NAAEE
Promoting excellence in environmental education

Early Childhood Educators' Preferences and Perceptions Regarding Outdoor Settings as Learning Environments

Julie Ernst

University of Minnesota in Duluth, USA

In the context of encouraging the use of natural outdoor settings for educational experiences with young children, survey research using photographs of outdoor settings was conducted to explore inservice early childhood educators' preferences and perceptions regarding outdoor settings and the educational opportunities and resource needs they associate with these settings. Results suggest early childhood educators perceive playgrounds as the most conducive outdoor setting for achieving educational outcomes, specifically for unstructured opportunities for play. Results are compared with preservice early childhood educators' responses from prior research, as well as with research-based characteristics of natural settings conducive to quality play. Implications for those who provide preservice preparation/in-service professional development are discussed, as are implications for environmental educators and park/land managers for supporting educators in the use of natural outdoor settings with young children.

Keywords: early childhood, landscape preferences, natural settings, affordances

According to the *Early Childhood Environmental Education Programs: Guidelines for Excellence* (2010), developed by the North American Association for Environmental Education through their National Project for Excellence in Environmental Education, frequent opportunities to explore, observe, and play in natural environments is a cornerstone of excellence in early childhood environmental education (NAAEE, 2010).

Nature experiences in the form of child-directed play and exploration are considered to be one form of developmentally appropriate environmental education for young children. Play and exploration in nature are well aligned with early childhood pedagogy (Wilson, 2012). Play is a fundamental avenue for early childhood learning (Elliot, 2010) and well acknowledged within early childhood education as the primary way for meeting children's development requirements (Armstrong, 2006). Quality play requires access to a diversity of elements and surfaces (Lester & Maudsley, 2006). Natural settings provide diverse ground cover, a variety of spaces, loose parts that can be manipulated by children, and the possibility of 'chance' events' (Noren-Bjorn, 1982). According to Staempfli (2007), "the physical diversity of the natural landscape has a functional impact on children's behavior and play performance because it increases the opportunities for creativity, learning, and development" (p. 237). Thus, natural settings offer the diversity, variety, and open-endedness needed to engage, inspire, and challenge young children, thereby enhancing the opportunity for learning and developing through play (Elliott, 2010).

Natural outdoor settings, however, have been underutilized in early childhood education (Miller, Tichota, &White, 2009). Skamp and Bergmann's (2001) research on 'learnscapes,' Simmons (1993, 1994) research, and research by Ernst and Tornabene (2012) suggest selective use of outdoor educational settings accompanied by multifaceted motivations and barriers. Simmons (1998) suggests the need to understand how teachers perceive natural settings to better guide professional development efforts to help teachers develop the necessary skills, knowledge, and attitudes for using these settings and to overcome associated barriers. The following study builds on Ernst and Tornabene (2012), which found preservice early childhood educators perceived parks as the most conducive outdoor setting for achieving educational outcomes and an inclination toward using maintained outdoor settings rather than natural outdoor settings. The results of this preservice study were consistent with Simmons (1994), who found elementary teachers more likely to use built settings to teach about nature, but in contrast with Simmons (1993), which indicated a strong preference among teachers for using natural rather than maintained outdoor settings.

In light of the importance of perceived difficulty in using natural settings (Ernst & Tornabene, 2012), it is possible that this inconsistency between the two Simmons' studies reflects a difference between what teachers would like to do and what they perceive as or have found to be feasible. The difference between the preservice early childhood educators' preference for maintained outdoor settings (Ernst & Tornabene, 2012) and the inservice elementary teachers' preference for natural settings (Simmons, 1993) might be explained by differing developmental needs from early childhood to elementary-aged children. It may also be reflective of differing experience levels, as preservice teachers generally have less teaching experience upon which to base their beliefs or preferences. Further, research suggests pre-service teachers beliefs often reflect the way they remember being taught rather than the pedagogical knowledge

learned in their teacher education program (Pajares, 1992), and level of teaching experience is related to how realistic teachers' expectations are (Martin, Yin, & Mayall, 2006). There appears to be support in the literature for differences in preservice and inservice teacher beliefs (for example, self-efficacy beliefs regarding science and math teaching, Wenner, 2001; classroom management beliefs, Rossas & West, 2009; orientations toward content area reading, Konopak, Readence, & Wilson, 2001; etc.). Thus, in light of potential differences in preferences from preservice to inservice educators, it is likely that a study of inserivce early childhood educators' preferences will provide additional insight to guide efforts by teacher educators, environmental educators, and park/land managers to encourage and support the use of natural settings in early childhood education.

