

Storied Coast: Experiencing, Understanding, and Fostering
a Nature-based Curriculum

By

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Bachelor of Education, University of Victoria, 2005

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Abstract

Environmental education continues to generate interest from parents, educators, and researchers, as the deficits linked to limited time in nature combined with the benefits associated with outdoor learning experiences have led to increased research and understanding. This paper reviews the academic literature in the fields of the learning environment, place-based education, outdoor and nature-based learning, experiential learning, and the process of story and meaning-making with school-age children. Correlations between meaningful and recursive nature-based learning opportunities and the formation of student identity, sense of belonging, personal and shared narratives, future environmental activism, and overall well-being will be reviewed. Specifically, examples which demonstrate how the local environment impacts and becomes an integral part of land-based narratives is considered, as the layers of ecological, cultural, and personal understanding become intertwined. Experiential learning opportunities through which school-age children were able to explore specific concepts through play and exploration, engage personally and responsibly with ecosystems, and participate in creative ways revealed the greatest impacts on learning. The culminating project is built on this foundation, exploring avenues for building stories, connections, and ecological understanding through nature-based learning experiences.

Keywords: Nature-based learning, outdoor education, experiential learning, place-based education, story-telling, Indigenous education, ecopedagogy

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As lichen grows

On cedar trunks

Across low reaching branches

This island grows on me

Through me

The salt sprayed rocks

Season my blood

Pushing forward my resilience

My determination to shape the landscape

And be shaped in turn

Honed by this rocky shore

Earth beneath me and sky above

The waves and forest beside me

I am surrounded by my ancestry

The stories that came before me

That live through me

Guiding

Positioning

And transforming the entangled conversation

Between this land and I

Chapter 1: Introduction

Outdoor and nature-based learning continues to generate a growing interest from educators, parents, and researchers as problems associated with limited time in nature and evidence promoting the benefits of outdoor learning programs generates ongoing consideration. In this paper I will review the academic literature supporting these claims in the fields of the learning environment, place-based education, outdoor and nature-based learning, experiential learning, and the process of story and meaning-making for school-age children.

Considerable research correlates meaningful and recursive learning in nature with student identity formation, sense of belonging, development of personal and shared narratives, future activism, and health and well-being. Specifically, the immediate, local environment has the most impact on these areas due to the frequency of experiences and the ability to layer and develop schemas, knowledge, beliefs, and understanding over time (Orr, 1994; Sobel, 2013).

Additionally, the type of experience matters, as opportunities for children to explore specific concepts through play and exploration, engage with ecosystems that provoke responsibility and action, and participate in activities that engage creative and emotional responses have been shown to be the most impactful. By grounding learning programs through direct interactions with the environment, personal, ecological, and positive identity formation can be fostered.

Clarification surrounding the impact of nature-based learning, practices that are most meaningful and effective, and areas of disconnect are explored through current literature in this field.

Personal Interest

As a child I loved looking through old family albums. Faded yellow pages holding not just images, but the stories and memories of my family through past generations. Even better

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than flipping through these pages were times spent listening to stories brought to life through recollections shared around the campfire or at big family gatherings; instrumental, impressionable, and often comical pieces of liv(ed) experience. In listening and reflecting on these memories, a pattern emerged; from riding the rails between small towns in Saskatchewan, to navigating the frosty hills of Nelson, B.C., each story shared was inextricably tied to experiences of place. My own learning experiences are no different, as each meaningful encounter, piece of knowledge, and point of inquiry is steeped in the settings of their occurrence. From learning the names of native plants while hiking in Carmanah Valley, to tying sailing knots and navigating currents outside Maple Bay, to creating salmonberry jam with berries gathered along the forested shores of Vancouver Island; so many pieces of what I have learned and who I am as a learner are tied to place-based experiences. As an educator, this realization has prompted me to consider - how often do these places of memorable learning exist outside of classroom walls and formal buildings? Wild and natural spaces often act as the places where learning transpires, with stories and knowledge being committed to memory. It is this focus that I will explore further; in how the role of natural, outdoor places acts as a conduit for learning, identity formation, and connection. My goal is to bring these ideas into deeper conversation, bringing forward greater understanding around the implications of nature-based learning programs and curriculum built on everyday experiences in nature.

Place-based Learning and the Role of the Third Teacher

When considering how nature-based learning and the development of stories, memories and connections can be seen through the lens of curriculum, there are many directions to explore. Of significance to this study is the inclusion of students developing and expressing a sense of

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place in the new BC curriculum, placing value on students being able to communicate, through expression and reflection, their personal connection, experience, and sense of belonging. This cross-curricular concept can be found across grade levels, with the importance of the environment mentioned repeatedly as a context within which students learn, create memory, connect, and develop identity (British Columbia Ministry of Education, 2016). How then is the environment, and specifically the outdoor learning environment acting as the ‘third teacher’, a Reggio-inspired concept which identifies the important role the environment plays in the learning of the child? Understanding that experiences in place are not just transformative, but transactional and dynamic reflects ecological systems in the environment. The relationship that forms with place requires regular recurrence, adaptation, and repetition; a holistic approach to learning.

Stories Created in Connection to Nature

If you have ever watched a child respond to a story about them, or share their story with a captive audience, you will have known the power of personal connection to story. “One time...”, is a common beginning or phrase heard when children are asked to connect to what they have heard, seen, or experienced. In listening to countless memories and experiences shared with unbridled eagerness, I have come to realize the importance that experiences have on deciding what is committed to memory, and what prompts the extension of learning topics for further inquiry. In the new B.C curriculum, language and story are viewed as catalysts for memories to be formed, joy to be sparked, curiosity and wonder fostered, and connections built. Considering my own experiences with stories and place-based learning, the capstone project of this paper recognizes that the natural environment plays an important role in creating memories through

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stories and learning experiences. Interwoven throughout the curriculum are the perspective of the First Peoples, connecting learning topics with the stories and knowledge found on this land and throughout Indigenous stories and beliefs. Recognizing that the land on which we are learning has a rich history of Indigenous knowledge, stories, and beliefs contributes to building a connection between how and what is learned, and where this learning takes place.

