IJEC (2017) 49:303–319
https://doi.org/10.1007/s13158-017-0204-6

ORIGINAL ARTICLE

Children Environmental Identity Development in an Alaska Native Rural Context

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Published online: 12 September 2017

Abstract Scholarship in Early Childhood Education for Sustainability (ECEfS) continues to advocate for the incorporation of Indigenous ways of knowing and children's agency in research and practice. This study contributes to the literature by examining how young children from an Alaskan rural setting make meaning of and interact with nature. Informed by a participatory and phenomenological framework, this study included 5-to-7-year-old Alaska Native children. Data were collected through Sensory Tours (wearable cameras) where children freely explored their environment with an adult and a peer. Interpreted through Environmental Identity Development theory, findings revealed children had a strong sense of *Trust in Nature*, uniquely informed by their cultural and subsistence lifestyle. Such trust prompted children to gain a sense of *Spatial Autonomy* through exploration and establishing connections with water, plants, and animals. Children tasted and touched, experimented and discovered, learning about features of the local ecology and their shared role in it, which, in turn, heightened their sense of *Environmental Competency*. Children's demonstrated competencies promote engagement in a subsistence-based lifestyle. Harvesting food from the wilderness is an important sustainable practice in a rural isolated settings and, thus, important to consider in ongoing dialogue on ECEfS.

Keywords Early Childhood Education for Sustainability · Indigenous · Environmental identity · Phenomenology · Child agency

Résumé Les études sur l'éducation au développement durable en petite enfance (EDDPE) continuent de plaider en faveur de l'incorporation des façons indigènes

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d'apprendre et de la capacité d'agir des enfants dans la recherche et la pratique. Cette étude contribue à la documentation en examinant comment de jeunes enfants d'un milieu rural de l'Alaska donnent un sens à la nature et interagissent avec elle. S'appuyant sur un cadre de travail participatif et phénoménologique, cette étude a fait appel à des enfants indigènes de l'Alaska, de 5 à 7 ans. Les données ont été recueillies au moyen de parcours sensoriels (Sensory Tours, avec caméras portables) où les enfants explorent librement leur environnement avec un adulte et un pair. Les résultats, interprétés à travers la théorie du développement de l'identité environnementale (Environmental Identity Development, EID), révèlent que les enfants ont un solide sens de *confiance dans la nature*, reposant uniquement sur leur mode de vie culturel de subsistance. Une telle confiance incite les enfants à développer un sens de l'*autonomie spatiale* à travers l'exploration et la création de liens avec l'eau, les plantes et les animaux. Les enfants goûtent et touchent, expérimentent et découvrent; ils apprennent les caractéristiques de l'écologie locale et le rôle qu'ils y partagent, ce qui en retour rehausse leur sens de *compétence environnementale*. Les compétences démontrées par les enfants promeuvent l'engagement dans un mode de vie basé sur la subsistance. La cueillette de nourriture dans la nature sauvage est une importante pratique durable dans les milieux ruraux isolés, importante à prendre en compte dans le dialogue en cours sur l'EDDPE.

Resumen El fondo de Becas de Educación en Sostenibilidad en la Primera Infancia (ESPI) mantiene su apoyo para la incorporación de la sabiduría indígena y la representación de niños en la investigación y la práctica. Este trabajo de investigación estudia la forma en que los niños pequeños de una comunidad rural de Alaska le dan sentido a la naturaleza e interactúan con ella. Dentro de un marco participativo y fenomenológico, este estudio incluyó a niños indígenas de Alaska de 5 a 7 años de edad. Se recopiló información a través de excursiones sensoriales (con cámaras corporales) en las que los niños podían explorar libremente el ambiente que los rodeaba, acompañados por un adulto y otro niño de su edad. Apoyado en la teoría de Desarrollo de Identidad Ambiental (DIA), los hallazgos revelaron que los niños tenían un gran sentido de *Confianza en la naturaleza*, que se basaba especialmente en su cultura y en su estilo de vida de subsistencia. Dicha confianza los impulsaba a adquirir un sentido de *Autonomía Espacial* a través de la exploración y la creación de vínculos con el agua, las plantas y los animales. Los niños probaban y tocaban, experimentaban y descubrían, aprendiendo así las características de la ecología local y su propio rol como parte de la misma, lo que a su vez aumentaba su sentido de *Competencia Ambiental*. Los conocimientos que los niños expresan promueven el compromiso con un estilo de vida basado en la subsistencia. La cosecha de alimentos de fuentes salvajes es una práctica sostenible importante en un medio rural aislado, que es a su vez importante para tener en cuenta en el diálogo continuo sobre ESPI.

