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Exploring Child-Family-Nature Interactions During Family-Led 'Nature' Tours in Alaska

Carie Green
South Dakota State University, USA

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ABSTRACT

This article presents Family Nature Tours as a participatory method for exploring children's human and more-than-human-nature interactions within the context of the family. Through equipping children with wearable cameras during family-led outdoor activities, this qualitative study provides insight on what non-rural Alaskan families consider "nature" experiences and the values of nature demonstrated by children within the context of the family. Findings revealed that children whose behaviors reflected a dominionistic value, aggressive tendencies towards other living beings, also demonstrated a negativistic value by engaging in activities that diverted their attention from the natural setting. All children, to various extents, expressed a naturalistic value through engaging in exploration, play, and imagination. Findings revealed that some families fostered a scientific value through learning about different plants and animals in the environment, while others modeled an apathetic response. Affordances in wild or groomed "natural" landscapes generated varied opportunities for children to develop their relations with other living beings. This article reveals variations in formative child-family-nature dynamics, offering insight on opportunities to link children's formative family nature experiences with environmental education.

***Keywords*:** phenomenology, family tours, environmental education, wearable cameras, Alaskan children, relational values

The family is "the nexus" in which all learning occurs; it is one of the most influential contexts in which values, beliefs, and orientations, and subsequently behaviors, are formed. The significance of family and its influence on a child's life is well recognized in both traditional child development theories (Bronfenbrenner & Morris, 2006; Piaget, 1952; Vygotsky, 1962) and sociological understandings of childhood (Corsaro, 2018). In Environmental Education (EE), the role of family in shaping past and present lived experiences has been discussed in the significant life experience literature (D'Amore & Chawla, 2018), and in more recent years, in the age of the Anthroprocene (Malone, 2018). Home is a place where children spend a large portion of their time, and in our fast-paced postmodern society it is crucial that we pay attention to the everyday interactions occurring within the family unit, that shape how children, come to see themselves in relation to others in the living world (Rousell & Cutter-Mackenzie-Knowles, 2019). While EE research has considered familial factors in many different contexts, studies for the most part have involved families with a vested interest t (i.e., 'green' families, families participating in EE programs). In other words, there is a need to develop more inclusive and participatory approaches, which include the perspectives of all families regardless of their backgrounds and/or environmental orientations. Thus, the purpose of this paper is twofold. First, Family Nature Tours are presented as a participatory methodological approach for exploring children's human and more-than-human-nature interactions within the context of the family. Second, descriptive findings from initial piloting of the Family Nature Tour method with Alaskan children and their families will be presented in order to critically consider the various ways in which family values shape children's orientation towards other living beings in their environment. This inquiry is, therefore, not driven by the question of *if* families influence children's values and behaviors, rather through critical examination of first-hand family nature encounters, this study looks at *how* values

and behaviors are shaped and informed during parent-child and sibling-child encounters in family-selected "nature" settings.

Families in EE Research

EE research has addressed the context of family from a variety of angles in formal and non-formal learning settings. Early studies involving the family examined the transmission of knowledge from environmental programing to the home. However, in evaluating the after-effect of environmental programing, findings show that the transfer of environmental information and ideologies from children to families cannot be assumed (Ballantyne, Fien, & Packer 2001; Sutherland & Ham, 1992). Rather participating in collaborative action-oriented processes that empower children, families, schools and community members to create change in their communities has proven to lead to more positive outcomes (Ballantyne et al., 2001; Llata-López et al. (2017); Tal, 2004; Volk & Cheak, 2003).

Correlational studies have examined relationships between parents' and children's environmental values and behaviors through isolating certain variables including parental work experience and education, socio-economic status (SES), and environmental knowledge, concern, and behaviors (Hampel, Holdsworth, & Boldero, 1996; Leppänen, Haahla, Lensu, & Kuitunen, 2012; Meeusen, 2014). Positive correlations have also been noted between the environmental attitudes of parents and their children (Leppänen et al., 2012; Meeusen, 2014). However, such studies have been limited to measurable variables and reveal little about lived-experiences and the contextual attributes of child-family-nature interactions.