Reviewing the Literature

Throughout the literature review, the impact of the environment, experiential learning, and the formation of meaning and story are brought into conversation with each other. The process of doing so is much like the concept of narratives themselves, as layers of story and meaning contribute to the complexity and diversification of greater understanding.

Exploring ways to Foster Nature-based Learning

With literature identifying the continued need for improved nature-based learning opportunities for children, the invitation to create a useful resource emerged. In Chapter 3, the online resource website *Storied Coast* facilitates child-centered learning ideas grounded in nature. Through access to curriculum-based lesson ideas, a map of ecologically and culturally important locations, and inspiration from artists and community members, it is hoped that educators will feel encouraged and supported in taking learning outside.

Chapter 2: Literature Review

Educational theories, perspectives, and pedagogies have continued to shift and evolve with time as the desire to understand what, where, and how students learn best during their time at school drives research and practice. The focus of this literature review is to gain a deeper understanding of the connections that exist between where learning takes place, and through what means of experience. Past and current research into the effectiveness of place-based learning experiences in outdoor environments will be discussed, connecting and comparing the role of the environment in stimulating meaningful and long-lasting memories, knowledge, and understanding built through everyday experiences with nature. The question of how memories, stories, and liv(ed) experiences that reside in nature-based learning programs contribute to the formation of long-lasting skills, knowledge, and competencies for students will be focused on through the lens of early childhood education. Through analysis of the role of the learning environment, place-based learning in nature, and the cultivation of story narratives and meaning, a greater understanding of how these elements work together emerges. With these findings as a foundation I will be focusing my project work on the importance of outdoor learning spaces as environments that cultivate stories, experiences, and meaning.

Theoretical Framework

Outdoor education has been described as a long rope with many strands representing the theories, rationales, and practice for implementation and effectiveness (Jeffs & Ord, 2018). Whether considering the nature of wilderness adventure programs, Norwegian forest schools, or Indigenous learning on land, each strand braids together to strengthen and support the view that outdoor education is beneficial in a multitude of ways. Originating throughout the world in

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response to various social, culture, and economic reasons, schooling in nature has often been a way to (re)connect with the outdoors through direct experience. This project is built on the framework of theorists and research findings exploring the impact of experiential learning, the powerful role of the natural outdoor learning environment, and the ways in which stories and meaning are built through regular and recurring outdoor experiences.

In an effort to understand how outdoor learning experiences develop meaningful stories and narratives one must look to constructivism as a foundation. Constructivist theory, developed by Jerome Bruner, views learning as a process through which the learner enters a cycle of interpretation, recursion, active processing, and interactions with the physical and social world around them (Bruner 1990; Fosnot, 1989). Bruner, and many theorists after him, sought to change the belief that prescribed that learning is merely transmitted into the passive learner, ready to be filled with knowledge. Many theories support the claim that the learning environment, and the experiences a child has with their surroundings influences and shapes learning through the interactive process of developing understanding. Experiential learning finds its footing here as well, with the active engagement that facilitates learning and memory-formation to take place. Understanding that children learn through experience, Experiential Learning Theory is built on the work of many theorists, including Jean Piaget, John Dewey, Kurt Lewin, Carl Jung, Paulo Freire, and David Kolb. Their collective research is built on the shared belief that learning is a holistic process (not an outcome), all learning involves relearning, continual reflection is required, learning is interactive, and finally, learning is a continuous process of creating knowledge (Kolb, 2005a, 2014b). Testing, questioning, and interacting with the world is a fundamental process of learning and development in childhood (Edwards, Gandini,

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& Forman, 1998). This is not a static process, but an interactive relationship that involves pre-existing knowledge and current experiences to shape the learner. Children are constantly constructing knowledge through interactions with themselves and others, forming personal identity through this dynamic process (Jardine, 2012; Jardine, Clifford, & Friesen, 2008). David Kolb's well-known 'experiential learning cycle', developed in 1984, viewed experiential learning as a holistic process including concrete experience, reflective observation, abstract conceptualization, and experimentation (Kolb, 2014; Ord & Leather, 2018). This model identified the necessity of not just 'doing' an experience, but included the other important elements of reflecting, experimenting, and conceptualizing that enrich the experimental value of outdoor learning. Understanding that knowledge is gained through action and experience (Sobel, 2005; Stranger, 2014; Williams, & Chawla, 2016), a concept recognized by John Dewey over a century ago finds itself reframed through Kolb's cycle. The experiential theory proposed by Kolb takes a holistic approach and emphasizes how experiences, including cognitions, environmental factors, and emotions, influence the learning process (Kolb, 2014). Understanding curriculum as something to not only be delivered as a plan or resource, but also experienced as live(d), became distinct through the work of Ted Aoki. Experiences are significant, and placing value on this allows, "space for stories, anecdotes, and narratives that embody the live(d) dimension of curriculum life" (Aoki, 2005, p. 209). The importance of creating space for experience balances the planned curriculum that is found in the prescribed documents that guide teachers in their planning. This living aspect of curriculum is not only flexible and responsive, but cumulative and ongoing, as experiences "remain open, necessarily incomplete, and infinitely generative" (Thom, 2016).

Social practice theory adds an environmental and ecological strand to the rope, claiming that “people develop multiple identities in different facets of their lives, as they respond to their environment and adopt – and adapt – the words, actions, and practices of others around them” (Williams & Chawla, 2016). This applies when considering how children’s ecological and environmental identity forms through interaction with the natural world in a learning program that is grounded in natural places. Chawla’s results also showed that direct contact with nature was necessary for this identity forming to occur (Chawla, 2007). When consider how the natural environment influences learning, a place-based approach reveals the valuable role of education grounded in meaningful experiences in places. Theories of place-based education underlie the belief that direct experiences with the community and the environment contribute to the effectiveness of learning, developing positive relationships to the local environment, community activities, and daily experiences that are locally meaningful (Orr, 1994, Sobel, 2013). By engaging with meaningful places in the child’s environment, a sense of belonging, responsibility, and eagerness to understand can emerge (Orr, 1994; Sobel, 2013).

