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A Needs Assessment of the Perceptions and Opportunities to Enhance Nature Exploration at Publicly Funded Preschools

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By

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Master's Thesis

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Naomi Liebhold

May 22nd, 2019

A Needs Assessment of the Perceptions and Opportunities to Enhance Nature Exploration at Publicly Funded Preschools

A Thesis
Presented to
The Faculty of
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Abstract

Extensive research supports the benefits of nature exploration in children's lives. Research also suggests, however, that low-income families and other historically marginalized groups experience multiple barriers to accessing green spaces. In an attempt to counteract this inequality, a needs assessment was performed to understand the challenges and barriers public preschool providers face in regularly leading their children in nature exploration. The target audience of this evaluation was Head Start and Early Childhood Education and Assistance Program [ECEAP] teachers and parents. Along with measuring the challenges and barriers at these centers in regard to nature exploration, this evaluation assessed the resources and assistance needed to support the Head Start and ECEAP community's environmental education interests. Informed by common worlds framework and theory supporting nature and child development, a thematic analysis of interviews with Head Start and ECEAP teachers and parents suggests a need to increase the amount of daily outdoor play and nature exploration within Head Start and ECEAP centers. Results of this evaluation also suggest a need to address safety and liability concerns, lack of weather appropriate outdoor clothing, limited play yard features, and access, or perceived access, to natural areas. Future efforts to encourage opportunities for nature exploration in public preschools should incorporate professional development, parent outreach, and culturally sustaining pedagogies. The findings of this evaluation may be used to guide program improvement and development that supports and incorporates routine nature exploration into the Head Start and ECEAP curriculum.

Acknowledgements

I would like to begin with gratitude to the Indigenous peoples who have lived in the Salish Sea region since time immemorial. I acknowledge, in particular, that this research took place on the ancestral homelands of the Lummi Nation, the Nooksack Tribe, and the Squaxin Island Tribe.

I would like to thank Dr. Gene Myers, my advisor and committee chair, for his support and expertise throughout this research process, as well as Dr. Nick Stanger and Dr. Eileen Hughes, my committee members. You all have provided valuable guidance throughout my tenure at Western Washington University, of which I am forever grateful.

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I would also like to give appreciation to Emily Highleyman of Wild Whatcom for helping sow the seed of inspiration in my mind, in regard to program development in local Head Start and ECEAP centers.

With gratitude to the Opportunity Council and to each preschool teacher and parent that gave me their valuable time, thank you for making this research project a reality.

Last but not least, many thanks to my family and friends. To my partner, Tyler, thank you for enduring this journey with me. Your patience, kindness, and encouragement have anchored me along the way. To my mother and father, I have overwhelming gratitude for your unwavering support, your shared wisdom, and for pushing me to think more analytically. Of course, I also want to thank you for instilling within me values and experiences that have inspired my professional pursuits. To my sister, thank you for your love and humor, as well as for our shared childhood. This research has resurfaced memories spent together in that Little Shannon hollow; memories that I now hold ever more dearly, as I've realized how impactful they were in my life.

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Chapter One: Background to Study

1.1 Introduction

This research project serves to inform more equitable use of accessible nature-based programming in Head Start and Early Childhood Education Assistance Program [ECEAP] centers in Bellingham, Washington. The results can be used to guide the development of professional development, outreach, and/or programming that supports and incorporates nature exploration in the Head Start and ECEAP curriculum. Key objectives of this project are to assess the challenges and barriers of implementing outdoor nature-based curriculum in publicly funded early learning centers, as well as understand the needs and interests of the local Head Start and ECEAP community in terms of program development.

1.2 Head Start Background

Head Start is a national early learning program led by the Office of Head Start, which is nested within the Administration for Children and Families and United States Department of Health and Human Services (Office of Head Start, 2019). Founded in 1965, Head Start was created as part of Lynden B Johnson's "War on Poverty" under the theory that children's lives could be enhanced through family and community involvement (Shaul, 2003, p. 2). As ratified by Congress (2007), the purpose of Head Start is:

> To promote the school readiness of low-income children by enhancing their cognitive, social, and emotional development in a learning environment that supports children's growth in language, literacy, mathematics, science, social and emotional functioning, creative arts, physical skills, and approaches to learning,

> and through the provision, to low-income children and their families of health, educational, nutritional, social, and other services that are determined, based on family needs assessments, to be necessary. (Improving Head Start for School Readiness Act)

Under this purpose, the objectives of the Head Start program are not only to ensure the health, growth, and development of low-income children, but to also empower families in nurturing their children (Governor's Head Start-State Collaboration Office of Washington State, 2002). In the early years of Head Start, parents, particularly mothers, were active in the operation of the program. However, by 1969, program operations were singularly managed by education "experts" in Washington D.C. without the input of local community members (Kuntz, 1991). In fact, parent involvement has since been limited primarily to parent education on parenting skills and household management rather than empowering parents as decision makers in program development (Greenberg, 1998). Throughout Head Start's tenure, comprehensive services have been provided to enrolled children, including educational programming, dental and health screening, and nutritious meals (Yandian, 2016).

Eligibility for the Head Start program is dependent on age, family income, and social needs. Head Start accepts children age three to five years old whose family is at or below the poverty guidelines listed in Table 1. Children who are homeless, in foster care, or whose family receives public assistance such as Temporary Assistance for Needy Families or Social Security Income are eligible for Head Start programs regardless of family income. Ten percent of enrollment is opened to children with special needs and

children from over-income families upon condition and availability (Governor's Head Start-State Collaboration Office of Washington State, 2002).

Head Start centers are mandated to follow developmentally appropriate, research-based early childhood curricula (U.S. Department of Health and Human Services et al., 2016). According to a 2015 National Survey in Head Start centers, the primary curriculum is 75.2% Creative Curriculum, 10.8% High/Scope curriculum, and only 1.6% locally designed curriculum (Moiduddin et al., 2017, p. 24). In regard to outdoor play and nature exploration, providers are required to lead children in gross motor space(s) for at least 30 minutes daily and are encouraged to offer nature/science materials for children indoors and outside (Harms, 2015). Class sizes within Head Start are dependent on age; in classes with a majority of children age three years old, the maximum class size is seventeen students, while a class with a majority of children age four and five can hold a maximum of twenty students. Two teachers, typically a lead and an assistant, manage each classroom (U.S. Department of Health and Human Services et al., 2016, p. 20). The Head Start program offers part-day programming, operating four days per week for three to four and a half hours (Opportunity Council, 2018).

Table 1: The poverty guidelines updated periodically in the Federal Register by the U.S. Department of Health and Human Services under the authority of 42 U.S.C. 9902(2) (Office of the Assistant Secretary, 2019).

Persons in Family/Household	Poverty Guideline
1	$12,490
2	$16,910
3	$21,330

4	$25,750
5	$30,170
6	$34,590
7	$39,010
8	$43,430
For families/households with more than 8 persons, add $4,420 for each additional person	

1.3 Early Childhood Education & Assistance Program [ECEAP] Background

Early Childhood Education and Assistance Program (ECEAP) is a Washington State early learning program for children from low-income families age three to five. The purpose of ECEAP is to:

> Build community capacity to provide comprehensive child development (early childhood education, health, family support, nutrition, transportation, and mental health) services that promote the future success (school readiness) of low-income and otherwise "at-risk" children and their families in Washington State. (State RCW Chapter 28A.215.110 as cited in the Governor's Head Start-State Collaboration Office of Washington State, 2002)

Washington launched ECEAP in 1985 in response to state needs for a comprehensive preschool program (WA State Dept. of Early Learning, 2015). Children enrolled in the ECEAP program have access to inclusive services including center-based programming, home-visits, family activities, health care and nutritious meals (Governor's Head Start-State Collaboration Office of Washington State, 2002).

Enrollment into ECEAP is allotted to children from families that are homeless or whose family income is at or below 110 percent of the federal poverty level (see Table 1) (Governor's Head Start-State Collaboration Office of Washington State, 2002). Enrollment is also open to families in the Temporary Assistance to Needy Families program. Ten percent of enrollment can be opened up to children experiencing developmental delays whose family income fits within an income bracket higher than the federal poverty level (Governor's Head Start-State Collaboration Office of Washington State, 2002).

The Washington State Department of Children, Youth, and Families [DCYF] governs the curriculum in ECEAP centers; teachers must implement Creative Curriculum, HighScope, or an alternative curriculum that has been comprehensively researched and approved by DCYF (Washington State Department of Early Learning, 2018a). The performance standards of ECEAP mandate that teachers integrate a minimum of thirty minutes of outdoor play into the daily schedule, as well as a minimum of 45 minutes of free choice, student-initiated activities (Washington State Department of Early Learning, 2018a). The overarching curriculum at ECEAP centers must be developmentally appropriate and culturally relevant. Educators are directed to cultivate learning experiences that are active, play-based, multi-sensory, culturally responsive, and related to emergent interests. Hands-on exploration and student-directed activities, rather than teacher-directed, are encouraged (Washington State Department of Early Learning, 2018a, p. 32).