Studies have also considered the intergenerational processes, that is, the interactions (verbal and non-verbal) that shape family members' ecological understandings and environmental perceptions. Payne (2010) looked at the ecopedogogical practices of 'green families' in Australia, adding to understanding of how the intergenerational transmission of an "everyday environmental ethic and ecopolitic" might be transmitted within the family slowly over an extended period of time (p. 209). Spiteri (2018) considered the contexts of family and school influences on children's environmental perceptions, utilizing multiple methods, including home and school observations, conversational interviews, children's interpretations of photographs, and children's drawings. Findings revealed that children's knowledge and attitudes about their environment are culturally and socially-constructed based on their local context, family worldviews, and life experiences.

Studies of non-formal learning environments such as zoos, botanical gardens, and nature centers reveal ripe opportunities for intergenerational and active learning (Zimmerman & McClain, 2014). Findings show that well designed exhibits can enrich families' ecological understandings and foster positive environmental values and behaviors (Kopczak, Kisiel, & Rowe, 2015) and effectively challenge family beliefs (Esson & Moss, 2013). Interactive dialogue among family members (and with interpretive staff) is also beneficial for increasing children's ecological understanding (Kopczak et al., 2015). Additionally, learning is enhanced when families position children as active participants in the process (Zimmerman & McClain, 2014). Studies also show that families' prior knowledge gained through informal learning (i.e., Internet, books) and previous experiences inform family experiences in non-formal EE settings (Zimmerman & McCLain, 2014).

Taken together, past research has included families from various programs and settings; approaches have also extended beyond formal to non-formal learning environments where families go to spend time together (Esson & Moss, 2013). However, families that visit nature centers tend to represent a certain demographic of families. As Llata-López et al. (2017) pointed out, there is a need to expand our research and educational efforts to reach families who may or may not have what we consider a strong environmental orientation. Family and educational partnerships form a two-way street (Allen, 2007). In other words, as educators, we should not only be concerned with transmitting knowledge from the school to the home, we should also actively seek out ways to tap into the funds of knowledge that children bring from family life into their environmental experiences.

Relational Values in Child-Family-Nature Interactions

Research on relational values remains important in understanding socio-ecological systems, specifically in studying meanings persons and cultures attribute towards natural environments (Gould et al., 2015). In this study, families are recognized as having their own culture, or set of values, and it is these relational values that influence the way children learn to act and relate with natural environments. Values-related development represents the convergence between emotion and intellect (Kellert, 2002). Similarly, in a family-systems model, parental beliefs (affective) and their knowledge, skills, and competencies (intellectual) can positively or negatively influence parent–child interactions and the way children learn and develop (Bronfrenbrunner, 1979; Trivette, Dunst, & Hamby, 2010). While Bronfrenbrunner referred to a "bioecological theory" of child development, he only generally discussed social and environmental factors and did not specifically address nature experiences. Kellert (1997) on the other hand, articulated nine basic values implicated in children's orientation/relations with the natural world. These values are expressed as tendencies and can be strong or weak, varying greatly among individuals, groups, or in this case, families (Kellert, 2002). There are some common attributes shared among the values; therefore, it is challenging to attribute any one value to a specific interaction. However, for the purposes of categorizing the child-family-nature interactions that emerged during Family Nature Tours, five of Kellert's (2002) values of nature (dominionistic, negativistic, naturalistic, scientific, and moralistic) were particularly helpful:

(1) The *dominionistic* value reflects the urge to master and control nature.
(2) A *negativistic* value reflects the avoidance, fear, and rejection of nature.
(3) The *naturalistic* value expresses the desire for close contact and immersion in nature, occurring through exploration, discovery, and imagination.
(4) A *scientific* value emphasizes the empirical and systematic study and understanding of nature.
(5) The *moralistic* value reflects an ethical and spiritual affinity for nature. This includes the inclination to treat nature with kindness and respect. (pp. 130-132)

This research examines the relational interactions that occurred among children, their family members, and other living being and natural features. First, the research addresses the questions: What do non-rural Alaska families consider nature experiences? Where do they go and how do they spend their time? What relational values are expressed in child-family-nature interactions in particular settings and family activities?

Framing, Approach, and Methods

Phenomenology centers bodily existence at the core of conscious and subconscious understanding of the world and other living entities (Merleau-Ponty, 1945/2002). It involves the study of *Dasein*, or being-in-the-world, in a particular time and place (Heidegger, 1962; Merleau-Ponty, 1945/2002). For a child, the context of being in the family, makes up a significant part of their lived experiences and informs the way they orient themselves in relation to others and their environments (Bronfenbrenner & Morris, 2006; Corsaro, 2018; Vygotsky, 1962). A phenomenological approach was used in this research to explore the somoaesthetics of children's family nature experiences. The term "soma," according to Shusterman (2009), designates the "living, sensing, dynamic, perspective body" (p. 133). While "soma" refers to embodied, "aesthetics" refers to "feeling or sensitivity" (Iared, de Oliveira, & Payne, 2016). Affective experiences in nature, particular for children, precede language and reflective thought. However, researchers have found it challenging to identify data collection methods that capture the lived [pre-reflective] essences of being in the world (Iared et al., 2016). In this research, we utilized wearable cameras as a method for tapping into children's embodied (pre-reflective) experiences of being in nature with family.