Experiential Learning

Learning is an active process, brought upon through meaningful interactions and experiences. For children, learning is developed through hands-on encounters; sensory-rich experiences with the immediate environment. As new information and thinking is encountered during these experiences, it is evaluated and compared to previous understanding to decide if it is worth remembering (Bullard, 2003; Kolb, 2005). Experiences engage the learner in the process of making sense with the world around them. Outdoor education has tended to oversimplified this, reducing experiences to compartmentalized, predictable outcomes that fit neatly into the

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planned curriculum (Ord & Leather, 2018). A more holistic view takes into account the contextual history, perspective, and interests of the learner and elevates the experience beyond the learning of a skill or concept, and towards a more open-ended learning potential (Kolb, 2005; Ord & Leather, 2018). These types of experiences can often be seen in the exploratory, self-directed play of early childhood, when children are encouraged to build understanding through feeling out the world. Rich, sensory experiences have the potential to cultivate a deeper understanding and increased knowledge of material and skills through active and engaging experiences (Beery & Jørgensen, 2018; Chawla, 2007). During forest exploration time with Kindergarten children in Norway, Beery and Jørgensen noted that, “the ability to have direct sensory experience of the landscape, such as sand, shells, bird parts, and live reptiles enhanced children’s learning and provided an opportunity for intimate interaction with natural objects and living creatures, making the experience meaningful” (2018, p. 16). In Gray and Birrell’s work incorporating fine arts and ecopedagogies, creative and multi-sensory learning resulted in improved awareness and appreciation for the natural environment (2015). Specifically noted were that when students were given freedom to explore, document, and express how and what they interested in, future recall and memory of details improved. These findings correlate with other work in experiential learning, indicating that, “the child will develop and appreciation of their work based on the opportunities to look closely at the limitless potential in the environment that surrounds them through nature-based experiences”(White, 2015). Providing experiences in which children can engage in sensory experiences, active imagination, independence, hands-on learning, and meaningful play transforms learning from a passive process to to an active and living experience.

The Learning Environment

For the purpose of this review, the learning environment is approached through the lens of the outdoor learning environment, including the natural local spaces with which students interact. The role of the environment as an active participant in a child's learning will first be viewed from the Reggio Emilia Approach, moving into the role of place-based learning, the role of place and identity, and concluding with outdoor learning.

The Role of the Third Teacher: Reggio Emilia Approach

When the Reggio Emilia approach to early years education identified the role of the learning environment as the 'third teacher', Loris Malaguzzi, known for developing this philosophy, emphasized how the direct environments within which children learn plays a central role in the process of making learning meaningful (Edwards, Gandini, & Forman, 1998). This approach to early years education maintains the belief that children are naturally competent, capable, curious, and creative; that the environment is a reflection of this belief, and ultimately, the child as a learner (Edwards, Gandini, & Forman, 1998). Children are innately drawn to explore their surroundings; becoming co-researchers and learning partners, curious about experiences that engage their senses (Waters & Clement, 2013; Strong Wilson & Ellis, 2007). Building on the value of experiential learning, the third teacher identifies the experience with the environment as being key to the social behaviours and cognitive development of children (Edwards, Gandini, & Forman, 1998). Educators are being asked to think critically about what the environment is teaching, how children perceive this information, and how the environment is contributing to the child's learning and ways of being (Strong-Wilson & Ellis, 2007). Although indoor classroom spaces are often the focus of the third teacher concept, consider the

implications for outdoor learning spaces. What is being taught with and through interactions with the local environment? When Louv wrote ‘Last Child in the Woods’, he explored the important connections, knowledges, and skills taught through direct interactions with nature (2008). While the Reggio Emilia approach encourages bringing the outdoor elements in, such as wood, stone, local plants, and invitations to explore nature-inspired surroundings, outdoor learning theorists imply that the value of the environment, and the connections and learning done in a natural learning atmosphere have the same if not more authentic value. The outdoors as the third teacher goes beyond the visual aesthetics being offered, inviting children to interact and make sense of the world around them (Edwards, Gandini, & Forman, 1998; Strong-Wilson & Chawla, 2007). The active processes of interaction, collaboration, flexibility, and reciprocity that frame the Reggio Emilia approach are applicable to outdoor learning as learners make sense of their environment (Fraser, 2006, Strong-Wilson & Ellis, 2007). “By seeing the environment as an educator, as the Reggio Emilia Approach does, we can begin to notice how our surroundings take on a life of their own and contribute to children’s learning” (Strong-Wilson & Ellis, 2007, p. 40). With this in consideration, the teacher is then challenged with including the environment, and the meaningful places that reside within them to contribute to living curriculum at hand.

A Curriculum of Place

Through direct experiences, students can encounter the curriculum as live(d), form strong memories of learning concepts, and engage their emotions, senses, and critical thinking about the often complex nature of places. In this way, a curriculum of place aims to develop and transform the learner as a whole. Spending time engaging with and dwelling in valued places “engages our being in a web of sense perception, memory, language, environment and the social relationships

