International Journal of Early Childhood Environmental Education

ISSN: 2331-0464 (online)

Exploring Young Children's and Parents' Preferences for Outdoor Play Settings and Affinity toward Nature

Julie Ernst
University of Minnesota Duluth, USA

Submitted January 13, 2017; accepted June 23, 2017

ABSTRACT

In the context of the importance of nature experiences in supporting development during early childhood and toward encouraging the use of natural outdoor settings with young children, research was undertaken to explore potential relationships among parents' and young children's preferences regarding outdoor play settings and young children's affinity towards nature. Results of this quantitative study show some consistency with prior research, such as children's preference for outdoor play and the influence of activity affordance on their setting preferences, as well as the strong influence of parents' perceptions of safety. Other results from this study contradict prior research such as the lack of relationship among children's preferences, the frequency of time they spend in natural settings, and their level of affinity toward nature. Additional key findings include parents' perceptions regarding difficulty in providing nature experiences as an influence on the frequency of time their young children spend in nature, but not on parents' play setting preferences, and the relationship between parents' preferences and their children's level of affinity toward nature. The small, homgeneous sample used in this study is a limitation, and areas for further research and potential implications are discussed in this context.

Keywords: landscape preferences, natural settings, affinity toward nature, parents, young children

The early years are of great importance in childhood development. It is well-established in the research literature that play and sensory experiences are critical particularly during the first five years, due to the high levels of development during this time period (McCain, Mustard, & McCuaig, 2011; Shonkoff & Phillips, 2000). Play is well acknowledged within early childhood education as a primary way for meeting children's development requirements (Armstrong, 2006). Active physical and sensory engagement in their surroundings are also fundamental to young children's development (Elliott, 2010). Since nature experiences provide rich and varied sensory stimuli, nature experiences are critical to development in early childhood (Wilson, 2012). Consequently, these physical, psychological, cognitive, and sensory development benefits support Elliott's (2010) claim that "contact with nature outdoors is as important for health and wellbeing as are daily food and sleep for children" (p. 62).

The importance of natural experiences for young children has long been recognized. Early educational theorists such as Froebel, Dewey, Montessori, and Steiner emphasized the role of experiences in nature for young children's development and well-being (Elliott, 2010; Wilson, 2012). As research connecting high quality outdoor environments and children's well-being continues to grow, there is renewed interest at both the policy and practice levels in many countries to encourage access to outdoor and specifically natural spaces. For example, in England there is a strong policy agenda linked toward quality outdoor play spaces that incoporate natural features (Munoz, 2009). In the Scandinavian countries and growing elsewhere, there are efforts to provide these nature experiences for young children through an educational context, using mediums such as Forest Kindergardens (Munoz, 2009). The North American Association for Environmental Education has been emphasizing efforts to provide young children with frequent opportunities to explore, observe, and play in natural environments, and there are additional

efforts by numerous federal, state, and nonprofit organizations in the U.S. to reconnect children with nature through education and recreation (NAAEE, 2010).

Natural settings offer the diversity, variety, and open-endedness needed to engage and challenge young children, offering the quality play and sensory experiences that support learning and development (Elliott, 2010). However, natural elements are often absent in outdoor play spaces, in spite of evidence of children's enjoyment of natural spaces and the evidence in support of the positive impacts on health and development (Frost, 1992). Features that allow children to use their imagination and encounter appropriate levels of risk also are often not a part of play spaces (Johnson, 2004). Also missing is the involvement of children in the design process. If incorporated, children may generate ideas that adults have not thought of, resulting in greater diversity of play spaces and elements and also potentially greater use (Philo, 1992). Munoz (2009), in her literature review *Children in the Outdoors*, referenced research that involved children as key actors within the research and design process. She highlighted research by Burke (2005) and by Yanagisaw (2007) that explored the role of children in relation to the design of outdoor play spaces. She also highlighted work by Nairn, Panelli, and McCormack (2003), which advocated for understanding the views and experiences of young people, linking these works to wider discussions regarding children's agency.

While it is critical to understand children's views and experiences regarding outdoor play spaces, parents' perceptions are also important, as they have been shown to be a major determinant of children's outdoor behaviors (Valentine, 2004). Parent perceptions regarding how safe an outdoor area is, for example, have been linked to the amount of time children spend outside (Mackett & Paskins, 2004), and parental perceptions are a primary constraint to children's use of the outdoors (Carver, Timperio, & Crawford, 2008). In a range of contexts, parents' attitudes have a strong influence on children's activities and attitude development (Hutchinson & Baldwin, 2005). Particularly in the early years, children's play is influenced by the environments, opportunities, materials, and equipment available to them (McFarland, Zajicek, & Waliczek, 2014). Consequently, young children's time in natural settings is typically dependent on the extent to which their parents or caregivers provide opportunities for and encourage time in these settings, as they are considered "gatekeepers" to children's activity outdoors (Beets, Vogel, Chapman, Pitettie, & Cardinal, 2007).

Parents' attitudes and behaviors regarding the outdoors and nature also may be strong influences on children's attitudes. Social learning theory (Bandura, 1974) suggested children's behavior is shaped through observing those around them, and they often adopt the attitudes and behaviors they see modeled by those near them. Thus, if parents exhibit positive attitudes toward spending time in nature, children also may exhibit positive attitudes, acting in ways that prompt positive reinforcement from parents, similar to what research has shown in the case of parents' and children's attitudes about physical activity and food habits (McFarland, Zajicek, &Waliczek, 2014).