Family Nature Tours

Family Nature Tours build upon the Sensory Tour method which have been used to study young children's perspectives and experiences of their environments (Green, 2016, 2017, 2018). During a Sensory Tour, children are equipped with small wearable cameras around their foreheads. The lightweight cameras, goes where children go, sees what children see, and captures their sensory, behavioral, and emotional perceptions of their environment (Green, 2016). Children explore and collect video data on their own without the need for an adult researcher

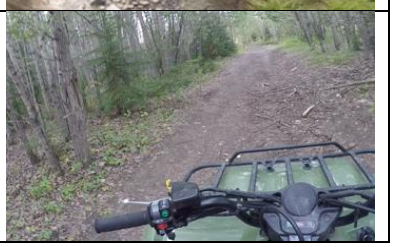
prompting and prodding close-by with a video camera (Green, 2016). The lens of a wearable camera also allows researchers to observe firsthand children's cognitive expressions – that is, a child's expressed knowledge and skills. Furthermore, wearable cameras capture children's self-talk, and their verbal and non-verbal expressions (Green, 2016). The method is participatory, children choose if, and when they would like to wear a camera and for how long. When a child is finished wearing the camera they simply tell the researcher (Green, 2016).

Participants and context

Between July and September 2018, eight Family Nature Tours were facilitated with four-year-old children and their families from an interior Alaskan city. All children enrolled in a preschool program were invited to participate. School administrators provided permission to use the site and families provided consent to participate in tours. Grant funding was used to compensate families for their time. Families choose which family members would participate in the Tour, where the Tour would take place, and Tour activities. One or two parents and at least one sibling(s) accompanied all of the children on their Tours. Table 1 provides a summary of Tour participants and locations. All Tours occurred during late afternoon or evening hours and lasted approximately 60-90 minutes. During Tours, the four-year-old child wore the wearable camera. Siblings and parents, if interested, were invited to wear the cameras for a portion of the Tour. This provided an opportunity to view the family activities from different perspectives. Additionally, the researcher carried an iPad during Tours to video and audio record informal conversations and interactions. Children lead most activities during Tours. However, parents guided certain interactions (i.e., driving an ATV, teaching about trees). Field notes were recorded after each tour, including a summary of activities, general impressions, and notable connections with other data. Videos and fieldnotes were downloaded and organized into folders for each child.

Table 1
Family Nature Tour Participants and Settings

Child	**Family**	**Setting Description**	**Location Photo**
Joseph	Mother, Father, 2-year-old sister, 2-week-old brother	City park, pond, playground, and electronic game	
James	Father, 7-year-old brother	Field, forest trail, and pond	
John	Mother, Father, 9-year-old brother	Paved street (for bike-ride), neighborhood playground near river, backyard	

Brittany	Mother, 7-year-old brother, 10-year-old brother,	Property, driveway, and play structure	
Christopher	Mother, 8-year-old sister	Paved neighborhood road (for bike-ride)	
David	Mother, Father, 8-years-old sister	Field, forest trail, and pond	
Carol	Mother, 8-year-old sister	Botanical Gardens, pond and bridge	
Samantha	Mother, Father, 1-year-old sister	Wooded-trail (for ATV ride), and school playground	

Data analysis: Searching for meaning in family micro-interactions

Data analysis followed what Grbich (2012) described as an existential phenomenological approach, focusing was on "contextual relations" (p. 98). "Within these contexts (lifeworld – mundane daily occurrences, place – temporal and spatial location…humans have the capacity to respond and react to the situations and to relationships with others" (Grbich, 2012, p. 98). While the settings varied, the focus of our analysis was on the micro-interactions between family members, other living beings, and the human-built and natural environments (see Table 2). Micro-interactions refer to children's experiences during particular situations that occurred during a Family Tour. The contexts of micro-interactions were critically analyzed to consider the setting, persons involved, observed behaviors and emotional responses.