LITERATURE REVIEW

The physical environment impacts the learning and development of children, making educational spaces essential elements of any educational approach (Gandini, 1998). Bronfenbrenner (1999) found differences in children's developmental outcomes based on the quality of the physical environment and the proximal processes within those environments. Differences in cognitive, social, and language outcomes between higher quality and lower quality childcare settings have also been noted (National Institute on Child Health and Human Development, 2000). While most of the research on quality environments for young children has investigated differences in quality across indoor settings, there is some research investigating differences in quality across outdoor environments.

Frost (1992) suggests certain types of outdoor environments support children's learning, growth, and development more effectively than others. For example, DeBord, Hestenes, Moore, Cosco, and McGinnis (2005) found lower quality outdoor environments to be associated with more functional or repetitive play and a higher frequency of negative behaviors, while higher quality outdoor environments were related to more constructive play, such as building and hypothesizing. Similarly, Hesteness, Shim, & DeBord (2007) found playgrounds with more natural elements had less repetitive behavior and more constructive play than playgrounds with fewer natural elements. Herrington & Studtmann (1998) studied the effect adding natural materials to outdoor environment; their work suggests an increase in children's spatial-cognitive awareness, physical competence and skills, and socialization, as well as longer durations of fantasy play. Hannon and Brown (2008) found the inclusion of loose parts in the form of natural materials into outdoor play space to increase constructive and dramatic play. Fjortoft (2004) found improved motor fitness, balance, and coordination in young children playing in a natural environment, as compared to young children playing on a more traditional outdoor playground.

Much of the distinction in quality in outdoor environments appears to be related to variation and diversity. As Danks (2010) writes in her book, *Asphalt to Ecosystems:*

Design Ideas for Schoolyard Transformation, "traditional schoolyards are one-dimensional environments, geared almost entirely toward organized games and repetitive, physical play on climbing structures. They are generally the same from day to day, with little variation throughout the year" (p. 7). In contrast, green schoolyards provide a diverse range of activities that "occur in an ever-changing visual landscape that is designed to be continually growing, blooming, and shifting in some way" (Danks, 2010, p. 7). This is consistent with Frost (1992), who argued that the diversity and variation of natural features allow a wider range of learning opportunities not available from other outdoor play space options.

Fjortoft and Sageie (2000) found that a diverse natural landscape "had the qualities to meet the children's needs for a varied and stimulating play environment where the composition and structures of the landscape were conducive to different play functions" (p. 92). In their study, landscape characteristics (vegetation type, vegetation density, slope of topography and roughness of topography) influenced play activities, with children selecting the habitats that afforded play and with seasonal changes in the landscape influencing seasonal play preferences. Like Nicholson (1971), they contend that "the stimulation of inventiveness and creativity, and the possibility of discovery are directly related to the number and the kind of features in the environment" (Fjortoft & Sageie, 2000, p. 94). Further, they state "diversity is also synonymous with an enriched environment, which again stimulates and promotes play and learning" (Fjortoft & Sageie, 2000, p. 94). In 2009, Fjortoft, Kristofferson, and Sageie found the more varied the environment was, the more activities were present.

Noren-Bjorn, in her review of Swedish playgrounds, suggests play spaces should be as full of variety as nature itself, with a diversity of ground cover and surfaces (rocks, stones, sand, grass, water, etc), a variety of secluded and open spaces, the possibility of chance events, and loose parts that can be manipulated. She writes, "in a natural setting in a wood, there are chance events occurring all the time: a bird flies away, a leaf falls, there is a rustling noise. The shape of stems and stumps can suddenly seem to resemble something else and so fire a child's imagination… We have observed that it is often chance occurrences like the formation of a puddle that inspire children in their play. The bumpy or uneven or haphazard appeals to their fantasy and way of thinking" (1982, p. 188). Elliot writes, "Natural shapes, textures and scales are not so predictable" and require concentration as well the integration of both senses and physical skills (2010, p. 64). Thus, in addition to variation and diversity, the environmental characteristics of unstructured and manipulability are important in playspaces (Hart, 1979; Moore, 1986; Nicholson, 1971). Seashores, according to Nicholson (1971) are a good example of a physical environment that has a constantly changing nature, a degree of disorder, a diversity of living and non-living objects, and a range of found components that provide endless possibilities for play, interaction, exploration, discovery and creativity. The open-endedness of natural materials (materials where there isn't a single right way to use them) allow them to be used in many creative ways and in a variety of imaginative play scenarios. Unstructured materials or settings prompt children to think,

