

NATURE PLAY SPACES AS LEARNING ENVIRONMENTS

by

Susanna M. Bender

B.Sc., Dalhousie University, 1994

ECE, St. Joseph's ECE Training Program, 1996

B.Ed., University of Victoria, 2005

A PROJECT SUBMITTED IN PARTIAL FULLFILLMENT

OF THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF EDUCATION

in

THE AREA OF EARLY CHILDHOOD EDUCATION

Department of Curriculum and Instruction

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University of Victoria

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Supervisory Committee

Dr. Christopher Filler, Supervisor
Department of Curriculum and Instruction

Dr. Jodi Streelasky, Departmental Member
Department of Curriculum and Instruction

Abstract

There is a renewed interest and drive to incorporate nature-based learning experiences into the public school system. The emphasis is on taking children out into nature and bringing nature into the classroom. What nature-based learning looks like depends on many factors but the commonality between all programs is that they aim to take advantage of what nature provides to enhance and develop children's knowledge and hands-on experiences. In this project I draw on experiential learning theory, the nature-study movement and attention restoration theory. Together these theories validate using nature play spaces as learning environments to support and motivate students' social, emotional, cognitive and physical development. By allowing students to explore the outdoors and use the natural affordances provided by nature, educators can promote students' curiosity, alleviate fears, and connect play in nature to learning in the classroom. In this capstone I focused on the creation of an interactive nature play space database which I think would be useful as a starting point and resource for teachers to begin their excursion into the world of nature-based learning.

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Acknowledgements

I would like to thank my co-workers, friends and family who supported my decision to enroll in this graduate program and encouraged me along the way. I would like to acknowledge and thank my advisor, Chris Filler for his help on this graduating project.

Chapter One: Introduction

As an early childhood educator, I am constantly searching for educational approaches that will challenge and promote my students' learning. I have found no better way for children to learn than through play in a nature environment. Vygotsky regarded play as an important contributor to a child's language, cognitive, physical and social-emotional development (Burriss & Tsao, 2002; Nicolopoulou, Barbosa, Iigaz, & Brockmeyer, 2009). Hughes (1990) explains that how children play and where they play influences the effectiveness of learning through play. Quality play should be child-directed in a play environment that promotes social interactions, child involvement, physical and mental challenges, as well as, offering children areas for privacy and access to nature. Nature play is play outside in a stimulating nature environment where children initiate and direct their open-ended play scenarios (Haas & Ashman, 2014). Moore (2014) defines nature play spaces as living systems. Nature play spaces provide children with real-life examples of how nature can be damaged, regenerate, adapt and change through the seasons and how children themselves impact the nature space. The natural environment has an impact on children's play by providing a setting that both challenges and promotes curiosity and creativity within their play (Fjørtoft, 2001; Fjørtoft, & Sageie, 2000; Haas & Ashman, 2014). Over the past two school years I have taken my class out once a week on nature walks to nature play spaces. I have noticed that nature play spaces open up entirely new venues for children and teachers to combine the appeal of playing outdoors with learning.

There is a significant difference between indoor and outdoor learning environments. Inside spontaneous free play is often interpreted as loud, noisy and disruptive behavior (Hewes, 2014). Educators typically favour closed, structured and academic-focused activities indoors; however, when outdoors flexible and child-initiated approaches are more readily accepted

(Maynard, Waters, & Clement, 2013). Gibson (1979) introduced affordances as the potential functionality assigned to objects in an environment (Heft, 1988). What a play space affords a child to do is contingent not only on the environment but also on the child. A child's skills, abilities, perseverance and courage affects how a child perceives the potential uses of a play environment (Sandseter, 2009). Therefore, features of a play space must take into consideration the various levels of physical development of the children who will use the space and what is needed to stimulate their development (Barbour, 1999). Potential affordances in a nature play space may include but are not limited to climbable features, jump-down-off-able features, flat or relatively smooth surfaces, swing-able features, graspable/detached objects, dangerous elements (Sandseter, 2009). Play spaces that afford different types of play and social interactions help children to foster peer relationships and enable them to play with children of differing physical abilities (Barbour, 1999; Kaarby, 2005). A natural environment allows children to climb, jump and swing just as they can in a traditional playground but in a more challenging and exploratory manner (Azlina & Zulkiflee, 2012). A variety of differing landscape environments helps to create a varied play space that allows for differing play situations (Azlina & Zulkiflee, 2012; Fjortoft & Sageie, 2000). The natural environment provides children with endless possibilities for inspiring their curiosity, exploring their interests and testing their abilities (Haas & Ashman, 2014; Wells, 2000).

As an educator, my goal is for my students to have an opportunity to be co-learners who collaborate, negotiate, challenge and reflect as they become agentic learners (Ghalfouri, 2014; British Columbia Ministry of Education, 2016). Agentic learners are students who are curious, motivated and active participants in pursuing, interpreting and constructing their knowledge and understanding (Ghalfouri, 2014; Sorin, 2005). Nature play spaces are ideal settings for this type

of learning to occur. Playing in nature is an opportunity for children to engage in play that is unstructured, self-directed and voluntary (Ghalfouri, 2014).

Barriers to Nature Play

The amount of play time and the quality of the play time that school aged children have access to today is less compared to previous generations (Carver, Timperio, & Crawford, 2008; Miller & Almon, 2009). Factors such as urbanization, stranger danger, road safety, two working parents, less extended family support, chauffeuring children to school, extra-curricular activities and the pursuit of academics have all contributed to a decrease in the amount of play time that children have (Carver et al., 2008; Ginsburg, 2007). A consequence of limited play time is an increase in the number of mental and physical health issues seen in school-aged children which include: childhood obesity; anxiety; depression; aggression; limited attention span; and poor social skills (Ginsburg, 2007). Children spend more time engaged in sedentary activities (e.g. computers and television) and structured activities leaving them with less time and inclination to participate in self-initiated and self-directed play (Burdette & Whitaker, 2005; Ginsburg, 2007). These restrictions result in children being unable to fully explore their environment or create attachments to the natural environment (Korpela, Kytta, & Hartig, 2002). As a result, children are unable to make discoveries, exercise their curiosity, or engage in risk taking behaviours, all of which are necessary for children to physically and mentally grow and blossom (Coe, 2016; Korpela et al., 2002). This capstone project will examine the literature on the impact of nature play on children's learning and overall development, consider how nature play can be incorporated into a classroom's weekly routine and reflect on the obstacles and challenges to doing that in a primary classroom.

Rationale

When new primary students enter my classroom for the first time, they are generally not interested in reading, writing or arithmetic. Their focus is on when they will get to play. Perhaps the children have the correct perspective on what educators, parents and schools should be striving to achieve. I find that it can be very difficult to schedule time within the weekly routine to allow for children to play without labelling the activity with a specific learning objective. With an emphasis towards academics encouraged by parents, administration, and policy holders it can be difficult to incorporate and then justify time for play (Lynch, 2015). At school, I often see teachers using outdoor play as a break from learning or an opportunity for children to burn off some energy before they get back to traditional educational pursuits. Initially I found it difficult to find the time in my busy teaching schedule to offer free play and still feel that I was going to be able to cover the required curriculum. As I have become more familiar with the positive influence that outdoor learning has on children's development I have gradually tried to introduce more nature learning opportunities into my teaching. It has had a profound impact on how I view play in nature and on the quality of play that my students are able to engage in. This past school year I began by incorporating nature walks, to a nearby forest area, as a regular part of my class' weekly schedule. Some weeks we made connections to topics taught in the classroom and other weeks the children's inquiries in the forest directed our learning in the classroom. We used a nature journal to document what we had been learning about or doing on our outings. Using the nature journal and taking photographs of activities that the children engaged in during our nature outings provided opportunities for students to demonstrate and document their learning, knowledge and understanding. The nature journals also provided

support for report card comments, evidence of what learning students were doing on nature outings for both parents and administrators (British Columbia Ministry of Education, 2016).

When my students were out in nature I noticed that there was more elaborate pretend play and constructive play going on compared to play in the classroom. Sobel (2008) describes seven types of play that children can participate in while playing in a nature play environment; adventure, fantasy and imagination, animal allies, maps & paths, special spaces, small worlds, and hunting & gathering play. The children took the initiative to delve into their interests and expand their knowledge alongside their peers. The natural environment had an appeal and adaptability for all learning types from the more physical learners to the cautious learners (Coe, 2016). The children's choice of activities ranged from climbing trees to collecting fairy caps (acorn tops). Each child was able to select high risk or low risk activities to engage in based on their individual comfort level, as well as, their cognitive and physical skill set. As each child shared their confidence, creativity and imagination the possible uses for materials and the willingness for children to try new things multiplied. For example sticks became swords, bows and arrows, fishing rods and magic wands. The students guided and supported each other in how to climb a tree. They learned to be aware of potential hazards and understand how to respond to those dangers and safety concerns. I found that the biggest difference and advantage to having the children outside in a nature environment was that behavioral challenges were at a minimum. Those children who struggled to self-regulate their energized bodies inside the classroom blended into the group when they were outside. They become an integral part of the class, admired for their endless energy and creativity. My role as an educator was not just to monitor for safety but to listen to the children and gather information about how they learn,

areas of inquiry, and where guidance or support was needed. There were many challenges to taking a class outside to play in nature but the benefits far exceeded the obstacles.