Videos were first reviewed in their entirety to gain "intuitive/holistic understanding of raw data" (Grbich, 2012, p. 102). Brief notes were taken about the nature of each Tour, how it related to other Tours, and family-nature interactions. Videos were reviewed a second time, "summarizing data from each participant [family] to develop natural meaning units and central themes" (Grbich, 2012, p. 102). Through multiple viewings, readings and cross-comparison of data, themes emerged as overarching categories that characterized the way children and their

families interacted with other living beings and environmental features. Micro-interactions were then categorized within a "thematic index" (Grbrich, 2012, p. 102), relating to the five values of nature (dominionistic, negativistic, naturalistic, scientific, and moralistic) defined by Kellert (2002) (see Table 2). Descriptors include setting-child-family member(s)-actions. Organizing micro-interactions in this way allowed for the identification of trends in family activities and behaviors. During a third round of analysis, raw videos of family micro-interactions were revisited and transcribed for a more detailed reading. Transcriptions include verbal comments, non-verbal cues and behaviors, and contextual elements of the environment/setting. Due to space constraints, it is not possible, to present all micro-interactions that occurred during the eight Family Nature Tours. Rather for the purposes of this paper, particular segments of transcripts are presented to illustrate the overarching themes of each child's family-nature interactions and the values of nature in which such interactions convey.

Findings

Where did families go?

Families selected a variety of locations and activities for their tours. James and David's families choose to hike through fields and a boreal forest at a bird migratory refuge. This setting provided opportunities for families to nurture children's environmental competency by teaching them about the local flora and fauna. Both John and Christopher's families elected to take bike rides on paved streets through their neighborhood. John rode tandem behind his Dad's bike to a nearby park; while Christopher rode his bike with training wheels with his mom walking beside him. The biking part of John's tour generated video of a paved road with no other notable interactions. Christopher stayed on his bike the entire time, which prevented him from physically interacting with features in his environment. Samantha rode on an ATV with her father along a wooded trail between her house and the school playground. Her father stopped occasionally, encouraging Samantha to observe bunnies and birds. Joseph, John, and Samantha and their families visited public playgrounds. The children spent a large portion of their time climbing and playing on playground equipment, which diverted their attention from exploring the natural setting. Brittany's Tour occurred at her home 'in the hills' outside the city. Her property afforded many natural features (trees, dirt, and rocky hills) for her and her brothers to play and explore. Finally, Carol's family visited the local botanical garden and their favorite pond.

What did families do?

The range of micro-interactions varied among families, however, as Table 2 reveals there were notable trends. The two children who demonstrated dominionistic values towards other living beings also engaged in activities that distracted them from the natural world around them. Even so, all children, to various degrees, exhibited a naturalistic value towards their environment through play and exploration: blowing dandelions, hiding in the tall grass, discovering rocks, picking flowers, kicking mushrooms, tasting raspberries, playing with sticks (to name a few). Additionally, two families demonstrated a scientific value of nature through observing and learning about the types of trees and aquatic life. This in turn, fostered ecological understanding and the development of empathy. One family applied their empathy through demonstrating a moralistic value of care for bees in a small pond. Taken together, mapping family activities helped us to take notice of the relational values demonstrated in child-family-nature interactions.

Table 2
Child-Family-Nature Interaction Chart

Dominionistic - aggressive interactions	Negativistic - nature distractions	Naturalistic - play and exploration	Scientific - ecological understanding	Moralistic - empathy and action
Negative ←				→ *Positive*
Pond at park- **Joseph**- Two-year-old sister- chasing pigeons Paved neighborhood street- **Christopher**- mother- threating to kill birds	City park- **Joseph**- 2-year-old-sister- mother- father- playing on playground and electronic game Neighborhood park- **John**- 9-year-old brother- riding on bike, spinning on merry-go-round Wood patio- **Brittany**- 9-year-old brother- 6-year-old brother- riding bikes Paved neighborhood street- **Christopher**- mother- riding bike School Playground- **Samantha**- mother- playing on playground	City park pond- **Joseph**- mother- father- 2-year-old-sister- feeding ducks, discovering a rock Field/forest- **James**- 8-year-old-brother- father- hiding in tall grass, picking a wild flower, playing with sticks River/Yard- **John**- 9-year-old brother- throwing play-ground pebbles in water, blowing dandelions, kicking mushrooms Driveway/yard- **Brittany**- 7-year-old brother- mom- climbing hill, swinging on rope, picking flowers Paved neighborhood street- **Christopher**- mother- tasting raspberries Forest trail- **David**- 8-year-old sister- playing with stick Wooded trail- **Samantha**- father- riding ATV, observing birds and bunnies Botanical gardens- **Carol**- 7-year-old sister- mother- finding Geocache under bridge, picnicking in the garden	Forest- **James**- 8-year-old brother- father- observing and learning about different types of trees Forest pond- **David**- mother- 8-year-old-sister- reading signs, looking for aquatic life, learning about birch bark	Botanical gardens pond- **Carol**- 8-year-old sister- mother- saving bees