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that are entangled in these places” (Thom, 2016, p. 13). Repeated interactions in, with, and around places builds a relationship to the land, forms patterns of interaction, and develops an understanding of place that is both experiential and meaningful (Thom, 2016). In this way, place is no longer distinct from the learner, who has now developed a sense of place that includes knowledge and patterns that come from dwelling in that place. Through place-based experience, ”knowledge comes in and through place: thinking and reflecting invoke a set of relationships such that understanding quite literally ‘takes place’” (Lowen-Trudeau, p. 522). This can be seen in the place-responsive interactions of the W̱SÁNEĆ people, as the seasonal shift to winter prompts actions the putting away of a canoe, harvesting of rosehips, or laying of cedar branches along the shore to collect herring roe (Personal Communication, 2017; Claxton & Elliot, 1993). This type of responsive learning to place is reflective of both Indigenous traditions and practices and western knowledge articulated in the BC curriculum (BC Curriculum, 2016). Connecting outdoor education to the beliefs, traditions, and shared knowledge of multiple cultures and the local community strengthens the place-based curriculum through the support of all those invested (Tan & Atencio, 2016). This becomes an important expectation, for educators to fully understand the complex and diverse places in which they teach, as time must be spent learning, understanding, and reflecting the community. Place-based learning often involves hands-on interactions between people and place, which can begin with building connections through shared experience (Coe, 2016). Researchers in Singapore, after finding that teachers approached outdoor learning as generic and adventure-based, noted that experiences become displaced when they are not connected to the environment; activities that could be used anywhere (Tan & Atencio, 2016). Outdoor learning becomes more meaningful when it involves a connection and

relevance pertinent to the place in which it is occurring. This is place-responsiveness, Reflective, and living curriculum. Pedagogy and practice then should reflect the local ecologies, cultures, and stories that contribute to an overall sense of place.

Building Identity and Connection to Place

The phrase ‘sense of place’ evokes an image of connection, deep roots, and home. This comes from the knowing that “place is a source of security, meaning, belonging, and identity” (Ellis, 2005, p. 57). When learning is grounded in place-based experiences it is important to connect the ways in which meaning, emotions, and memories of live(d) experiences are intertwined. As Coe describes, “they are interwoven in the human self and in education at its best” (Coe, 2016, p. 54). Williams and Chawla’s work signifies how identity and knowledge are built through (inter)action with the natural environment (2016). The resulting connections made with the learning environment influence identity and as a result contribute to how humans are in the world. Their research revealed that adults who participated in outdoor learning during school connected their current level of environmental stewardship and identity as adults to these previous outdoor experiences (Williams & Chawla, 2016). In effect, the childhood experiences with nature shaped who they became as adults. Connections built during childhood foster not only identity, but also a sense of responsibility to take care for the natural world. Coast Salish Peoples, similar to many other Indigenous groups, considers place to be inextricably tied to meaning, story, and personal and cultural identity. Brian Thom’s research calls for the Coast Salish People’s relationship between local lands and the development of a sense of place to be recognized and appreciated to be understood (Thom, 2005). Land-based learning in this context is far from idealized nature experiences, as land, power, and colonization complicate the ways in

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which learning, connections, and identity are experienced (Swallows, 2005; Thom, 2005). For the Coast Salish peoples, similar to Indigenous communities in Australia and New Zealand, developing a connection to land provides an anchor to the world (Thom, 2005; Jackson-Barrett & Lee-Hammond, 2018) through stories, knowledge, and beliefs. Studies of the Djarlgarra Koolunger (Canning River Kids), Aboriginal students in Perth, Western Australia demonstrates how learning ‘on country’ became a process which strengthened interactions, identity, and connections to the land being learning on (Jackson-Barrett & Lee-Hammond, 2018). Local knowledges tied to plants, animals, and land are an integral part of the ancestry of Aboriginal peoples, and by including this valued experience of learning with the land, students were able to connect and build a strong identity to land and culture.

While significant research around the topic of Indigenous connection to land and outdoor environments has been articulating how the environment holds embedded knowledge of plants and animals, stories and histories, and cultural and personal identity, non-Indigenous connection to land has been primarily focused on land as a resource. Educators and students building place-based connections and identity may encounter varied and complex perspectives, including a western view of the environment as a resource to be lived on and used, contrasted with an Indigenous view of environment as a living embodiment of culture, tradition, language, and relationship (Davis, 2009; Stanger, 2014; Swallows, 2005; Thom, 2005). The diversity that exists in the classroom may include multiple perspectives, calling for an urgent need to notice the attitudes and behaviours that exist in the context of the physical environment (Williams, & Chawla, 2016).

Outdoor Learning: Learning (with)In Nature

Fundamental to developing a sense of place through curriculum practices is the need to acknowledge the local environment that surrounds learners. Thinking beyond the walls of the classroom and the school in an effort to connect children to the natural environment around them has benefits in not just building connections, but also in countering the ‘nature deficit’ that has settled upon many children of this generation (Louv, 2008). By spending time (with)in the local environment, students build a familiarity, understanding, and an identity connected to place; all which can lead to deeper learning and possible action to care for these places (Green, 2015; Louv, 2018). The benefits of outdoor learning go far beyond building strong connections to the environment, and have been proven to support the overall social, emotional, and physical development of the child. “Increased contact with nature has also been said to improve the way children learn allowing them to learn differently through cognitive impacts (greater knowledge and understanding), effective impacts (attitudes, values, beliefs and self-perceptions), interpersonal and social impacts (communication skills, leadership and teamwork), and physical and behavioural impacts” (Dillon et al. 2005 in Moss 2012, p. 531 -- Smith Article). These benefits include increased physical activity and health (Raith, 2015), opportunities for positive risk-taking (Constable, 2012), lowered stress levels (Berger & Lahad, 2010; Kaplan, 1995), pro-social behaviours and improved self-regulation (Bell & Dymont, 2008), increased creativity (Raith, 2015), and improved memory formation and recall (Dadvand et al., 2015). Outdoor environments, and the experiences had within them continually support social interactions, observation skills, coping strategies, independence, and personal autonomy (Strong-Wilson & Chawla,). In viewing the benefits of outdoor learning in this multifaceted and holistic way, one

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can begin to see the opportunity of outdoor education as much more than taking students outside to do an activity.