There are additional theories relevant to parents' influence on children's play in natural settings, beyond the direct influence of parents' gatekeeping role. Reed's (1996) joint attention theory suggested young children first attend to features in the world around them that others are noticing; building from these experiences, children begin to control their own attention by pointing to or asking questions about the world they encounter. Through this process, "children learn what people around them consider worth noticing and how they appraise it, and they find their own spontaneous interests either encouraged, reprimanded, or ignored" (Chawla & Derr, 2012, p. 529). Consequently, they come to view nature as "a place of fascination that a family explores and appreciates together, a scary place that children are forbidden to enter, or something barely noticed as children ride by in the car" (Chawla & Derr, 2012, p. 529). Eccles and Wigfield's (2002) expectancy value model of motivation is also helpful for considering parental influence on children, beyond parents' direct "gatekeeping" influence. This model suggested social interactions within cultural contexts influence not only how children directly experience the world, but also how they integrate the values they are developing into their identity. Thus, parents become an important influencing factor on the extent to which children value nature experiences and identify with nature.

The term environmental identity is used by Clayton and Opotow (2003) to describe "a sense of connection to some part of the non-human natural environment… a belief that the environment is important to us and an important part of who we are" (p. 45). Kals, Schumacher and Montada (1999) use the related term affinity toward nature to

describe the emotional bonds and cognitive interest in nature. Their work suggests time in nature during childhood is a key predictor of one's affinity toward nature (Kals, et al., 1999; Muller, Kals, & Pansa, 2009). Thus, these early experiences in nature along with the influence of people in their immediate sphere are very important in shaping an environmental identity and affinity toward nature, but also as a basis for future motivation to protect the environment. Studies reviewed by Chawla and Cushing (2007) lead them to suggest that "nature activities in childhood and youth, as well as examples of parents, teachers, and other role models who show an interest in nature, are key 'entry-level variables' that predispose people to take an interest in nature themselves and later work for its protection" (p. 440). Research by Kals, et al. (1999) similarly show that one's emotional affinity toward nature is a strong a predictor of nature-protective behavior.

Consequently, because parents influence young children's time in and attitudes toward being in natural settings (Valentine, 2004), understanding parents' preferences and attitudes regarding outdoor play settings and specifically nature play settings could be a significant factor in increasing the time young children spend playing in natural settings. Increasing time in natural settings is desirable from an environmental perspective (Kals, et al., 1999), but also due to the range of other physical, cognitive, and socio-emotional outcomes associated with nature play. Also important is understanding children's preferences. Efforts to encourage the use of natural settings need to take into consideration parents' perceptions, but also involve efforts to provide access to spaces that children themselves want to use (Munoz, 2009). It is in this context that the following exploratory study was conducted, with the primary intent of informing future research directions. Additionally, results from this study might offer some insight into avenues for encouraging parents and caregivers to provide time and access to nature for their young children, as well as offer potential guidance for park/land managers who seek to make their settings more feasible and appealing for use by parents and young children.

Purpose

The purpose of this study is to explore potential relationships among parents' and young children's preferences regarding outdoor play settings and young children's affinity towards nature. Specifically, the following research questions guided the study:

1. Is there a relationship between young children's outdoor play setting preferences and their level of affinity toward nature?

2. Is there a relationship between parents' and their young children's preferences regarding outdoor play settings? Is there a relationship between parents' preferences and their young children's level of affinity toward nature?

3. Do any of the following variables significantly predict parents' preferences regarding outdoor play settings for their young children: their recognition of benefits of playing in nature for young children; perception of difficulty in using natural settings for outdoor play with their young children; time they spend as adults in nature-based outdoor recreation; and time they spent as a child playing in nature?

4. Is there a relationship between the frequency of time a young child spends playing in natural settings and his/her outdoor play setting preference? Is there a relationship between the frequency of time spent playing in natural settings and his/her level of affinity toward nature?

5. Do any of the following variables significantly predict the frequency of time young children spend playing in natural settings: parents' recognition of benefits of playing in nature; parents' intentions toward providing time for their children to play in nature; parents' perception of difficulty in using natural settings for outdoor play with their young children; time parents spend currently in nature-based outdoor recreation; and time parents spent as a child playing in nature?

Methodology

Participants

Participants consisted of 37 three- through six- year old children, and their parents (either their mother or their father). This convenience sample was obtained through an invitation to participate provided to the parents of preschool and kindergartners at a small, local school (located in northern Minnesota). All 40 parents of preschool and kindergarten children were invited to participate, and all but 3 accepted the invitation to participate. In exchange for providing access to school families, the preschool and kindergarten teachers received a gift certificate for purchasing classroom materials of their choice. Due to the location of the school, all participants were Caucasian; and while gender was not a focus for this study, the number of male and female child participants were approximately equal.

Instruments

The instrument for the child participants was a question guide that accompanied a set of 16 photographs. The question guide asked children about where they preferred to play and why, as well as asked them which of the photographs were places they would or would not like to play and why. The photographs had been used in prior exploration of educator preferences' regarding outdoor settings for use with young children; see (x for blind review) (2012) and (x for blind review) (2014). All photographs were from late spring and none contained people or wildlife, so as to keep these factors from potentially influencing preference selections. The photographs were of four outdoor setting types found within the part of the state where the early childhood educators are located: water, woods, open field/grassy area, and park. There were four photographs in each setting type, and in each setting type there were photographs with maintained aspects and photographs that were primarily natural (undeveloped or unmaintained, based on the human influence setting attribute, as in Kaplan, 1985). See Table 1 for a description of the 16 photographs. Permission was granted to use the photos in the study, but was not granted by the photographer for publication due to copyright reasons. In addition to the question guide and photographs, an instrument measuring affinity toward nature (Rice & Torquati, 2014) was also used. This instument untilizes puppets, which is a method used with young children that has demonstrated reliability and validity (Denham, 2006; Elder, 1990). For each item, the child is shown two identical puppets and with each puppet a statement is made (for example, this boy/girl likes to play outside; this boy/girl likes to play inside). Then the child is asked, "Which one is more like you?" Each item is scored a 0 or 1, based on if they are like the boy/girl who likes to play inside v. outside; items are totaled, with higher scores indicating a stronger affinity toward nature.