Connection to Theories

The theories that guide this project include attention restoration theory (Kaplan, 1995; Berman, Jonides & Kaplan, 2008), John Dewey's experiential learning theory (1897), and the nature-study movement (Comstock, 1922).

Attention Restoration Theory.

Attention restoration theory (Berman et al., 2008) demonstrates how exposure to nature helps individuals to focus their attention and improve cognitive functioning. A restorative environment can reduce mental fatigue, create a connection to nature, and improve directed attention (Kaplan, 1992, 1995). A restorative environment must contain an element of interest or curiosity, provide a sense of being away from their usual setting, create the impression of being in another place and correspond with one's purpose and interests (Kaplan, 1992, 1995). Playing in nature meets all these criteria. There is an instinctive response from children when you go outside. Children's regular interactions with the natural environment promote their curiosity and interest to learn about that environment. As children interact with and understand nature they place a greater value on those living things and themselves (Zhang, Goodale, & Chen, 2014).

Experiential Learning Theory.

According to experiential learning theory (Dewey, 1897) children learn most effectively through hands-on experiences. In addition, this theory recognizes that children's interests indicate their state of development, learning is a social activity through which children cultivate and practice language and social skills, children cannot fully understand a concept unless it can

be placed within the context of their experience and children must be active participants in the learning process. Using a nature play space that is significant to children creates a foundation upon which further learning can develop. Children bring with them their past experiences, knowledge and understanding of the world around them then build on that knowledge through play (Ghafouri, 2014; Maynard & Waters, 2007). Teaching topics abstractly creates a disconnection between what children know of their world and what they are learning about in the classroom (Sobel, 1996). Hands-on or direct-learning experiences with nature create connections to students' immediate environment, can change their perspectives and influence their future environmental actions (Chawla & Derr, 2012; Duerden & Witt, 2010). Encouraging and promoting learning in nature enables children to learn in a holistic and integrated way (Maynard & Waters, 2007; Smith, 2002).

Nature-study Movement.

The nature-study movement began in the United States in the late 19th century and gained popularity in the early 20th century (Lorsbach & Jinks, 2013). Nature-study supporters believed that the child-nature interaction was essential and the study of nature should be integrated across the curriculum (Johnson, 2013). Comstock (1922) advocated using the nature study method as a way to foster children's imagination, enhance their inherent love of nature and nurture a life-long connection to the natural environment. She noted that engaging with nature had a positive effect on the mental and physical health of both the students and teachers. This was attributed to the hands-on quality of the nature-study method occupying the children's minds and bodies (Comstock, 1922). David Sobel (2015) describes this form of education as place-based education. Place-based education integrates the students' local natural environment, cultures and social issues into developmentally appropriate hands-on learning experiences

across the curriculum. Spending time playing, exploring and learning in nature develops children's sense of place, improves their environmental attitudes, and increases scientific knowledge and understanding (Gill, 2014).

Significance

As knowledge and understanding of the benefits to playing in nature spreads, so has the creation of nature-based early childhood education programs in North America (MacQuarrie, Nugent & Warden, 2015). Forest schools began in Denmark in the 1950s and gradually expanded into Germany, Australia, Britain, and Scotland (Kane & Kane, 2011; MacQuarrie, Nugent, & Warden, 2015). Nature kindergartens are now a standard for early childhood education in most European countries and Australia (MacQuarrie et al., 2015). Canada's first forest school opened in Ontario in 2008 and British Columbia's first nature kindergarten began in 2012 in Sooke, BC (Forest Schools Canada, 2016). The exact interpretation of what a nature-based program includes varies depending on the social, cultural, and political influences in each country or region (Humberstone, 2010; MacQuarrie et al., 2015). Whether called a forest school or a nature kindergarten the main objective is the same. The children spend anywhere from part of the day to the whole day outside in nature where they are encouraged to play, discover and challenge themselves with the support, encouragement, and guidance of their educators (Kane & Kane, 2011; Robertson, Martin, Borradaile, & Alker, 2009).

British Columbia implemented its new curriculum in September 2016. The new curriculum supports the use of play and learning in nature environments predominantly through the science curriculum. The primary grades' science curriculum (British Columbia Ministry of Education, 2016) includes, but is not limited to, children being able to have hands-on real-life experiences, to have opportunities to express and reflect on their personal experiences, to

engage with and interpret familiar local environments and to consider the potential environmental consequences of their actions. For the majority of teachers who want to include nature play as part of their weekly program they must be creative and innovative while searching out opportunities to bring their students out into nature and to bring nature into the classroom (David Suzuki Foundation, 2015)

Returning to the same nature space regularly permits children to engage with, observe and interact with their special place through the changing seasons and weather conditions (Kaarby, 2005). Each season provides children with an altered environment in which to build their ways of knowing and learning (Fjortoft, 2001). Playing in nature provides children with a wider variety of play opportunities, through which they can develop their physical skills, improve their motor-coordination and enhance their ability to concentrate (Bell, Dymont & Evergreen, 2006; Fjortoft, 2004; Kaplan, 1992). When children play in nature on a regular basis they develop a connection to nature and an appreciation of nature (Maller, 2009; Nedovic & Morrissey, 2013). The outdoor learning environment is an opportunity for educators to expand and augment their students' learning experiences.

Project Overview

In this chapter, I introduced my topic, which examines why play in nature is important to children's learning and development. I discussed my rationale, the significance of play in nature to early childhood education and the theories that are guiding my project. In the following chapter, I provide a review of the literature on nature play spaces as restorative environments and the effects of outdoor play in a natural environment on children's physical, social, emotional and cognitive development. In chapter 3, I describe how using an interactive nature database can support and encourage educators to use available nature play spaces within

their community to enhance classroom learning. Chapter 4 includes my reflections and a discussion outlining my projects recommendations for future research/practice.

Chapter two: Literature Review

As discussed in Chapter one, children today are spending less time outside playing and more time engaged with technological devices or in adult directed activities compared to previous generations (Burdette & Whitaker, 2005; Carver et al., 2008; Ginsburg, 2007; Miller & Almon, 2009). Some research suggests that children are exhibiting an increase in physical, social-emotional and cognitive difficulties (Ginsburg, 2007; Little & Wyver, 2008). Outdoor nature play settings provide teachers with an opportunity to allow children to interact and learn from their local natural environment while nurturing children's self-confidence, independence, curiosity, resilience and their ability to cooperate with others (Maynard & Waters, 2007; Wilson, 2008).

In this chapter, I discuss literature that demonstrates the value of using nature play to strengthen children's learning in and out of the classroom. The way nature is used to enrich learning differs greatly from country to country and educational setting to educational setting (Humberstone, 2010). The primary differences in nature education applications are the types of nature play locations, which range from green space in a playground to expansive forested areas, the educators' comfort level and confidence for using nature in their teaching, the amount of parent and administrative support for learning and playing outdoors, and children's interest, comfort level and willingness to be out in nature (Waters & Maynard, 2010; Maynard, Waters & Clement, 2013).

Nature Shortfall

Lack of experience with the outdoor environment creates a deficit in children's knowledge and understanding. They have no personal experiences with which to make connections to what they are learning about nature in the classroom (Eick, 2012). Due to

diminished green space, increased exposure to electronics, safety concerns and working parents, children have fewer opportunities to interact with nature (Zhang, Goodall & Chen, 2014). This lack of exposure to nature results in children whose attitude towards nature is one of fear and anxiety. Sobel (1996) defines the fear of the natural world and ecological problems as ecophobia. Francis, Paige & Lloyd (2013) posed the question, how do students view and experience nature outside of school? Using an open-ended questionnaire and focus group discussions with twenty-six grade 6 and 7 students the researchers sought to determine what students considered to be nature, what access they had to nature, how they interacted with nature, and what their attitudes were towards nature. The results showed that for a majority of students, interactions with nature involved adults transporting them to a nature play environment and participating in adult-directed activities in nature. Many of their fears or concerns about nature resulted from a lack of knowledge and understanding of local plants and animals. Francis et al. concluded that the drawbacks to minimal nature play included insignificant risk taking opportunities and a lack of awareness of themselves in relation to the natural surroundings. Francis et al. explained that risk taking allows children to develop risk management skills, capitalize on cognitive experiences through sensory connections to nature, as well as, to observe and interact with plants and animals thereby clarifying and resolving many fears, concerns and/or misconceptions about nature.

Value of Nature Play

Socio-cultural theory maintains that play enables children to gradually learn how to self-regulate and develop an understanding of abstract thought (Burriss & Tsao, 2002). There are many different types of play, such as locomotor play, object play, parallel play, pretend play, rough and tumble play, and social play (Burriss & Tsao, 2002). Children's play is an expression

of themselves, their interests, areas of curiosity, worries, concerns, ages and developmental levels (Burriss & Tsao, 2002; Smith & Pellegrini, 2008). For learning and development to occur through play a child's play needs to be self-directed, flexible, varied and an engaging experience (Ghalfouri, 2014). Nature play spaces provide outdoor locations where free play experiences extend beyond typical play observed in the classroom or on a traditional playground. Within the classroom the ability for children to take risks and acceptable levels of activity are limited. Engaging in nature play outdoors not only changes the learning setting but also behavioural expectations. Creativity, exploration and noise constraints do not apply in the same way outdoors as in the classroom (Maynard et al., 2013). Coe (2016) reflects on the risk-taking and risky play behaviours of four children in a Canadian forest school setting. Coe considered risk-taking and risky play behaviours within natural environments as a necessity for nurturing children's social, emotional and physical growth and development. A natural consequence of playing in nature was that children constantly interacted with nature in a physical way. The study indicated that children engaged in risky play that combined variations in height, speed, danger and potential for harm. The children participated in risky play based on their individual comfort levels. Cautious learners were motivated to challenge themselves physically with the support and encouragement of their spirited peers. The children naturally created physical and mental tasks for themselves, and formed play situations in which they collaborated and problem solved. By interacting with nature the children developed respect for and a connection to their natural environment. Engaging in outdoor unstructured play provided children and educators with real-world applications through which learning occurred.