"What am I able to do?" rather than "What am I supposed to do?" (Hamarstrom, 2012). The manipulability of natural materials can promote a sense of agency and a sense of place. Children who have the opportunity to shape their own small worlds during childhood will grow up "knowing and feeling they can participate in shaping the big world tomorrow" (Sobel, 1990, p. 12).

Some writers and researchers such as Nabhan and Trimble (1994) and Fjortoft and Sageie (2000) contend that the environmental characteristics of diversity, variation, unstructured, and manipulative are inherent in only natural landscapes. Kirkby (1989) concludes that natural settings have the degree of complexity, plasticity, and manipulability that allows children to experience play behaviors of development significance. Stephens (2007) states that natural environments provide "a richness and level of complexity that is impossible to duplicate" (p. 7). Others, however, such as Weaver (2000) suggest characteristics these can be constructed through careful design. Constructed landscapes can be developed (or "greened") to offer similar opportunities as natural playscapes (Bixler and Floyd, 1997). When access to natural landscapes is lacking or when parents or teachers lack comfort in natural areas, constructed playscapes offer the security and predictability they may need to use outdoor spaces in ways that simulate play in more natural areas.   Toward this end, there have been a number of approaches suggested to guide educators and toward creating natural playscapes, green school yards, and outdoor classrooms.

Keeler (2008) in his book, *Natural Playscapes, Creating Outdoor Play Environments for the Soul*, purposefully uses the word "playscape" to connote the idea of a landscape for play, in contrast to what comes to mind with the word "playground." He writes, "the wonderful world of nature provides all the elements that children could possibly ever need in a playscape: sunlight, water, trees, mud, bugs, edible plants, vines, hills, grasslands, snow, rain, and flowers - the list goes on and on" (2008, p. 67). In addition, he recommends taking into consideration a range of play opportunities, including space for wild physical play, quiet areas, secret paths, sand and water construction zones, shady and sunny areas, sound elements, and gardens. In addition, the playscape should be "a microcosm of your community's landscape, to give the children an up close introduction to the world in which they live" (p. 95).

Elliott and Davis (2009) have similar recommendations: a large grassy area where children can run freely; a number of areas with each supporting a different kind of play activity; pathways to explore that are surrounded by interesting vegetation and stepping stones through garden areas; a constantly changing supply of materials and flexible play equipment with an emphasis on natural or recycled items and loose, moveable elements that children can manipulate; plants of differing heights used in creative ways; garden areas for children to grow and collect food; areas for digging; diverse and natural ground surfaces; and special features such as trickle streams or butterfly houses. In essence, play spaces containing elements such as these have the potential to become "a sea of natural sensory stimuli for children" (Davis & Elliott, 2004, p. 5). In addition to

providing opportunities for sensory development, naturalized play spaces can promote sensory integration processes (simultaneous integration of various sensory inputs) that are less likely to be needed on built surfaces and equipment (Sebba, 1991).

Danks (2010) recommends greening a schoolyard to reflect the local ecology, curriculum, play needs, and cultural context of the school and its students. She outlines site design principles such as choosing a site that is highly visible, aiming for multipurpose use of space and resources, defining space through clear boundaries surrounding the space and defining portions within the space, adding place-making features and memorable structures, and using signs to welcome users and label distinctive project features. She also includes ecological principles that result in multifaceted, environmentally-sound spaces and principles to promote creative and well-balanced play options (including moveable parts; opportunities for exploration, adventure and challenge; and open-ended and imaginative play options that appeal to a wide variety of interests). Dyment and Bell (2008) have similar recommendations, noting the importance of providing a diversity of topography, vegetation, and play opportunities. In their work on greening schoolyards, they found this diversity to increase the quality of children's play by providing them with a variety of enjoyable and non-competitive opportunities that meaningfully and tangibly engage them in their environment and allow them to choose activities that suit their physical and social capabilities.