Introduction

In recent years, transnational dialogue on Early Childhood Education for Sustainability (ECEfS) has heightened around the globe (Davis and Elliot 2014). From Asia to Australia, New Zealand to Sweden, Europe to North America, researchers and practitioners continue to explore what it means to engage young children in actively constructing a world that is more sustainable and just. While such initiatives share in the goal of promoting health and well-being of life on our planet, the way in which ECEfS is facilitated varies from place to place. In other words, authentic ECEfS should reflect the needs of the cultures and geographies of the communities in which it is situated. While we live in a world that it is increasingly interconnected, unique ways of knowing and being remain distinct in varies places around the globe. Sustainability initiatives in a contemporary urban environment might look completely different in an Indigenous rural setting. Thus, this study aims to contribute to the ongoing dialogue on ECEfS by exploring children's Environmental Identity Development in a rural Alaska Native village setting.

Background

There are 229 federally recognized Alaskan Native villages (U.S. Bureau of Indian Affairs 2016). The majority of these villages are isolated, hundreds of miles from other villages and Alaska's urban hubs (Anchorage, Fairbanks, and Juneau). Most Alaskan villages are off the road system. This means that you cannot drive to them; they are only accessible by plane, boat, dog sled, or snowmobile. While planes fly in and out of most villages almost on a daily basis, inclement weather may cut off access to or from a village for days, weeks, or even months at a time. Thus, modern conveniences and supplies (including food) are limited. Due to high cost of transportation and limited supply, prices of certain staples (milk, flour, sugar, butter, and eggs) in rural Alaska are extremely high, nearly double or triple what they would cost elsewhere. As well, other basic commodities, such as toilet paper, toothpaste, and soap, are costly. Furthermore, community infrastructure may be lacking or still developing, including access and availability of potable water, solid waste disposal, and recycling. To reiterate, the distinctiveness of an Alaska Native rural context necessitates unique and collective sustainable efforts.

While access to modern day conveniences may be limited, there is an abundance of natural resources, which make Alaska ripe for a subsistence lifestyle. Indeed, Alaska Native peoples have engaged in sophisticated subsistence cultural and spiritual practices for millennia (Barnhardt and Kawagley 1999). Each season is intricately linked to certain traditions and practices, depending on the regional climate, geography, and culture. However, recent research has shown that *access* to traditional hunting areas is declining due in part to the impacts of climate change (Brinkman et al. 2016). Nevertheless, children's engagement in sustainability, in terms of subsistence practices, in an Alaska Native village context is distinguished. Therefore, this paper presents preliminary findings from a study of 5-to-7-year-old

children's Environmental Identity Development as they interact in an Alaska Native rural setting.

Children's Agency in an Indigenous Context

In recent years, scholars have advocated for ECEfS centered on "dialogical interaction[s] with both Indigenous peoples and the local place itself" (Ritchie 2014, p. 49). In New Zealand, Maori (Indigenous) values and beliefs are integrated into early childhood educational policy and practice for all children, Indigenous and non-Indigenous alike, through *The New Zealand Early Childhood Curriculum, Te Whariki* (Mackey 2014; Ritchie 2014). In a study of one kindergarten community, Mackey (2014) positioned ECEfS within the "four principals of *Te Whāriki*: empowerment, holistic development, family and community, and relationships" (p. 181). Specifically, children engaged as active agents through "exploration (*mano aotūroa*)" and problem solving, "communication (*mano reo*)" and the expression of ideas and perspectives, and "contribution (*mana tangata*)" by partnering with members of their local community (Mackey 2014, pp. 188–190). Similarly, Hägglund and Johansson (2014) posit the "concept of belonging… as a way to accentuate human beings living in a world shared with others" (p. 42). Ritchie (2014) also argued for a spiritual notion of belonging as a "sensory, storied entanglement within the inter-relational agency of other animals, plants, insects, and the rest of the [more-than-human] world around us" (p. 50). In this way, belonging is understood as humans being part of, not separate, from their environment. Belonging, thus, provides the legitimacy for children to act with others in constructing a sustainable future (Davis and Elliot 2014). While this is true, belonging does not always evolve around peace and harmony. Indeed, Hägglund and Johansson (2014) assert that value conflicts and tensions are inevitable in efforts to resolve sustainability issues. Thus, children should be supported in working through such conflicts.