The types of play that children can engage in when in nature goes beyond just physical play. Zamani (2016) explored how four and five-year-old preschool age children played in three

different North Carolina outdoor play spaces. The study focused on five cognitive play behaviours; functional play (climbing and jumping), constructive play, exploratory play, dramatic play and games with rules. The results indicated that the play space with the most natural elements fostered children's functional play, exploratory play, dramatic play, games and manipulation of loose parts. Educators at that center viewed the nature play space as a valuable opportunity for children to engage in risky play and to learn with their bodies, environment and peers. Whereas the manufactured play areas offered functional play opportunities that were limited in scope and quickly became routine.

The Potential Role of Nature in Education

Wilson (2008) describes the nature play environment as a space that supports diverse and complex play opportunities for all learning types. In order for quality nature play and exploration to occur the outdoor play space should be safe, comfortable, stimulating, flexible, accessible and challenging to the students. Wilson (2008) specified that educators need to provide a rich learning environment, extended periods of uninterrupted nature play time, to focus on the child, to model desired attitudes and behaviours, and to interact with children in a positive way while engaged in nature exploration. The educator's focus should not only be on safety but on how the children are interacting with the environment, how they make use of loose parts, what new discoveries and experiences they have, their social interactions and what sparks their curiosity and trepidations. The emphasis should be on engaging all of their senses, personal interest and enjoyment of the experience instead of teaching. Allowing children to focus on the beauty and wonder of nature is an outstanding opportunity for teachers to meet the curricular demands through exploration and play.

Änggård (2010) studied how early childhood educators presented nature space to children in an effort to make nature spaces significant to their education. Nature spaces were defined as places where children had regular and repeated exposure to nature. These nature spaces were given significance through children's personal and social nature play experiences. The study determined that nature play spaces evolve in three different forms for children; as a classroom for children to learn about nature, as a home where children are comfortable and can play, and as an "enchanted world" where children's imagination and fantasy play can be explored and developed. According to Änggård's research children of a preschool age learned best when they could actively explore their environment making nature another worldly experience unlike anything they could encounter in a traditional educational setting.

Connections to Curriculum

Learning about the local environment and making connections between community and the local environment are ideas that are embedded throughout the new BC science and social studies curriculum for kindergarten through grade nine (British Columbia Ministry of Education, 2016). The science curriculum aims to take on a place-based approach to science learning. The rationale being that students will learn about the area in which they live and about local First Peoples and other local traditional knowledge (British Columbia Ministry of Education, 2016). The social studies curriculum aspires for students to understand the inter-relationship between humans and the environment (British Columbia Ministry of Education, 2016). How these learning objectives come to fruition is determined by the combined efforts and influences of the teachers, students, administration, parents, available resources and local environment. "The Ministry of Education defines the "what" to teach but not the "how" to

organize the time, space or methods to teach it” (British Columbia Ministry of Education, “Flexible Learning Environments”, 2016).

Carrier, Tugurian & Thomson (2013) investigated the challenges and advantages to using outdoor education to enhance students’ classroom science instruction. Two teachers, one principal and 49 fifth grade students from one elementary school in North Carolina participated in the study. Carrier et al. focused on how the student’s environmental knowledge, attitudes and comfort levels changed over the course of a year, how the teachers influenced the students’ attitudes and comfort levels, and what the students’, teachers’ and principal’s views were about indoor/outdoor science learning. The collected data showed that the teacher’s attitude and comfort level towards outdoor education impacted the students’ attitude, knowledge and comfort level. The more comfortable and enthusiastic the educator was about learning outdoors the more positive the students’ attitude and comfort level. Although educators valued the opportunity to implement outdoor education lack of training, time, the need to cover the required curriculum and limited resources were obstacles to fully implementing outdoor education into the regular classroom routine.

With time, support, and training integrating nature into the educational process can be a fluid and favorable endeavor. Blanchet-Cohen and Elliot (2011) studied four diverse early child care programs within one Canadian city that each placed an emphasis on children’s connections to the outdoor environment and encouraged outdoor exploration. All observations were done during the spring and summer where the children spent up to half the day outside. Data was gathered from both the children and their educators. The researchers found that children created strong attachments to their nature space, developed a sense of ownership and confidence in their space. The children used their nature space as an opportunity to challenge their physical abilities

and engage their imaginations. During social interactions in nature play spaces the children became sources of inspiration, support, and encouragement for their peers. The children's outdoor play situations required them to cooperate, collaborate and problem-solve. The educators' primary role was to promote the child-nature relationship. The way educators responded to, used and valued nature along with their students was viewed as an important part of modelling and supporting positive nature experiences. Nature provided an endless supply of play materials, teaching and learning tools because of the ever changing seasonal conditions. The flexible structure of the new "provincial curriculum provides learning standards that can be combined and integrated in various ways, to create courses or learning experiences that go beyond the borders of traditional learning areas to focus on students' needs, interests, and/or the local context" (British Columbia Ministry of Education, Learning Standards and Flexible Learning Environments, p. 3, 2016). Outdoor nature environments provide the children with a holistic educational experience in which they are able to engage all their senses while connecting to and with the natural environment (Blanchet-Cohen and Elliot, 2011).

Theoretical Frameworks

Experiential Learning Theory.

In Dewey's *Pedagogic Creed* (1897) he explains that education is a social activity. During this social process effective teaching can only begin when the educator has an understanding of the student's skills, abilities and interests. Children's knowledge and experiences begin at home and are gradually extended to the school environment. For learning to occur the educator needs to expand on children's familiar culture and community life experiences. Hands-on real life experiences allow children to utilize their funds of knowledge and ways of learning and knowing.

Kolb, Boyatzis, & Mainemelis (2001) differentiate experiential learning theory from other learning theories by its emphasis on experience. Experiential learning theory describes how learners progress through a cycle of four learning stages. Concrete experiences allow for observations and reflections. These reflections evolve into abstract thoughts from which new ideas form and are tested through concrete experiences. Children learn best when they are being challenged and given the anonymity to choose how and what they learn. Experiential learning requires children to continually use different skills and abilities while constantly making choices that effect the direction and depth of their learning. Upadhyay & DeFranco (2008) assessed third grade elementary students' knowledge increase and retention of science vocabulary after either directed classroom instruction or connected science instruction. Directed classroom instruction involved teacher directed activities that included hands-on science learning experiences where the teachers provided step by step instructions to reach predetermined results. Connected science instruction included activities that were hands-on, open-ended and connected to community events and the local environment. One hundred eight students from two elementary schools in the Midwestern United States participated in this study along with their teachers. The treatment group teachers received additional training prior to beginning the study. The results revealed that linking learning to prior knowledge triggers children's inquisitiveness and provides a purpose for learning new information. Hands-on learning experiences allowed students to activate prior knowledge, practice and revise their understanding to include the new knowledge. Students who participated in the hands-on learning experiences retained more of the science vocabulary and for longer periods of time compared to the control group. Upadhyay & DeFranco emphasized that there should be a balance between direct instruction and hands-on science instruction. Directed learning was of

value to some students as a way of ensuring their understanding and avoiding confusion. The new BC curriculum makes connections to experiential learning theory's emphasis on building on children's funds of knowledge, and the importance of real-life hands-on learning opportunities. "Deeper learning is better achieved through "doing" than through passive listening or reading. Similarly, both concept-based learning and the development of competencies engage students in authentic tasks that connect learning to the real world" (British Columbia Ministry of Education, "Concept-based, Competency-driven Curriculum", 2016).

Nature-study Movement.

According to Comstock (1922) the nature-study movement encouraged children to use their observational skills in nature to build understanding. The objective was for children to interact with nature so they could form a connection to nature, a respect for nature and a love of nature as they learned about and from nature. For the educator, incorporating nature-study into the classroom routine should be a pleasurable and enticing venture. The educator does not have to be able to answer all the student's questions about nature but must be able to guide their students towards finding the answers. Nature-study was viewed as a way to enhance and support what is learned in the classroom.

The nature-study movement placed a great importance on integrating nature into all areas of learning (Lorbasch & Jinks, 2013). The new BC curriculum (2016) emphasizes the importance of learning about the environment in which students live. The outdoor learning environment provides students with real-life hands on experiences through which they can maintain "their curiosity and sense of wonder about the natural world" (British Columbia Ministry of Education, "Rationale", 2016). David Orr (1989) views a sense of wonder as the motivation needed for the pursuit of ecological literacy. "Knowing, caring and practical

competence together can be regarded as the basis of ecological literacy” (Orr, 1990, p. 3). Direct experience with nature is essential for children to begin to develop their understanding of the environment and to begin making connections between what they know, what they are learning in the classroom and what is occurring in the natural world (Orr, 1989, 1990). Sobel (1996, 2015) stressed the importance of educating children about the local environment first and then gradually moving toward learning about the world globally. This application works well for the educator trying to incorporate nature into their classroom curriculum. Beginning by simply exploring the nature environment near their school and gradually introducing community experts into the learning experience. Such as parents, guest speakers or specialists who want to share their knowledge of a particular nature element with the students. Simple encounters out in nature, where the children are actively involved, help create captivating and memorable nature experiences for children to deepen their learning and understanding (Wilson, 2008).