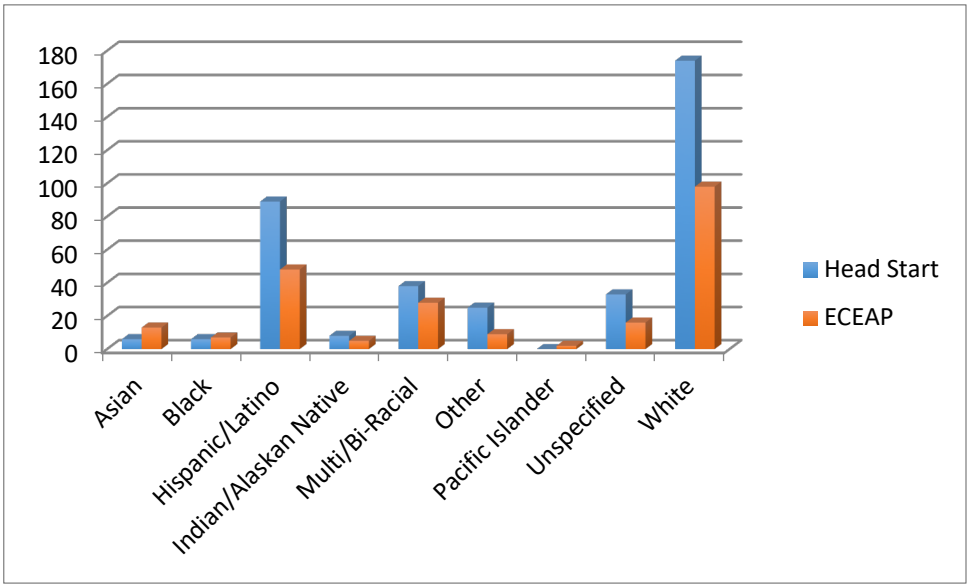
1.4 Head Start/ECEAP Services in Whatcom County

In Whatcom County, the Opportunity Council is contracted by the state and federal government to manage both Head Start and ECEAP services. The Opportunity Council is a nonprofit community action agency, providing comprehensive community services such as housing, health care, early learning, and capacity building programming with a mission to "help people improve their lives through education, support, and direct assistance while advocating for just and equitable communities" (Opportunity Council, 2018, p. 7).

On average, the Opportunity Council oversees the enrollment of 467 children at Head Start and ECEAP centers. Over the 2017-2018 school year, there were 256 funded slots for eligible children in Head Start centers in Whatcom County, and 143 slots at ECEAP centers in Whatcom County (Opportunity Council, p. 8). The racial and ethnic background of children enrolled at Head Start and ECEAP centers managed by the Opportunity Council in Whatcom County is diverse, as shown in Table 2. The primary language spoken by enrolled families is also varied, with 25% of enrolled children using English as a second language (Opportunity Council, 2018, p. 10). In 2016, the annual median household income in Whatcom County was $54,207; a majority of low-income families in the area are at or below 50% of the County's median income and over half of all low-income households receive Supplemental Nutrition Assistance Program benefits (Opportunity Council, 2018, p. 37). Head Start families in Whatcom County reported higher statistics than the national average in needing parent and health education, housing assistance, and crisis intervention (Opportunity Council, 2018, p. 44). This data shows the need for comprehensive family and childcare services in Whatcom County and

provides insight for program development, especially in terms of developing child and parent programming that meets the community's social and cultural needs.

Table 2: Race/Ethnicity of children enrolled in Head Start and ECEAP contracted by the Opportunity Council in Whatcom County (Data from Opportunity Council, 2018).



1.5 Objectives

This research project was conceived to assess the constraints and opportunities that educators face in successfully leading nature-based curriculum and to ultimately act as a tool to inform adaptation or development of a program in a way that fits teachers', students', and parents' needs and desires.

The objectives of this needs assessment are:

- Estimate the amount and type of activities in indoor and outdoor settings that occur in ECEAP and Head Start centers in an effort to detect priority nature-based curriculum needs.

- Identify the constraints to implementing opportunities for nature exploration, as well as the needs, interests, and desires of ECEAP and Head Start educators and parents.
- List teacher beliefs about developing and leading opportunities for nature exploration and other possible influences that shape and/or restrict their planning practices.
- Enumerate and prioritize the resources required to effectively support children's nature exploration.

1.6 Limitations & Assumptions

Due to the limited time to conduct this needs assessment, this study is limited in scope and response rate. Therefore, the results cannot be generalized to the larger population of early childcare providers and parents of children enrolled in publicly funded preschools. Regardless of the potential limitations, this study can provide insight into teachers' perceptions toward early childhood nature exploration and inform action towards supporting early childhood nature experiences in Head Start and ECEAP curriculum.

The following assumptions are embedded within this study. The first assumption is that subjects took the individual and focus group interviews seriously and answered the questions in an honest fashion. The remaining assumptions are that there is a need and/or interest in increasing opportunities for nature exploration in Head Start and ECEAP centers, and that a lack of nature play is affecting the social, emotional, cognitive, and physical development of children. The review of existing literature supports these

assumptions, highlighting the benefits of nature experiences in early childhood development.

Lastly, this research project attempts to resist the dominant discourses that depict children as innocent, vulnerable, universalized, empty vessels to be filled with knowledge (Pacina-Ketchabaw et al., 2015). Rather, through this research a postfoundational, approach will be elevated, which strays from normative discourses in early childhood education that maintain social inequities, and instead celebrates children as diverse, complex, and competent agents of their own lives (Moss & Petrie, 2002; Pacina-Ketchabaw et al., 2015). Similarly, educators will be held as complex professionals whose personal and practical experiences inform their work.

1.7 Role of Researcher & Positionality

As an individual whose ancestors were both refugees and settlers, I acknowledge that I bring complexities to the field of environmental education. Furthermore, I am pursuing research that supports teacher and child engagement with land within Coast Salish Territory; in particular, land originally inhabited by the Lummi Nation, the Nooksack Tribe, and the Squaxin Island Tribe. I recognize that simply stating the first inhabitants of the land is insufficient in addressing the violent histories and systemic inequalities tied to land in North America. Through my research, I wish to foster more equitable relationships with the land, address the diverse needs of the Head Start and ECEAP community, and celebrate the cultural values held by local educators and families. My mission is to collaborate with community members and highlight solutions that can inform and prepare educators to effectively promote healthy and equitable nature-based relationships with students.

Chapter Two: Literature Review

2.1 Introduction

Early childhood experiences have a strong influence on structural neural and behavioral development (Fox, Levitt, & Nelson, 2010). In the first six years of life, the human brain undergoes significant development; evidence suggests that the child's environment plays an important role in gene expression and neural function, and thus on behavior, cognition, and physiology over a lifetime (Zhang & Meaney, 2010). This is true across all environmental aspects, but of specific interest to this project are the physical, social, emotional, and cognitive developments that children experience in natural green spaces (Chawla, 2015; Maas et al., 2009, Aggio et al., 2015). Environmental education can foster such development, as well as support the growth of a child's curiosity and wonder (NAAEE, 2016). The outcomes of environmental education in the early years can attribute to positive attitudes and values regarding the natural environment that are often lifelong and carried into adulthood (Chawla, 1999).

Through the context of early childhood environmental education outcomes, the development of nature-based curriculum in ECEAP and Head Start centers is significant. Furthermore, evidence suggests that three-fourths of preschool-aged children in the United States are not experiencing the recommended levels of physical activity indoors or outdoors (Copeland et al., 2012). There has been a rapid increase in the amount of screen time young children experience daily over the past decade (Paudel et al., 2017), and research shows that children in child care centers are sedentary for seventy percent of the time, experiencing an average of thirty-three minutes outdoors daily (Tandon et al., 2015). The American Academy of Pediatrics recommends children experience two or

more hours of physical activity each day (American Academy of Pediatrics, 2018) and screen time for children age 2-5 should be limited to one hour per day (American Academy of Pediatrics, 2016), yet evidence suggests children in the United States experience around four hours of screen time daily and do not meet optimal amounts of physical activity (Downing et al., 2016). The Centers for Disease Control (2017) report one in six children and adolescents in the United States are obese (Centers for Disease Control, 2017), and the World Health Organization (n.d.) warns that sedentary lifestyle is a global epidemic and is one of the foremost risk factors for global mortality. With a decreasing lack of active outdoor time, children also have limited possibilities for varied nature interactions that support their physical, cognitive, social, emotional, and moral development.

Throughout this study, the term *nature exploration* is utilized to describe a developmentally appropriate practice that can be both structured and unstructured, occurring within open-air green spaces, or within the classroom utilizing materials obtained from outdoor green spaces. In these settings, children can explore freely and have opportunities to imaginatively and creatively engage with loose parts that have no prescribed curricular purpose, such as leaves, twigs, rocks, feathers, flowers, wood chips, driftwood, bark, shells, moss, seedpods, pinecones, blocks, decorative objects, and an almost infinite amount of other natural materials (Ernst, 2012). Within this study, nature exploration is defined as an educational practice in tune with children's inquiries and encouraging children's play and exploration in and with nature, amongst the built and more than human environment. The term *nature experience* is also used in this study as a broad and inclusive term that encapsulates children's interactions with nature; for

example, children's play with stones and leaves. *Outdoor play* is another term used in this study defined as an interval of a child's day that is spent unstructured in the open-air. These terms are all part of nature-based curriculum and the greater field of environmental education. *Nature-based curriculum* is a well-researched educational process that supports child development through a child's connection with nature, as opposed to a separation with nature (Warden, 2018).

2.2 Intersections of Early Childhood Education and Environmental Education

Historical analysis.

The practice of educating children in nature is not a new convention. Within a North American context, environmental education has been practiced since time immemorial by Indigenous peoples. According to Cajete (2005):

> American Indian education historically occurred in a holistic social context that developed a sense of the importance of each individual as a contributing member of the social group. Essentially, tribal education worked as a cultural and life-sustaining process. It was a process of education that unfolded through reciprocal relationships between one's social group and the natural world. This relationship involved all dimensions of one's being while providing both personal development and technical skills through participation in the life of the community. (p. 69-70)

Indigenous Education is an integrated expression of environmental education rooted in building a partnership with community, including all biota and natural elements (Cajete, 2005).