On the other side of the globe, Alaskan scholars continue to argue for a critical pedagogy of place that positions Indigenous epistemologies and ontologies at the center of educational practices (Barnhardt 2005; Emekuawa 2004; Barnhardt and Kawagley 1999; Lipka 1991; Lipka et al. 2007; Lipka and Ilutsik 2014). Such scholarship emphasizes education that supports participation in cultural traditions and subsistence practices as a means to promote student achievement as well as sustainability. As Barnhardt and Kawagley (1999) explain, "The depth of indigenous knowledge rooted in the long inhabitation of a particular place offers lessons that can benefit everyone, from educator to scientist, as we search for a more satisfying and sustainable way to live on this planet" (Barnhardt and Kawagley 1999, p. 1). Indeed, Alaskan place-based education is aimed at connecting children with their place, as well as rooting them in a spirituality of knowing who they are, where they come from, and their purpose in life (Kawagley 2006). This body of work, however, mainly focuses on educational applications in school settings; there is a dearth of research that examines the *lived experiences* of Alaska Native children's interactions *with* nature. This study provides a starting point in the literature by looking at how early interactions with nature promote empathy and

skills to act responsibly for the environment, through the lens of Environmental Identity Development theory (Green et al. 2016).

Environmental Identity Development

Early childhood is a significant time of psychosocial development when foundational aspects of a person's identity are formed (Erikson 1980). A child's emotional reactions and interactions with the natural world during this critical period, both positive and negative, influence their developing sense of self in nature. These experiences are culturally, socially, and geographically informed and shape a child's inner attributes—their values, perspectives, feelings, beliefs, behaviors, and actions toward the environment. Environmental Identity Development (EID) considers the natural world socialization of children (Green et al. 2016). EID extends the first four stages of Erikson's (1980) psychosocial identity theory to an environmental education context, in considering how children negotiate inner (psychological) and outer (environmental) tensions as they develop their identity with nature. EID is marked by four progressions that characterize how children relate and interact with the natural environment. The first progression, *Trust in Nature vs. Mistrust in Nature*, provides the foundation in which all aspects of a child's environmental identity are informed. During this progression, a child develops a sense of comfort and security with nature rather than feelings of anxiety and discomfort. In the second progression, *Spatial Autonomy vs. Environmental Shame*, a sense of trust with nature propels a child to explore and find a sense of place, discovering who they are in nature. In opposition, feeling of *Environmental Shame*, or inadequacy in nature, might emerge through anxious encounters or discouragement from nature exploration. A sense of *Spatial Autonomy vs. Environmental Shame* works hand in hand with the third progression of *Environmental Competency vs. Environmental Disdain.* Through exploration, experimentation, and creative innovations, children gain a sense of *Environmental Competency*, which enriches the way children relate with nature. With young children this may be achieved through exploration, play, and/or problem solving leading to a heightened sense of ecological understanding. The opposite, a lack of opportunities to take initiative in nature, could lead to *Environmental Disdain*, or feelings of contempt or ignorance that separate children from the natural world. In the fourth progression, *Environmental Action vs. Environmental Harm*, a child's previously developed competencies are applied toward care and stewardship of nature or neglect or disregard toward the natural environment. Engagement in *Environmental Action* is an indicator of a strong and healthy environmental identity (Clayton 2003). The progression of a child's EID is fluid, meaning that attributes may be revisited, refined, and/or reestablished with new encounters and new experiences throughout one's life (Green et al. 2016). Children are active agents of their EID (Green et al. 2016). Adults and peers also play a significant role in shaping children's EID, particularly in supporting children in negotiating environmental experiences.

It is important to note that the oppositional dimensions of the EID model should not be interpreted as negative, rather as opportunities for strengthening a person's environmental identity. In other words, the way in which one's environmental

identity is formed depends on the process of overcoming inner and outer tensions inherent in nature experiences (Green et al. 2016). Tensions are inevitably part of the ecology of nature—tensions are reflected in how species interact—between predator and prey relations—between climate and the regeneration of flora and fauna. In the wilderness of Alaska, tensions occur daily in human encounters with nature (e.g., digging out of the snow, avoiding bears, protecting against the deadly cold). This study examines attributes of rural Alaskan Native children's developing sense of self in nature. Subtle tensions are presented in the descriptive data, not for the purpose of framing children as deficient, but as a means to explore how tensions can serve to strengthen the way children's environmental identity is formed.

The author (researcher) acknowledges that the EID framework might be considered "Western" in its approach in distinguishing environmental identity as a separate aspect of one's sense of self. Additionally, the researcher also recognizes that her non-Indigenous background and somewhat limited exposure to Alaska Native culture also influences how findings were interpreted. However, efforts are currently being made to reframe EID through Indigenous epistemologies (Green and Topkok, *in progress*). The author also sought out an Indigenous perspective of the study by presenting findings at the 2017 Alaska Native Study conference. This article should thus be considered a "first attempt" at exploring what EID looks like in the lives of Alaska Native children from a rural setting.