By investigating scientific concepts in nature, children can build meaningful connections to the environment, learn about the effect they have on the environment in which they live and enrich their sense of community (Ghafouri, 2014). Ridgers, Knowles & Sayers (2012) investigated two questions, what are children’s views, knowledge and experiences of play in the nature environment and is nature play an ideal method for connecting children with their natural environment. The study included seventeen, 6-7 year olds, from an English primary school. The students participated in 2 hour forest school sessions, once a week, over a 12 week period. The sessions were led by trained forest school practitioners. Prior to participating in the forest school session the children believed nature play consisted of playing in local parks or home gardens. After the program the children recognized that nature environment afforded them a wide assortment of play possibilities. The study revealed that participants had increased their

knowledge of nature, nature play and their local environment. Children were challenged to face fears, alleviate concerns about local flora and fauna, build social skills, improve motor skills, foster leadership skills, and develop a sense of respect and a connection to the natural environment.

Nature kindergartens and Forest schools allow educators and children with the time and space to be fully immersed in the outdoors while playing and learning. For teachers in traditional classrooms, where the majority of teaching occurs indoors, is incorporating nature outings or activities into the routine only once a week a valuable and viable option for enhancing children's nature education? Hartmeyer and Mygind (2016) explored whether or not participating in a "nature class" once a week for three years during elementary school had an influence on the students' social skills during the following school years. During the "nature class" students collaborated and cooperated with a variety of peers, chosen by the teacher, during group work. Students, who were interviewed seven years after participating in the nature class, reported feeling confident in their ability to work with different groups of students, having the self-assurance to express their opinions, and the skills to listen and incorporate their peer's ideas into their group work. Hartmeyer and Mygind identified six interrelated conditions needed to cultivate peer social relations; opportunities to play, interactions with peers, active participation, pupil-centered tasks, cooperation and engagement. Social behaviours established during the "nature class" were the foundation upon which the students' social skills developed during the subsequent school years. By incorporating nature play into the weekly schedule even for just a few hours once a week had a positive effect on the student's social skills, motor skills, interests and self-confidence.

Attention Restoration Theory.

Attention restoration theory focuses on two types of attention, directed and involuntary attention. James (1962) describes involuntary attention as something that captures the senses because it is exciting, interesting or instinctive. Involuntary attention is not planned or intentional but the senses are stimulated and a response is immediate. Voluntary or directed attention is a cognitive mechanism achieved only through repeated active purposeful efforts to maintain focus (Kaplan, 1995). As society undergoes changes with increased populations and advances in technology our cultural norms are changing too (Kaplan, 1992). There is a constant bombardment of information, no longer do we expect to have to wait or have time built into the daily routine for rest. This creates an increase demand for our directed attention and as a result intensifies mental fatigue (Kaplan, 1992, 1995).

Directed attention fatigue impedes individuals' capacity to select from their store of knowledge and skills in order to solve everyday problems. Attention fatigue inhibits individuals' adeptness to stay focused, to think before acting and to control their behaviour. In modern society where there are many distractions, the ability to focus on the vital and not the exciting is an essential skill (Kaplan, 1995). In order to replenish the ability to direct attention individuals need to engage in an activity that does not require directed attention. One solution to this is sleep. Another and more easily available and applicable solution is to participate in a restorative experience or be in a restorative environment. A restorative environment requires that an individual to be away from any activity or environment where they need to use their directed attention. The place or activity must feel large enough to immerse oneself in and create the feeling of being part of something larger than oneself, be fascinating, interesting and purposeful to the individual (Kaplan, 1992, 1995).

According to attention restoration theory directed attention can be restored through exposure to nature (Berman et al., 2008). An effective restorative nature environment must be easily accessible, offer many fascinating features, evoke an inherent connectedness and offer many activities that appeal to individual leisure pursuits (Kaplan, 1992, 1995). Bagot, Allen & Toukhsati (2015) attempted to identify what elements within children's outdoor play spaces make the environment potentially restorative. The percentage of nature items (vegetation, grass), playground characteristics (manufactured equipment and features), and the children's play experiences (social, physical, positive, negative) on each play space were examined and compared. There were 550 students, aged eight to eleven, from fourteen different schools in an Australian city who participated in this study. Bagot et al. determined that the percentage of natural elements (shrubs, trees, grass) in a play space did increase children's perceived restorativeness. However for children, both physical and social play were integral to the perceived restorative effect of a play space.

Collado, Corraliza, Staats & Ruiz (2015) considered under what conditions contact with nature positively influenced children's environmental behaviours and attitudes towards nature. Eight hundred thirty two children, ranging in age from six to twelve, who were in daily contact with nature in one of three different nature settings in Spain were observed and monitored. The first was recreational contact with nature in an urban area, the second was recreational contact with nature in a mountain rural area and the third was work-related contact with nature in an agricultural rural area. Collado et al. concluded that exposure to nature may improve children's environmental attitudes and behaviours but the type and frequency of the nature contact was important. Exposure to nature had the greatest impact on children's environmental behaviours and attitudes when those interactions with nature were for recreational purposes as opposed to

work related. According to attention restoration theory, this could be explained by the fact that when contact with nature was a work related activity the children would need to use their directed attention and the nature environment would therefore not meet the criteria for a restorative environment.

Summary

In this chapter I present a review of literature connected to nature play spaces and the benefits to incorporating nature play into a classroom's weekly routine. Creating a child-nature connection takes time, effort, student interest along with school and parent support (Sobel, 2015). There is more to learning in nature than just going outside. How children and educators interact and engage with nature and each other is an essential part of the learning process (Maynard & Waters, 2007; Maynard et al., 2013). The child-nature connection can be enhanced when children have free choice, direct experience and are actively engaged in nature play on a regular basis (Ghafouri, 2014). When these criteria are present children's nature play is natural, flexible, varied, and socially and emotionally significant (Little & Wyver, 2008). In the next chapter I describe how the new curriculum's design permits teachers to take their classes outside to learn. I discuss how to use an interactive nature database as a resource for implementing and planning regular nature space outings with primary and intermediate grade classes.

Chapter 3: Connections to Practice

Children are driven to explore the world around them. Nature-based education allows children to indulge their curiosity in a hands-on real life environment that changes with the seasons and the weather (Blanchet-Cohen & Elliot, 2011; Gurholt & Sanderud, 2016; Maynard & Waters, 2007). What outdoor learning looks like and entails for students, parents and educators varies depending on the location and who defines the term (MacQuarrie et al., 2015). This chapter connects the information from the literature review to the context of current teaching practice. In this chapter, I summarize how some of the obstacles that teachers encounter when first considering implementing nature education into their routine can be subverted if they were initially provided with information on nearby nature play spaces, given strategies for getting their students outside, provided links to nature-based resources and curriculum connections, and presented a summary of the benefits of nature-based learning. In my project I propose that by creating an interactive nature play space database teachers and administrators would be encouraged, supported and inspired to use nature play spaces as learning environments that extend and support learning beyond the classroom.

Using a Nature Play Space Database as a District Resource

Over the past two years I have been taking my primary grade class out, once a week for an hour, to nature play spaces within walking distance of my school. There have been many challenges along the way but with support, creativity and flexible thinking I have managed to establish going on a nature outing as part of our weekly routine. One of the biggest obstacles initially was searching for areas that were easily accessible, within walking distance of the school and suitable for a large group of children. I gathered and continue to acquire a list of locations from online maps, students' family members, and by exploring the neighbourhood

around my school. This information has been invaluable to ensuring that I can provide my students with quality nature outings each week. However, it has also been a time consuming task and could easily be a deterrent for many teachers who may have an interest in using the outdoors as an extension of their classroom.