From a European perspective, early childhood environmental education is linked to the kindergarten movement, which began in 1839, led by Friedrich Froebel, a scholar focused on establishing a foundation for learning and literacy in young children. Froebel's movement was rooted in the belief that children will develop spiritual, physical, and intellectual unity through play (Quinn, 2013). At the time of its conception, kindergarten was geared towards children aged 3-6 years and was directed toward sensory exploration. Froebel rejected educational scholars Comenius and Lock's theories that children's minds were blank slates and could be bent into shape through teacher instruction. Rather, Froebel's kindergarten was both a garden for children, a place where children could connect with nature through play and exploration, and a garden of children, where youth had the independence to learn in the absence of authoritative commands (Moore, 2002).

Froebel introduced play and sensory exploration into European early childhood pedagogies, which reached the United States in the 1850s (Painter, 1903; Spodek, 1982). While upper primary education in the United States has taken on a more academic approach, dictated by social, political, and economic considerations (Elkind, 1986, p. 117), early childhood education, ranging from preschool to kindergarten, has followed developmentally appropriate practices influenced by theories on child development (NAEYC, n.d.). According to the National Association for the Education of Young Children [NAEYC] (2019), the core considerations of developmentally appropriate practice are understanding the developmental stages of children's learning, observing each child's individual progress, interests, and abilities, and being conscious and responsive to children's values, beliefs, and background.

While preschool and kindergarten teachers in the United States still utilize play and exploration-based pedagogies, there has been a documented institutional shift. In 2009, the Alliance for Childhood published a report that brought to light the drastic changes kindergarten in the United States has undergone over the last two decades. The developmentally appropriate learning practices of exploration, play, and social interaction have been superseded by highly prescriptive curricula that attempt to meet new state standards and standardized test preparation. The authors warn that this focus on academic skill building is rapidly trickling down to preschools (Miller & Almon, 2009). This is evident in the development of a state mandated standardized test issued to publicly funded preschool programs in Florida. The test evaluates children's literacy, math, and language skills in an effort to measure early childhood providers' performance. However, the test does not assess social, emotional, and physical developments, even as a review of research holds these major areas of child development above academic achievement at the preschool age (Maxwell, 2012). This mandated test depicts a contradictory trajectory that standardized early childhood education is experiencing, shifting away from developmentally appropriate practice towards curriculum dictated by economically driven policy.

In response to the trickling down of academic pressure and to the large body of scholarly evidence over the last two decades that documents children spending proportionately more time indoors leading sedentary lifestyles (Tandon et al., 2015; Copeland et al., 2012), a renewed interest to take children outdoors in natural environments has developed within preschool education (Taylor, 2013) in part to build cognitive, emotional, mental, and physical health, as well as to promote ethics of

stewardship at a young age (Nelson, et al., 2018). Additionally, low maintenance, manufactured outdoor play spaces connected to learning centers have become a symbol of youth's disconnection from nature, and have subsequently increased the allure of 'exotic' and 'wild' playscapes, as Taylor (2013) writes, "just as the artificial playground has come to symbolize the denaturalization of early childhood, the natural outdoor early childhood movement has become the aspirational beacon for renaturalizing the sector" (p. 54). With this interest to "renaturalize" (Taylor, 2013, p. 54), forest kindergartens and nature preschools have emerged as a growing alternative to traditional preschools in North America. Occurring outdoors in rain or shine, this trend is spurred in part by an increasingly popular form of outdoor learning well-established in northern Europe. Known as *Ur Och Skur* in Sweden, *Udeskole* in Denmark, and *Waldkindergarten* in Germany, each country and culture has adopted pedagogy that is radically different philosophically and practically than those dominating the United States modern education system. Within the United States, a pedagogy based on free play, inquiry, and natural science is prevalent within most forest kindergartens and nature preschools (Kenny, 2013; Sobel, 2016).

While forest kindergarten and nature preschools offer an alternative curriculum to traditional schooling, it comes at a cost. These preschool programs are largely privately operated and cater to predominately white, upper to middle class families (Schimke, 2018). Furthermore, preschool programs that operate exclusively outdoors can only provide service for four hours or less due to licensing stipulations geared towards full-day programs operating in the built, indoor environment (Washington Department of Early Learning, 2018b). Within Washington State, the Department of Early Learning is

currently performing a pilot initiative to license full day outdoor preschools. The pilot initiative has selected fifteen participating outdoor preschool programs across the state to observe their practice throughout the course of five years and establish a set of licensing stipulations based on best practices observed. However, of the fifteen participating programs, none service Head Start families and only one program holds an ECEAP contract (Washington Department of Early Learning, 2018b).

Squaxin Island Child Development Center coordinates the sole nature preschool operating with an ECEAP contract. Administrators and teachers at this center are working towards a reconceptualization of outdoor learning in the public preschool setting as they follow and implement ECEAP standards but translate them into an outdoor setting. For example, teachers' follow Creative Curriculum, provide nutritional meals, and operate in a licensed outdoor space in the woods surrounding the center, rain or shine. Teachers' create a risk assessment daily and are aware of all calculated and unnecessary risks. Furthermore, the nature preschool program practices culturally sustaining pedagogies. Situated on the Squaxin Island Reservation, many tribal members teach at the center and a majority of the children are enrolled tribal members. Curriculum is supported through partnerships with local tribal members and an ethic of reciprocity is upheld.

Administrators at the Squaxin Island Child Development Center have been comparing data between children in their indoor and outdoor preschool programs. In regard to children enrolled in the outdoor nature preschool program, administrators have documented a decrease in injury and incident reports and found higher assessment scores in children's cognitive, social emotional, and physical development compared to their

brick and mortar-based classmates (S. Green, personal communication, May 1, 2019). This center acts a model for early childhood centers across the state of Washington and the United States at large in terms of developing a nature preschool program that serves historically marginalized communities and follows state and national standards and licensing requirements.

Goals of early childhood environmental education.

Health and environmental issues shape early childhood education, along with local education perspectives and values (MacEachren, 2018). According to the North American Association of Environmental Education [NAAEE] (2016), the primary goal of environmental education is "the development of an environmentally literate citizenry," yet at the early childhood level, the primary goal is focused on social, emotional, physical, and cognitive development (p. 3). Environmental education in early childhood is centered on holistic and experiential development that enables children to understand how humans' impact and relate to their environment (NAAEE, 2010). In their Early Childhood Environmental Education Programs: Guidelines for Excellence publication (2016), the NAAEE asserts that early childhood environmental education is more than a cognitive learning process; it is important to foster opportunities for children's emotional development and integrate unstructured, child-centered discovery, rather than a structured approach to curriculum development.

A major principle within early childhood environmental education, as referenced in the NAAEE Guidelines for excellence and NAEYC's guidelines for developmentally appropriate practice (NAEYC, n.d.), is the consideration of culture. The development of a program's philosophies and practice should be informed by and reflect family and

community cultural values (NAAEE, 2016). Paris and Alim (2014) take this guideline further in their offering of the concept and practice of culturally sustaining pedagogy with the goal of "supporting multilingualism and multiculturalism in practice and perspective for students and teachers. Culturally sustaining pedagogy seeks to perpetuate and foster—to sustain—linguistic, literate, and cultural pluralism as part of the democratic project of schooling and as a needed response to demographic and social change" (p.88). With a framework of culturally sustaining pedagogy, this needs assessment will work against the grain of monoculture program development and focus on sustaining pluralism through education and community development (Paris & Alim, 2014).

Critiques of early childhood environmental education.

Important critiques of education, including environmental education, have recently been lodged from a social justice, and particularly Indigenous standpoint. Many environmental education programs and curricula in North America are problematically silent on the violent colonial histories tied to land (McClean, 2013). According to Bang et al. (2014), place-focused pedagogies within environmental education disavow Indigenous sovereignty and "construct meanings of land as vast, uninhabited spaces ripe for discovery; typically either fertile for human cultivation or endangered and in need of paternalistic protection" (p. 41). In other words, the dominant narrative within place-focused work portrays Indigenous people solely in the past tense, and often establishes an anthropocentric relationship with land, air, and water.

In an effort to decolonize early childhood environmental education, a land pedagogy can be adopted to (re)story relationships with land that address the colonial histories tied to the environment, elevate non-anthropocentric thinking, and sustain

reciprocal relationships with Indigenous communities, including the land (Bang et al., 2014). Developed by this tradition, land pedagogy is a critical engagement with dominant, colonial discourses and disavowals in environmental education, and the greater environmental movement, that diminish the intersections of environmental injustice, racism, settler colonialism, and white supremacy (Nxumalo & Cedillo, 2017). Nxumalo & Cedillo (2017) write:

> Perhaps one entry point might be for educators and researchers to inquire, alongside children and the Indigenous peoples of a particular place, how these places might be known and experienced differently through stories that highlight marginalized Indigenous stories of place and attend to the vibrant more-than-human relationalities of place. (p. 103)

These stories have the potential to disrupt settler relations and unsettle locations that are on stolen Indigenous land (Nxumalo & Cedillo, 2017), as well as privilege Indigenous ways of knowing in settings that typically elevate and romanticize Western thought (Calderon, 2014). In the (re)storying of land, it is also critical to be aware of how, and by whom, stories are co-opted and transmitted. Models of land pedagogy contradict the claim that non-Indigenous educators are the "chosen ones" to carry on Indigenous knowledge and traditions (Tuck, McKenzie, & McCoy, 2014, p. 14), rather, land pedagogy requires Indigenous people to lead such discourse (Calderon, 2014). Land pedagogy can inform the development of nature-based curriculum in addressing the inequitable relations present within place-focused environmental education (Nxumalo & Cedillo, 2017; Bang et al, 2014).

