better engaged with their learning and begin to take ownership of it. The role of the teacher then shifts to supporting the individual learning interests of each student instead of delivering impersonal curriculum to an anonymous mass.

Using an embodied learning model students should be given more freedom to explore things of interest to them. Learning becomes student-driven and the teacher's role shifts from a directive presence toward more of a facilitator. In this role, the job of the teacher would be to help group students that have identified similar interests, and then help guide them on their explorations, or provide support when they run into difficulty. This is clearly a challenging prospect given the diversity of students and interests in a classroom, not to mention the threat of teachers' perception of loss of control that would arise from students pursuing their own varied interests.

Valuing the social aspect of learning. The beliefs that teachers are the authority in the class and that social time interferes with productivity are still evident as suggested by Sue's comments about students' privilege to choose where they would like to sit in her classroom. She suggested that if students were unable to find suitable work partners, they would lose the "privilege" of choosing (personal communication, May 23, 2017). Mark echoed these sentiments in the restrictions he placed on the couch in his classroom when he felt it was being used "non-productively" for social time (personal communication, June 28, 2017). This is reflective of the paternalistic beliefs that exist in the education system. The transmission model of learning is structured around the paternalistic view that it is in the best interest of students to have their rights, responsibilities, and movements restricted and controlled (Miller & Davy, 1990). Perhaps this is done under the assumption that it allows students to focus more on learning. Whatever the reason, an embodied learning model suggests that students need the opportunity to share and discuss with each other, whether it is on topic or off (as determined solely and subjectively by the teacher), in order to establish a deeper understanding of others' points of view (O'Loughlin, 1998). Instead of considering social time as "non-productive" (personal communication, June 28, 2017) and removing privileges, teachers need to find the value in this time.

Embracing movement. In order for embodied learning to be accepted teachers need to let go of the assumptions from the past about what teaching and learning must look like. They need to move past currently held beliefs about what a classroom should look like and how it should operate. There needs to be an understanding that things like social time and movement are valuable components of learning. Movement cannot be

seen as a privilege but a right. Children are generally active and energetic beings. Denying this energy in the classroom runs contrary to the part of the BC Curriculum (2017) that states “personalized learning is at the heart of the new curriculum”. If school is about children’s learning, why then can we as educators not embrace the natural tendencies of our target audience and work with, instead of against it.

Rethinking the student-teacher relationship. In its current manifestation the relationship between teachers and students in BC is paternalistic in nature and is a remnant of a colonial education. The simple act of requiring students to address teachers as mister, missus, or miss is a clear example of this. Shifting from the role of giver of knowledge to a facilitator of learning requires a shift in how teachers approach their relationship with their students. The ‘giver of knowledge’ model has persisted and establishes a hierarchical relationship in the room that assumes students are recipients as opposed to participants in learning. In contrast, the facilitator approach is structured around a more egalitarian model in which learning becomes a partnership between the teacher and student. If, in an embodied learning model, it is expected that students learn to connect and understand the perspectives of one another, the same must also be assumed to be true of the relationship between teacher and student. Clearly the need for boundaries remains in order to maintain healthy relationships, however in order to effectively facilitate individualized learning, educators require a deeper understanding of the experience of each individual student. This involves teachers reconsidering how they approach their relationships with their students.

Pedagogy and Assessment Shift. Another hurdle to overcome in the move toward an embodied learning model is of that established by current pedagogy and

assessment practices. A key component of embodied learning is the ability for students to move and engage with each other and the surrounding environment. This becomes a challenge when, through teachers' need to provide evidence of learning, and traditional sedentary practice, students are required to sit at their desks to complete worksheets and other paper-based activities.

If, in an embodied learning model, students are given more freedom and opportunity to move and explore relationships, there needs to be a similar shift in how teachers collect data in order to report on student progress. While I do not believe pencil and paperwork should be eliminated, perhaps a rethink of the amount necessary to demonstrate comprehension is in order. It becomes necessary to ask whether having students do twenty math questions on a page demonstrates any better that they understand the concept. Can this not be demonstrated just as well by answering five questions? If we are asking students to do twenty questions, then the question becomes what purpose is this serving? Is it in hopes that through continuous repetition the student will better retain the information? What of understanding? Memorizing an algorithm does not develop understanding. Perhaps the reason for so much paperwork is to merely fill the allotted time for math, or any subject area for that matter.