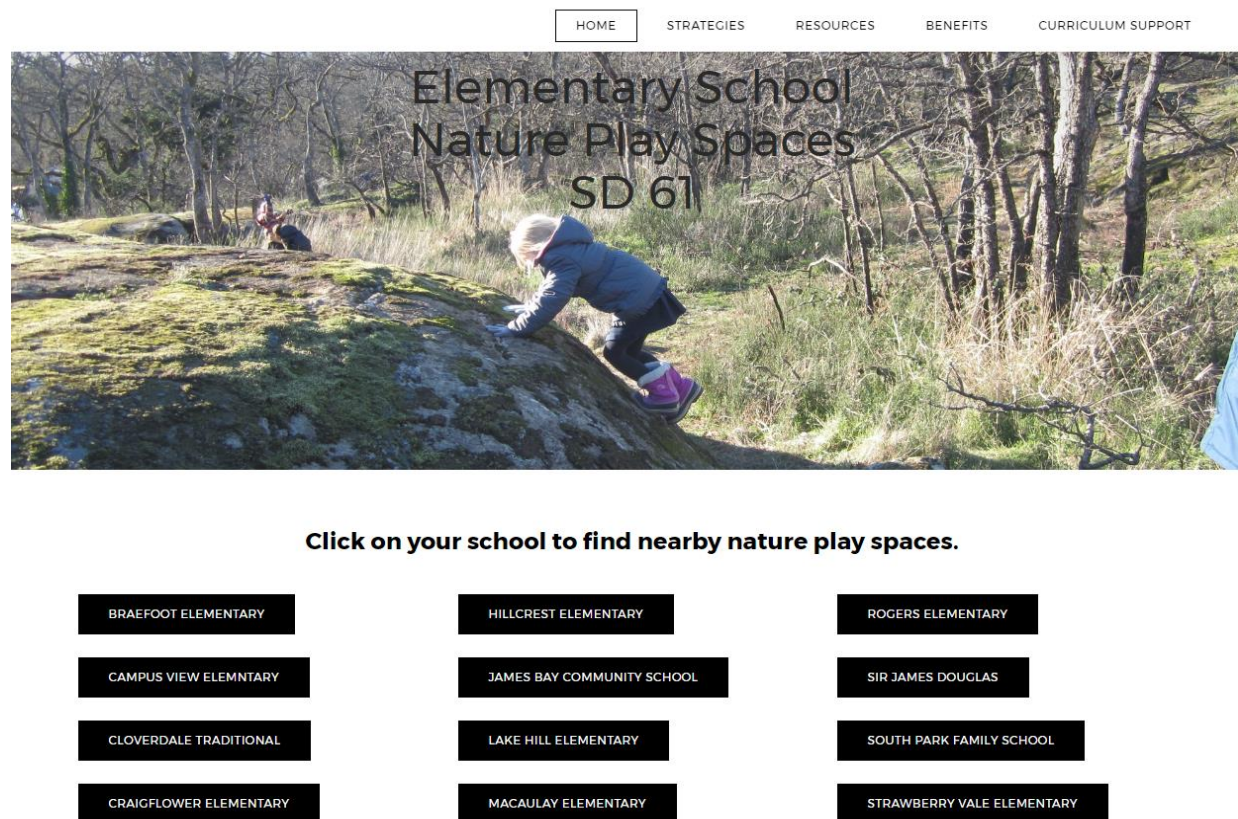


Figure 1. School links to interactive nature play space maps.

Using an interactive nature play space database would allow any teacher in their district to look at a map of their schools’ neighbourhood and see where all the nature play spaces are located within walking distance of their elementary school. Figure 1 illustrates how users of the database could easily find and click on a link to a school’s map. Figure 2 depicts an example of what a school’s neighbourhood map would look like once they have chosen a school’s link.

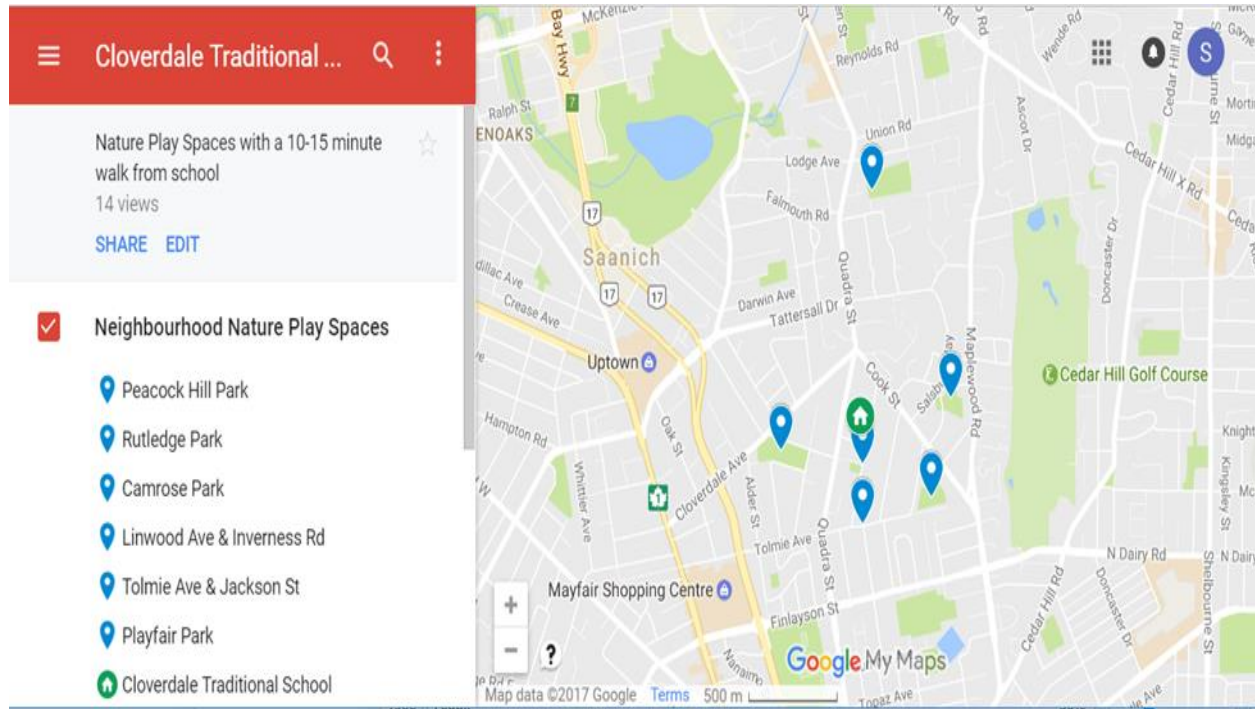


Figure 2. A school's neighbourhood map showing locations of nearby nature play spaces.

For this project I am only identifying nature play spaces on the maps that are within a walking distance of 10-15 minutes because of the age of the children in the primary grades. From my experience most of the children's energy and enthusiasm for walking wanes after that period of time. The interactive database would allow a teacher to click on each nature play space location to see photographs of what the area looks like, where exactly it is located and notes on the site. The notes would include information about the site's terrain (rocky, sheltered areas, open fields, and gathering places), variety of trees and their climb-ability, available loose parts, suitable weather conditions to visit, animals you might see there, safe and interesting routes to walk to the nature play space (away from traffic, on walking paths, by community gardens), availability of washrooms, and if the location is wheelchair accessible. Figure 3 demonstrates how this information would be viewed once a specific school nature play space marker on the neighbourhood map has been selected.

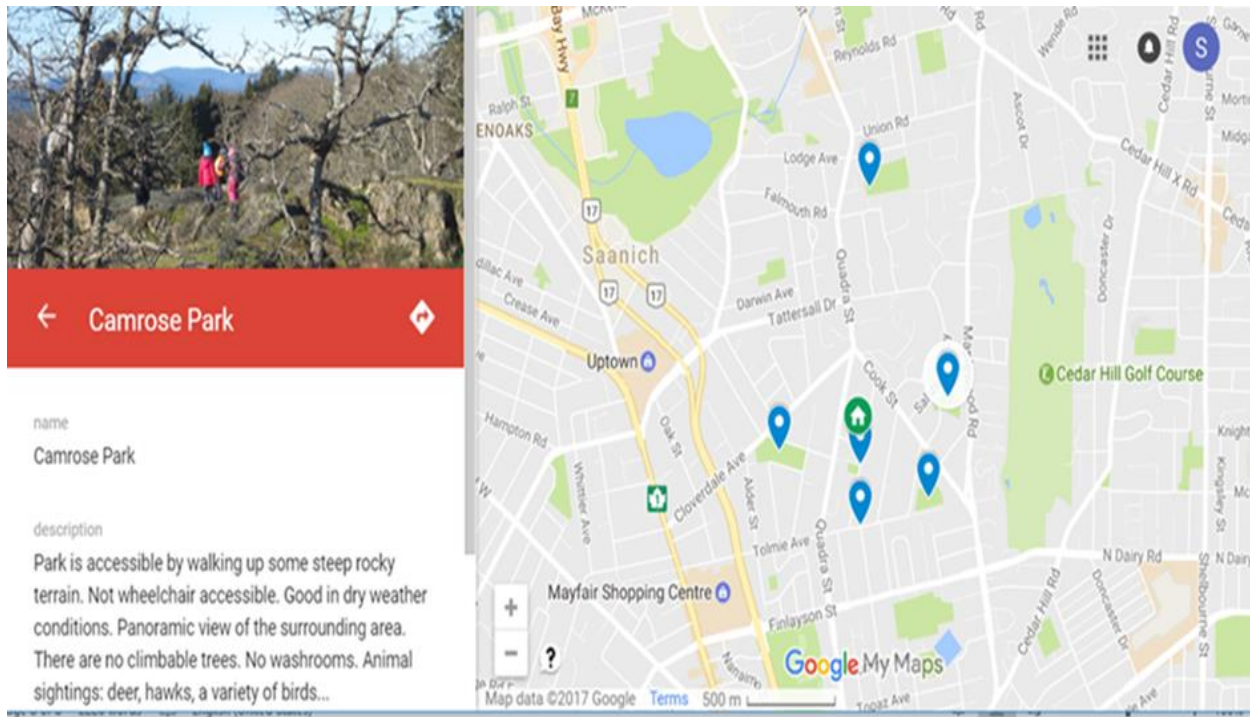


Figure 3. Site name, map location, description and photos of each nature play space are available.