2.3 The Relationship Between Children and Nature

The child in nature is a romantic notion, linked to nostalgia and innocence. Western thought has long depicted the young child as a natural and innocent character intrinsically connected to nature, born pure and wholesome, later to be corrupted by society into adulthood (Elliot & Krusekopf, 2017). This European and North American vernacular is embedded within modern early childhood environmental education (Taylor, 2013). Two major principles regarding children's relationship to nature have emerged over the past seven decades; the first principle being that nature experiences promote a sense of wonder and awe towards the natural world and the second principle emphasizes that childhood nature encounters have lasting effects (Taylor, 2013, p.49). In her seminal essay, "Sense of Wonder," Rachel Carson wrote the value of preserving and strengthening this sense of awe and wonder over the natural world is in children's "recognition of something beyond the boundaries of human existence (1965, p. 54). Furthermore, early childhood scholars identify links between transcendental childhood moments and adult creativity (Taylor, 2013, p. 49; Chawla, 1990; Cobb, 1959). Chawla describes meaningful childhood experiences as "radioactive jewels buried within us, emitting energy across the years of our life" (Chawla, 1990, p. 18). While this romantic notion idealizes the union of childhood and nature, it can also serve to separate the child from nature (Taylor, 2013).

Haraway (1997) provides a prompt into this child and nature divide; "What counts as nature, by whom, and at what cost?" (p. 104). Forest kindergartens and nature preschools, occurring largely within managed forests and parks, are perhaps educating children through an anthropocentric and idealized binary view of the 'natural'

environment (Nelson et al., 2018). In a shift away from this view, Taylor (2013) offers a more inclusive framework revolving around children's common worlds, a dynamic and collective space "of humans and more-than-humans, full of unexpected partnerships and coming together, which brings differences to bear on the ways our lives are constituted and lived" (p. 78). This framework focuses on where nature is in children's lives, rather than a human-focused idealized romantic vision of the external environment. This needs assessment attempts to adopt this common worlds framework to understand the complexities of children's values and experiences and to support a discourse of inclusivity.

2.4 Significance of Early Childhood Environmental Education

Physical benefits.

With abundant resources to physically interact with, the natural environment promotes bodily health, gross and fine motor development, and a conditioned immune system (Sobel, 2016). Fjortoft (2001) writes,

> Natural environments represent dynamic and rough playscapes that challenge motor activity in children. The topography, like slopes and rocks, afford natural obstacles that children have to cope with. The vegetation provides shelters and trees for climbing. The meadows are for running and tumbling…Intuitively, children use their environment for physical challenges and play; they perceive the functions of the landscape and use them for play. (p.111)

Fjortoft's (2000) research involved pre-primary children's motor development in a woodland play scape in Norway. Over the course of nine months, children's play and

motor fitness was observed, showing a positive correlation between a diverse and rough landscape (i.e. woodland features such as rock, shrubs, trees, etc.) and children's balance, coordination, strength, and flexibility. Consistent with Fjortoft's work, researchers have found that children exert more intense physical activity in green spaces, as compared to non-green spaces (Wheeler et al., 2010). Evidence also suggests that children prefer such settings. Researchers observed children's play choices within an Australian school yard and found that, on average, the green space within the play yard, filled with trees, rocks, and stumps, attracted more students than the manufactured and maintained play spaces (Lucas & Dyment, 2010). Further research provides evidence that outdoor early childhood learning contexts that contain such diverse natural elements engage greater gross motor movements and host more diverse activity types than traditional classroom settings (Meyer et al., 2017). Within the indoor classroom context, students typically use paper and crayons for drawing, and scissors for cutting. In an outdoor natural setting, children can create images with many elements such as mud, rock, berries, and water, and can construct with copious materials (Meyer et al., 2017; Fjortoft, 2000). In sum, the outdoor natural learning environment provides diverse and engaging opportunities for children to develop physically.

Cognitive benefits.

A substantial amount of research indicates that the natural environment furthers children's mental capacities. A study performed in the United Kingdom produced evidence that children's speech and language is heightened during experiences in the outdoor natural environment. Researchers observed children in both indoor classrooms and outdoor nature 'classrooms' and found that the quality of children's utterances

(higher verb, adjective, and exclamation usage) was stronger in the natural environment (Richardson & Murray, 2017). A study performed in urban Italian primary schools assessed the cognitive effects of recess time spent in the built versus natural environment. The results showed that students maintained higher attention, concentration, and memory for longer periods following play in outdoor green spaces compared to play in the built environment (Amicone et al., 2018). Children observed at a childcare center in Rome performed better on visual-spatial structured tasks in external green spaces, as opposed to indoor spaces, suggesting that the environment directly affects children's cognitive attention (Carrus et al., 2012). Charles (2009) writes, "Children's cognitive flexibility and creativity are enhanced if they have the experience in childhood of problem-solving in natural settings versus highly controlled, human-dominated, managed settings like concrete playgrounds and manicured playing fields with little ecological diversity" (p.468). This assertion is supported through over two decades of research (Fjortoft, 2000; Moore & Wong, 1997; Gibson, 1979), which has found correlations between the physical diversity of a landscape and the affordance of play, suggesting that when children play in the natural environment, their play is more varied, with heightened opportunities for critical and creative thinking (Fjortoft, 2001; Fjortoft & Sageie, 2000; Wells, 2000).

Social emotional benefits.

In addition to physical and cognitive development, an outdoor natural learning environment can cultivate positive social interactions and reduce children's likelihood to develop stress, emotional, medical, and behavioral disorders (Carrus, et al., 2012; Aggio et al., 2015; Soderstrom et al. 2013, Markevych et al. 2014). Pairing unstructured play with nature can further such positive development. The results of a nine-month study in

Portugal suggest that outdoor play in preschool settings contributes to the development of children's autonomy and self-confidence. Through this study, play experiences were observed and participating teachers were interviewed. Results of analysis showed that through outdoor play, children are co-constructors of knowledge alongside their teachers, and teachers were more confident in allowing children to make decisions and manage risks independently (Bento & Costa, 2018). Within the affective domain, research indicates that levels of nearby nature impact children's psychological well-being. For rural children, life stress is reportedly lower among those with high levels of proximate nature (Wells & Evans, 2003). In the urban environment, accessibility to city parks and greenery is associated with increased mental health in children from families with low socioeconomic status (Flouri et al., 2014; Balsevicene et al., 2014; Taylor et al., 2002).

Environmental attitudes.

Young children form understandings of themselves, their community, and the world through sensory experiences and social and environmental interactions (Elliott, 2010). Children's exploration of and in nature promotes both empathy and care for the natural world (Cheng & Monroe 2012) and can provide challenging and stimulating experiences that develop their moral attitudes (Ahmetoglu 2017). Research over three decades provides evidence that adults who exhibited a preference to spend time outdoors, valued the environment, and expressed attitudes of concern about environmental issues had meaningful childhood experiences in nature (Ahmetoglu 2017; Thompson et al., 2008; Wells & Lekies, 2006; Chawla 1999; Chawla & Derr, 2012).

2.5 Conceptual Framework

The conceptual framework for this study is centered upon two foci: theory supporting the connection of nature and child development (Kellert, 2005) and the gap in empirical research involving children from low-income families, the teachers that serve them, and their connection with/in nature (Adams & Savahl, 2017). According to Kellert (2005), children experience three kinds of nature interactions: direct, indirect, and vicarious (p.65). Direct nature experiences include unstructured interactions with the more-than-human world, including features and processes that may be affected by humans, but operate independently from human control such as a creek, a tree, or a meadow. Indirect nature experiences include structured interactions occurring in environments largely managed and controlled by humans such as a park or zoo. Vicarious experiences include representational and metaphorical interactions with nature, largely occurring through media and literature (Kellert, 2005, p. 65-66). Kellert (2005) argues that these three forms of nature contact each influence children's intellectual, emotional, and moral development yet direct nature experiences constitute significant development due to the natural environment's diverse, variable, stimulating features that prompt recognition, awareness, and response from a child (p. 81). Adapting Kellert's theory supporting nature and child development to Taylor's (2013) common worlds theory, a more comprehensive framework of nature is utilized within this study. Taylor (2012) writes,

> Common worlds is an active and cumulative inclusive concept, that resists the division between human society as distinct from nature (and other living things) that characterizes post-Enlightenment western thinking. It provides us with an

> alternative way of thinking about the world we share and the kinds of relations that constitute our experiences of it. (p.111)

This framework encourages children and adults alike to understand the "entangled worlds" we inhabit with human and more-than-human others (Taylor, 2012, p. 111). Growing up in this modern age rife with social and geographical disparities, climate change, increased population, and urbanization, bridging the nature and human divide can help children negotiate and relate in and with their world (Taylor, 2012).