The parent instrument was a questionnaire that was accompanied by the same set of 16 photographs that were used with the children. The questionnaire contained prompts for the photographs (which photographs were places they most and least preferred for their children's outdoor play and why), as well as items measuring recongition of the benefits of outdoor play in natural settings and intention toward providing time for their children to play in natural settings (scored on a response format of 1 to 7); perceived difficulty in using natural areas as places for their young children's outdoor play (scored on a response format of 1 = very difficult to 5 = very easy); time spent in nature as an adult and as a child (measured by frequency on a scale of 1 = Never, 2 = rarely/approximately once a year, 3 = occasionally/once a month, 4 = often/weekly, and 5 = very often/daily or almost daily); and the amount of time their young children spends in nature (scored on the same response format prior item).

Procedures

Following approval from the university's Institutional Review Board, a letter inviting participation in the study was sent home with preschoolers and kindergartners. Parents who consented to participation were also asked for consent for their children to participate. Parents received a set of photographs and were asked to complete the self-administered parent questionnaire. The researcher visited the children's classrooms and administered the instrument to the children individually, in a location away from the other children but within the view of the teacher. The administration of the instrument with the children took approximately 5-10 minutes per child.

Results

Young Children's Outdoor Play Setting Preferences, Affinity toward Nature, and the Relationship between Them

Regarding outdoor play setting preferences, when children were asked if they preferred playing indoors or outdoors, the majority (75.8%) indicated outdoors. Regarding the 16 photographs of the outdoor play settings, the three settings with the highest frequencies of being selected as the *most* preferred play settings were the playground (photo 1), the pebbly shoreline of a large lake (photo 16), and the small lake, with a dock and forested backdrop (photo 15). The three settings with the highest frequencies of being selected as among the three *least* preferred were the open area containing grass and wildflowers with no path (photo 8), the open forest floor containing underbrush and a fallen tree with no path (photo 12), and a stream dotted with small rocks, and a narrow foot bath leading to the water surrounded by woods/brushy vegetation (photo 13). (See Table 1.)

Table 1
*Description of Outdoor Setting Photographs and Preferences**

Outdoor Setting Type	Label	Photograph Description	Human Influence Attribute	Freq. Selected by Children as *Most* Preferred	Freq. Selected by Parents as *Most* Preferred	Freq. selected by Children as *Least* Preferred	Freq. selected by Parents as *Least* Preferred
Water							
	13	Stream dotted with small rocks; water appears still; wooded/brushy vegetation on edge; narrow foot path leading down to water's edge	Natural	7	7	7	7
	14	Stream cutting through large rock outcropping, forming small waterfalls; dense forest/vegetation along rock outcropping	Natural	9	5	-	12
	15	Small lake with calm water; trail alongside edge of lake; small dock and shelter with canoes; forested backdrop	Maintained	10	12	2	5
	16	Shore of larger lake (likely recognizable as Lake Superior from its distinct pebbly beach), with forested shoreline	Natural	11	17	2	-

Forest							
	9	Dense forest with a wide paved trail winding through; visually "open" due to the wideness of trail, allowing enough sun to create shadows on pavement	Maintained	4	2	4	7
	10	Dense forest; narrow foot path winding through; very little light appears to be shining through forest cover	Natural	1	11	3	-
	11	Open forest with a mix of grasses/vegetation on forest floor; crushed gravel path lined by wooden fencing	Maintained	2	1	3	3
	12	Open forest, with vegetation, underbrush, and fallen trees on forest floor; no path	Natural	3	8	7	2
Open Field/ Grassy Area							
	6	Open natural area, with tall grasses, wildflowers, and a small wet area visible; several trees in the background	Natural	7	1	2	8
	5	Open natural area, with tall grasses, wildflowers, and a small area visible; several trees and a building in the background; gravel road leading to and alongside grassy area	Maintained	2	2	5	4
	8	Open area of grass and wildflowers, with a single tree near the foreground; no paths	Natural	-	-	8	-
	7	Open area of grass and wildflowers, with a	Maintained	6	3	5	-

		single tree near the foreground; a gravel path with a wooden bridge midway					
Park							
	4	Open area with a mix of tall grass and wildflowers, with a forested background; park bench that seems almost hidden by long grass	Natural	1	-	2	4
	3	Open grassy area, with several park benches scattered about; grass is very short and appears mowed	Maintained	5	1	3	11
	2	Open area, with several large trees dotting foreground; pavilion with picnic tables; forested background; grass appears mowed	Maintained	3	2	4	6
	1	Playground on a raised woodchip-filled area, with mowed grass and trees in background	Maintained	21	20	-	1

**Frequency obtained using children and parents' three most and least preferred settings*

To further summarize outdoor play setting preferences, selections of the most and least preferred settings (the setting they selected first) were re-coded by outdoor setting type (water, forest, open field/grassy area, park) and also by human influence attribute (natural or maintained, as in Kaplan, 1985). The most preferred outdoor play setting by setting type was park (46%) and the most preferred outdoor play setting by human influence attribute was maintained (61%). (See Table 2.) Children were also asked about why they choose the photographs they did (see Table 3), and also about what they would do in the settings they selected as most preferred. Children frequently indicated a reason for their preferences that related to an activity (settings most preferred were conducive to a desired activity, and settings least preferred were not conducive or had an element that was a barrier to the desired activity). Children most frequently indicated a general movement as to what they would do in the settings they selected (run, jump, splash, hop, slide, etc.). Children also frequently indicated a specific nature-based activity (for example, listen to frogs, hike, play in the leaves, catch frogs and turtles, fish, hop on rocks, look at nature, walk through the grass, collect things, pick flowers, skip rocks, take pictures, walk on the logs). In addition, but with less frequency, children indicated a non-nature based activity (such as play on playground, hide and seek, baseball, jump on benches, ride four wheelers, bike). There were two responses indicated only once: sit and talk with friends and sit and rest.