Going out in nature gives teachers an opportunity to give real-life context to what they are teaching in the classroom. The interactive map would allow teachers to better utilize the available nature play spaces to achieve learning objectives by allowing teachers to choose sites best suited for their planned activity and the weather on that day. The nature play space database would also include information about the nature play spaces on the school grounds, as seen in figure 4. This is not only for teachers new to the school but also for those teachers who are unsure of where to start if they want to incorporate the outdoors in their student's learning.

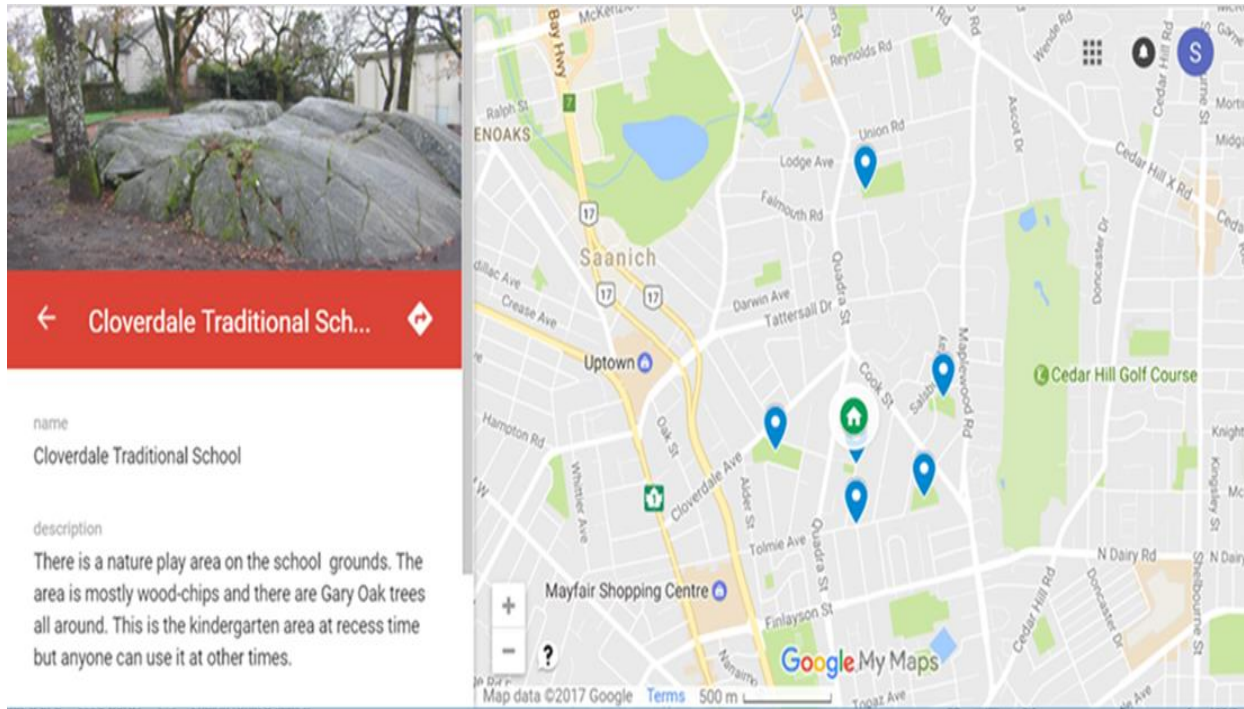


Figure 4. Information about on-site nature play spaces can be viewed by clicking on the school icon.

The nature play space database would provide recommendations for how to make nature outings part of the weekly routine and links to resources with ideas for how to use those spaces in a way that provides students with the ability to engage in physical and social play in order to spark and facilitate their learning.

Potential Barriers to Nature Space Learning

There are many ways to incorporate nature play and exploration into the weekly routine and many factors that influence when, how and what outdoor learning looks like. Dymont (2005) outlined seven teacher identified barriers to learning outdoors; teacher confidence and expertise, curriculum requirements, time and resources, changes to the education sector, lack of outdoor nature play spaces, administrative support, and weather conditions. The project I propose would offer solutions for alleviating barriers in some of these areas.

Current Teaching Practice.

As I discussed in chapter two emphasizing the importance of nature in education is not a new concept. The nature study movement began in the 1920's focusing on how educators could use nature to enhance and spark children's interest in learning about and from nature (Comstock, 1922). The nature study movement recognized that nature could be incorporated into all areas of student's learning (Lorbasch & Jinks, 2013). Beginning in the 1950s and continuing today, forest schools and nature kindergartens have gradually spread from Denmark to North America (Kane & Kane, 2011; MacQuarrie et al., 2015). The prevalent connection between all these nature-based educational programs is that they each place a great importance on the child-nature relationship (Blanchet-Cohen & Elliot, 2011). In September 2017 the Sooke School District will be expanding their nature kindergarten program to a second elementary school, whereas, the Victoria School District will be discontinuing its two nature kindergarten pilot programs at the end of June 2017 (Bell, 2017). For the majority of educators who are interested in implementing outdoor learning into their teaching practices they must search out and find ways to incorporate nature based learning into their classroom on their own. For teachers, within the Victoria School District, who are interested in expanding their classroom learning environment into nature there has been a gradual increase in the number of professional development courses being offered over the past two years. The Victoria School District is working towards creating an environmental learning plan with a focus on creating a nature-based learning community accessible to all teachers in the district (A. Maxwell, personal communication, March 7, 2017).

Curriculum Requirements.

Within the new BC curriculum, the applications for teaching in the outdoors and learning hands-on about the outdoors is embedded throughout the science and social studies curriculum. “The story of science told in the curriculum is a journey that takes the students from becoming aware of their immediate environment to considering the impact of local actions and decisions on a global scale” (British Columbia Ministry of Education, “Features of the Science curriculum”, 2016). The flexibility within the curriculum allows educators to use their creativity, imaginations and ingenuity to integrate nature into their students learning both in the classroom and outdoors in nature play spaces. Maynard & Waters (2007) describe outdoor learning as an “ideal context for group activities in which the development of knowledge, concepts and skills from across the “curriculum” are embedded within authentic, purposeful and often real-life tasks” (p. 258). The nature play space database would include a page with connections to the curriculum. This section, shown in figure 5, would provide links to areas of the curriculum that are directly related to nature-based learning.

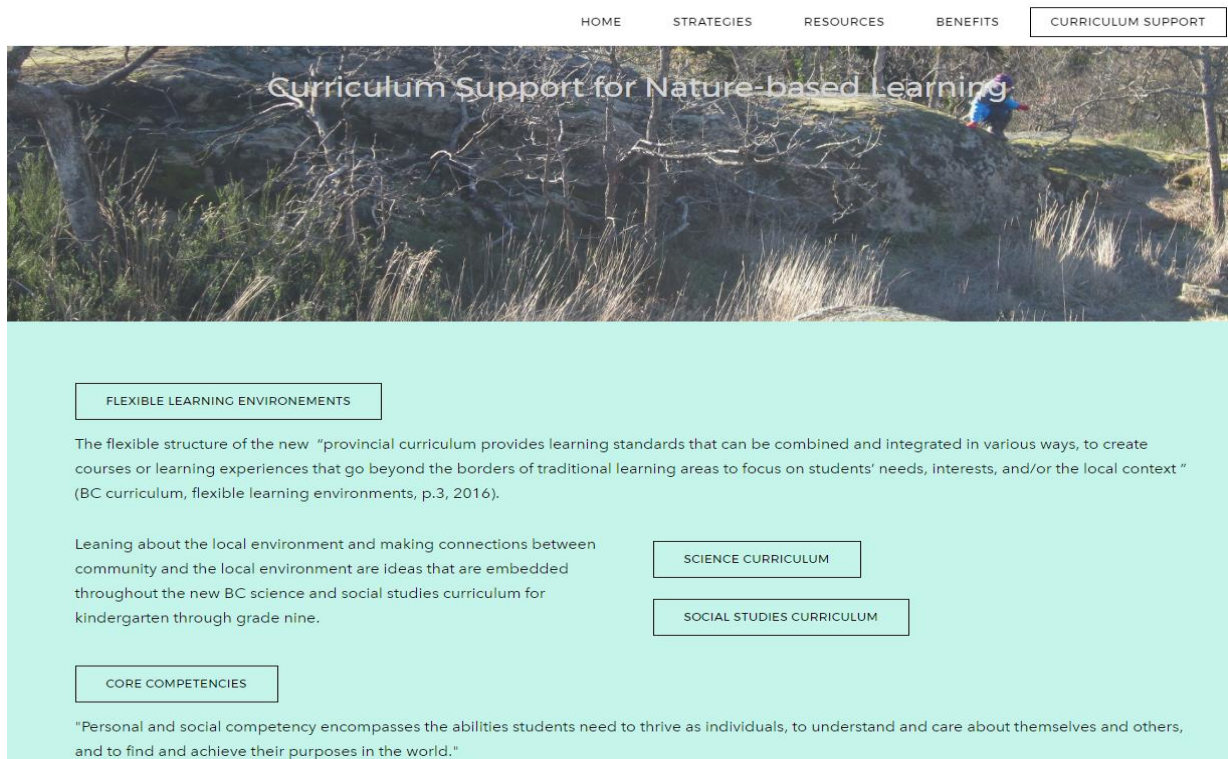


Figure 5. Beside each button is an explanation of how the curriculum link relates to nature-based learning.