The practice of immersing students in the local environment to understand and reconnect with the living systems around them can be seen implemented in outdoor learning initiatives around the world. From *Forest Kindergartens* in northern Europe, *Waldkindergarten* programs in Germany, and *On Country* learning in Australia, nature-based programs for early years and school-aged children have become increasingly popular. And while there are a myriad of reasons for this revival, much of this stemmed from resistance to traditional models of learning indoors through a factory model of education and a move towards the benefits of connecting learning and development to the natural world (Louv, 2008). Smith, Dunhill & Scott's study of Forest Schools looks at how the frequent and repeated experiences of playing and learning in outdoor forest environments have an impact on student learning and development. These are not isolated or infrequent experiences, but rather everyday experiences that go beyond the token activities often seen in outdoor education (2017). Forests schools aim to promote a pro-environment connection with nature, with learning experiences that are holistic and child-centred. This involves positive risk taking in a safe and natural environment that is both beneficial to the child, and to the environment as a result of the child (Smith, Dunhill, & Scott, 2017). It is these "repeated direct experiences of nature (that) enable an individual to form a relationship with nature, and ultimately motivate individuals to protect it" (Brügger, Kaiser and Roczen, 2011, p. 530). Research being done in the field of place-based outdoor learning on the coast of Tasmania brings to light the sense of responsibility and advocacy that comes from local learning on land (Green,). The development of land advocacy, beginning with students identifying with a special

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little spot, provided children with the opportunity to “just be in a place in a meaningful and personal way not dictated by adults” (Green, Nel, p. 56). From this practice at WoodBridge School’s coastal classroom program came student advocacy, as students adopted the role of caretakers, giving landcare tours to the community with the purpose of having students communicate what was happening in their environment, encouraging interaction with coastal ecologies, increasing public interest, and fostering engagement (Green, 2015). This practice was extremely effective, as everyday experiences (with)in nature led to engaged learners developing advocacy programs surrounding a wealth of ecological knowledge and understanding of their local environment.

Countering the nostalgic view of the outdoors as picturesque, culturally reflective, and progressive, Karen Malone’s research in La Paz, Bolivia, draws attention to the complex nature of outdoor learning (Malone, 2016). In the slums of Bolivia, nature is not always positive, but rather a dangerous and unpredictable environment to navigate (2016). Human and non-human interactions are necessary for survival, documented through the daily interactions and relationship between children and stray dogs. Malone argues that a broader view of outdoor learning needs to be established to include the presence of less ‘natural’ environments that are experienced outdoors, as well as the the uncomfortable realization that outdoor learning experiences (past and present), may not be experienced positively (2016). Additional research into the complex nature of experiences translating into current experiences revealed little information. In my own classroom, this has increased my personal resolve to consider how experiences with nature may affect students’ current perspectives and experiences in nature.

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A local example of outdoor education, Sooke School District's Nature Kindergarten is an outdoor Kindergarten program operating on Vancouver Island. Details of the school's formation as an outdoor school program outlines their philosophy grounded in the belief that learning in nature needs to be responsive to the local community and environment (Elliot & Krusekopf, 2017). This account brings forward the importance of the environment in shaping place-based experience in the local environment which, similar to the Saanich School District, "is a place of rocky shorelines, sandy beaches, coastal bluffs and wooded hills with Coastal Douglas-fir...home to a variety of fish and habitat for bears, cougars and deer" (Elliot & Krusekopf, 2017, p. 377). In this place-responsive program, the environment is a big piece of the living curriculum, and the entity to which students engage with and respond to. Elliot and Krusekopf note that although motivations for outdoor learning programs may vary, from increased physical activity, to building future activists, to increased connection to the natural world, everyone saw the benefits of being and learning in and from nature; outcomes that simply cannot be experienced fully within the confines of the classroom (2017). This example is an inspiration for increasing outdoor learning experiences, through a local connection to land.

Learning outside is not without its challenges, often glazed over through an idyllic lens of being in nature, surrounded by positive interactions with the outdoors. Harsh climates, safety concerns, negative experiences, and diverse student needs can make outdoor learning difficult to approach. The primary challenge facing teachers can often be safety concerns, as outdoor environments present their own challenges such as wild animals, uneven terrain, and harmful plants. Children and teachers have different levels of experience and comfort with the outdoors, and in the same way that teachers implement curriculum in various ways indoors, Nel Smit, an

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outdoor educator in Tasmania, encourages teachers to identify personal boundaries when learning in outdoor places (Green, 2015, p. 57). And while Tasmania presents different safety concerns than my own local environment of British Columbia, understanding how and when to acknowledge safety in outdoor learning requires further discussion and reflection as teachers are being encouraged to ‘take their students outside’ more often. Another concern raised by teachers is the continual loss of instructional time when expected to ‘get through’ the curriculum. Moving towards the realization that “it is not necessary to choose between structured learning and time in nature, if learning is taken into the field and children’s own questions and curiosity are respected” (Williams, & Chawla, 2016) may be required. Once again, teacher preference will vary, and I find that more research into how schools might enable educators to practice outdoor learning is required. For those comfortable with taking learning outside, it should be recognized that diverse philosophies, perspectives, and methods to approaching curriculum through outdoor learning experiences also vary (Maynard, Waters, and Clement, 2013). A common thread in this research was that teachers felt their role shift when outside, becoming more child-centred due to the nature of exploring and learning in outdoor spaces (2013). And so, outdoor education and the learning that takes places (with)in nature comes back to the image of the child, ready to engage with and experience the environment, building skills, understanding, and personal connections along the way.