Table 2
Preferences by Outdoor Setting Type and Human Influence Attribute

	Percentage of Children Selecting Setting as Most Preferred	Percentage of Parents Selecting Setting as Most Preferred
Outdoor Setting Type		
Park	46%	44%
Forest	15%	31%
Water	39%	19%
Open field/grassy area	--	6%
Human Influence Attribute		
Maintained	61%	60%
Natural	39%	40%

The mean level of affinity toward nature for the child participants in this study was 6.54 (SD = 2.50). There was not a significant relationship between level of affinity and outdoor play setting preference as measured by setting type (water, forest, field, park), $F(2,33) = .44$; $p = .65$, nor was there a significant relationship with preference as measured by human influence attribute (maintained v. natural), $t(31) = .01$; $p = .99$. Nor was there a significant relationship between level of affinity and specific setting chosen as most preferred, $F(8,32) = .60$; $p = .76$. There also was not a significant relationship between selection specifically of playground as most preferred setting and level of affinity, $t(31) = .50$, $p = .88$. This suggests children's level of affinity toward nature may not be associated with their outdoor play setting preference, and that children who prefer playing in nature do not necessarily have higher levels of affinity toward nature. Likewise, children could have high levels of affinity toward nature even if they preferred maintained rather than natural outdoor play settings, or if they preferred specifically playgrounds over playing in nature.

Parents' Preferences and the Relationship of These Preferences with Young Children's Preferences and Affinity toward Nature

Regarding the 16 photographs of the outdoor play settings, the three settings with the highest frequencies of being selected by parents as the *most* preferred play settings for their children were the playground (photo 1), the pebbly shoreline of a large lake (photo 16), and the small lake, with a dock and forested backdrop (photo 15). The three settings with the highest frequencies of being selected as among the three *least* preferred were the stream cutting through rock outcropping with small waterfalls and dense forest background (photo 14), the open, mowed grassy area with park benches (photo 3), and the open natural areas with tall grass and wildflowers and a small wetland (photo 6). (See Table 1.) When recoded by setting type and human influence attribute, the most preferred outdoor play setting was park (44%) and the most preferred outdoor play setting by human influence attribute was maintained (60%). (See Table 2.) Parents also were asked why they choose the settings they did (see Table 4). The opportunity to learn about nature was the reason most frequently given as for why they selected their most preferred settings. The most frequent reasons given for why they selected their least preferred settings were unsafe and lack of things to do.

Table 3
Characteristics of Child-Preferred Outdoor Settings

Reasons Why Most Preferred (frequency indicated)	Reasons Why Least Preferred (frequency indicated)
Opportunity for activity (51)	Obstacle to/Interference with/Lacking opportunity for activity desired (rocks in way of swimming, grass too tall for running, too many puddles, too many trees to run into, trail to tiny to walk on, too many benches to trip on/run into; no frogs or animals to find and take care of, no water to swim in, no playground to play on) (23)
Liked it for a natural element that was not connected to activity ("the clouds," the waterfall" "the trees" etc) (5)	Unsafe/Setting where you could get hurt (could get lost, could get stuck, could trip, trees could fall on you, ticks could get on you, could get scratched, could slip, could get hit by a car [paved path often perceived as a road], water too deep, bears, crocodile, parents think it is unsafe, bridge doesn't look safe) (22)
Contained human element that facilitated desired activity (because there is a dock for our boat, because there is a picnic shelter for drinking punch, because there is a bridge get across) (3)	Appearance/Visual characteristics (doesn't look good, water looks green, don't like fog, looks like it could rain, looks scary, looks dark, can't see well) (12)
Opportunity for resting (2)	
Opportunity for interaction with others (2)	

There did not appear to be a relationship between a parent's most preferred setting and his/her child's most preferred setting as measured by setting type (water, forest, field, park) (Pearson Chi Square = 90.13; p = .07), nor by specific setting selected as most preferred (Pearson Chi Square = 1.59, p = 95). However, there was a significant relationship between parent and child preferences as measured by human influence attribute (natural v. maintained), (Pearson Chi Square = 4.17; p = .04). This suggests that parents and their children generally had similar preferences regarding natural or maintained outdoor play settings; parents who preferred natural settings had children who also preferred natural settings, for example.

In addition, there was general overlap in children's and parents' play setting overall preferences, as the three most preferred settings across parents and children were the same (same three photographs were most preferred, as well as park as most preferred setting type and maintained as most preferred human influence attribute). In contrast, least preferred settings were not similar across parents and children. There was some overlap, yet also some distinct differences, in characteristics of preferred settings. While children most frequently listed a specific activity (look for bugs, balance on the rocks, pick flowers, bike on the path, play on swings) as the reason for choosing a particular setting, parents most often indicated the more general response of "learn about nature" (different in specificity, yet both activity-oriented). Regarding characteristics of least preferred settings, children most frequently indicated the setting lacked the opportunity for the desired activity, while parents most frequently indicated lack of safety as the reason for a setting being least preferred.

There was a significant relationship between parent's outdoor play setting preference as measured by setting type (water, forest, field, park) and his or her child's level of affinity toward nature, $F(3,27) = 5.08$; $p = .01$. Parents' who preferred forests as the outdoor play setting for their children had children with the highest level of affinity (M =

8.11, SD = 1.17). This level of affinity was significantly higher than children whose parents preferred water (M = 4.60, SD = 2.88) and field (M = 4.00, SD = 1.41) as setting preferences, but not significantly different from the level of affinity of children whose parents preferred playgrounds (M = 7.17, SD = 1.99). However, there was not a significant relationship with outdoor setting play preference as measured by human influence attribute (maintained v. natural), t(36) = 1.06; p = .30. This suggests children's level of affinity toward nature may not be associated with their parents' general outdoor play setting preference regarding natural or maintained outdoor settings; parents who prefer having their children playing in natural settings may not necessarily have children with higher levels of affinity toward nature.