Changing Perspectives

Using outdoor nature spaces as learning environments differs from the traditional view of teaching in the classroom. This style of teaching is often outside a teacher's experience and may not be part of a teacher's education and training. An educator's teaching methods may not easily transfer from the classroom to the outdoors (Dyment, 2005). "Being outside is not enough and the manner in which teachers and children engage while they are outside impacts upon the resulting experience and associated learning" (Maynard & Waters, 2010, p. 476). Nature play spaces are social learning environments where the children can be offered a wealth of play and learning opportunities (Dyment, 2005). A space where they are playing and learning rather than always following a set of instructions to complete a task in a given time (Wilson, 2008). The

role of the teacher is to monitor what the students' interests, fears, concerns and questions are and then use that knowledge to direct and expand the students thinking (Ridgers et al., 2012). As was described in the literature review nature play spaces allow children to not only be physically active but to experience the benefits of a restorative environment and/or restorative activities. For children physical and social play are in integral part of what makes an environment restorative (Bagot et al., 2015). Integrating learning about nature through play in nature has a positive influence on children's attitudes and behaviours towards nature. Students have the opportunity to engage in physical, social and emotional learning opportunities (Waite, 2007). Students have the chance to learn from mistakes, find solutions to problems that they encounter, face their fears, and develop their skills and confidence to perform tasks (Francis et al., 2013; Waite, 2007). Social and emotional experiences, whether positive or negative experiences, are valuable in the learning experience. Outdoor nature play spaces allow children the circumstances in which to choose how and what to learn about (Kolb et al., 2001). Figure 6 displays how the nature play space database would include a page identifying some of the physical, social, emotional and cognitive benefits for children who regularly go out to learn and play in nature.

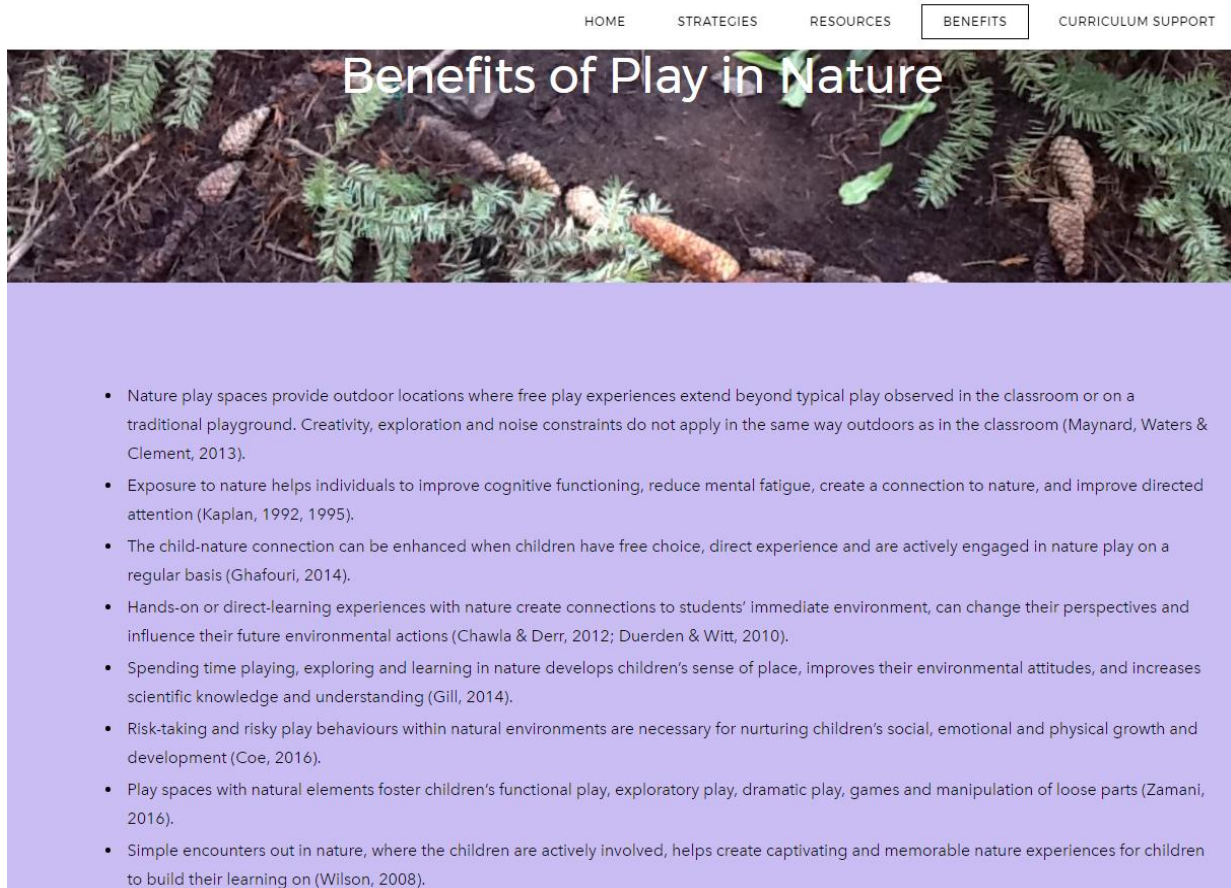



Figure 6. The benefits of play in nature on children's growth and development.

Where to Begin.

Throughout the school year teachers are bombarded with a variety of programs, materials and activities to choose from to use with their class. In my opinion implementing a nature play space database would make using nature play spaces a more desirable option. By providing the locations of nearby nature play spaces locations educators would be more likely to explore using nature play spaces as an extension of their classrooms. "As students experience and interpret their local environment, they develop their sense of place. Place is any environment, locality, or context with which people interact to learn, create memory, reflect on history, connect with culture, and establish identity" (British Columbia Ministry of Education, "Scientific habits of mind", 2016). As shown in figure 7, the database would include a section

identifying simple strategies that can make going outside a more fluid part of the weekly schedule (David Suzuki Foundation, 2015).

HOME STRATEGIES RESOURCES BENEFITS CURRICULUM SUPPORT



Strategies For Getting Outside

Simple Strategies for getting outside:

- Make going outside in nature a set part of your routine. Choose a time when children are already dressed for the outdoors. Such as first thing in the morning or at the end of recess.
- Pair up with another class. You can stay out longer and you have more teacher support.
- Communicate with parents at the start of the year about what you are going to be doing and why. Student's families are a valuable resource to support your outings. They can be volunteers on the outings, ensure their children are dressed for the weather and provide their child with an extra change of clothes.
- Communicate with parents each week about where you have been taking the students, what you were doing there and how it connects to what they are learning about in the classroom.
- Use your school nature play space map to locate and identify available nature play space. Then choose the nature play space which best suits your class and planned activity.
- Collect items to build a class or school nature kit. Some useful items to include would be:
 - A first aid kit
 - Spare rain ponchos

Figure 7. How to make nature outings part of a class' routine.

From personal experience I have found these strategies help to generate and maintain parent and administrative support, draw the children's attention to their local environment and enable the students to understand that nature outings are both a learning and playing time. By sharing these strategies I hope that other teachers will find them invaluable for making their outings safe, manageable and productive learning experiences.

Learning Outdoors.

According to the forest schools' pedagogy, the teaching principles that are essential to learning outdoors are having a supportive environment, initially keeping the tasks small and achievable to build confidence, using the nature environment and having students explore

nature using their senses (O'Brien & Murray, 2007). To support teachers in implementing nature-based education the interactive nature database would include recommended websites that have teacher resources, workshops for classes, and funding options that teachers can use to ensure they are better able to promoting children's awareness of their local environment through playful inquiry and independent play in nature play spaces. As shown in figure 8, the resource links are listed alphabetically with a brief description of what can be found on each site.