Storied Landscapes

“Outdoor environmental education, in theory and practice, is a process of telling, performing, representing and creating stories about places, people and their interactions” (Stewart, 2008, p. 80). Building a curriculum that responds to the interactions of

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dwelling in local outdoor places is both an individual and collective experience, taking into account the personal perspectives and shared understandings to create a shared collection of stories and experiences. Whether written, oral, visual, or experiential, stories have the ability to inspire and teach us about human nature, personal identity, culture, collective wisdom and the world around us (BC curriculum, 2016). Children are experts at this, intuitively using spaces and objects in unexpected ways to create stories and play. These ‘touchstone memories’, as described by Strong-Wilson (2007), are used by children to understand and make meaning through the processes of problem solving, knowledge construction, and recursion that are embedded in story. Findings from a study investigating how children interpret and make sense of what they observe in nature found that shared insights, rather than the transmission of information was much more meaningful in students building their own meaning, encouraging teachers to become more of a partner in collective learning, rather than the transmitter of knowledge (White, 2015). In looking to how stories and narratives are woven together, the need to open up to multiple narratives emerges, including Indigenous stories, individual and collective memories, scientific knowledge and a deeper understanding of how to begin the process of building and experiencing stories with nature.

Memory-Making Experiences and Forms of Story

The power of story and narrative in learning lies in the opportunity to draw upon the human motivation to connect and make meaning of the world (Bruner, 1990). This process is especially effective due to the ways in which the brain naturally seeks patterns, familiarity, and motivation to make meaning. (Szurmak & Thuna, 2013). Taking into account previously discussed research in the fields of experiential learning and learning environments, story

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narratives are the sustained meaning that exists between them. While stories can be defined as the linear, sequential events that may be tied to learning experiences or place-based stories, narratives refer to the greater perspectives that collect information, develop multiple meanings, and provide “purposeful engagement with the world” (Gardner, 2001). When presenting stories and information in outdoor learning, as proposed for this project, learners are given the opportunity to solve problems, build multiple narratives and perspectives, and be a part of what is referred to as ‘sense-making’ (Szurmak & Thuna, 2013)). The ability to layer multiple narratives around single stories can be applied to understanding the multiple meanings and perspectives surround local places in outdoor learning environments. Lowan-Trudeau’s identification as both Indigenous and European in ancestry exemplifies this, as he recounts his experiences and stories connected to the land on which he lives. Use of the literary method of *metissage* was used to weave together of the stories that arise from not only the land on which he resides in Calgary, Alberta, but also the western and Indigenous narratives that challenge each other (Lowan-Trudeau, 2017). The use of *metissage* is particularly interesting in reference to the topic of experiences and stories developed on land and in nature as it allows for tensions, juxtapositions, and critical thinking to emerge in connection to place (2017). By linking experiences in nature to multiple forms of storytelling and meaning making, learners are able to have access to understanding and expressing themselves in various ways. Just as personal connection and interpretation are valued elements of oral storytelling and receiving, so can diverse experiences and ways of developing understanding enrich outdoor learning.

The role of written and illustrated fiction in meaning making is another area of research worth highlighting when considering the role of story in outdoor learning. What messages are

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being conveyed, received, and put into conversation with previous knowledge and experiences in nature? Bigger and Webb explain how reading fiction about specific places is interpreted based on previous and current experiences, forming a hermeneutical loop of questions, engagement, challenged thinking, and understanding (Bigger & Webb, 2010). Stories have the ability to empower students to agency and future environmental learning and action. This is particularly meaningful when “stories and reading of fiction requires the reader to take a stance, form an opinion, and choose what to accept and believe” (Bigger & Webb, 2010, p. 403). Their research brings forward how written stories and experiences weave and overlap with each other, creating a scaffold of meaning, forming and reforming as stories and experiences open up to new ideas and information. This process of making meaning also results from encountering the complexity of place, personal experiences, reflections, and formation of new knowledge (Bigger & Webb, 2010). Due to the inevitable presence of meaning and influence fiction holds, it is important to remain critical when considering which stories to use in an outdoor, nature-based learning program. Stories can be entertaining, informative, and thought-provoking, but they can also be tools for teaching ways of being in the world. Research of Norwegian practice and policy suggests that children are constantly creating, negotiating, and reevaluating meaning during outdoor experiences, forming an understanding and identity for how to interact with the environment (Aasen, Grinheim, & Waters, 2009). This development of ‘being’ applies to cultural and societal expectations and values around natural environments as well. How children are expected to interact with the environment depends on the expectation put upon them by society and subsequently, school. Antioniazzi’s look at the story of ‘Masha and the Bear’, identifies how children’s stories are often used as tools to convey expectations about what is

valued and what is expected (2016). A critical look at stories involving nature, outdoor places, and the environment may reveal the underlying expectations of society. Is the land seen as a resource, an owned property, a wilderness, or perhaps a responsibility. Stories have the power to shape thinking, and further research into the effects of the underlying messages of stories is worth critical consideration.

Indigenous Knowledge and Oral Histories Tied to Land

Storytelling can take many forms and be created and experienced in many ways. Indigenous knowledge, brought to life through oral storytelling, shared history, and valuable knowledge of living in connection to the natural environment is a longstanding tradition and practice amongst many Indigenous communities. With oral storytelling, the ‘teller’ shares knowledge and ideas through their own lens and perspective, just as the listener chooses how to connect and remember the story through their own perspective. This transfer of memory and story is not only relevant to oral storytelling however, as stories, whether written, told, or experienced, are inherently personal; delivered and received through personal lenses of connection. This may sound like a flaw, but it is in actuation what contributes to the powerful role of story in creating meaning and lasting memory. In Johnson’s study of Trinidad’s efforts to Indigenize the curriculum, the experience and process of “sharing stories, knowledge, and songs is a powerful tool for increasing critical consciousness and a sense of agency in working towards social change and a stronger sense of place (Lowen-Trudeau, 2017, p. 514). This practice of passing on knowledge is seen as both an honour and a responsibility, as the role of carrying on the story accurately and with a good heart is necessary (personal communication, 2017). In this transfer of story, the listener is responsible for connecting to the teaching through their own

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experience and perspective; carrying on the story but also enriching it with their own connection (Lowen-Trudeau, 2017). This method of communicating ideas and experiences is not without its own tensions however, as western and scholarly views offer more validity to written accounts of history and knowledge. The question of what is possibly lost or missed in oral transference has been a long-standing tension between traditional academic formats and oral traditions.