Methodology

Research Context

The study was conducted in a small rural Native village in western Alaska of approximately 708 people (U.S. Census Bureau 2015). The village is located in a sound along the Bering Sea; the region is known for its salmon and king crab harvests. There is also a freshwater river that flows into the sound near the village and large hills of tundra and boreal forest above the village, away from the sea. Approximately 60 children enrolled in Kindergarten through third grade participated in the study. The Institutional Review Board at the university in which the researcher is affiliated approved the study. Parental consent and child assent were sought and obtained prior to the commencement of research activities. Parents also volunteered in field days associated with this research. Pseudonyms were used in the presentation of findings.

According to a U.S. Census Bureau (2015), approximately 75% of the village is of Alaska Native descent. Likewise, the school population reflects a similar demographic. While most children involved in the project are Alaska Native, namely Inupiat (Eskimo), a few White students enrolled in each grade level were also involved.

Research Approach

The study was informed by a participatory and phenomenological framework, focusing on the "careful description of ordinary conscious experience[s] of everyday life" (Schwandt 2015, p. 234). Phenomenological meanings are derived from "perception (hearing, seeing, etc.), believing, remembering, deciding, feeling, judging, evaluating, and all experiences of bodily action" (Schwandt 2015, p. 234). Rejecting scientific realism, reality is subjective to each individual. Meaning is socially and culturally constructed and is based on an individual's past and present experiences. Phenomenology is concerned with "Daesin;" that is, human existence, or one's experience of "Being-in-the-World" (Heidegger 1962). As such, data collection methods are aimed at eliciting participant's understandings, feelings, and perspectives and rich descriptions of their experiences of "being" in their environment, leaving behind any normative assumptions.

Multiple data collection and analysis methods were used with children to promote their agency in the research (Green 2015). These methods (activities) occurred over 5 days during late August 2016. This marked the beginning of fall in the Northern Arctic; leaves and grasses on the tundra were changing from vibrant green to violet red and yellow. Two days were designated field days, and the other three days consisted of activities in the classroom and around the school.

While the children participated in several data collection activities throughout the week, including drawing and writing, making nature prints, and taking photographs, the qualitative descriptions presented in this paper are primarily drawn from video collected by way of Sensory Tours during field excursions to a nearby nature camp located in the sub-alpine forested hills, approximately 20 min from the village.

Sensory Tours are a novel data collection method that promote children's agency in the research process (see Green 2016). During a Sensory Tour, a child is invited to wear a small wearable camera around his or her forehead and freely tour, or explore the environment. The camera goes where a child goes, sees what a child sees, and hears what a child hears. As such it provides a unique lens for researchers to view the world through the perspective of a child. This method is far superior to traditional video methods as it removes the need for an adult researcher propping and prodding over children's activities. As such it captures children's authentic experiences with their environment, including what draws a child's attention, their self-talk and expressions, how they construct understanding with peers, and their various interactions with nature. Because Sensory Tours provide a deeper insight into what children are experiencing, this method is well suited for participatory and phenomenological research with young children. In this study, children were invited to participate in a Sensory Tour with at least one other child and an adult while at nature camp. The two children took turns, swapping the camera halfway through. The camera wearer was invited to freely lead the group on an exploration of the camp environment. The tours ended when a child no longer wanted to wear the camera or when a group ran out of time. After the field excursions, children were invited to engage is video-stimulated recall discussions in order to interpret and analyze the video footage that they collected during Sensory Tours. Encouraging children to engage in dialogue about their video recorded activities provided more

insight into what children were feeling and thinking during these activities (Green 2016).

Data Analysis

Field notes were taken during and after data collection activities. In which case, the researcher considered observations of children's interactions with nature and how they related to EID. Notable interactions also stemmed from children's responses to Sensory Tours during the video-stimulated recall discussion. Based on field observations, the researcher selected Sensory Tours to transcribe in detail. Transcriptions included dialogue among participants, self-talk and expressions, as well as detailed descriptions of the children's various activities and the environmental context in which these activities took place. Transcriptions were then analyzed and interpreted through the EID framework and further related to ECEfS. Findings presented in this paper represent both the researcher's observations and children's voiced perspectives (italicized) and interactions during Sensory Tours (indented text). It is important to note that the findings presented here are preliminary. In other words, they provide a snapshot of children's EID in an Alaskan rural and Indigenous context and should not be interpreted as an end all to children's experiences.