Dominionistic - aggressive interactions

Two children, Christopher (on his own) and Joseph (with his 2-year-old sister), demonstrated a dominionistic value, evidenced in aggression towards other living beings.

<u>"Birdies, I'm going to eat you"</u>

Christopher vocalized his aggression towards birds on his bike through the paved streets of his neighborhood with his mother walking beside him:

> *"I see a little birdie,"* Christopher said, *"another one."*
>
> *"Arw, arww …"* he growled, "*find birdies, I'm gonna eat you...Hey, find birdies, I'm going to eat you…You are going to get electrocuted!"*

Christopher noticed a bird sitting on an electric wire.

> *"Die!"* he yelled.

His mother told him the birds were "fine" on the wire. However, Christopher continued, "*Hey flying birdies, I'm going to eat you. You are going to get electrocuted and die."*

Christopher rode his bike along the paved street of his neighborhood; besides his comments towards the birds he had little interaction with natural features in his neighborhood. When I arrived at Christopher's house, he told me to "go away" and turned back to play his video game on the T.V. in his living room. Christopher's aggression towards the birds may be influenced by the schemes of his video games; it is possible that he may also have been annoyed that his game was interrupted by the family nature tour. Interestingly, Christopher also expressed annoyance towards the "stupid flies" in his home. During my visit, he found a toy knife to try to "kill them."

<u>Chasing Pigeons</u>

Similarly, Joseph and his 2-year-old sister acted aggressively towards pigeons resting near a pond when his family was feeding ducks. Ironically, while his family "fed" one animal, the children sought to disturb the other.

> Noticing pigeons on the grass, Joseph took a break from feeding the ducks to chase after the birds. His 2-year-old sister followed, shouting, *"Run!"*
>
> The children noticed more pigeons on the other side of the pond.
>
> *"Boo! Boo! Boo!... Boo!"* Joseph screamed while chasing them.
>
> As Joseph got closer to the birds, some took flight and two stayed on the rocks. Joseph snuck up slowly.
>
> *"Boo?...BOO!"* Joseph shouted aggressively at the two pigeons. Startled, they flew away.

Both Christopher and Joseph demonstrated hostility towards birds, while one verbalized it, the other acted on it. Neither Christopher's mother nor Joseph's parents became involved in their children's aggressive acts. While Christopher's mother attempted to correct his misconception about the birds getting electrocuted, she did not specifically try to redirect his hostile comments. Joseph's parents may not have been aware of his aggressive actions, which were only revealed during review of the video footage.

Negativistic - nature distractions

According to Kellert (2002), a negativistic value reflects avoidance and rejection of nature. Some of children's interactions outdoors could be considered nature distractions, whereas children's attention was focused on human-built (i.e., playground equipment) rather than natural features. Samantha climbed up and down a caged metal play structure with slides. Similarly, John spun dizzily on a merry-go-round, and Joseph climbed up and down a red plastic slide and ran eagerly back and forth on a large concrete slab while playing the "Fire Fighter" game.

Fire Fighter

Joseph played the stand-up electronic game twice, for over 10 minutes each time. By comparison, he only spent 3 minutes feeding the ducks with his family at the pond.

> *"I'm fire,"* Joseph declared, pushing the button to start the game labeled *Fire Fighter*. The music started and Joseph ran eagerly from post to post hitting the buttons. A teenage girl joined, and Joseph pushed the button to restart the game for two people. "*No, you only get the reds*," Joseph told the girl while he darted between posts, slapping the green-lit buttons. The older girl sought the pillars with red lights. Buttons beeped affirming when points were added. After about 40 seconds, the game concluded. Joseph cheered, noticing he had scored higher than his opponent.