Parsons (2011) provides this set of design guidelines for creating "constructed green playgrounds:" inclusion of a diversity of vegetation; use of natural elements (controlled water elements, sand, rocks, earth, wildlife); integration of manufactured play equipment for physical opportunities for climbing, sliding, swinging, etc; provision of building materials that can be manipulated by children to create new and unique experiences; inclusion of sensory stimulation (changes in textures, colors, smells, and sounds); provision for different types of play (functional play for gross-motor and basic skill development, construction play for creative thought and problem solving, and symbolic play for role-playing and fantasy play); inclusion of a variety of spaces for different ages; and reflection of the surrounding local place, values, and people.

Another perhaps more well-known set of guiding principles that are consistent with Danks (2010) and Parsons (2011) is the set of guiding principles used for creating Nature Explore Classrooms (Dimensions Educational Research Foundation, 2007). These principles are grounded in field-testing and guide educators and families toward spending more time learning with nature, helping them recognize outdoor time as an invaluable part of each day. They recommend dividing the outdoor space into clearly delineated and clearly visible areas for different kinds of activities including an entry feature, an open area for large-motor activities, a climbing/crawling area, a "messy materials" area, a building area, a nature art area, a music and movement area, a garden or pathway through plantings area, a gathering area, and a storage area. They suggest giving each area a simple name and identifying each area with a sign or other

visual clue. They further recommend using a variety of natural materials, and choosing elements for durability and low maintenance. In addition, they emphasize personalizing the area with regional materials and ideas from children and staff.

An important concept relating to utilizing natural spaces and/or naturalizing play spaces is 'affordance.' Affordances, prominently discussed in research regarding the relationships between humans and their environments, is the range of functions that environmental objects can provide to an individual (Fjortoft, 2004). Kytta (2002) states, "Affordances include properties from both the environment and the action individual. Affordances are always unique and different for each individual and each specific group of people" (p. 109). Or as described by Fjortoft, people assess environmental properties in relation to themselves, not in relation to an objective standard.

Thus, when early childhood educators think about outdoor settings, they likely assess the appropriateness of a particular setting in relation to their perceptions, preferences, or beliefs as educators, and likely not in relation to the guidance in the literature as to what qualities of an outdoor setting optimize play and learning potential. For example, because outdoor play in early childhood programs is often given little consideration, a "strong practice prevails in education that the outdoor setting requires less teacher attention than the indoor setting" (Renick, 2009, p. 5). Consequently, rather than selecting an outdoor setting based on characteristics such as variation and diversity or ability to manipulate loose parts, a teacher, for example, may select a setting based on which setting affords children the opportunity to run off excess energy in a safe manner. Davies (1996) found teachers tended to provide outdoor opportunities for play on equipment designed for physical activity, but less than half of the teachers studied mentioned natural elements in the context of outdoor play environments; those who did perceived them in the context of playground aesthetics, but not as opportunities for furthering the development and learning of young children.   Further, studies such as Creaser (1985) and Jones (1989) suggest that teachers' reflection on and re-evaluation of their immediate outdoor environments led them to create or use more stimulating settings to support more complex and productive play. This underscores the need to understand how teachers perceive a range of outdoor settings in order to help them develop the skills, knowledge, and attitudes for making effective pedagogical decisions relating to outdoor learning. Understanding early childhood educators' preferences and perceptions of outdoor settings is an important step toward bridging a potential gap between research and practice, helping guide professional development efforts by teacher educators and environmental educators to encourage selection and use of quality outdoor settings within early childhood education.   Understanding early childhood educators' preferences and perceptions is also helpful for park/land managers, as they may manage natural settings that, from a research perspective, are ideal settings for learning and development, yet lack characteristics that educators look for in judging feasibility for use with young children.

METHODS

The purpose of this study was to explore inservice early childhood educators' preferences regarding outdoor settings as learning environments, their perceptions as to characteristics of outdoor settings that make them conducive to learning within early childhood education, and the educational opportunities and needs they associate with these settings. Further, this study sought to explore differences in preservice and inservice early childhood educators' perceptions and intended/ use of outdoor settings, as well as the alignment of preferences with literature-based characteristics pertaining to natural playscapes. Environmental educators and land/park managers, working with the early childhood teacher education community, can use this understanding of preferences and perceptions to guide the development and provision of professional development, programming for young children at nonformal sites, and other capacity-building efforts to encourage use of natural settings and nature experiences in early childhood education.