Another question that arises for educators is whether it is possible for students to demonstrate their learning by other means. While pencil and paperwork is a widespread method, with personal devices such as laptops, cellular phones, and tablets it seems reasonable to assume that there is a significant amount of opportunity for data collection that does not require sitting in desks writing. Apps, such as Freshgrade (Freshgrade, 2017), allow teachers to use mobile devices to capture evidence of student work. This can

be in video or still picture format. Further, with mobile devices students can take the internet, note taking ability, video and audio recording capability with them anywhere. So while they can still type notes, they can also record audio and video clips that would provide the necessary evidence of learning.

The new BC curriculum creates the freedom to use other means of demonstrating learning as well. Emphasis has been placed on the value of oral storytelling and the ability to communicate knowledge orally. For example, the grade 5 English Language Arts curriculum now requires that students "use oral storytelling processes" and the Science 6 curriculum allows students to "communicate ideas, explanations, and details in a variety of ways" (BC Ministry of Education, 2017). This not only creates flexibility for teachers to collect data through a variety of means, it requires it.

It starts to appear as though pedagogy has been driven by data collection methods that were available to teachers in the past, with the use of pencil and paperwork having a significant effect. While technology use has evolved and increased within schools, the degree to which it has permeated the realm of data collection and the resulting effect on pedagogy appears to be less dramatic. Students can be, and likely are, taught how to use computers and tablets to create documents, to look up information, and to create video and audio presentations, but teachers and administrators have been slow to adopt these forms of data collection for the purposes of reporting, especially in traditionally high 'pencil work' subject areas such as math and language arts. The need for a traditional workspace in the form of a desk can be lessened with the creative use of modern technologies. This shift would require expenditures in the development and procurement of infrastructure and hardware in schools. However, none of these technologies are new

to schools and many schools and districts likely already have a significant technology foundation in place. By reducing the need for traditional desk space teachers are less tethered to the traditional classroom setup and can begin to explore a variety of arrangements within the classroom to allow for more student movement.

A move to embodied learning requires not only changes to data collection methods but to pedagogy as well. As noted above, embodied learning calls for teachers to reevaluate the relationship that exists between them and their students, as well as the role they play in the classroom. Part of the move toward a facilitator role calls for shift toward a less directive form of teaching, a move away from the "sit-and-get." This may suggest that something more along the lines of inquiry-based teaching is a better fit for an embodied classroom. This type of learning would allow for more student-driven and student-directed learning as, instead of the teacher deciding the specific topic to be learned, the topic for investigation would be decided by the students themselves. It is assumed that students, having the ability to pursue their own interests, guided by instead of directed by the teacher, would be better engaged with their learning. This should translate into more 'on-topic' behaviours. While work remains a necessity in order to provide evidence of learning, educators need to reconsider what this work looks like, how students can demonstrate their learning, and what teaching ultimately looks like.

Purpose of Education. What ultimately is the purpose of education will always be the driving factor behind what is taught and how it is taught in schools in this province. Ask different members of the community why children come to school in any group and there will be a plethora of responses. To teach students to think, socialization and preparation of students for the workforce usually rank very prominently among the

answers (Reimers, 2006). Problematic in this is that an individual's belief about the underlying purpose of education will determine their expectations about how the education system ought to be delivered and what its end goal should be. More challenging is that this lack of clarity surrounding the purpose of education also exists among the teachers and administrators that are delivering education (Reimers, 2006). Their beliefs and perspectives are what shape how they teach. I have had a colleague tell me that "kids need to learn to be bored" (Alice, personal communication, 2017). Approaching education with this mindset offers little hope for the students in this individual's class to experience meaningful engaging learning experiences.

The BC Ministry of Education (2017) homepage offers some insight into the underlying purpose of the education system in BC by stating:

> The purpose of the British Columbia school system is to enable the approximately 553,000 public school students, 81,000 independent school students, and over 2,200 home-schooled children enrolled each school year, to develop their individual potential and to acquire the knowledge, skills and abilities needed to contribute to a healthy society and a prosperous and sustainable economy (para 1).

Along with individual potential, socialization and workforce preparation figure prominently within the rationale of the BC curriculum. This suggests that factors external to the interests of individual learners are the drivers of education, not the individual learners themselves.

The new BC Curriculum offers further clues to the purpose of education. On the Ministry of Education curriculum website (2017) it is highlighted how students will be

given the skills they need to be successful in work, college, and university. From the curriculum website, it appears that the primary function of schooling is preparation for the workforce, with college and university being extensions of this preparation for work. Indeed much of the information on the above mentioned website revolves around developing the skills needed to be good workers.