Findings

Trust in Nature Versus Mistrust in Nature

Trust can be defined as "reliance on the integrity, strength, ability, surety, confidence" in someone or something, whereas mistrust is to "be suspicious of, have no confidence in" something or someone. Overall, the researcher observed that most children demonstrated a keen sense of comfort in nature. There were little or no complaints about getting dirty or being outdoors for a prolonged period of time. Their comfort level, or sense of *Trust in Nature*, was uniquely informed by the rugged terrain of the Alaskan Arctic tundra. For example, when the caravan of trucks stopped along the narrow dirt road for berry picking, the researcher initially thought that some of the children would have trouble navigating through the high bushes and the deep gulch along the roadside. Surprisingly, all of the children were observed marching through the ravine and onto the tundra without any hesitation.

Children framed their own relationship with nature, as illustrated in April and Lisa's quest for slugs during April's Sensory Tour:

> At camp, the girls had marked a piece of paper to place their slugs on and explored the decaying wood mulch for small critters.
> *"Hey, I found two big snails!"* April shouted.
> *"Could I keep one?"* Lisa asked.
> *"Wait one of mine dropped,"* April sifted through the dirt.
> *"I found a snail shell!"* Lisa said.

"Is it empty? Let me see." April asked.
"I can't tell if its empty or not," Lisa said.
April pinched the shell between her two fingers, taking it out of Lisa's hand.
"This is not a shell," she stated.
"What is it?" Lisa asked.
"It is a piece of …" April said as she put it back in the ground, *"Ew!"*
"Was that snail poop?" Lisa asked.

In this example, *Trust in Nature* was revealed in April and Lisa's interactions with snails. The girls demonstrated comfort and confidence as they turned over stumps and tiny pieces of wood searching for "slugs." The children were not afraid to pick up the slugs and shells; only once did they display hesitancy, or what might be considered "mistrust" in picking up something that Lisa determined as "snail poop." In this way, a sense of *Trust in Nature* provided a foundation for children's engagement with their environment.

While feelings of *Trust in Nature* provide comfort to explore, feelings of *Mistrust in Nature* can disrupt interactions with the environment. Although most children explored without worrying over bears, 7-year-old Brad became preoccupied by anxiety over bears during his Sensory Tour:

Brad and Toby noticed a cabin on a trail and set off to explore.
"Maybe there is a sign that says…" Toby said, *"hey it does…its some little house,"*
"*Make sure there are no bears!"* Brad said, walking slowly down the trail past the cabin.
"Hey it's a bathroom," Toby noted.
"Make sure there are no bears!" Brad repeated.
"Wait," Toby said, stopping on the trail, *"it's a house."*
He pointed to a larger building by the outhouse.
"A house," Brad repeated as Toby walked ahead less hesitant. Brad took the plastic wrap off of a bottle that he had fished out of his pocket. [Perhaps, it was bear spray.]
"Make sure there are no bears," Brad said a third time. Toby did not respond.
"If there is a bear out - look at it and then run," Brad told Toby, *"I won't run because the bear could think that I am a deer so I will just stay still or … like walk away."*
The boys turned around to go back. Brad's pace quickened.
"Could be a bear in here, or a fox, or a wolf, or a coyote, or … some animal," Brad told Toby. Brad was now running.
"Brad look!" Toby said, catching up from behind.
Brad slowed down to examine the rock Toby held in his hand. Now that they were near the main building, Brad felt comfortable joining Toby in looking for rocks.

Throughout his exploration, Brad talked himself into a fear of bears. He became preoccupied with thinking that he might come across a bear, which seemed to hinder his activities. On the other hand, Toby did not even flinch at Brad's comments about

bears. Toby focused on exploring all that was around him: a birdfeeder, the cabins, the rocks, and so forth. During this time span, Brad's feelings of *Mistrust in Nature* appeared to outweigh his feelings of trust. With that said, the forest setting might have been less familiar to Brad than it was to Toby. The forest landscape is very different from the tundra surrounding the village. By being aware of children's past experiences, educators and adults can better support children in negotiating feelings of anxiety during outdoor activities.

Spatial Autonomy Versus Environmental Shame

Splish-splash, splish-splash, it seems that children have a natural affinity for rain puddles. Whether a puddle is discovered along a concrete curb in a city or along a muddy trail in the Alaskan tundra, when opportunities arise children, from various cultures and places, seize the call to wade in the water. Equipped with rubber boots, a staple for the Alaskan bush, many of the children in this study did not think twice about stomping through the small pools found along the camp trail. Seven-year-old Samuel and Tommy took notice of a grassy swamp during Samuel's Sensory Tour:

> *"I am in the water!"* Samuel exclaimed.
> Tommy looked back and smiled, joining Samuel in splashing through the puddle.
> *"It was deep, now it's going to get deeper!"* Samuel shouted.
> The boys stopped in the deepest part of the puddle.
> *"Whoa, its deep!"* Samuel says.
> Samuel stomps back through with his rubber boots. The adults stood at the side of the puddle watching the children.