Participants

Participants consisted of 46 inservice early childhood educators in licensed childcare centers, preschools, or Head Start programs in a city in northern Minnesota. Two recruitment strategies were used to invite participants. The school district maintains a list of 50 licensed childcare centers, preschools, and Head Start providers that is shared with parents of preschool-aged children during early childhood screenings, as well as being publicly available. All providers on this list received an invitation to participate addressed to the lead teacher/educator of preschool-aged children. Thirty-three participants were recruited through this strategy. The remaining 13 participants were recruited through the university located in the same city, which has a program for inservice early childhood educators with associate degrees who are working toward a bachelor's degree in early childhood education while currently working as a childcare provider or preschool teacher (program enrollment was 13, and all elected to participate).

Research instrument

The research instrument (see Appendix) was similar to the instrument used in Ernst and Tornabene (2012) and consisted of a questionnaire to be used with a set of 16 photographs. 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 for publication in the journal for copyright reasons. The questionnaire can be obtained by contacting the author.

Table 1
Description of Outdoor Setting Photographs

Outdoor Setting Type	Setting Label	Photograph Description	Human Influence Attribute
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
	14	Stream cutting through large rock outcropping, forming small waterfalls; dense forest/vegetation along rock outcropping	Natural
	15	Small lake with calm water; trail alongside edge of lake; small dock and shelter with canoes; forested backdrop	Maintained
	16	Shore of larger lake (likely recognizable as Lake Superior from its distinct pebbly beach), with forested shoreline	Natural
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
	10	Dense forest; narrow foot path winding through; very little light appears to be shining through forest cover	Natural
	11	Open forest with a mix of grasses/vegetation on forest floor; crushed gravel path lined by wooden fencing	Maintained
	12	Open forest, with vegetation, underbrush, and fallen trees on forest floor; no path	Natural
Open Field/ Grassy Area			
	6	Open natural area, with tall grasses, wildflowers, and a small wet area visible; several trees in the background	Natural
	5	Open natural area, with tall grasses, wildflowers, and a small wet area visible; several trees and a building in the background; gravel road leading to and alongside grassy area	Maintained
	8	Open area of grass and wildflowers, with a single tree near the foreground; no paths	Natural

	7	Open area of grass and wildflowers, with a single tree near the foreground; a gravel path with a wooden bridge midway	Maintained

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
	3	Open grassy area, with several park benches scattered about; grass is very short and appears mowed	Maintained
	2	Open area, with several large trees dotting foreground; pavilion with picnic tables; forested background; grass appears mowed	Maintained
	1	Playground on a raised woodchip-filled area, with mowed grass and trees in background	Maintained

The questionnaire asked participants to indicate the three settings they felt as being most conducive and three settings they felt as being least conducive to meeting educational outcomes for their preschool-aged students (educational outcomes referred to a range of potential outcomes, including cognitive, socio-emotional, physical, health and wellness, and environmental appreciation outcomes). This approach of using photographs to indicate outdoor setting (landscape) preference was based on the preference rating approach described in Kaplan (1985). They were further asked to indicate why they selected those settings as being most or least conducive to meeting educational outcomes for their preschool-aged students and what they would do with their students in these settings. Additionally, they were asked what they would need in order to use these settings with their preschool-aged students.

Procedures

An invitation/consent letter, questionnaire, and set of photographs were mailed to the lead preschool teacher of each of the 50 providers on the early childhood provider list maintained by the school district. Providers also received a prepaid mailer for returning the questionnaire and a gift card for an on-line bookstore in the amount of $5 in (advance) appreciation for their participation. Responses were received from 33 providers. Permission was requested from the university's early childhood teacher education faculty to visit the inservice early childhood educators enrolled in the bachelor's degree early childhood education program. All 13 educators consented to participate and received the same materials, but in person rather than through the mail.