Table 4
Characteristics of Parent-Preferred Outdoor Settings

Reasons Why Most Preferred (frequency indicated)	Reasons Why Least Preferred (frequency indicated)
Opportunity to learn about nature (15)	Unsafe (ticks, bugs, moving water, falling trees, would require constant supervision, allergic reactions) (29)
Setting is perceived as what children would enjoy or be drawn to (12)	Lack of things to do (9)
Opportunity for interacting with other children (5)	Difficult to navigate or move through (4)
Safe (5)	Not conducive to creative play or free play (3)
Opportunity for exercise, physical development, fresh air (4)	Setting was unpredictable (3)
Reminded them of a familiar and well-liked place (such as their cabin) (4)	
Opportunity for discovery, mystery or adventure (3)	
Variety (visually and in terms of activity) (3)	

Predictors of Parents' Preferences regarding Outdoor Play Settings for their Young Children

None of the following variables significantly predicted parents' preferences regarding outdoor play settings as measured by setting type (forest, water, field, park): recognition of benefits of playing in nature ($F(3,31) = .96$; $p = .43$); perceived difficulty of using natural settings for outdoor play for their young children ($F(3, 30) = .33$; $p = .81$); time they spend as an adult in nature-based outdoor recreation ($F(3,31) = 1.89$; $p = .16$); and time they spent as a child playing in nature ($F(3,31) = .50$; $p = .69$). Nor did the variables as a set predict setting preference (Wilks' Lambda = .63; p = .46). Similarly the variables did not significantly predict parents' preferences as measured by human influence attribute (natural v. maintained) as a set (Wilks' Lambda = .91; p = .66), nor individually: recognition of benefits of playing in nature ($F(3,31) = .28$; $p = .60$); perceived difficulty of using natural settings for outdoor play for their young children ($F(3, 30) = .09$; $p = .76$); time they spend as an adult in nature-based outdoor recreation ($F(3,31) = 1.75$; $p = .20$); and time they spent as a child playing in nature ($F(3,31) = .06$; $p = .81$). These results suggest that parents' preferences regarding natural play settings v. parks or playgrounds seem to be independent of their recognition of the benefits of nature play, their perceptions regarding difficulty in providing nature play experiences, and the time they spend now or as a child in nature.

Time Spent Playing in Nature and the Relationship with Young Children's Preferences regarding Outdoor Play Settings and with Their Level of Affinity toward Nature

The mean response regarding the frequency of time young children are playing outdoors in natural settings corresponded to a rating of occasionally (several times a month). For the two parents who indicated their children played daily in natural settings, one indicated 10 minutes per day and the other indicated 40 minutes per day. The frequency of time young children spent playing outdoors in natural settings was not related to their outdoor setting play preferences ($F(2,27) = .02$; $p = .98$ when preference measured by setting type, and $F(1,27) = .09$; $p = .77$ when measured by human influence attribute. The frequency of time young children spent playing in nature also was not related to their level of affinity to nature ($r = -.19$; $p = .34$). This suggests that children's preferences for outdoor play settings and their level of affinity toward nature may be independent of how often they are playing in natural outdoor settings (for example, children who play more often in nature do not necessarily tend to prefer more natural play settings nor do they tend to have higher levels of affinity).

Predictors of Time Spent Playing in Nature

The following variables significantly predicted frequency of time their young children played outdoors in natural settings: perceived difficulty of using natural settings for outdoor play for their young children ($r = .70$; $p < .001$); intention toward providing their children with playtime in natural settings ($r = .54$; $p < .01$); time they spend as an adult in nature-based outdoor recreation ($r = .82$, $p < .001$); and time they spent as a child playing in nature ($r = .48$; $p < .01$). Parents' recognition of benefits, however, was not a significant predictor ($r = -.18$; $p = .32$); there was little variation on this item, with parents in strong agreement regarding the benefits of nature play for their young children. These results suggest that the frequency of time young children play in natural settings is influenced by parents' perception of the difficulty of and intentions toward doing so, as well as by the time they spend now and as a child in nature.

Discussion

When asked which they preferred, the children in this study indicated a preference for outdoor rather than indoor play. This is consistent with prior research that indicates children generally view the outdoors as an important place to play (Burke, 2005). Children in this study also indicated a preference for playgrounds as their preferred outdoor play setting. This finding, however, is in contrast to numerous studies that indicate children prefer a predominance of natural elements (Korpela, 2002). This difference, however, may be due to age, as the children studied in this body of literature are often older than the preschool-aged participants of this study, and often studies in this body of literature focus on children from urban environments (Wells & Evans, 2003). However, important to note is the variety of preferences exhibited by the children studied. For almost every setting, there were children who identified that setting as among their most preferred settings and children who identified that as among their least preferred. Homes and Procaccino (2009) found that not only are preferences varied, children's play preferences change even within the same play period. Collectively, this serves as a reminder that there may not be a "one size fits all" approach to designing or providing access to natural play spaces that will be universally appealing to young children across a range of time (be that within one day or across seasons).

Children's preferences in many cases seemed guided by affordances, particularly what specific activities children would like to do in a particular setting; this is consistent with how children often view their environments in terms of the potential they offer for desired activities (Keeler, 2009). O'Brien's (2005) study showed similar findings, with children linking places they prefer with opportunities for things to do. There was a pattern of responses among children that offers the potential for further research. Many responses regarding why they disliked a particular setting included the phrase "too much" (rocks, grass, puddles, trees, etc.). Sometimes the phrasing included something that signaled it was related to interference with a desired activity (too many rocks to bump into when swimming), but other times the phrase was used in a more open-ended manner. It would be interesting in future research to probe this response further, if a similar pattern in responses emerges. There were some children whose preferences seemed shaped by aesthetics (clouds looked pretty, liking the color of the sky, beautiful flowers), as well as quite a few children whose preferences seemed guided by how safe they perceived the setting to be, which,

interestingly, is a commonly-used characteristic by parents in their views regarding suitability of outdoor spaces (Munoz, 2009). While more research exploring the influence perceived safety has on preferences of young children is needed, it seems this finding supports Reed's (1996) joint attention theory. Potentially, children are modelling cues from parents, where they see or hear parents appraising outdoor settings in terms of how safe they appear to be. It also seems potentially reflective of a society that is growing more and more adverse to risk.