Incorporating many approaches to communicating knowledge and experiences creates an opportunity for “both directly explicit and indirectly implicit modes of communicating ideas and experiences” (Lowen-Trudeau, 2017, p. 511). In many ways, this not only values Indigenous traditions of sharing knowledge, but opens up the opportunity to dispel the view that written accounts are the only forms of knowledge that should be taken into account. Oral storytelling and the experience of metissage encourage a diversity and a richness to exist in the multiple ways in which knowledge, experience, and story occur. To return the words of Stewart (2008):

“There is no single history of a place: different stories reveal different values, attitudes, behaviour and impacts. Without historical stories place(s) become meaningless, featureless backdrops upon which new cultural and environmental injustices may be written. Reading the stories in a landscape and attention to historical accounts are ingredients to a place-responsive pedagogy to prevent future injustices” (p. 94).

Indigenous and settler history is far from picturesque, with stories of residential schools, marginalization, language loss, and unceded territory seeming too complex, conflicting, and inappropriate for young children. Elliot and Krusekopf argue that with “multiple stories and histories that are not always easy to explain and which raise uncomfortable questions, these discussions were begun with young children, so they could also begin the journey to

understanding the layers of complexity held by the land and the life beyond the classroom” (Elliot and Krusekopf, 2017, p. 387). Due to the connection of Indigenous history to land, acknowledging the important, and possibly disruptive knowledge existing in place brings forward the opportunity to critically evaluate ways of knowing. As Orr stated, “the place itself becomes an agent in the curriculum” (Orr, 2013, p. 386), filled with meaning, evidence, and stories that have shaped, and continue to shape the landscape.

Developing Stories on Land

Stories and narratives are continually being formed, added to, and reshaped in community and through interactions with others and the world around us. They act as a powerful vehicle “to activate all the mechanisms of learning the brain already uses when it successfully transforms an ongoing interaction with the environment into a transformative interaction with the event itself” (Szurmak & Thula, 2013, p. 549). Human experience itself is storied, as “whatever we experience slots into our life story and our community story, past (retrospective) and future (prospective), and is informed by stories that we have found meaningful” (Bigger & Webb, 2010, p. 404). In this way, stories are rarely solitary, independent, and single-track. As the teachers at the Nature Kindergarten in Sooke noted, although not everyone knew the First People’s stories and knowledge, or the names of the plants and animals, the experience of developing this knowledge through direct experience with nature provided the children “with experiences that might broaden their understanding of and connection to our local landscape” (Elliot & Krusekopf, 2017, p. 380). Experiences, knowledge transfer, individual and cultural perspectives, and so many other factors influence how stories come to exist in meaningful ways. In the outdoor learning environment, this becomes increasingly complex, as places themselves can be

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heavily storied, with personal and collective perspectives potentially colliding and disrupting each other. The environment in outdoor learning may interact in different ways with those learning on the land, making the implications and value of experiences on land worth further exploration. Research with storied and culturally complicated landscapes in Australia identifies similar connections between land and story that relate to Canada's experiences. Stewart's work at La Trobe University looks at examples of how the use of story, historical accounts, cultural landscapes, and environmental history shape and enrich outdoor learning practices (Stewart,).

The relationships that exist between people and place can differ vastly in perspective, as seen when comparing Aboriginal people in northern Queensland and cattle farmers. Living on the same land, the stories and experiences were deeply connected to land but differed greatly in culture and values. "They can walk around the same water, scuff the same dust and sit under the same trees, but they are not in the same place" (Strang, 1997, p. 81). Use of land resources, beliefs, and daily activities varied greatly. By bringing these place-based stories and cultures into relation with one another, a process of disrupting and unsettling knowledge can occur (Stewart, 2008, p. 80). Indigenous beliefs that the natural world, whether animal, plant, or element are living and can become part of the myths, stories, and communicators of knowledge for people (Thom, 2005) varies drastically from a view that animals and plants are resources to be cultivated and consumed. Multiple narratives bring to light the diversity that exists in connection to place-based experiences, one which enriches our understanding.

Implementing the creation and use narratives in outdoor learning experiences effectively employs the brain's preexisting ability to ground information and understanding in places through stories. As the curriculum calls for students to develop a 'sense of place' (BC

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Curriculum, 2016), the use of story does just this; engaging the brain and body to respond to information from the environment. Szurmak and Thuna identify key elements that resonate when using narratives to develop stories, including their ability to understand abstract concepts, provide context to scaffold knowledge retention, and a means to connect through experience. (Szurmak & Thuna, 2013). These apply directly to the use of stories to build meaning on land, including work being done around the world through forest school programs, nature kindergartens, and on-land learning in Australia and New Zealand. Common practice in Waldkindergarten Germany is to use a combination of informal conversations and noticings of local plants and animals and the singing of familiar songs and stories acknowledging the natural world (Bickel, 2001, Mikitz, 2007). As children play and interact with nature during walks and time spent in the forest surrounding the school, the practice of creating stories in this way imbeds their program (2007).

Fundamental to the effectiveness of using story and developing narratives with(in) the local environment is the building of connection. Choosing to experience learning on the land, whether through indirect play, direct instruction, or storytelling, grounds learning experiences in what is directly and locally important. Louv's legitimate concern that knowledge of local plants and animals is dwindling due to a detachment from nature can be overcome through a revitalization of the learning experiences that rely upon them. Students who participated in cultivating a 'patch' of land or in guiding landcare tours became intimately familiar with the plants, animals, seasons, and stories tied to them (Green, 2015). Williams and Chawla noticed how the memory retention of participants in wilderness programs in Colorado had a lasting impact on student identity, memory retention, and a sense of responsibility for the environment

(Williams & Chawla, 2016). As educators and curriculum designers are seeking to ground learners in a meaningful sense of place, examples from around the world justify these aims.