RESULTS

Outdoor settings most and least conducive to achieving educational outcomes

Frequencies of responses selected by participants as being the three most and least conducive were used to address which settings inservice early childhood educators perceived as most and least conducive to achieving education outcomes with their preschool-aged students and to explore if personal preferences were related to educational preferences. The three settings with the highest frequencies of being selected as among the three *most* conducive were Setting 1 (playground), Setting 10 (dense forest with narrow footpath), and Setting 11 (open forest with fence-lined gravel path), $n = 26$, $n = 17$, $n = 16$ respectively. The three settings with the highest frequencies of being selected as among the three *least* conducive were Setting 14 (stream cutting through rocky outcropping forming small waterfalls), Setting 13 (narrow footpath through wooded area to stream dotted with small rocks), and Setting 3 (open mowed grassy area with park benches), $n = 22$, $n = 14$, and $n = 12$ respectively.

Table 2
Outdoor settings most and least conducive to achieving educational outcomes

	In-service Early Childhood Educators	Pre-service Early Childhood Educators[a]
Most Conducive	Setting 1 (playground)	Setting 1 (playground)
	Setting 10 (dense forest with narrow footpath)	Setting 2 (park pavilion in an open words)
	Setting 11 (open forest with fence-lined gravel path)	Setting 16 (the shoreline of a likely familiar larger lake)
Least Conducive	Setting 14 (stream cutting through rocky outcropping forming small waterfalls)	Setting 12 (open forest with no path)
	Setting 13 (narrow footpath through wooded area leading to stream dotted with small rocks)	Setting 8 (open, unmowed grassy area with no path
	Setting 3 (open mowed grassy area with park benches)	Setting 13 (narrow footbath through wooded area leading to stream dotted with small rocks)

Note: [a]Ernst and Tornabene (2012)

Table 2 provides a comparison of these results with the preservice participants in Ernst and Tornabene (2012). There appears to be both overlap and distinctness between the educational preferences of the inservice educators and the preservice educators in Ernst and Tornabene (2012). Both found the playground to be the most preferred setting. Both seemed to indicate preference toward outdoor settings with paths, with inservice participants selecting settings with paths for two of their three most preferred settings, and preservice participants selecting settings with no paths for two of their three least preferred settings. Inservice participants, however, seemed to recognize more educational potential in forests than preservice participants, and preservice participants seemed to perceive educational potential in a water-based setting, whereas two of the three settings perceived by inservice educators as least conducive educationally were water-based.

To further summarize and compare inservice and preservice participants' preferences, selections of the setting most conducive to achieving educational outcomes (the setting they listed first for each) were re-coded by outdoor setting type (water, forest, open field/grassy area, park) and also by human influence attribute (natural or maintained). Regarding educational preferences, most inservice and preservice participants (from Ernst and Tornabene, 2012) selected an outdoor setting that was a park (setting type) and maintained (human influence attribute) for the outdoor setting they perceived as most conducive to achieving educational outcomes, with the least frequent selections being the open field (setting type) and natural (human influence attribute). However, there were more inservice participants selecting a natural setting as most conducive (n = 20) relative to the number selecting maintained setting (n = 26), as compared to the number of preservice participants (n= 22) selecting a natural setting relative to the number selecting a maintained setting (n = 87). See Table 3.

Table 3
Preferences by Outdoor Setting Type and Human Influence Attribute

	Frequency of Inservice[a] Participants Selecting Setting as Educational Preferences	Frequency of Preservice[b] Participants Selecting Setting as Educational Preference
Outdoor Setting Type		
Park	22 (48%)	67 (63%)
Forest	11 (24%)	19 (18%)
Water	7 (15%)	12 (11%)
Open field/grassy area	6 (13%)	8 (8%)
Human Influence Attribute		
Maintained	26 (57%)	87 (80%)
Natural	20 (43%)	22 (20%)

Note: [A]N = 46; [b]N = 106, 109 from Ernst and Tornabene (2012)

Characteristics of educationally-conducive outdoor settings

Coding of inservice participants' open-ended responses to why they selected those particular most and least preferred settings was used to investigate the characteristics that make outdoor settings most conducive to achieving educational outcomes. The process described in Fink (2003) guided the coding process. The most frequent reasons as to why a site was most conducive to achieving education outcomes was opportunities for unstructured play and easy to use, and the most frequent reasons as to why a site was least conducive was safety hazards, difficult to use, and lack of things for children to do. These most frequent reasons mirror the reasons given by preservice participants (in Ernst and Tornabene, 2012); see Table 4. A response unique to the preservice participants in Ernst and Tornabene (2012) was opportunities for structured learning about nature as a characteristic of an educationally-conducive outdoor setting, while lack of opportunities for exploration was a response unique to inservice participants regarding characteristics of settings least conducive to achieving educational outcomes.