While a review of literature indicates that the outdoor natural environment is a site that promotes children's development, this generalization overlooks inequalities of opportunities for time in such sites. The literature that does exist involving low-income families across cultures and continents suggests low-income families and multi-ethnic groups experience multiple barriers to accessing green space (Cronin-de-Chavez et al., 2019). Within the United States, access to green space is tied to race, ethnicity, and socioeconomic status. Multiple studies suggest that low income and historically marginalized backgrounds have disproportionately fewer spatial, structural, and perceived access to trails, parks, and sports fields (Lindsay et al.,2001; Frumkin, 2005; Hood, 2005; Wolch et al 2002, Das et al., 2016). In the United Kingdom, which has similar class structures and environmental amenities to the United States, socially and economically deprived areas have fewer green spaces and families' perceived safety regarding the use of existing green spaces in these areas is diminished (Cronin-de-Chavez, 2019). One in eight children in the United Kingdom have not visited a park, beach, farm, field, or wooded area in over a year, and children from low-income and Black, Asian, and minority ethnic families in the United Kingdom are less likely to visit

such spaces frequently (Hunt et al., 2016). Furthermore, research in Turkey suggests that a child's biophilia, or connection to nature, positively correlates with parental education levels and income (Ahmetoglu, 2019). Throughout the Global North, children's freedom to play in public spaces has declined, and has been replaced with enrichment activities such as organized sports, clubs, cultural activities, and community programs. However, these enrichment activities are not equitable; research shows that low-income children have reduced access to such activities than their middle-class counterparts (Holloway, Pimlott-Wilson, 2014). This study attempts to address the wealth divide embedded within children's nature experiences. In an effort to cultivate nature-based programming accessible to historically marginalized communities, this research project is focused on supporting educators serving low-income children successfully incorporate nature-based curriculum into their daily and weekly routines.

Chapter Three: Methodology

3.1 Needs Assessment Design

A needs assessment is a type of evaluation research that is performed by an organization or outside evaluator for the purpose of program development (NOAA, 2004). Needs assessment evaluation is utilization-focused (Patton, 1978), identifies the issues, resources, and constraints of the target audience, and produces practical solution strategies (Ernst, 2012). Altschuld and Kumar (2005) write, "Needs assessment is a process or a systematic set of procedures undertaken for the purpose of setting priorities and making decisions about program or organizational improvement or allocation of resources" (p. 276). This method of evaluation provides an inside perspective of a program to inform stakeholders of a problem or situation that should be rectified

(Altschuld & Kumar, 2005; Patton, 1978). This needs assessment seeks to increase community transparency and analyze and address stakeholder's needs.

The initial research questions embedded within this needs assessment are:

1. What are the challenges and barriers to implementing opportunities for nature exploration in Head Start and ECEAP centers?
    a. How much time do ECEAP and Head Start centers currently allocate for outdoor play? How much time is allocated for nature exploration (both inside and outside)?
    b. What do educators perceive as obstacles to implementing outdoor nature exploration?
    c. What were the challenges experienced during previous attempts to implement past nature-based programming in Head Start centers led by external educators?
    d. What influences shape and/or restrict teachers planning practices in regard to nature exploration?
2. What type of programming, resources, and/or assistance would be most beneficial?
    a. What are teacher and family values, attitudes, and beliefs towards the natural environment, and how can such values, attitudes, and beliefs inform curriculum development?

b. What resources are ECEAP and Head Start teachers lacking for effectively implementing nature exploration?

c. In what specific ways could external organizations be helpful to ECEAP and Head Start's nature-based curriculum efforts?

3.2 Research Participants

Research participants were selected by their involvement with Head Start and ECEAP. Head Start and ECEAP educators were recruited through a partnership with the Opportunity Council. Twenty-five lead teachers and three assistant teachers from 16 Head Start and ECEAP centers were recruited by mail. A letter was electronically and physically dispersed inviting participation in the form of an individual interview or focus group (See Appendix A). Interviews were held to gather teacher perspectives surrounding the constraints and opportunities for practicing a nature-based curriculum. Within this study, only Head Start and ECEAP teachers employed through the Opportunity Council were contacted. Head Start teachers contracted through the Lummi Reservation and the Nooksack Tribe were not recruited. This decision was based on the limited time, scope, and support needed to ethically initiate research within Tribal communities.

Parents were also recruited through select partnerships with Head Start and ECEAP teachers. A recruitment letter was sent home inviting participation in the form of an interview (See Appendix C).

3.3 Data Collection Methods

The research objectives and questions were addressed by interviewing experienced in-service local early childhood educators and Head Start and ECEAP parents. Interviews were semi-structured and open-ended, with a focus on individual views of children's connection to nature and early childhood pedagogies (See Appendix B). Opportunity for exploration out of the focus area was provided.

The purpose of the interviews was to elicit subjects' impressions, attitudes, and beliefs on the research topic and detect the range of perspectives (Witkin, 1995). Patton (1985) explains that:

> [Qualitative research] is an effort to understand situations in their uniqueness as part of a particular context and the interactions there. This understanding is an end in itself, so that it is not attempting to predict what may happen in the future necessarily, but to understand the nature of that setting—what it means for participants to be in that setting, what their lives are like, what's going on for them, what their meanings are, what the world looks like in that particular setting—and in the analysis to be able to communicate that faithfully to others who are interested in that setting [p.1]. (as cited in Merriam, 1998, p. 6)

The qualitative nature of this research project is descriptive, and explores the social, cultural, and physical variations within each Head Start and ECEAP center in Whatcom County. Capturing the diverse nature of each center, and the audience within, the Opportunity Council and external organizations can enhance the effectiveness of their program.

The recruitment process began in February 2019. Over the course of three months, twelve educators were interviewed resulting in an educator response rate of 43%. Seven of the educators taught in Head Start centers and 4 taught in ECEAP centers. Four parents were interviewed. Of the parents interviewed, all had children enrolled in Head Start.

3.4 Data Analysis Methods

Thematic analysis of the semi-structured, open-ended interviews was used to identify themes addressing the research questions proposed in the study. Braun and Clarke's (2006) six phases of thematic analysis was utilized to identify patterns of meaning in the data. All interviews were audio recorded and transcribed, promoting a familiarization with the responses. Responses were then coded to identify emerging topics. These codes were then further refined into broader themes that covered recurring topics and connections within the data; themes were then organized by their association with the research questions (Braun & Clark, 2006).

3.5 Ethical Considerations

Since this research project involved human subjects, an application for the Institutional Review Board was submitted and approved. All interviews were conditional on the written consent of the subjects (see Appendix E). While this study covers a non-sensitive topic and is considered minimal risk, maintaining subject's privacy was a priority; no data that could identify individual subjects has been published.

Chapter Four: Results

4.1 Introduction

The results of this study are presented in their connection to the two main questions embedded within this needs assessment: What are the challenges and barriers to implementing nature-based programming in Head Start and ECEAP centers and what type of programming, resources, and/or assistance would be most beneficial? Participants' responses are then further organized into subcategories within each question.

4.2 Emerging Themes Addressing the Research Questions

What are the challenges and barriers to implementing outdoor nature-based programming in Head Start and ECEAP Centers in Whatcom County?

On average, teachers in both the full day and half-day programs allocate 45 minutes for outdoor play daily. Within the half-day programs, teachers allocate an average of 30 minutes, while teachers in full-day programs allocate an average of 75 minutes of outdoor play daily. Half of the teachers reported that inclement weather, particularly rain and snow, affected the amount of time spent outside in their play yard. Four out of the twelve teachers shared that the amount of time allocated for outdoor play was affected by transitions to and from the play yard. In terms of daily outdoor play in the play yard, there were multiple frustrations voiced by teachers:

> *Teacher 1: There are a lot of safety regards, even just getting out to the play yard and back is a struggle.*

A majority of teachers voiced safety concerns in particular regarding outdoor play within the play yard. A lack of boundaries in the play yard was a reoccurring anxiety shared by nine of the twelve teachers. The other three teachers had access to an enclosed play yard. Another safety concern voiced by half of respondents related to children's behavior. Teachers shared that a majority of the children served in the Head Start and ECEAP program come from low-income families and many children have complex family backgrounds that include trauma, domestic violence, and foster care. Teachers reported having students with an Individualized Educational Plan (IEP), as well as students with sensory issues, developmental delays, and high needs.

Among teachers, seven indicated that they felt limited by their play yard and five of the twelve teachers interviewed share their play yard with an elementary school. At these sites, the play equipment is designed for five to twelve-year old students and early childhood teachers are only able to bring their students to the play yard within an assigned 30-minute window. One third of respondents do not have play structures in their play yard and voiced a concern regarding students' gross motor development.

> *Teacher 7: We're trying to make it [outdoor play] as robust of an experience as possible, but it's been challenging trying to make it have more playground equipment. It's a struggle to get what we need. So, to me, the kids aren't getting to climb, they're not getting to practice these skills, so we're trying to bring in more stuff ourselves trying to solve this problem. What we really need is a structure, we need climbing and balancing.*

The lack of play structures at certain centers is due, in part, to licensing stipulations. Over the last five years, certain centers have extended programming from half-day to full-day. A majority of ECEAP centers now operate on a full-day schedule. While all Head Start centers currently operate on a part-day schedule, at least one center will make the shift to full-day for the 2019-2020 school year. With the shift from part-day (3.5 hours) to full-day (6 hours), restrictions from licensing regulations increase. For example, regulations for full-day play yards require that structures built for 5-12-year-old students cannot be used by 3-5-year-old children.