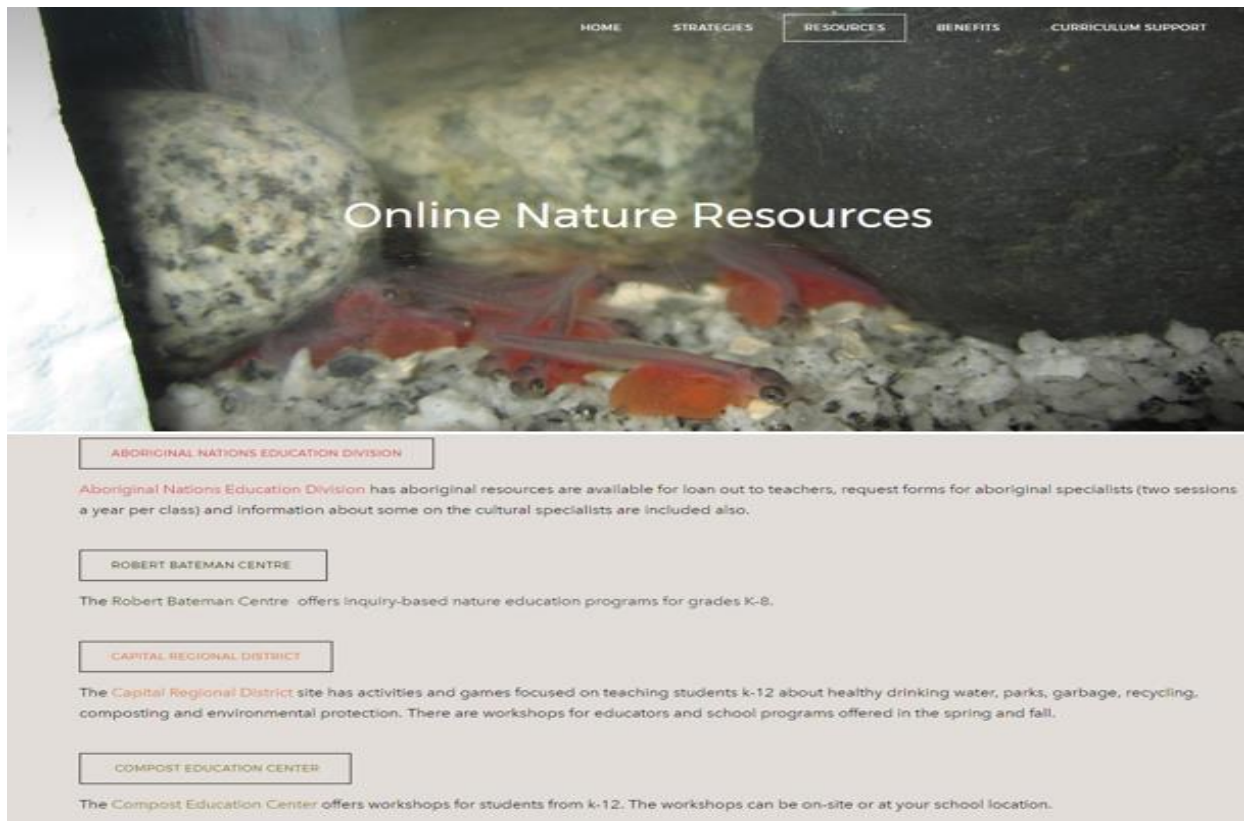


Figure 8. Clicking on the resource button takes you directly to the website.

Using nature play spaces is a way of highlighting and exploring different areas of the curriculum (math, science, social studies, literacy, art, etc.) in creative, authentic and novel ways (David Suzuki Foundation, 2015). The goal of this project is to create a resource for educators to use as a starting point for eliciting and building on their students' knowledge and understanding of their local environment, and to make real-life connections to what they are

learning about in the classroom. The nature play space maps would help teachers connect their students with the local environment using nearby nature play spaces. The resource list provides options and opportunities for educator to make connections with community experts, to enhance their educational programs using online lesson plans, and access to potential sources of funding for projects and fieldtrips. The curriculum connections and benefits to nature pages provide educators support and reasoning for why they can and should pursue nature-based learning opportunities with their classes.

Summary

In this chapter I connected research on the value of using nature play spaces as an extension of student's classroom learning with the reality of working with children in British Columbia's public education system. I show how using the interactive database provides teachers with strategies and suggestions for how to begin taking their classes outside to nature spaces, a way to quickly see what nature spaces are available to them, easy access to nature-based online resources, connections to the curriculum and benefits of play in nature for children. In chapter 4 I summarize the previous three chapters. I describe how I plan to share the findings of my literature review. I outline my projects applications to my future practice, my class and school. I identify limitations and suggestions for future research.

Chapter 4: Reflections and Conclusions

Summary of Previous Chapters

The perception of what constitutes a learning environment has expanded to areas beyond the classroom. Educators are now looking at how to use nature play spaces as extensions of the traditional classroom environment to encourage and motivate learning. Nature play spaces are anywhere children have the opportunity to choose how they can be interactive with nature using all their senses and challenge themselves socially, cognitively and physically (Coe, 2016). In the previous three chapters I have focused on the merits and advantages of incorporating nature play into elementary educational programs. As was described in the literature review nature play spaces allow children to not only to be physically active but to experience the benefits of a restorative environment and/or restorative activities (Kaplan, 1992, 1995). Integrating learning about nature through play in nature has a positive influence on children's attitudes and behaviours towards nature (Chawla & Derr, 2012; Duerden & Witt, 2010). Learning outdoors allows children to actively investigate their environment using hands-on learning experiences. When I first started taking my class out to nature play spaces my focus was on giving the children an opportunity to play and explore in nature, something that many of them had not had the chance to do before. I now realize that as I watch my students interact and explore nature play spaces they are doing so much more than just playing. Their physical skills are challenged, their curiosity is piqued and they are able to interact with their peers to problem solve, model, share interests, and knowledge.

This capstone project has forced me to reflect on why I should take my students out to nature play spaces, how I can go about taking my students out, and what strategies and supports I need to have in place in order for that to happen. Having gathered research that endorses why

to take children out in nature I turned my capstone project into looking at the “what and how” of getting students outdoors. Taking children outdoors to play in nature sounded like a simple and uncomplicated idea until I tried it. As with any new endeavor when you attempt it out for the first time you discover all the unforeseen little things that can go wrong. Even with all the notable advantages and benefits to taking children outside to nature play spaces there are numerous barriers, challenges and uncontrolled variables involved in taking students to nature play spaces. Everything from parents and administrative support, teacher interest, student behaviours, time, and availability of nature play locations play a part in how and what taking students out in nature looks like. In my capstone project I offered some solutions to teachers to use in their efforts to incorporate nature-based learning experiences into their weekly routine. I focused on identifying nature play spaces near elementary schools, strategies for going out, curriculum connections and collecting online nature resources. My objective was to offer teachers suggestions for how to get their students outside, where to take them and options for what to do once they get outside. As well I, provided curricular and scientific support for allowing students to engage in imaginative and exploratory play as they learn about nature, develop a connection to nature and an awareness of the natural environment in which they live.

Dissemination of knowledge

As I go forward I plan to continue with gathering and sharing information, strategies and resources focused on nature-based learning. I intend to share my capstone project with my co-workers on a professional development day. This will be an opportunity for me to find out what teachers find useful and what they find missing from my project. I look forward to sharing parts of my project with parents, at the beginning of next year, at my school’s “Meet the Teacher” night. I can use the project to explain why, where and how I plan to incorporate nature-based

learning into their children's education and to emphasize how they can help support their child's outdoor learning experiences at school (sending in spare clothing, dressing for the weather, volunteering on outings). I plan to pursue the many online resources that I have gathered to build on and enrich what I have been doing with my students up to this point. I would like to be able to bring in more community experts to share their knowledge and skills with the students and myself in our nature play spaces in an effort to enhance our nature-based learning experiences.

Limitations

The information I have gathered for this project has been from a wide variety of areas. Each study explored in some part the effect of child-nature interactions on physical, social, cognitive and/or emotional areas of child development. The studies focused on a variety of different age groups, ranging from pre-school to high school age students. The nature based-learning programs researched in the studies varied with students going out in nature once a week or a few hours a day to full day programs that lasted several weeks. The result of these changing variables is that what outdoor learning looks like varies depending on location, students' age and program pedagogy. Each child-nature learning scenario was different and therefore it is difficult to compare and contrast the any two programs, to generalize results to all nature-based learning programs or to other groups of students of different ages or cultural backgrounds.

Recommendations and Conclusions

The research material that I used to gather information for this project concentrated on two nature learning themes. The first was the importance of allowing children to play in nature so they could participate in risk taking play as they challenge, explore and engage with nature

creating an awareness and understanding of local surroundings (Coe, 2016; Francis et al., 2013; Blanchard-Cohen & Elliot, 2011). The second theme was looking at the academic and psychological advantages to using nature play spaces to enhance classroom learning (Hartmeyer & Mygind, 2016; Ridgers et al., 2012; Upadlhyay & DeFranco, 2008). Where students benefit from the emotional restorative quality of nature play, learning about and from nature through exploration, and form an attachment to place (Chawla, 2015; Comstock, 1922; Gill, 2014; Sobel, 2015). There was very little research into the long-term effects of nature-based learning on children's growth and development. This is one area that I think would reinforce the importance of introducing nature-based learning to all students in elementary school not just kindergarten.

This project has challenged me to be more creative, open-minded and confident about why I want to take my students outside to nature places and what we do there. Going out to nature play spaces allows my students to reveal and demonstrate their different learning and thinking skills in a setting that provides areas of interest for everyone. Since I have been taking my class out to nature play spaces for the past two years I have established strategies and gathered support that form the basis of my nature-based learning program that I look forward to building on in the next few years.

As I look toward the upcoming school year I am constantly aware that my quest to continue with incorporating nature-based learning into my class routine will continue to be a challenge to sustain. As an educator who works in a traditional school there is a continued spoken and unspoken demand that I demonstrate that quality learning is occurring when I have my students outside in nature rather than in the classroom. One of our schools guiding principles is that "students achieve their fullest potential in a structured environment where

skills and concepts are presented in a consistent and sequential manner throughout the school” (Cloverdale Traditional School, 2017). At this time going out to nature play spaces on regular basis in my school is still the exception not the rule. So, as I move forward I recognize it will continue to be something I have to work on maintaining. I am constantly wondering how I will need to adapt my expectations to meet the needs and wants of my administration, students and their parents.

There is no exact definition of what nature-based learning must look like because it can be demonstrated in many different ways. I think this vagueness is an advantage to educators because it allows them to tailor their nature-based learning programs to their class and situation. Educators can adjust what they do in nature depending on the teacher and students’ experience with nature, attitudes toward nature and comfort levels in nature, the availability of nature play spaces, and the support they receive from school administration and parents. This project has inspired me to continue trying and experimenting with taking children out in nature and bringing nature into the classroom. I hope to share my interest with my co-workers and perhaps establish nature play spaces outings as an accepted and expected part of our school’s practice.

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