Table 4
Characteristics of Educationally-Conducive Settings

Reasons Why Most Conducive(frequency)		Reasons Why Least Conducive(frequency)	
Inservice	*Preservice[a]*	*Inservice*	*Preservice[a]*
Unstructured play opportunities (27)	Easy to use (42)	Safety hazards (33)	Safety hazards (47)
Easy to use (18)	Unstructured play opportunities (22)	Difficult to use (10)	Lack of things for children to do (37)
Opportunities for unstructured learning about nature (10)	Opportunities for structured learning about nature (21)	Lack of things for children to do (6)	Difficult to use (13)
Safe (9)	Opportunities for unstructured learning about nature (11)	Lack of opportunities for exploration (4)	
Familiar (1)	Safe (8)		
	Familiar (5)		

Note: [a]Ernst and Tornabene(2012); Respondents could provide more than one reason.

Educational affordances and resource needs

To explore activities and resource needs inservice early childhood educators associate with the educationally-conducive outdoor settings, responses from the open-ended questions regarding the three settings they had selected as most conducive were coded and frequencies calculated. Results are summarized in Table 5 and Table 6. There were two most frequently listed activities for their three most conducive settings combined –

nature hike and unstructured play for physical, health or social benefits. This is generally consistent with preservice responses in Ernst and Tornabene (2012), as unstructured play and nature hike were among the top three educational affordances. Preservice respondents' most frequently-listed activity was teaching about nature. In contrast, inservice respondents tended to be more specific in describing structured learning about nature (nature classification, observation and collection) and the frequency of this structured learning about nature response was not as high in the inservice participants relative to other responses as it was for the preservice participants. The most frequently listed resource needs were field equipment specific to the activity, extra adult supervision, and appropriate shoes.   While preservice participants in Ernst and Tornabene (2012) listed similar resource needs, they did not identify the logistical resource needs that inservice educators indicated (transportation, access to bathrooms and drinking water, signs indicating where to go).

Table 5
Activities Associated with Educationally-Preferred Outdoor Settings

	Frequency of Inservice Participants	Frequency of Preservice[a] Participants
Nature hike	27	63
Unstructured play for physical/health/social benefits	27	60
Look for/collect nature items	18	--
Unstructured nature play and exploration	15	29
Nature identification/classification	13	--
Teach about and discuss nature	13	101
Picnic	12	21
Teacher-led outdoor games	12	--
Reading or art activities	--	9
Pick up litter	--	2

Note: Numbers represent the frequencies of participants indicating that particular activity;
[a]Ernst and Tornabene(2012); respondents could indicate more than one activity.

Table 6
Resource Needs Associated with Educationally-Conducive Settings

		Frequency of Inservice Participants	Frequency of Preservice[a] Participants
Safety-related			
	Extra adults to supervise children	12	75
	Appropriate shoes	12	16
	First aid kit	2	7
	Sunscreen	4	--
	Nice weather	3	5
	Safety rules/behavioral expectations	3	3
	Clearly marked boundaries	2	--
	Instructor knowledge of safety hazards	1	--
Materials		15	34
	Field equipment specific to activity		
	Bags/jars for collecting	10	27
	Recreational equipment for games	5	--
	Lesson plans	4	19
	Worksheets	--	2
Content/information-related			
	Field guide for instructor	7	20
	Prior knowledge/background information	2	13
	Naturalist to accompany group	--	4
Logistical			
	Transportation	9	--
	Access to bathrooms	7	--
	Access to drinking water	5	--
	Signs indicating where to go	4	--

Note: Numbers represent the frequencies of participants indicating that particular need; [a]Ernst and Tornabene(2012); respondents could indicate more than one need.