The curriculum website also suggests that the new curriculum places an emphasis on developing "collaboration, critical thinking, and communication." (BC Ministry of Education, 2017, para 4) At first glance, these would appear to be valuable skills and likely many teachers would say they themselves value the development of these skills. However, the statement about these skills is immediately followed by the caveat that these skills are needed "to succeed in college, university, and the workforce" (BC Ministry of Education, 2017, para 4). There are constraints placed on the development of these valuable skills by tethering them to a statement about participation in the workforce. The skills themselves become bounded by the system they are developed to support, in this case the economic system. Critical thinking, communication, and collaboration will be developed within schools only to the degree that they are valuable to the perpetuation of the economic system.

The point I am making is that while the curriculum is evolving and the language on the surface suggests a shift to a more student centered approach, the troubling language still remains in that the education system is ultimately tied to economic pressures. By focusing on economic values, everything is essentially packaged up and is intended to serve the purpose of the economy, not the individual learner. While change is lauded numerous times on the Ministry website, the underlying purpose of education,

maintenance of the economic system, suggests that larger scale systemic change is still a long way off.

It is this powerful subtle subtext of maintenance of the status quo that is perhaps the most challenging hurdle to overcome in a move towards embodied learning, or any significant large-scale re-vision of the current education system. I will refer back to my colleague's comments about children needing to learn to be bored. Perhaps the underlying assumption is that if the goal of the education system is to support the economic system, our role as teachers is to create workers. In order to do this students need to accept that as adults, and to be good contributing members of society, they will have to do things others tell them to do, that they find uninteresting and monotonous, and they have to work in restrictive, confining places they do not necessarily want to be in in the first place.

Chapter 6: Conclusions

Review of Major Findings

A brief review of the development of the classroom shed light on how historically classrooms were shaped by a philosophy in education that focused entirely on the development of student minds while neglecting the role that the body played in learning. As a result, little consideration was made for student comfort or movement in the design of school buildings. This trend carried on into the present and the influence is still evident in classrooms today.

This study sought to explore ways in which two teachers in BC were increasing opportunities for student movement in their classrooms. Embodied learning draws from the work of the French philosopher Merleau-Ponty and was used as the theoretical framework from which to build an understanding and rationale for the inclusion of movement and physicality in learning environments.

Contemporary educational theorists and proponents of embodied learning highlight three main components of embodiment in education: 1) a connection with self; 2) treatment of the mind and body as a single entity instead of separate and distinct; and 3) understanding learning as involving relationships with the environment and those around us.

While the teachers involved in this study were unfamiliar with what "embodied learning" was, they both had begun, by degrees, to tap into aspects of it in the way in which they adapted the learning space in their classrooms. Both teachers had identified students' lack of engagement and inability to sit still as their motivation to adopt change in their classroom. Though this was the first year that either teacher had begun to work

with the space in their classrooms differently, both were positive about the outcomes thus far, and both planned to continue to develop and adapt what they were doing.

The changes that both teachers made, while representing a deviation from the norm, were ultimately only mild shifts and their classrooms still resembled typical classrooms to which almost anyone who has attended public school could relate and identify with. Both teachers had the support of the administrators at their schools, as well as the parents of their students. Likely, the recognizability of their classrooms as classrooms is one factor that contributed to the acceptance that both teachers received for the changes to the way they organized their classes. Had the changes been more dramatic there is the possibility that it would have been too threatening to the status quo and perhaps people would have been less accepting.

Three main challenges that both teachers had to overcome were dealing with infrastructure constraints, overcoming expectations created by space, and a general lack of professional development opportunities surrounding embodied learning. Both teachers reported that it was a challenge working within the confines of their respective classrooms. They were trying to create a different way of doing things that required room to move within a space that was created for learning that did not involve the body, a space that has historically conveyed the message that movement was neither welcome nor necessary in learning.

This lead to the second challenge that the teachers had to face. Even though they were trying to change the environment that students learned in, the students resisted because they were trained on how they should behave with in a classroom. In this study, Sue acquiesced to student pressure, and her idea for self-selected seating became

somewhat of a compromise between what she had originally envisioned and what the students were comfortable with. Resistance to change is inevitable, and the shift from a transmission model to a transformational model that incorporates inquiry-based learning and embodied learning will likely be slow due to both teachers' and students' previous experiences and learned expectations about schooling. Sue needs to build on the successes she had in the previous school year and continue to develop and refine them.