Sliding through mud puddles seemed to help children forge a connection with their environment. Puddles provided an opportunity for children to test their limits, to see how deep they can go without getting too soiled. *Spatial Autonomy* is achieved through exercising agency with particular places and the objects within these spaces, providing children with a sense of autonomy, or individuality (Proshansky and Fabian 1987). Tommy and Samuel gained their independence from the adults by emerging themselves in the puddle.

In another example, 5-year-old Desiree expressed her sense of place in nature in discovering the river on the edge of the camp. Desiree took notice of the water during her Sensory Tour:

> *"Look at this water!"* she exclaimed, pointing her finger towards the moving stream. *"This is sea right there. Good water to go fishing."* She paused watching the water.
> Desiree continued down the trail through the trees and eventually found her teacher.
> *"It's good to go fishing!"*
> *"Yeah!"* her teacher answered.
> *"I just want to go fishing on this one!"* Desiree explained.
> *"Where is your rod and reel at?"* her teacher asked.

"It's at my house in the boat by itself." Desiree answered.
She looked at the water again, *"Wow, good water!"*

In achieving *Spatial Autonomy*, children begin to see themselves as part of the environment and discover their own role in it (Green et al. 2016). Desiree demonstrated excitement in discovering the river, expressing her desire to go fishing. Desiree called the river "the sea;" this is likely due to her previous experiences with her family. Many of the families in the village actively fish along the coast and perhaps this is where Desiree spends much of her time. Nevertheless, Desiree demonstrated a strong connection with the water, recognizing it as "good." This positive association with the water, or sea, will likely inform the actions she takes on behalf of her environment both now and in the future.

Children may experience feelings of *Environmental Shame*, or anxious encounters with nature, even for a brief period. Tensions of anxiety in nature can be overcome, as observed in the Leigha's Sensory Tour:

Leigha was leading her group down the main trail when she took notice of a faint path.
"Hugh…weird…why is that there?
"I don't know," her teacher answered.
"Oh, it's just where that fell. This place looks weird." Leigha noted a small tree lying on the ground.
"Hey, this is a trail - but we have to duck," Leigha ducked under the tree.
Rose whimpered behind her. Leigha turned and noticed Rose's look of hesitancy.
"That's okay," Leigha encouraged her.
"I still like this way," Leigha stated as she lead her group under the fallen tree.

Both Leigha and Rose briefly experienced feelings of *Environmental Shame* in this example. Leigha negotiated her feelings through self-talk. At first, she was hesitant about proceeding down the unfamiliar and "weird" path. It was not groomed like the others and she had to negotiate several fallen trees. However, in exploring something unfamiliar and uncomfortable, Leigha successfully negotiated the environmental tension. This strengthened her *Spatial Autonomy*, or sense of independence and self-confidence. Likewise, Rose's whimper and facial expression indicated her anxiety about going down a new trail. With encouragement from her peer, her negative feelings seemed to subside. Peers as well as adults play an important role in helping children negotiate and overcome emotional tensions that may be experienced in nature.

Environmental Competency Versus Environmental Disdain

Many of the children in this study had a profound understanding and appreciation for the flora and fauna of their local ecology. I watched and listened as a 5-year-old named every bird he observed on our drive to the camp. Children noted moose prints and other animal markings. They also recognized the many types of berries

and when certain kinds were ripe and ready to eat; this was illustrated in 8-year-old Rose and Leigha's Sensory Tour exploration:

"Look at these ones, Rose!" Leigha called.
Rose spotted a patch of wild rosebushes.
"They're ripe!" Leigha exclaimed as she caught up with Rose. She reached for the rosehips.
"I know," Rose responded.
"They are," Leigha repeated, *"When they are fully red they are ripe."*
Leigha looked at her teacher for confirmation.
"*I don't know,"* he shrugged.
"Can I taste?" Leigha asked.
"Go ahead," the teacher responded.
Leigha chewed on the rosehip.
"Big seed in there?" her teacher asked.
"Small," Leigha responded, *"Yummy!"*

Children's *Environmental Competency* is strengthened through experimentation: tasting, touching, seeing, smelling, and hearing their environment (Green et al. 2016). Leigha exercised all of her senses in her exploration of the rosehips, and with the encouragement of an adult, she learned more about the features of the plant. Although the teacher was less familiar with the plant than Leigha, his response promoted Leigha's experimentation (Mackey 2014). Later during her exploration, Leigha asked the teacher if she could plant her seed. Not only had she discovered the sweetness of the nutrient-rich berry, she also desired to give back.