Joseph played the game repeatedly; he was so enthralled with the electronic game that he took little notice of the old spruce tree, towering beside the concrete pad and lite-up pillars. His fast pace and insistent interaction with the electronic game was similar to his response towards the pigeons at the pond. Moreover, Joseph's parents stood along the sidelines, laughing and cheering him on. His familiarity with the game schemes revealed he had previously played it. This example reveals how electronic games installed at an outdoor park entice and draw children's interest, however, at the risk of distracting them (at least for a time) from the natural features of their environment.

Some children's preference for play with human-built environmental features was validated in their favorite summer nature activity drawings. Samantha drew a seesaw, Joseph a basketball hoop, and John a merry-go-round. Similar behavioral preferences towards human-built features were noted in a large-scale quantitative observational study on children's playground play (Sargisson & McLean, 2012). While playground play is not inherently wrong, its value is limited in terms of connecting children to natural attributes in their environment. Thus, it is important for families to consider finding a healthy balance between activities that may serve as nature distractions and activities that promote exploratory, ecologically conscious, and empathetic child-family-nature interactions.

Naturalistic - play and exploration

All of the Family Tours revealed children's inclination to explore and discover their natural environment (Piaget, 1952). Exploring the tall grass, climbing trees or hills, playing with sticks, and picking flowers were all common interactions among the children. These activities were supported by the affordances within the setting itself and by family values.

The Tall Grass

John and his older brother, Adam, explored the tall grass at the migratory bird refuge during their family nature tour.

> *"Can we go in the tall grass?"* John's older brother, Adam, asked their father.
>
> *"Yes,"* their father responded.
>
> Adam ran off the dirt trail into the tall grass.
>
> *"Whoa-who!"* Adam exclaimed, swinging his arm like an airplane.

> John followed Adam into the grass slowly, taking it in…
>
> *"This is some big grass in here!"* John exclaimed.
>
> *"Yeah,"* his father agreed.
>
> *"I don't want to get out of this big grass…its nice to me…!"* John stated, *"it's fun!"*

John's interest in the tall grass was prompted by his brother and supported by their father who encouraged the children to explore. According to Kahn (2002) a naturalistic value, is expressed through play and exploration and emerging oneself in a setting. Although he was initially hesitant, John enjoyed just being in the tall grass and he returned to it towards the end of his tour, stating, "it's fun!"

Climbing a Hill

Brittany also explored off the beaten path, by testing her limits on the steep hill of her driveway.

> *"Wanna see something else?... I… do… climbing,"* Brittany announced.
>
> The rocks and dirt were loose and the foliage on the side of the driveway was full of vetch, an invasive species that grows rapidly over disturbed habitats in Alaska. Brittany took a few steps up the hillside and slipped.
>
> "*Ah!…Oww!...Ow,"* She screamed.
>
> The ground was shifty and the vines were pokey. She had nothing to grip with her hands or feet.
>
> "*Mom!...Help!"* Brittany yelled, *"Help Mom!* Up."
>
> *"Hold on to Piper... She'll pull you,"* her mom commanded, sending the family dog to rescue Brittany. Brittany laughed and grabbed Piper's leash. Brittany's mom gave her an extra push from behind as she summitted the driveway.

Brittany zealously attempted to climb up the steep hill on the edge of her driveway. Her determination quickly turned to despair when she lost her footing on loose rocks without anything stable to grab onto. Brittany is the youngest child in her family. In this interaction, she appeared to be mimicking the adventurousness of her older brothers. During my visit, Brittany's 9-year-old brother raced up and down the steep driveway as fast as he could on his bicycle. In this way, Brittany's was attempting something risky just like her brother, however, she had not yet developed the skills to achieve it. When the challenge became too difficult Brittany countered back and relied on her mom and her dog for help.

Picking flowers and exploring water

John picked a fluffy dandelion growing on the city park lawn. He blew the soft pollen at his brother. Next, John and his 10-year-old brother wanted to throw rocks in the river that bordered the park. However, the shoreline was primarily made up of mud and grass. Thus, John and his brother ran back and forth several times between the river and playground area to gather and throw handfuls of pebbles into the water. Their mother watched and giggled, while their father sat on a picnic table at the other end of the playground. Unfortunately, the riverbank alongside the manicured lawn limited the type of environmental experiences in which the two boys sought.

Brittany also picked a yellow dandelion on her family's property. She gave it to her mother who smiled and thanked her. Her mother's positive response influenced Brittany to pick another flower for the researcher. Both John and

Brittany's parents, in various ways, reinforced their children's interactions with flowers and rocks for the primary purpose of exploration and human enjoyment.