Figure 1: Picture of ECEAP play yard that lacks play structures due to licensing regulation

With regard to outdoor nature exploration, teachers voiced many challenges and barriers to routinely leading their children on outings outside of the play yard. See Table 3. The greatest reported obstacle was flight risk, or a fear of losing a child. When asked

what might prevent you or fellow teachers from leading children on outings, one teacher responded:

> *Teacher 2: I think the fear of losing a child or not really having that control. If you're in an enclosed area you feel like you have more control over the situation, so I think that can be kind of scary.*

The preceding greatest obstacles reported were gear and parental concerns. Given that Head Start and ECEAP centers serve low-income children, children's access to weather appropriate gear can be limited.

> *Teacher 4: That cold weather was hard because I couldn't take children outside because they were so inappropriately dressed. I don't have enough clothing in the classroom to outfit all of the children.*

Teachers' reported parental concerns were related to weather, stigma surrounding dirt and messy play, and a fear of losing a child.

> *Teacher 5: It can be hard for families in certain weather. They may leave their child at home, they may even fear taking the child outside in inclement weather.*

Another teacher reported:

> *Teacher 3: There are also parents who don't want their kids to get dirty or get their clothes dirty…Some of the children won't get dirty because they say, "Oh my mom's going to get mad at me because I got dirt on my pants.*

Parental concerns regarding flight risk is exhibited in this teachers' response,

Teacher 10: We can't do those [outings in non-enclosed spaces] anymore because they are too open, there is no way for us to make a barrier. That is an administrative decision because parents are nervous about the possibility of us losing their child.

Table 3: Challenges experienced by teachers in regard to nature exploration.

Challenges	**Teachers' Response Rate**
Flight risk	11/12
Outdoor Gear	9/12
Parental concerns regarding outdoor play	9/12
Bus logistics	8/12
Limited Access	7/12
Time	7/12
Weather	7/12
Licensing Stipulations	7/12
Staffing Ratio/Volunteers	7/12
Children's behavior	6/12
Know-how	4/12
Limited Curriculum	3/12
Increased Risk (Strangers, dogs, sharps, etc.)	3/12

While seven of the twelve teachers responded that they have led students on outings to green spaces outside of the play yard, only one teacher led their students on nature exploration outings weekly. Of the seven that have led students on outings to green spaces, their outings were restricted by risk-focused constraints:

Teacher 4: I will not let them get wet, we can't jump in puddles…stay on the trail, we like to keep nature, nature.

Teacher 2: We lay down the rules that we always hold onto the rings and don't let go.

Teacher 5: The outings tend to be a lot of safety talks.

Teacher 8: I don't want them to pluck leaves off of things. I don't want them to pick up worms or learn to put them in their pocket…I don't want them to hurt nature.

In the classroom, all responding teachers shared that they provide opportunities for indoor nature exploration in their sensory table with elements such as dirt, sand, and water. A total of eleven teachers reported having natural loose parts for children to sort such as shells and rocks. Only two reported utilizing natural material for the arts. Based on teachers' responses, there was a limited connection between children's indoor learning and outdoor play. Only four teachers shared such a connection. One of these took the form of documentation of children's experiences on weekly nature outings hung in the classroom. Another consisted of a gardening project where children started seeds to be planted outside. Another indoor-outdoor connection consisted of an indoor activity observing butterflies' pupation process.

There was an inadequate response regarding teachers' experience with nature-based programming led by external educators to generate reliable results. Only one teacher reported having an external educator lead a nature outing in prior years. Major challenges voiced by this teacher entailed lack of communication between the external

educator and the teacher (the teacher was not informed of what activities the external educator would lead), miscommunication between teachers and an English language learner, and a lack of adaptability in the lesson in response to the season and students' needs. These challenges indicate a need for more transparency and communication between external educators and Head Start and ECEAP teachers in regard to planning and implementation.

What kind of programming, resources, and/or assistance would be most beneficial?

Teachers shared their interests and needs when asked what would support them to routinely incorporate nature exploration into their curriculum. See Table 4. Their greatest reported need was training. In particular, teachers showed an interest in modeling, mentorship, and community learning. Teachers voiced a need for training to be geared towards children with high needs led by people who have experience with diverse students and backgrounds. Among responses, there was a recurring interest in training on what to look for and show students on nature outings. This is evident in the following teacher's response:

> *Teacher 1: When we think about nature and the outdoors there is so much to it and such a huge array of looking at it…There are a lot of things that we can teach them, but just stopping and thinking of where to start is often the hard part.*

A need for curriculum was also voiced by respondents. Teachers at Head Start and ECEAP centers are mandated to follow Creative Curriculum, however Creative Curriculum is a scripted curriculum and contains limited resources to support children's

individual or cultural needs (Gullickson et al., 2018). Additionally, teachers cited a lack of access to early childhood-specific outdoor education curriculum.

Although only three of the twelve teachers voiced a need for parent education, nine teachers said they experienced parental concerns regarding outdoor play. This suggests a potential need for parent outreach surrounding the benefits of outdoor play and nature exploration.

Table 4: Teachers' needs in regard to routinely incorporating nature exploration.

Need	**Teachers' Response Rate**
Training	10/12
Outdoor Gear	10/12
Curriculum	8/12
External educator leading	6/12
Volunteers	5/12
Improved play yard	5/12
Parent education	3/12

All responding teachers identified benefits and positive effects of outdoor experiences for their children. The positive effects and benefits that teachers shared were largely focused on physical, social, and emotional development. Only one teacher reported that outdoor experiences promote cognitive work.

A reoccurring theme amongst all respondents, both teachers and parents, was a partnership between teachers and parents.

Teacher 3: Nowadays with families they need their needs met before they can go and do other things. There is such a high need for the basics, like housing, and when they have that met then they can move on to their child learning the ABC's and I'm hoping that we're able as an agency to help the overcome that first and be able to move on to education and child development.

Although an insufficient number of parents were interviewed to provide generalizable results, parent responses elicited a sense of support from their children's teachers.

An observed trend within teacher responses was a nostalgia for their own childhood outdoor experiences. Although not directly asked during the interview, eight of the twelve teachers shared their childhood experiences in nature which ranged from unsupervised and unstructured outdoor play (7/12) to positive animal interactions (2/12). A total of five responding teachers said that these childhood experiences have informed and guided them in their teaching practice.

4.3 Discussion

A major limitation revealed from this study concerns the amount of time Head Start and ECEAP educators are allocating for outdoor play and nature explorations. The Centers for Disease Control recommends children be physically active for 60 minutes or more daily, and the American Academy of Pediatrics (2018) argues that further research indicates children should experience two or more hours of physical activity each day. While some physical play may be occurring indoors through movement and dance, all of the interviewed teachers work at centers that are classroom-based, leading to the assumption that a majority of students' physical activity is occurring outdoors. With that

in mind, only one of the eight teachers in half-day programs and two of the four teachers in full-day programs are incorporating an hour or more of physical play into their daily schedule. This indicates a need for increasing the amount of outdoor play into Head Start and ECEAP daily schedules. Although there is not a national guideline for the recommended amount and type of outdoor nature exploration for public health outcomes (Shanahan, et al., 2015), research indicates that there are increased opportunities for children's development beyond the confines of the play yard (Ernst, 2012; Fjortoft, 2000; Meyer et al., 2017; Wheeler et al., 2010). As only one of the responding teachers incorporate weekly opportunities for nature exploration outside of the play yard, there is a clear need for increasing the amount of routine outdoor nature exploration into the Head Start and ECEAP schedule.

Teacher's concerns for child safety in both the play yard and on nature exploration outings, coupled with parental concerns correspond with what Beck (1992) identified as "risk society," in which Western institutions and belief systems in postindustrial society implement systems of control to prevent a variety of possible outcomes (Harper, 2017). Research indicates that early childhood educators are influenced by concerns for being held liable for injuries to their students (New et al., 2005). This is evident in a teacher's response:

> *Teacher 7: I feel like it [outdoor nature exploration] opens us up to more incidents to happen and accident reports. It does open you up for more risk. So that is in my mind too, because there is a lot of paperwork in our program when something happens.*

Concerns and perceptions surrounding risk and safety can encourage teachers to restrict outdoor activities that they may perceive as risky, rather than evaluating the children's capability to manage risks; these decisions have the potential to negatively impact students, depriving them of opportunities to communicate, lead, and problem-solve (Stan & Humberstone, 2011, p. 225; Sandseter, 2011; McFarland & Laird, 2017). Research suggests that the positive health effects of risky outdoor play greatly outweigh the health effects of avoiding outdoor risky play (i.e. sedentary behavior) (Brussoni et al., 2015), yet the perimeter in which children are able to explore freely around their family home has slowly decreased over time (Gaster, 1995; Hart 1979) and parents have experienced growing pressure to constantly supervise their children (Harper, 2017). These changes are linked to "stranger danger" and a "hypermorality about parenting skills within media and communities" that elicit feelings of paranoia and concern (Harper, 2017, p. 327). The results of this study suggest that educators and parents in Head Start and ECEAP centers are affected by the "risk society" syndrome, as nine of the twelve teachers reported interacting with parents concerned about their child in outdoor play and eleven teachers felt challenged by the risk of children's flight while on outdoor nature explorations. Across the sample, seven of the twelve teachers mentioned their own childhood experiences were full of unsupervised and unstructured free play outdoors. A study in Australia showed that even teachers and parents with positive childhood experiences of unstructured and unsupervised outdoor play were unlikely to emphasize unstructured exploration of nature for children (Laird et al., 2014). The results of this needs assessment suggest a similar trend and provides further evidence that adults' concerns for child safety have restricted their decision-making ability to support healthy

child development. Risk aversion in early childhood education is a recent phenomenon (Furedi, 2001) and indicates a need to assist educators in gaining confidence in managing students and mitigating risk, as well as implementing parent outreach in regard to the benefits of outdoor nature exploration.