Through exploration, children learn alongside their peers and adults more about ecological processes and their role in it. In this way, children may very well avoid the development of *Environmental Disdain*, characterized by disinterest or ignorance of the environment, which if not properly addressed may lead to *Environmental Harm*. In other words, the more experiences and opportunities a child has to learn about and discover interconnections, the more likely will develop sensitivity toward it (Chawla and Rivkin 2014). Seven-year-old Spencer and Ryan discovered a model of a "creek" during their Sensory Tour:

"Pinky creek" Spencer read the sign for the puddle along the path.
"Pinky Creek," Ryan repeated.
"Who put that sign there?" Spencer asked.
"*Hey this is a creek."* Ryan stated.
"So, what's this pole come from?" Spencer noted a white drainage pipe.
"That's to lead the water from here, this side." Ryan explained, showing how the pipe extended to the other side of the rock path near the building.
"It is like a rainage ditch," Spencer explained.
The two boys followed the "little creek" to a stick poking out of the water.
"One little creek," Ryan remarked, *"It really starts getting deep here."*
Ryan pointed to a small gully where the water was deep.
"Then it comes through…" Ryan noted.
"…and goes to there," Spencer finished.

"Like a rainage ditch," Spencer repeated.
"But there is no water here," Spencer noted a shallow muddy section.
"Yeah, that's because it is low tide through that part," Ryan matter-of-factly explained. *"Now right here you can load a little toy boat. Now right here its real deep, good for heavy toy boats."* He bends and feels the water.

In exploring the mini model of a creek, the boys further developed their *Environmental Competency*. The model demonstrated the human role in diverting water. As well they also considered the characteristics of different parts of the stream and its carry capacity—suggesting small (toy) boats for the shallow section and larger boats where the water was deeper. The lessons learned during this exploration and experimentation may paint the way for future sustainable action. Building and considering models is an important skill in ecological planning and development.

Environmental Action Versus Environmental Harm

The previous examples show how attributes of *Trust in Nature*, *Spatial Autonomy*, and *Environmental Competency* all serve to inform a child's willingness to act to conserve and care for their environment. Adults also play an important role in modeling and teaching children to engage in *Environmental Action*. During Timothy's Sensory Tour, Paul's father showed 7-year-old Timothy and Paul how to cultivate a strawberry plant:

"*Maybe if we are lucky we will get to eat a strawberry,"* suggested Paul's father.
"Yum…strawberries are one of my favorite foods," Timothy said.
"Oh yeah?" responded Paul's father, *"We have a bunch of strawberries growing in the greenhouse right now."*
Paul ran ahead, leading Timothy off the trail to a grassy area.
"To your left," his father directed.
The group shuffled through the tall grass to a small area that had been dug out. A tiny green strawberry plant was growing in the dark clay.
"Yeah it looks like it is not doing great - but it is not dead," Paul's father explained.
"Oh, it sent a runner out, and it looks like the runner was unsuccessful."
Paul's father moved his finger in the dirt clearing the grass next to the runner.
"What about this runner?" Paul's father muttered, *"Nope, this runner was also unsuccessful."*
"What's a runner?" Timothy asked.
"Well the way the strawberries grow they send out these things called runners… and if it finds good dirt, it will plant another plant."
Paul's father repositioned the runner into the soil.
"Yeah, this soil is pretty hard," Paul's father responded as he tried to push the runner into the soil.
"Should we put some water on it?" Timothy asked.

"You can see the leaves are starting to turn yellow because it is starting to get cold in the night time. This is going to try to winterize itself soon. And depending on how cold it is in the winter this may or may not live." Paul's father explained.

In this example, Paul's father modeled *Environmental Action* by demonstrating how to cultivate a strawberry plant. Through the demonstration, he showed the children how they might redirect a strawberry runner into the soil. He also discussed how a strawberry plant naturally winterizes itself, suggesting that its survival during the winter would depend on the temperature. Learning to grow food is an important skill for teaching sustainability (Hill et al. 2014). However, it is important to consider ways to teach children how to grow food in the distinct climates and conditions of their local ecology. Growing food in the far north is much different than other parts of the world. Through their exploration, the children gained a hands-on introductory lesson on growing strawberries. Follow-up activities investigating how to best cultivate strawberries in the Alaskan Arctic would serve to strengthen children's initial interests and further their *Environment Action*.