The results of this study did not show a relationship between young children's outdoor play setting preferences and their affinity toward nature. This suggests, for example, that children who preferred playgrounds over a natural setting did not necessarily have less affinity toward nature than children who preferred playing in a natural landscape. Thus, a preference for playing on a playground may not be problematic from an affinity toward nature perspective (but potentially problematic in terms of the other outcomes associated with play in natural settings). This finding may be related to age of the participants in this study, as some theorists have suggested that an affinity toward nature is innate, whereas others suggest it is heavily influenced by direct experiences with natural environments and mediated by culture (Kellert, Heerwagen, & Mador, 2008). Additionally, their preference for playing on playgrounds also may not be as concerning from a "connecting children and nature" perspective as we might think, as almost all of the children who selected the playground as their first preference selected second and third choices that were natural settings. Further, they were able to identify something they would like to do in that natural setting that was nature-based (with the exception of two children, one of whom did not select a natural setting in addition to the playground, and the other who selected natural settings as the second and third preference, but identified only non-nature activities for what he/she would do in that setting: talk with friends and "battle"). This suggests the potential and perhaps need for further reflection and research regarding the common assumption in today's society that children are disconnected from nature. For example, it would be useful to investigate the trajectory of this nature deficit in terms of how early it starts and how it progresses, as well as at what points negative impacts are manifested. Also, further research in this area can guide playscape designers and park managers in their decisions to include or not include playground equipment in their playscapes, when considering factors such as intended age and desired outcome.

Results from this study regarding parent preferences suggest similarities with children's preferences in general (both groups as a whole preferring playgrounds followed by lake shorelines), but there were also differences. For example, a number of children preferred the setting where a stream cut through rock outcropping creating small waterfalls; yet this setting was among the least preferred by parents. Or for example, many children liked the open area that contained wildflowers and a small wetland, but this setting was among least preferred by parents. Similarly, many parents did not like the grassy area dotted with park benches, indicating a lack of things for their children to do; yet, many children liked this setting and had ideas for using it for hide and seek or tag games, for hopping from bench to bench, and for "drinking punch and resting." These findings underscore the point made previously regarding the importance of involving children in the design process, as they extend the boundaries of possibilities generated by adults (Philo, 1992).

The results also indicate parents who prefer natural settings for their children's outdoor play have young children who also prefer natural settings. This again seems consistent with the joint attention theory (Reed, 1996) and Chawla and Derr's (2012) application of it in a parent-child nature context. Additionally, parent preferences based on setting type were related to their children's affinity toward nature. Parents who preferred forests had children with significantly stronger levels of affinity toward nature than parents who preferred the other setting types of water, fields, and parks. Further research is needed to understand this relationship, as potentially there is an additional variable moderating or meditating this relationship. For example, perhaps parents who prefer forests for their children's play may differ from parents who prefer other settings in terms of the type of outdoor recreation in which they personally engage or in terms of patterns of family engagement with nature. Likewise, further research is needed to understand what shapes parents' perceptions of preferred outdoor play settings, as results from this study suggest it is not related to the extent to which they recognize benefits of nature play, nor to time they spend now or time spent as a child in nature, nor to how difficult they perceive providing nature experiences to be. An understanding of this relationship between parent preference and their children's level of affinity toward nature, combined with an understanding of predictors of parents' preferences, could guide efforts to shape parents' preferences toward settings that foster affinity toward nature within children.

Based on the findings from this study, it seems that children's preferences for outdoor play settings and their level of affinity toward nature potentially may both be independent of how often they are playing in natural outdoor settings. The children in this study whose parents' indicated they often played in natural settings did not prefer natural play settings more than children who infrequently played in natural settings; likewise, they did not have stronger levels of affinity toward nature than those who infrequently played in nature. In essence, frequency of time in nature was not a predictor of children's affinity to nature. These findings are somewhat contradictory to the literature suggesting childhood time nature has a primary predictor of affinity (Kals, et al., 1999; Muller, et al., 2009). This may be a function of the young age of the participants in the study. If so, then while a lack of time playing in natural settings may not be problematic from an affinity toward nature perspective at this age, a continuing lack of time in nature as they develop could potentially result in declining affinity as they grow older. Further research investigating this relationship over time or with older children would be useful. Or perhaps this lack of relationship between time in nature and affinity is a explained through theories suggesting the development of children's relationships with the environment is influenced not just by frequency of time in nature, but also by qualities of the places they encounter and the social contexts of their experiences (Gibson & Pick, 2000). In terms of these social contexts, Reed (1996) uses the categorization of free action, promoted action, and constrained action as ways in which children's experiences of nature may differ. Free action experiences are where children pursue their own interests and curiosities, thereby learning their own capacities and boundaries; these experiences are unstructured and child-directed. Promoted action experiences are when parents or other adults actively encourage outdoor play in nature and make available opportunities for time in natural areas; in promoted action experiences, adults communicate to the children around them their value for nature through their actions and interactions. The constrained action category includes experiences that encourage children to think of nature as something separate from them and more of an abstract concept; these experiences may allow children to come to know nature "secondhand" or not at all. The instrument used with parents in this study asked about frequency of time, but not about the social contexts of these nature experiences. Thus, future research exploring the relationship between time in nature and affinity might include asking parents to categorize these encounters using Reed's framework. This would allow for investigating how the relationship between time and affinity changes when accounting for whether this time in nature is spent in free action or promoted action, with implications for practice stemming from a more nuanced understanding of this relationship.