The third challenge was a lack of awareness. Neither teacher had even heard of embodied learning. They had stumbled upon it by chance looking for a different way to engage their students. Increasing awareness of embodied learning for practicing teachers through professional development opportunities is necessary at not only the level of the classroom teacher, but also at administrative levels within the education system. Furthermore, change may also be required at the teacher education level to ensure new teachers do not fall into the old pattern of transmission in the classroom and that they have the tools needed to initiate change.

Implications

The two teachers interviewed for the current study were able to incorporate opportunities for student movement in their classrooms despite the restrictive nature of the physical space within which they worked. While their respective interventions reconnected students with their physicality to a degree, when considered against a framework of embodied learning there were several shortcomings of both programs.

Sue's program of self-selected seating considered student comfort during work and lessons but involved very little actual movement; as such, the degree to which a mind/body link was made during learning was less clear. Being comfortable while

working could be considered a physical aspect of learning as comfort is a physical state, and class discussion that focused students' attention on what made them physically comfortable helped create a connection/awareness of self that is an identified component of embodied learning. It could also be argued that merely the consideration of the presence of the body in learning constituted linking the mind and body. By acknowledging the physical need for students to be comfortable in order to learn, Sue recognized that mind and body together play an important role in learning. However, current definitions of embodied learning vary widely and it could be argued that as the body creates meaning it must be more actively engaged with the learning, like in the example of John Travolta spelling mentioned earlier.

Similarly, Mark's gas station program, while incorporating significantly more physical activity than Sue's self-selected seating program, failed to incorporate physicality directly into the learning. In Mark's case the physical component of the program is still treated as something students do that is separate from learning in the classroom, they do their work, when they sense their focus is wandering, they get up and go do a workout. Activity becomes something that is done in order to get back to a state where students are ready to learn. In this case, mind and body are linked in the sense that the mind is regulated by the body. However, the body is removed from directly learning as little is done to incorporate physicality into the learning activities themselves. The learning and physical activity in Mark's class seemed somewhat detached.

Tenuous as the link between mind and body may have been in both programs, both teachers made strides forward in recognizing that there is a place for student bodies

in classrooms that involves being more than merely a vessel within which to store and transport brains.

It is clear that both teachers also considered the environment in which they were teaching when they began making alterations to their classrooms. They both identified that the original arrangement of their classrooms was not conducive to student movement and as such, working within the confines they were given, took steps to alter that. Again, this was only just a beginning and while teachers did make steps forward, there were limitations in what they did.

Sue recognized that the conventional arrangement of desks in classrooms was confining and signaled to students how and where they were supposed to work. Traditional rows of desks and bookshelves were removed from Sue's class in order to introduce a greater variety of sitting, standing and laying down options for students in her class to work at. By altering the amount of furniture and freeing up space to move, as well as by changing the way desks were configured (sitting, standing, laying down), Sue began to consider how the students interacted with their environment. At the same time she effectively altered the message that the classroom was sending to her students about how they were expected to learn. However, the voices of the past were very powerful in her classroom and the children had a difficult time adapting to the initial changes she made. There were a number of students who were anxious about not having their own space and this resulted in Sue, after consultation with parents and students, reverting back to more conventional desks. It is unclear whether she could have tried to overcome this obstacle with her students through more discussion. What is fairly apparent is that the classroom has a set of very powerful pre-existing conditions surrounding it that dictates,

even to children in grade two, what is to be expected at school. When teachers attempt to change those expectations, it becomes very uncomfortable. The challenge for Sue, and others, is in determining how students can engage with the space they are working in differently, and recognizing that there is room for change in their environments. Ultimately, Sue's conversation with space was toned down significantly.

The interaction with space in Mark's class was different. His class was segmented. There were two areas of the room in which the messages conveyed about the use of space in each was very different. One area of his classroom, the desk area conveyed the very traditional messages to students that they should be sitting quietly and listening to the teacher. Student desks were configured in a traditional manner, and expectations for behaviour were conventional. These were places where the body was ignored in the classroom. Then there was the second space in the classroom, the space where the messages about bodies and learning changed, the gas station, the treadmill, and the exercise bike. These were small areas in the class where students could go to move and be active, pockets where the interaction between learner and place was different. These were the spaces where the body was acknowledged and welcomed.