Scientific - ecological understanding

Learning about pollen and looking for fish

James also discovered wildflowers during two different occasions on his hike with his father. On the first, James attempted to pick a flower and accidently broke it. His father assured him that it was okay because the pollen would spread to create a new flower. The second time, his father coached him in stepping through a marshy area to retrieve and "pinch" a flower off the vine. James learned from his father understanding of the lifecycle of a flower and how to carefully pick one to preserve it.

> Near a small pond, James, his 7-year-old brother, and father looked for aquatic life.
>
> James's brother laid on his stomach on the wooden planks of a bridge, close to the water. He played in the water with a stick, watching the ripples.
>
> James leaned beside his brother on one knee, further away from the edge, *"What are you doing? … be careful."*
>
> *"Why?"* his brother responded, hoping up onto his knees.
>
> *"I want to try to catch a fish."* his brother stated, "*Do you think there are some fish in here?"*
>
> *"There are no fish in here,"* their father answered.
>
> *"Why?"* James brother asked.
>
> *"It's not suitable for fish,"* his father answered, before reading the interpretive sign, *"Hmmm… it does say that there are arctic grayling during high flood years…"*

James' older brother expressed his desire to catch fish. James' father indicated that he had begun to take James' brother hunting and berry picking, yet his father felt that James not yet old enough to participate. The interaction on the bridge revealed James brother's interest in harvesting food from the land, it also indicated a slight difference between James and his older brother's comfort level. His brother leaned close to the water, while James stood back advising him to be careful. This same hesitation was demonstrated in other interactions (i.e., entering the tall grass, picking the wild flower). Yet with encouragement, James readily gained skills and became more comfortable in the environment.

David and his family also explored aquatic life during their hike at the migratory bird reserve.

> David lead his family to the bridge, stopping to read the interpretive sign.
>
> *"See there are frogs here, tree frogs,"* David stated.
>
> "Yeah." His mother agreed, *"And bugs, fish, bugs, ducks."*
>
> "*And I saw... I think I saw that one*," his 7-year-old sister pointed to an invertebrate on the sign.
>
> "*Do you want to get close to the water to see if you can see them?"* their mother asked.
>
> "*I'm looking for fish,"* David responded.

"You are looking for fish." His mother restated.

"*When are we going to stop and look?"* his mother asked when David kept walking. David's father also walked across without stopping.

"*When we see something,"* David stated.

His mother eventually led David to the edge of the water. "*Do you see anything? "Anything moving in the water?*" she asked.

"No," he stated.

David's mother, like James's father, prompted her children's inquiry about flora and fauna in the setting. David, similar to James' brother, was looking for fish. Yet instead of slowing down to take a closer look like James' brother, he walked steadily across the bridge. His mother, on the other hand, prompted him to take a closer look. Similarly, both David and James' families engaged in dialogue and utilized the interpretive sign to learn about the environment (Kopczak et al.'s, 2015; Zimmerman & McClain, 2014).

Moralistic - empathy and action

Saving bees

Carol, her eight-year-old sister, and mother visited their favorite pond in the botanical gardens, where they applied their ecological understanding through action.

"Are you alive?" Carol asked.

"Oh yeah, she's alive, she's alive… you need to take her out, you need to take her out! If any – if anybody's – if anybody's brave enough…" her 8-year-old sister exclaimed while observing a bee floating in the pond.

"You can be braver than me," Carol said.

Carol's older sister reached into the pond, grazing a leaf over the water gently lifting the bee out onto the wooden deck.

"Yah, I saved it! Oh, there is another bee floating over there," Carol's sister noted.

"Do you want to try Carol?" their mother asked.

Carol ran to find a stick, bringing it back to the water.

"Which one?" she asked.

"It's right there," her sister pointed.

"Hey Carol, there is another one over here that needs saving," her mother said.

"*Okay, I'll get it."* Carol reached in the water and retrieved the bee with her stick.

"Oh! It fell back in the water!" her older sister noted, "*It's over there… pick her up!"*

Carol reached in to save the bee a second time.

"There we go," her sister encouraged, "*now be gentle, be gentle."*

This interaction showed how Carol and her sister exercised empathy towards other living creatures (bees) by rescuing them from the pond at the botanical gardens. Carol was at first nervous, she observed her sister until her mother encouraged her to try to rescue one herself. Even though she dropped it the first time, Carol, with support from her sister and mother, exercised persistency in reaching back into the water to bring it to shore. The family mentioned that the pond was a favorite place at the garden. Perhaps, the children had previously engaged in a similar activity.