Parents' recognition of the benefits of nature play for young children did not predict frequency of time children played outdoors in natural settings. This in contrast to findings of McFarland, et al. (2014), where parents' attitudes toward nature and toward their children's outdoor recreation were related to the amount of time their children spent in free play outdoors. These authors, however, note, "Parental attitudes only accounted for a part of the differences observed in the types of activities in which their children participated" (p. 535). They recommend future research should include measures of parental intentions as well as parents' own time in outdoor activity, speculating that while parents may have positive attitudes toward children spending time in outdoors and in nature, children may not participate if parents are not modelling outdoor free play. Findings from the study at hand, however, did include a measure of parents' intentions, as well as a measure of time parents spend in outdoor recreation in nature, both of which were significantly related to frequency of time their children spent playing in nature. These findings support the speculation of McFarland, et al. (2014), as well as their recommendation that "simple programs aimed at attitude improvement may not be enough to promote their influence toward their child's outdoor recreation (p. 535). What may be helpful, however, would be programs that reduce parents' perceptions regarding the difficulty of providing their children with nature experiences, as these perceptions are likely related to parental intentions, both of which were significant predictors of children's time in natural settings. Also, since the time parents' spent in natural settings themselves was a predictor of their children's time playing in nature, which a finding consistent with Beets, et al. (2007), programs to encourage parent time in nature or activities in nature that are based around the family, may be particularly useful.

While altering perceptions regarding difficulty may be a wise investment in efforts to increase time young children spend in nature, it is important to note that frequency of time was not related to children's affinity toward nature in this study. This is an opportunity and reminder for intentional practice, reflecting on desired outcomes and the complexities of the relationships among the constructs at hand, as well as on the program strategies used. For

example, often time in nature is viewed as the desired outcome or goal, yet perhaps it may be useful to consider it as not the desired end, in and of itself, but as a potential method toward other intended outcomes, whether that be affinity toward nature, or any other cognitive, physical, or socio-emotional developmental outcome. This is useful and perhaps necessary, as we have instances, such as in this study, where time in nature does not appear to be related to the desired outcome. Similarly, while the literature recognizes the potential for experiences in nature to develop positive and caring attitudes toward the environment, Malone and Tranter (2003) caution that simply access to outdoor space is not enough to engender such attitudes. Thus, it may be important to be mindful of the desired developmental and learning outcomes in programs for young children, and intentionally facilitate experiences toward that desired outcome, as opposed to focus solely on increasing time in nature. Conversely, we may be wise to balance that thinking with what Suttie (2016) suggests: we would do no harm by simply making sure children get outside.

This discussion of implications and areas for further research must be considered in the context of the limitations of this study. The sample is small and homogeneous, and further research is needed to understand how cross-culturally universal such preferences and levels of affinity are, particularly in light of the concern expressed in Philo (1992) regarding over-placing children into a meta-narrative that ignores differences of ethnicity, gender, age, and disability and also with the recognition of the experience of childhood by ethnicity being underexplored (Dunn & Moore, 2005). Also, the self-report nature of the study may impact findings, due to parents responding in socially-desirable ways; the data collection approach allowed for anonymity, which likely reduced but not eliminated the potential for this problem.

Another potential limitation of this study stems from the desire to use a consistent set of photographs that had been used in prior studies related to this research line of outdoor play setting preferences. The photographs used are at a scale that might be described as a scene, in contrast to a more close-up or small scale. Research on children's landscape preferences indicate "microspaces" might be the more suitable scale. For example, Homes and Procaccino (2012) suggest playground preferences were influenced at the equipment-specific level, with children judging playgrounds by whether or not they contained swings, for example, rather than by the playground as a whole. Similarly, in research by Moore (1986) where children were asked to draw favorite place spaces, and single trees were frequently drawn. Keeler (2009) reminds,

> *Children form an up close and personal relationship with the world and they experience the outdoors in a different way than we adults do. While it is true that they are literally closer to the ground than we are, our vantage points differ in deeper and more important ways. Children are tuned in to the magic of life in ways that too many of us have tuned out. They are firmly living in the present moment and can focus on small, intimate places that we adults take for granted*
> (p. 39)

Thus, it is not known the extent to which the scale of the photographs used influenced children's responses in this study, and in future research, scale should be intentionally considered.

Finally, it is also worth noting that these children, at four to six years in age, were quite articulate in expressing not only their preferences but also their reasoning for these preferences. Additionally, they seemed to enjoy the experience of looking at the photographs and also using the puppets. Many asked to participate a second time, and some enjoyed certain photographs so much they asked to keep a particular photograph. This speaks to the agency of young children and the potential for involving children in the design or selection of places they use for play, supporting other authors who have called for greater involvement of young people as key actors within the research and design process (Burke, 2005).

Acknowledgements

The author wishes to thank photographer Ladona Tornabene for allowing the use of her photographs in this study.

References

Armstrong, T. (2006). *The best schools: How human development research should inform educational practice.* Alexandria, VA: Association for Supervision and Curriculum Development.

Bandura, A. (1974). Behavior theory and the models of man. *American Psychologist, 29*, 859-869.

Beets, M., Vogel, R., Chapman, S., Pitettie, K., & Cardinal, B. (2007). Parent's social support for children's outdoor physical activity: Do weekdays and weekends matter? *Sex Roles, 56*: 125-131.

Burke, C. (2005). Play in focus: Children researching their own spaces and places for play. *Children, Youth and Environments, 15*(1), 27-53.

Carver, A., Timperio, A., & Crawford, D. (2008). Playing it safe: The influence of neighborhood safety on children's physical activity: A review. *Health and place, 14*(2), 217-227.

Chawla, L. & Cushing. (2007). Education for strategic behavior. *Environmental Education Research, 13*(4), 427-452.

Chawla, L., & Derr, V. (2012). The development of conservation behaviors in childhood and youth. S. Clayton (Ed.), *Handbook on environmental and conservation psychology.* Oxford University Press.