Concluding Thoughts and Implications

Research has revealed the value of outdoor education as a practice that goes beyond building a healthy lifestyle, being outside, and connecting with nature. And while the multi-stranded rope of outdoor learning is capable of this, it also creates opportunities for learners to experience local systems, form multiple ways of knowing, ground meaning to place, and develop concepts and schemas that may lead to active reciprocity with the earth. Ever-extending and transforming, outdoor learning reflects its own natural systems, as ties between Indigenous knowledge, hands-on experiences, ecological education, and the richness found in forming multiple narratives and stories on land strengthens existing functions and reveals new ways in which outdoor learning is beneficial. While the literature review demonstrates the many reasons why nature-based education is crucial for young learners today and in the future, it also reveals that further investigation of how and when meaning is generated and stored through nature-based learning is required, to guide educators in implementing effective pedagogy and practice.

Moving forward, this project utilizes experiential learning and connections grounded in natural, local settings as a method to recognize the ways in which stories and meaning are built through outdoor place-based experiences. Reflecting the diversity of the natural environment on which this project is based, multiple ways of knowing, approaches to learning, and past and present experiences can be woven together to create a rich collection of stories and meaning.

Chapter 3: Project

Storied Coast

Current and foundational research in the area of nature-based learning has revealed the fundamental role of children's outdoor experiences in the formation of ecological identity, a sense of place and belonging, lasting memories, and connections to the world around them. Furthermore, experiences and stories developed through frequent and recursive nature-based learning opportunities have been shown to create lasting memories of knowledge and experiences, as well as contribute to environmental awareness, activism, and a sense of responsibility for the natural world as adults. Still, there are hurdles to overcome for educators wishing to implement nature-based learning experiences through the curriculum. Lack of experience, confidence, resources, ecological knowledge, and awareness of local environments can be a challenge. From this place of need came the concept of *Storied Coast*, a website resource where teachers can access nature-based learning through examples of ecological activities, books and tools, learning experiences, community models, and opportunities to explore the local environment of the West Coast.

Description of the Environment

This project was created in a unique environment, and is inherently connected to the forested coastlines of Southern Vancouver Island. Surrounded by the Salish Sea, this is an area rich in ecological diversity, natural places to live and learn, and layers of story tied to land and sea. These coastal lands are the traditional and unceded territory of the W̱SÁNEĆ and Coast Salish Peoples, who continue to act as caretakers and knowledge keepers for this place. From the flood story of ŁÁU, WELNEW to traditional knowledge of plants and animals, their oral history

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and ways of knowing continue to deepen and contribute to an understanding of this environment. By recognizing and honouring Indigenous perspectives as well as layers of scientific knowledge, personal understandings, family histories, and personal experiences, the layers of stories tied to land create a diverse and rich narrative of the West Coast of British Columbia. Known for its wild and natural outdoor environment, rocky coastlines, hills and mountains, and forests of fir and cedar, this environment is accessible to the community through interconnected trail systems, maintained parks, and wilder places for those wishing to venture further. Amidst each of these environments are diverse ecosystems of connected animals, plants, living organisms, and environments. Learning experiences and examples found on the *Storied Coast* website are responsive to this, and come from a place of personal experiences as a learner, educator, and member of the community.

Description of Format

Storied Coast is a web-based platform designed for educators to find inspiration and information to support nature-based learning initiatives. Created in response to extensive research pointing to a nature-deficit in today's youth and indicating the benefits of nature-based learning for children, this is a space designed to encourage teachers in taking their learning programs outside through examples of ecological activities, connections between art and nature, links to natural sites, initiatives in the community, and educator tools and resources. Whether nature-based learning is already part of daily practice, or something being considered, the goal is to empower teachers with the learning opportunities found outdoors. Research continues to show how place-based learning experienced in nature supports the development of lasting memories and knowledge, as children's active play and engaged learning tied to place develops valuable

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skills, interconnected knowledge, ecological identity, and story-filled memories. This resource is designed to facilitate outdoor learning through several areas, including a map with outdoor learning sites sharing stories and information, curriculum connections, nature-based learning activities, and outdoor learning resources for educators.

In the *Welcome* section, information about the purpose of this website, as stated above, curriculum connections, as well as details of the environment where this resource was founded are explained.

In *Get Outside*, informative posts are available to support teachers with an ongoing journal of ideas and information to support outdoor learning programs. This includes teacher tips and information on ways to prepare for nature-based learning as well as simple ideas to implement with students and teachers interested in outdoor learning.

Storied Coast is inspired by the stories formed and experienced in nature. These are the childhood memories of the best spots to collect wild berries, the legends told around a campfire, and an understanding of local plants and animals that remains long after childhood. In the *Explore* section of the website, the location of notable outdoor learning areas are located on a map, linked to brief descriptions, land-based stories, and links to more information through online resources. This is an ever-growing area, and contributions to maps locations, stories, and information are encouraged through an invitation to ‘share your story’ on the main page. This is built on the understanding that the narratives tied to the landscape are far from singular, but rather layered and complex, adding to its richness.

Outdoor Experiences contains inspiration to experience, create, and share learning (with)in nature. Research demonstrates how experiencing nature through art, exploration, play,

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and documentation allows for meaningful methods of developing and expressing understanding. Interviews with coastal artists sharing their stories and connections to nature inspires the art stories located here. Artist profiles and simple art lessons offer examples of how art and nature can be connected. Learning activities can also be found here, with curricular activities developed through hands-on lived experiences in the local environment.

In the *Resources* section, a growing list of picture books and educator resources is provided, with descriptions of relevant information and key ideas. Articles supporting topics related to nature-based learning, Indigenous education, storytelling, and links to community programs and organizations are also suggested for those wishing to deepen their understanding or connect with other educators.

It is my intent that educators will be inspired to explore place-based learning experiences in nature through the tools, resources, examples, and inspiration found within this growing and responsive learning resource.

To view the *Storied Coast* website, follow the link below:

storiedcoast.ca

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