Concluding Discussion

While past research has shown that there is a positive correlation between the environmental attitudes of parents and their children (Leppänen et al., 2012; Meeusen, 2014), this study adds to the literature by examining *how* children's values and behaviors towards nature are shaped and informed during parent-child and sibling-child encounters in family-selected "nature" settings. Findings showed that although children expressed interests towards similar phenomenon (i.e., birds, sticks, flowers, water), *how* they acted and behaved towards such phenomenon varied according to familial influences and the affordances offered in different settings (i.e., tall grass, wetland or pond, manicured lawn, playground and concrete features). Specifically, utilizing Kellert's (2002) values of nature index, this study revealed how some children demonstrated dominionistic values through aggressive behaviors towards birds. One parent was aware of their child's behavior the other was not; however, more concerning was that neither parent redirected their child's aggressive interactions. Opposite of aggression, another child, with strong encouragement from her family, engaged in action to "save" a living creature (bee) from drowning in a pond. Thus, findings show how moralistic values towards nature can be modeled and nurtured through interactions with other family members.

Similarly, Payne (2010) argued that an "everyday environmental ethic" may be transmitted in families slowly over time. Findings revealed some small ways in which children's value of nature were transmitted among family members even in the short timeframe of the family outings. For example, on several occasions James demonstrated hesitancy in interacting with environmental features. Yet with his brother's modeling and his father's encouragement James was willing to try new things and to learn about the local ecology (i.e., plant identification and pollination). Similarly, David's mother encouraged him to read interpretive signs and make observations in learning about the local ecology. In this way, both James' father and David's mother modeled a scientific value of nature in nurturing ecological understandings. These findings coincide with past research on non-formal environmental learning programs. Specifically, our findings support family dialogue and well-designed exhibits (interpretive signs) in enriching families' ecological understanding (Kopczak et al., 2015). However, unlike Kopczak et al. (2015) study, our family-led outings did not include a staff nature interpreter to teach children about the local ecology. Rather our study supported family-led outings, which by default designates family members as primary interpreters of an environmental setting. Our results show that some parents were keen to teach their children about the local ecology while others were less interested. Thus, ECEE researchers and practitioners should consider family outings as a starting point for nurturing environmental competencies, attitudes, behaviors, and values. As findings from this study show, the ways in which families interacted with nature varied; thus, there is no one right way to nurture children's environmental competencies within the family context. Each interaction is different the strategies to support children and families will also vary according to family needs.

In terms of a naturalistic value of nature (Kellert, 2002), findings from this study show that all families can benefit from time spent outdoors (D'Amore & Chawla, 2018). To various degrees all the children in this study engaged in play and exploration of their environment and this was for the most part supported by all families. As stated previously, some families took children's play and exploration in nature one step further in emphasizing ecological understandings (a scientific value), and nurturing children's confidence, skills, and empathetic relations with other living beings (Malone, 2019).

Taken together, the family nature tour approach encourages families in their outdoor engagement and upholds the call for transgenerational research inclusive of parents/families (Rousell & Cutter-Mackenzie-Knowles, 2019). It meets families where they are at regardless of their environmental orientation (Llata-López et al., 2017). With that said, the family nature tour method is not a one-size-fits-all approach. Child-family-nature interactions are dynamic and fluid, variant and dependent on "contextual relations" - culture, place, and family dynamics (Grbrich, 2013, p. 98, James, 2000). While families may act in certain ways in one setting, they may or may not interact in the same ways in another setting. Additionally, phenomenological and eco-phenomenological approaches are concerned with human and more-than-human experiences in the world at a particular time and place (Heidegger, 1962; Iared et al., 2016; Merleau-Ponty, 1945/2002). Thus, what constitutes an essence of experience at one point in time may not constitute an essence of experiences at another. Yet each experience informs another and is important in shaping how one comes to see themselves in relation to the living world. Thus, an in-depth look at child-family-nature interactions during early childhood helps us to critically consider the social-cultural attributes of children's environmental identity formation. The family nature tour method provides opportunities for researchers to expand understanding of the dynamics of families of all shapes and sizes- from various cultures, geographical locations, and environmental or non-environmental orientations.

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Carie Green is Profilet and DeJong Family Endowed Director of Early Childhood Education at South Dakota State University, USA. She can be reached at Carie.Green@sdstate.edu.