Clayton, S., & Opotow, S. (Eds.). (2003). *Identity and the natural environment*. Cambridge, MA: MIT Press.

Denham, S. (2006). Social-emotional competence as support for school readiness: What is it and how do we assess it? *Early Education and Development, 17*(1):57-89.

Dunn, K. & Moore, M. (2005). Developing accessible play space in the UK: A social model approach. *Children, Youth and Environments, 15*(1), 331-353.

Eccles, J. & Wigfield, A. (2002). Motivational beliefs, values, and goals. *Annual Review of Psychology, 53,* 109-132.

Elder, R. (1990). Uncovering young children's psychological selves: Individual and developmental differences. *Child Development, 61*: 849-863.

Elliott, S. (2010). Children in the natural world. In Davis, J. (Ed.), *Young children and the environment: Early education for sustainability* (pp. 43-75). Melbourne: Cambridge University Press.

Ernst, J. (2014). Early childhood educators' use of natural outdoor settings as learning environments: An exploratory study of beliefs, practices, and barriers. *Environmental Education Research, 20*(6), 735-752.

Ernst, J. & Tornabene, L. (2012). Preservice early childhood educators' perceptions of outdoor settings as learning environments. *Environmental Education Research, 18*(5), 643-664.

Frost, (1992). *Play and playscapes*. Albany, NY: Delmar Publishers.

Gibson, E., & Pick, A. (2002). *An ecological approach to perceptual learning and development.* Oxford, UK: Oxford University Press.

Homes, M., & Procaccino, J. (2007). Preschool children's outdoor play area preferences. *Early Child Development and Care, 179*(8): 1103-1112.

Hutchinson, S. & Baldwind, C. (2005). The power of parents: Positive parenting to maximize youth's potential. In P. Witt & L. Caldwell (Eds.), *Recreation and youth development* (pp. 243-264). State College, PA: Venture Publishing.

Johnson, L. (2004). *American playground and schoolyards: A time for change.* Paper presented at the Open Space, People Space Conference. Retrieved from http://www.openspace.eca.ac.uk/conference/proceedings/PDF/Macmillan.pdf

Kals, E., Schumacher, D., & Montada, L. (1999). Emotional affinity toward nature as a motivational basis to protect nature. *Environment & Behavior, 31*(2), 178-202.

Kaplan, R. (1985). The analysis of perception via preference: A strategy for studying how the environment is experienced. *Landscape planning, 12*(2), 161-176.

Keeler, R. (2008). *Natural playscapes: Creating outdoor play environments for the soul.* Redmond: WA: Exchange Press.

Kellert, S., Heerwagen, J., & Mador, M. (Eds). (2008). *Biophilic design.* Hoboken, NJ: Wiley.

Korpela, K. (2002). Children's environments. In R. B. Bechtel & A. Churchman (Eds.), *Handbook of environmental psychology* (pp. 363-373). New York: John Wiley.

Mackett, R., & Paskins, J. (2004). *Increasing children's volume of physical activity through walk and play.* Contribution to the Department of Culture, Media and Sport and Department of Health Consultation on 'Choosing Health, Choosing Activity: A Consultation on How to Increase Physical Activity. University College London: Center for Transport Studies.

Malone, K., & Tranter, P. (2003). Children's environmental learning and the use, design and management of schoolgrounds. *Children, Youth and Environments*, *13*(2), 87-137.

McCain, M., Mustard, J., & McCuaig, K. (2011). *Early years study 3: Making decisions, taking action.* Toronto: Margaret & Wallace McCain Family Foundation.

McFarland, A., Zajicek, J., & Waliczek, T. (2014). The relationship between parental attitudes toward nature and the amount of time children spend in outdoor recreation. *Journal of Leisure Research, 46*(5), 525-539.

Moore, R. (1986.) *Childhood's domain: Play and place in child development.* London: Croom Helm.

Muller, M., Kals, E., & Pansa, R. (2009). Adolescents' emotional affinity toward nature: A cross-sectional study. *Journal of Developmental Processes, 4*(1), 59-69.

Munoz, S. (2009). *Children in the outdoors: A literature review.* Forres, Scotland: Sustainable Development Research Centre.

Nairn, K., Panelli, R., & McCormack, J. (2003). Destabilizing dualisms: Young people's experiences of rural and urban environments. *Childhood, 10* (1), 9-42.

North American Association for Environmental Education. (2010). *Early childhood environmental education programs: Guidelines for excellence.* Washington, DC: NAAEE.

Philo, C. (1992). Neglected rural geographies: A review. *Journal of Rural Studies, 8*(2), 193-207.

Reed, E. (1996). *Encountering the world.* New York: Oxford University Press.

Rice, C. & Torquati, J. (2013). Assessing connections between young children's affinity for nature and their experiences in natural outdoor settings in preschools. *Children, Youth and Environments, 23*(2) 78-102.

Shonkoff, J. & Phillips, D. (Eds.). (2000). *From neurons to neighborhoods: The science of early childhood development.* Washington, DC: National Academy Press.

Suttie, J. (2016, September). How to raise an environmentalist: Encouraging children to form an emotional attachment to nature may be key to protecting our planet's future. *Yes! Magazine.* Retrieved from www.yesmagazine.org/planet/how-to-raise-an-environmentalist-20160924

Valentine, G. (2004). *Public space and the culture of childhood.* London: Ashgate Publishing.

Wells, N. & Evans, G. (2003). Nearby nature: A buffer of life stress among rural children. *Environment and Behavior, 35*(3), 311-330.

Wilson, R. (2012). *Nature and young children: Encouraging creative play and learning in natural environments.* London and New York: Routledge.

Yanagisawa, K. (2007). School planning and design with children's participation: A case study of Shimoyama Elementary School. *Children, Youth and Environments, 17*(1), 315-321.

Dr. Julie Ernst is Professor and Director of the Master of Environmental Education Program at the University of Minnestota Duluth. She may be reached at jernst@umn.edu.