Since both Head Start and ECEAP programs provide comprehensive services for the whole family, it may be beneficial to support a model of teachers supporting parents. A notable theme that emerged from the data was a teacher-parent partnership within both Head Start and ECEAP centers.

> *Teacher 2: We're encouraging parents to be involved in their children's education. We're not only teaching the kids, but we're also teaching the parents daily…just encouraging them to be involved and talk to us and know that we're trying to work together to help their child be successful.*

When describing an example of teachers' family support, a parent shared,

> *They actually gave me a sheet of paper that said we think your child needs to go to bed by 8 and these are the things you can do to help her. So, it's a goal, but they don't present it to you in a way that you're going to get in trouble, but rather this is a goal and do what you'd like to work on this goal with us for your child.*

Research suggests that high levels of parental involvement in child education is linked to student academic achievement and social emotional development (Fantuzzo et al., 2013; Fan & Chen, 2001; National Research Council, 2001). Following a model of parental involvement, teachers could work with parents to increase the amount of opportunities for outdoor play and nature exploration in children's lives. Documentation highlighting

children's experiences, inquiry, and project work in regard to nature exploration is an effective practice for teachers to involve parents and invite them into the learning process (Campbell & Thompson, 2013, p. 120). To hold parents accountable for their children and uphold the perspective of poverty as a systemic issue, parents could be supported with both education and with opportunities for participation in decision-making, as was practiced in the early years of Head Start (Kuntz, 1998, p. 8). Further research is needed to assess the best practices for effectively engaging family members in nature exploration in early childhood education programs with similar familial demographics as Head Start and ECEAP.

As Head Start and ECEAP programs serve children mainly from low-income families, the effects of socio-economic status on child development should be noted. According to Jensen (2009), "Children raised in poverty rarely choose to behave differently, but they are faced daily with overwhelming challenges that affluent children never have to confront, and their brains have adopted to suboptimal conditions in ways that undermine good school performance" (p. 14). Within school environments, children from low socioeconomic status' academic and social success can be affected by social and emotional challenges, stressors, developmental delays, and health and safety concerns (Jensen, 2009). Teachers' responses indicate examples of factors that affect children's ability to cope and positively experience outdoor environments:

> *Teacher 6: Violence increases when we move outside…I think it's extra space and that everyone around you is running and moving and it becomes heightened and there are more things to interact with in a physical way. For example, there are*

bark chips everywhere and they don't have to stay in the bin so you can throw them at a friend's face.

Three of the twelve shared that they've experienced students not knowing how to interact with the outdoor environment.

Teacher 5: Sometimes kids just don't know what to do when they go outside. So often, going outside spending copious amounts of time without the skills of knowing how to connect can be stressful for a child that doesn't have that natural skill set.

Similarly, another teacher shared:

Teacher 11: I feel like most of my kiddos are either living in apartments and stuff like that, so I feel like they don't get to explore outside as much because of their own home environment. So sometimes, they're like "What do we need to do out here?" And I have to really guide them on what they need to do out there, like how to play in an open space. Because at the beginning of the school year they were just following me, saying "What am I supposed to do, there's nothing to play here."

With the knowledge that Head Start and ECEAP programs serve children with diverse social and cultural backgrounds, program development should be sensitive and responsive to children and family needs, interests, and values. By upholding developmentally appropriate practices and culturally sustaining pedagogies in nature exploration, educators can understand the social and cultural contexts that affect families

lives and cultivate positive relationships and experiences with children and families in diverse learning environments (NAEYC, n.d; Paris & Alim, 2014).

As indicated in Table 4, professional development, in the form of trainings and curriculum, would meet teachers interests, as well as support teachers to address obstacles including risk, parental concerns, access (or perceived access), time management, student management, and know-how. In particular, know-how could cover supporting teachers and students in transitions, implementing nature exploration with limited staff and in inclement weather, best practices, etc. (Ernst, 2012). As eight of the twelve teachers voiced challenges in routinely acquiring a bus and seven said they had limited access to green spaces, professional development should also be tailored towards nature exploration occurring on or near school grounds (within walking distance), or even within the classroom. While a majority of teachers are implementing opportunities for indoor nature exploration, these opportunities are largely limited to the sensory table and to exploration of loose parts. Less than half of responding teachers gave examples of connecting indoor learning with children's inquiry in outdoor play and on nature explorations. This may be due to teachers' attitudes towards outdoor play, as seen in this quote,

> *Teacher 12: We do go outside, but it's typically more like a recess and not so much doing investigations. I would like to see it improve.*

Chakravarthi (2009) and Davies (1996) studies on early childhood educators' practices and beliefs indicate that teachers mainly supervise children's outdoor play and rarely engage or actively lead with children. The results of these studies, including this needs

assessment, suggest that teachers are lacking meaningful opportunities to scaffold and support children's learning in and about nature in outdoor and indoor settings (Chakravarthi, 2009). With a majority of teachers associating the positive effects of nature exploration to physical, social and emotional development, teacher education and training surrounding the broader range of developmental benefits of both outdoor play and nature exploration may also be necessary. Chakravarthi (2009) and Davies (1996) studies suggest a similar trend in early childhood educators' inclination to associate physical and social development to outdoor play more frequently than cognitive development.

Respondents indicated gear as a major obstacle that should be addressed. With nine of the twelve of respondents citing a lack of appropriate clothing as a barrier to implementing outdoor play and outdoor nature exploration, supporting teachers and parents in attaining gear is critical. Within the forest kindergarten and nature-based preschool movement, there is a popular saying that, "There is no such thing as bad weather, only inappropriate clothing choices" (Kenny, 41). Further research with forest kindergarten and nature-based preschool educators to assess and explore opportunities and best practices for attaining weather appropriate gear could be useful. These results also suggest a need to include strategies for maintaining teacher's and children's comfort in the outdoor environment in professional development.

4.4 Conclusion

Within the United States alone, children are increasingly sedentary (Downing et al., 2016; Gray et al., 2015) and concentrations of wealth have intensified, resulting in greater social inequality and disparities than in previous years (Inequality.org, n.d.). This

needs assessment is motivated, in part, by the evidence supporting the benefits of nature exploration in children's lives, but also by the gap in empirical research involving teachers, children and families in publicly funded early learning centers. Extensive research indicates nature exploration supports children's physical, social emotional, and cognitive development, as well as promotes positive environmental attitudes. The gap in empirical research surrounding publicly funded preschools and nature-based curriculum suggests this demographic is historically overlooked and underserved. Based on existing research that suggests nature exploration promotes child development, the results of this study hint there may be a need to increase the amount of daily outdoor play and nature exploration within Head Start and ECEAP centers. The results also indicate that in order to increase the amount of outdoor play and nature exploration, there is a need to support educators effectively and independently create and lead opportunities for such play and exploration by building teachers' comfort with risk and knowledge surrounding access, curriculum, and student management. Strategies for engaging parents in outreach and involvement could promote more positive experiences for children and families alike.

The needs assessment methodology of this study targeted the perceived obstacles and limitations in regard to nature exploration at publicly funded preschools utilizing questions intended to encompass a range of likely problems so as to inform program improvement and development. Through this needs assessment, eminently actionable results were produced. However, a more open-ended, positive framing of this study may have revealed a greater image of participants' perceptions and experiences. Further research employing asset-based approaches, such as appreciative inquiry, is recommended to produce an image of the existing strengths within publicly funded

preschools (Cooperrider & Whitney, 2005). As this study is limited by the absence of children's insight and a limited response rate from parents of children enrolled in Head Start and ECEAP programs, additional research methods, such as child and parent ethnography, are also recommended to better understand how programmatic efforts can best support the whole family. As ethnographic methodologies aim to describe and understand the everyday lives of participants, a child ethnographic approach could document children's encounters and interests in regard to nature exploration, as well as promote participatory action research (Raittila, 2006). A parent ethnographic approach could be useful to crosscheck teachers' perceptions of parents' perceptions. Future research with a broader sample size, both regionally and culturally, might create more generalizable results, as well as explore the role of culture in perceptions surrounding nature exploration (Ernst, 2013). These recommended methods for further research could support program improvement and development, as well as add to the limited empirical research involving children from low-income families, the teachers that serve them, and their connection with/in nature.

Based on the results of this needs assessment, application is recommended through the following approaches:

- Acquiring outdoor gear needed for comfortable exposure to all weather, such as waterproof jackets, pants, and boots. Research with nature preschool and forest kindergarten practitioners in the region is recommended to gain insight into gear recommendations and best practices for maintaining comfort in all-weather outdoor play.

- Demonstration sites with successful outdoor nature preschool programs and practitioners, such as Squaxin Island Child Development Center, to suggest a staged way of putting ideas into actions, addressing obstacles, and sharing with teachers in the field.
- Nature-based curriculum development. Such curriculum should be developmentally appropriate, culturally sustaining, and responsive to discourses in the field of environmental education. Additionally, philosophies and pedagogies can be informed and developed by this needs assessment that support a reconceptualization of early childhood outdoor play and nature exploration in a risk adverse society.
- Parent education and involvement. This could be in the form of outreach, documentation, community engagement, or even upholding parents as key decision-makers in program improvement and development.
- Partnerships with local organizations serving the community, such as Wild Whatcom, a non-profit environmental education organization. Such external organizations could lead opportunities for professional development and curriculum development.
- Partnership building with organizations and professionals working to enhance children's wellbeing by improving and reimagining school grounds, such as the International School Grounds Alliance (www.internationalschoolgrounds.org), Evergreen in Canada (www.evergreen.ca/our-projects/panning-design/), and Robin Moore and colleagues research and design work at the Natural Learning Initiative (www.naturalearning.org), coupled with further research into play yard

landscapes at Head Start and ECEAP centers may be worthwhile to inform structural development that supports nature exploration.