Preservation of the local ecology is another aspect of sustainability. During his Sensory Tour, 5-year-old Sadi discovered a caterpillar on the tundra. He grappled with the tension between *Environmental Action* and *Environmental Harm* in considering what he should do with the caterpillar:

"What is it?" The teacher asked Sadi, holding something small in his hand.
"A caterpillar," Sadi said.
"Where did you find it?" the teacher asked.
"Taylor found it," Sadi responded.
"What are you going to do with it?"
"Keep it as a pet," suggested another child.
"Take it to my house and…." Sadi answered.
"What do you think it needs?" The teacher prompted.

Sadi did not immediately answer. He held the caterpillar on his finger, examining it closely and stroking its soft body with his other finger. After considering that the caterpillar typically eats leaves, grass, and other things living on the tundra, Sadi decided to release the caterpillar instead of taking it home.

In this example, Sadi wavered between *Environmental Action* and *Environmental Harm*. While he desired to keep the caterpillar for himself, he considered that its natural habitat was more fitting. By releasing the caterpillar, Sadi demonstrated care for living creatures. This is an important aspect of ECEfS, particularly in considering the "inter-relational agency of other animals, plants, insects, and the rest of the [more-than-human] world around us" (Ritchie 2014, p. 50).

This final example provides a sentiment of children's growing and budding relationship with the natural world. Foundational experiences where children perceive themselves as a part of, not separate from, all that exists are essential in building a sustainable future. The caterpillar released to become a butterfly is symbolic in recognizing that through exploring the environment up-close and

personal, children will develop wings to soar as active environmental citizens for a more sustainable world. Indeed, in considering children's agency to act for sustainability, the examples provided in this article might seem small and frivolous. However, it is important to consider the significance of children's initial efforts as these provide stepping-stones to bigger and wider-reaching initiatives. In other words, a child does not learn how to run before discovering how to coordinate his feet to take his first steps. To be sure, making a difference at a smaller level will have an impact on how a child develops his or her sense of self in relation to the living world.

Conclusions

This study examined young children's lived encounters with nature in order to distinguish how growing up in a rural Alaskan Native village setting influences Environmental Identity Development. Overall, the children in this study demonstrated a strong sense of *Trust in Nature*, seemingly unbothered by mosquitos and for the most part comfortable and secure in their environmental interactions. Such trust prompted children to gain a sense of *Spatial Autonomy* through exploration and establishing connections with the water, plants, and animals. They tasted and touched, experimented and discovered, learning about features of the local ecology and their shared role in it, which, in turn, heightened their sense of *Environmental Competency*. Children named assorted berries discovered when they were ripe, noted and observed the various birds, and found animal tracks. This understanding led to participation in *Environmental Action*, whereas children learned how to grow food and what types and when foliage could be harvested. Children's EID did not occur without negotiating outer (environmental) and inner (emotional) tensions. Children grappled with anxiety over bears, fallen trees, and displayed disgust over snail poop. Such tensions were not significantly alarming. However, they inevitably play a role in influencing children's environmental interactions. Additionally, the development of skills and competencies to overcome fears and anxieties (small or large) can be nurtured through environmental education.

Findings from this study add to the ongoing dialogue on ECEfS in transnational contexts. First, in considering children's engagement in environmental action—the anticipated outcome of a strong environmental identity (Clayton 2003), the children in this study demonstrated competencies that promote engagement in a subsistence-based lifestyle. Such actions are distinguished from sustainable behaviors (i.e., recycling, taking public transportation), which may be taught in urban settings. However, harvesting food from the wilderness is an important sustainable practice in a rural isolated setting such as Alaska where recycling and access to consumer goods are scarce. Secondly, we live in an interconnected world, thus ECEfS should be centered on promoting belonging and inter-relational agency between humans and the more-than-human world. As Hägglund and Johansson (2014) point out belonging does not always entail peace and harmony, rather children should also learn their role in addressing conflicts and, more specifically, transnational ones. Ongoing discussion on ECEfS might center on questions such as: How can

sustainability initiatives (i.e., reduction of carbon emissions) in one part of the world affect the livelihood of others? Or how can we reconnect children to nature as a primary source of well-being? Or how can we promote subsistence-based understanding and Native traditions among children living in urban industrialized settings? The answer to such question will not come easy; it is my hope that this article will, however, spark the beginning of a discussion and a new realm of possibility.

Acknowledgements Funding was provided by Alaska EPSCoR NSF (Grant No. OIA-1208927). Special thanks to Robin Child, Bethany Fernstrom, John Henry Jr., teachers, families, and children for participating in this project.

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