Both teachers began to engage with space differently, and were attentive to how the space was influencing the students in their classrooms but the conversation was only started. Moving forward, both teachers will need to continue the conversation between space and the people in it and begin a deeper exploration that includes their students, about how space affects behaviour.

Recommendations

Given the degree to which the space in the classroom shapes opportunity and expectations for movement, one of the major hurdles that teachers face is the aging infrastructure within which they must teach. A 2009 Government of Canada report indicated that BC had one of the youngest average ages for education infrastructure in the country at just over seventeen years (Statistics Canada, 2009). Overall, BC has the newest schools in the country. This statistic is not reflective of only new construction, it also considers renovations and additions to older buildings (Canada, 2009). Change should be evident in new schools. However, despite the relatively young age of education infrastructure in BC, the basic structure of classrooms remains virtually unchanged when compared to schools in other western countries with much longer histories of public education. It will be challenging to overcome the past if educators are forced to innovate within a structure that has resisted the test of time and can continue to influence what we believe is expected of us within its boundaries. The challenge that the space has created is a major barrier that teachers will need to get past if there is to be large scale adoption of embodied learning in the education system in BC. While both teachers in this study were somewhat successful in working within the space they had, their programs ended up becoming a compromise due to the constraints place on them by space.

If the government of BC is as serious about educational reform as it suggests, policymakers should be giving as much consideration to where learning occurs as they do to what is being learned. The curriculum in BC has just gone through a major revision, and while it is unreal to expect that all the schools in the province be replaced in a similar manner, moving forward school designers need to place more emphasis on opportunities

for movement, connection with outdoors and other learners, and access to natural light. This would likely have to include a major reconceptualization of what a classroom looks like and perhaps a change from the archaic twenty by thirty design that has been in place for at least the last 150 years.

In the meantime, school boards and school administrators need to encourage teachers to explore new ways of teaching and learning that include the body and that work in the existing confines of their classrooms. This includes enabling teachers the opportunity to challenge the pre-existing space of their classrooms by adapting or removing furniture, both desks and built in furniture, expanding beyond the walls of their classroom into the outdoors and into hallways, and encouraging multi-grade, multi-class interaction. A larger scale interest and adoption of embodied learning will create pressures for structural change.

A shift toward embodied learning will also require a healthy investment in professional development opportunities that revolve around the inclusion of movement and the body in classrooms. A carpenter would not be expected to build a house without a hammer; likewise teachers cannot be expected to create change in their classrooms unless they are given adequate tools to do the job. This does not mean providing one district-wide professional development opportunity a year that may include someone talking about how to increase fitness in schools, although it is a start. Educators need to be exposed to embodied learning, in practice, and in theory. Embodied learning is a relatively new idea in western education. Educators need to be exposed to other ideas, traditions, and cultural understandings of learning. Teachers will drive change, and if they are not given widespread exposure to the concept little will come of it. This also

means that administrators and boards alike must make an effort to promote a culture of innovation and change in which teachers are not fearful of making mistakes. Likely there will be setbacks and new ideas will stumble. If teachers are not made to feel that experimentation and failure are part of the progression of embodied learning, or any new teaching approach for that matter, they will be reluctant to stray from the path that they are already on, and have been on for some time.

Areas for Future Study

The application of embodied learning principles in other learning environments, and how they can subsequently be applied to classroom learning, is an area that requires more research. The current study was only able to attract two participants, both of whom worked within conventional classroom settings. A larger scale study, that included classrooms from First Nations' schools, outdoor education programs, aboriginal education programs, and other alternate programs and school systems, would perhaps provide more variety and be able to present a more diverse picture of how embodied principles and movement can be incorporated into conventional classrooms and into learning activities.

Another area that needs to be further examined is the effectiveness of embodied learning approaches compared to student outcomes. While the current study highlighted how teachers are incorporating embodied learning practices in their classroom, and the participant teachers reported that embodied learning was used as an effective classroom management strategy, it will be necessary to show that their adaptations can produce practical academic results in the form of improving student-learning outcomes.

Finally, a review of how teacher education is delivered in universities around the province would provide useful insight into how beginner teachers are being prepared for the modern classroom. An analysis of the university as a space for learning would shed light on how, or if, traditions in education are being challenged in new teacher education.

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Appendix A
Escher's Seahorses

http://www.mcescher.com/gallery/switzerland-belgium/no-11-sea-horse/

Appendix B
Hokki Stool

Appendix C
Zone-o-meter

www.zoneinproducts.com/zone-in.html

Appendix D
Hangboard