- Given that funding within Head Start and ECEAP centers is limited (Friedman-Krauss, 2016) and reportedly "not adequate to provide the high level of service/quality needed" (Washington State Department of Early Learning, 2016), external grant funding may be required to support program improvement and development. As such, community, regional, and national partnerships with external organizations to acquire funding is recommended.

With these recommendations, key obstacles can be addressed, such as lack of weather appropriate clothing, inadequate play yards, limited curriculum and know-how, and safety and liability concerns. Ultimately, utilization of the findings in this needs assessment can support opportunities for nature exploration at publicly funded preschools with the specific needs of the Head Start and ECEAP community in mind.

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Appendix

Appendix A: Head Start/ECEAP Recruitment Letter

Dear Head Start & ECEAP Educators,

My name is Naomi Liebhold; I am a graduate student at Western Washington University in Bellingham, WA, pursuing a master's degree in environmental education. I am working on a research project to inform efforts to get more nature-based programming in early learning centers in Bellingham. The results of the research project will be used to support schools like yours successfully take young children outside to enhance their learning and development.

I am writing to ask your help by being a "key informant" for my project. Your participation will provide valuable insight into curriculum development and know how about early childhood environmental education. I would interview you either individually or in a group with other staff. The interview could last 30-60 minutes, and ideally would take place sometime between now and April 15th.

There are no expected risks from this research. I am happy to credit you in my final write-up, or protect your anonymity, as you prefer.

Please contact me if you are willing to participate or have any questions. My phone is 724-317-2803, or my email, liebhon@wwu.edu. Thank you for considering helping me serve young children in our area and I look forward to hearing back.

Sincerely,
Naomi Liebhold
M.Ed Candidate in Environmental Education
Huxley College of the Environment
Western Washington University

Appendix B: Head Start/ECEAP Teacher Interview Questions

1. Where and for how long have you been teaching early childhood education?

2. Why do you find this work valuable?

3. Do you follow a certain curriculum such as High Scope or Creative curriculum? If you can, please also share your personal teaching style(s)?

4. In what ways is nature a part of your life?

5. During the school day, please describe how often and how long your students spend outside and what the environment is like?

6. Have you ever led students in activities in natural outdoor environments? (*Structured activities (Y/N) Examples, please? Unstructured activities? (Y/N) Examples, please?*)

    a. What is the play yard and surrounding natural outdoor environment like at your center? What do kids interact with/find challenging?

7. Please describe what and how often your students do nature play indoors? (*For example, loose parts with natural materials like shells or rocks, clay/mud sensory, leaf prints, insect collection, stories with nature themes etc.*)

8. How close is your facility to a park, field, or forest for nature outings? Is it within walking distance? What transportation options are there?

9. From your observation, or other teacher comments, how would you say nature experiences positively and/or negatively affect the children you work with?

10. What kinds of families do you serve and what are child and parent cultural values towards the natural outdoor environment?

11. What are some emotional, behavioral, and physical challenges you worry about while in an enclosed outdoor area with students? What about while in transit or in an open area?

12. How confident are you in teaching and leading children in outdoor settings? In natural outdoor settings?

13. What would help you build confidence in teaching and leading children in the natural outdoor environment? (*Knowing how to engage children in/with the outdoors*, *gear, group management, risk management, flora/fauna knowledge, parent volunteers, administrative support, other?*)

14. What things might prevent you or other teachers you know from leading children on nature explorations both in and outside the classroom? (*Is gear/clothing an obstacle? Comfort or risk an obstacle? Access to green space? Time? Admin support? Parental support?*)

15. What type of programming would be most useful to get your students outside? (*Examples: Wild Whatcom mentors leading outings OR Wild Whatcom mentors leading teacher trainings [training on how to facilitate structured and unstructured outdoor experiential activities])*

16. What types of resources would be most useful to get your students outside? *(Curriculum ideas to implement in and outside the classroom, gear, backpacks, field guides, chaperones etc.*)

17. What might be the learning goals for your students in the natural outdoor environment? (*Gross motor development, empathy for the natural world, STEM, Other*) How would you envision your students using a natural outdoor environment to meet these learning goals?

    a. How long and how often might your students enjoy a natural outdoor environment for environmental education? (*Less than an hour/more than an hour, daily/monthly*) What time of day is best?

Appendix C: Head Start/ECEAP Parent Recruitment Letter

Dear Parents,

My name is Naomi Liebhold; I am a graduate student at Western Washington University in Bellingham, WA, pursuing a master's degree in environmental education. I am working on a research project to inform efforts to get more nature-based programming in early learning centers in Bellingham. The results of the research project will be used to support Head Start and ECEAP centers successfully take young children outside to enhance their learning and development.

I am writing to ask your help by being a "key informant" for my project. Your participation will provide valuable insight that can help shape curriculum to best fit your child's needs. I would interview you either individually or in a group with other parents. The interview could last 30-60 minutes, and ideally would take place sometime between now and April 28th.

There are no expected risks from this research. I am happy to credit you in my final write-up, or protect your anonymity, as you prefer.

Please contact me if you are willing to participate or have any questions. My phone is 724-317-2803, or my email, liebhon@wwu.edu. Thank you for considering helping me serve young children in our area and I look forward to hearing back.

Sincerely,
Naomi Liebhold
M.Ed Candidate in Environmental Education
Huxley College of the Environment
Western Washington University

Appendix D: Head Start/ECEAP Parent Interview Questions

1. What program is your child in (*Head Start or ECEAP*) and how long have they been within this program?

2. In what ways has your child developed while they have been in the Head Start or ECEAP program?

3. What do you hope your child will learn through the Head Start or ECEAP program?

4. What hasn't your child learned through the Head Start or ECEAP program that you wish they would?

5. In what ways is nature a part of your family's life?

6. From your observation, how would you say nature experiences positively and/or negatively affect your child?

7. How long does your child spend outside in school? At home?

8. What things prevent you, or other parents you know, from getting their child outside daily?

9. What worries you about having your child outside in an unenclosed natural environment during the school day? At home?

10. What does your child learn or gain from being outside while at school? While at home?

11. What skills and knowledge would you like your child to gain while in the outdoor learning environment?

12. What would be useful to build community around getting children in the Head Start/ECEAP program outside regularly?

Appendix E: Letter of Consent

Western Washington University
Consent Form

Nature Exploration Needs Assessment of Publicly Funded Early Learning Centers in Bellingham, WA

Researcher: Naomi Liebhold, M.Ed student in Environmental Education at Western Washington University, Bellingham, WA.
Contact info: liebhon@wwu.edu, +1-724-317-2803

I am asking you to be in a research study. Participation is voluntary. The purpose of this form is to give you the information you will need to help you decide whether to participate. Please read the form carefully. You may ask questions about anything that is not clear. When I have answered all of your questions, you can decide if you want to be in the study or not. This process is called "informed consent." I will give you a copy of this form for your records.

Purpose of the Study

The purpose of my research is to produce an accurate and actionable assessment of the needs, constraints, interests, and desires of Head Start & Early Childhood Education and Assistance Program [ECEAP] centers in Bellingham in order to directly inform the development of nature-based programming in local publicly funded early learning centers. Your participation will provide valuable insight into curriculum development and will further the practical knowledge surrounding early childhood environmental education.

Study Procedures

Participation involves individual and/or focus group interviews. These interviews will be 20-60 minutes long, open-ended and will cover the following topics: Environmental education, child development, pedagogy, planning, curriculum, risk management & assessment, teacher beliefs, cultural attitudes & values, access to green spaces, justice, equity, community, grant funding, and professional development.

Risks of Participation

I will not ask any sensitive questions. I will take every precaution to protect your information, though no guarantee of security can be absolute. I believe the chances of you being identified are low due to the protections in place for your privacy. There are no other anticipated risks for participation.

Data Security & Protections

If you choose to participate, you will be given an ID number for this study, which will be used to label your data. The list of participant ID numbers and names and other identifying information will be stored in a secure location through the end of the study. Audio recordings will be transcribed and deleted. I may use direct quotations from any interviews in the publication of my thesis. However, no identifying factors will be linked to the quotes.

Withdrawal

You are free to withdraw from this study at any time, without penalty or loss of benefits to which you are otherwise entitled.

If you withdraw from the study, your data will be destroyed. You can submit a request to *liebhon@wwu.edu* to withdraw your data up until the study ends. After the study ends, I will no longer be able to link you with your data.

Research Participant Rights

If you have concerns or questions about this research study, please contact *Naomi Liebhold, liebhon@wwu.edu, +1-724-317-2803*. You may also contact the faculty advisor associated with this study, *Gene Myers, PhD, Gene.Myers@wwu.edu, +1-360-650-4775*. If you have questions about your rights as a research participant, contact the Western Washington University Office of Research and Sponsored Programs (RSP) at compliance@wwu.edu or (360) 650-2146.

Consent

By signing below you are saying that you are 18 years old or older, that you have read this form, that you have had your questions answered, that you understand the tasks involved, and volunteer yourself to take part in this research.

Full Name	Signature	Date