DISCUSSION AND IMPLICATIONS

There are several similarities between the inservice and preservice early childhood educator participants that are worth noting. For both, the playground was perceived as most conducive to meeting educational outcomes; likewise, both groups indicated a preference toward parks (rather than forests, water, and fields/grassy areas), as well as a preference for maintained rather than natural settings. These preferences are consistent with their use/intended use of these settings for unstructured play and their preference for settings that are safe and easy to use. This suggests a need for professional development/pre-service preparation that includes how outdoor settings other than parks and playgrounds can support unstructured play, as well as how particular outdoor settings are more conducive to certain kinds of play than others (for example, playgrounds providing opportunities for functional play, where as a natural setting with a lot of loose parts provides opportunities for constructive and symbolic play; see Hamarstrom, 2012 and Parsons, 2011). This also suggests a need for park/land managers to consider using some of their natural settings as places where unstructured play is not only allowed but also encouraged, where, for example, travel off-trail is allowed, natural items can be collected, and where the setting as a whole can be manipulated.   In addition, park/land managers might consider making some of their natural settings easier to use (signs, boundaries, access to bathrooms and drinking water, etc.). And in light of the frequency extra adults for supervision was listed as a need, parks/land managers and nonformal environmental educators might expand how they perceive their role to include serving as an extra adult to help early childhood educators supervise young children in play in natural settings.

Regarding inservice and preservice participants selecting settings because they are perceived as safe, and in light of safety hazards frequently indicated as a reason for sites being perceived as least conducive, inservice and preservice early childhood educators may benefit from reading and discussing literature pertaining to playground safety, risk perception, the role of risk in developing resiliency in children, and managing risk in play provision (for example, Almon, 2013; Ball, Gill, & Spiegal, 2012; Gill, 2007; Finch, 2012; Rosin, 2014). This seems particularly important in light of relatively little attention being paid to outdoor settings in the preservice preparation curriculum (Renick, 2009), and also in light of the National Association for the Education of Young Children accreditation standards' (2008) emphasis on safety (in the section on outdoor environmental design in the physical environment standard, 5 of the 7 criteria focus on safety and protecting children from hazards, with one focusing on how much space is needed per child, and one focusing on developmental appropriateness).

Regarding differences between inservice and preservice early childhood educator participants, preservice participants more frequently selected water settings as being educationally conducive, and inservice participants more frequently selected forest settings. It is unclear as to why this distinctness in preference exists, as responses to other survey items didn't indicate why this may be. However, since both forest settings

and water settings offer nature play potential, it is important again to emphasize the range of possible natural settings for nature play in preservice preparation/inservice professional development efforts and how each setting can be used safely and feasibly. Another difference to note is the higher prevalence of preservice participants indicating a desire to use the outdoor settings for direct instruction about nature, which is in contrast to the inservice participants expressing concern about a lack of opportunity for children to explore and selecting settings that they felt provided opportunities for unstructured learning. This would suggest the need for efforts within preservice preparation that highlight the value of unstructured learning about nature, which is so strongly advocated for within the *Early Childhood Environmental Education Programs: Guidelines for Excellence* (2010). While there is room for teacher-initiated learning about nature in quality early childhood environmental education (Wilson, 1996), there should also be child-directed and inquiry-based learning about nature, as well as play and exploration in nature (NAAEE, 2010). Preservice preparation and inservice professional development in developmentally appropriate, quality early childhood environmental education might lessen preservice and inservice educators' perceived need for items such as content/background information, lesson plans, worksheets, and field guides.

An additional difference was inservice participants indicating logistical needs, such as transportation, access to bathrooms and drinking water, and signs indicating where to go; preservice teachers did not indicate these needs. This difference is likely reflective of differing levels of teaching experience. These logistical needs may serve as an obstacle for early childhood educators, helping explain why they may not actually use natural settings as much as they'd like (as in Simmons, 1993 and 1994). Children spend a substantial amount of their time in childcare settings. Of the children under age five in the U.S., almost 11 million (63%) participate in some child care arrangement every week, and on average spend 36 hours per week in child care (National Association of Child Care Resource and Referral Agencies, 2013).   For many children, their schoolyards/play yards in their childcare setting may offer the only outdoor playscapes that children experience on a daily basis (Parsons, 2011).   Consequently, if transportation to natural settings is unavailable, there is a need for professional development efforts that raise educator awareness of the importance of research-based features of quality playscapes, such as green structures, loose parts, and diverse topography and ground cover (Lester & Maudsley, 2006). This raised awareness may lead them to create or use more stimulating nearby settings to support more complex and productive play, as was seen in Jones (1989). Professional development efforts also might include "how-to" workshops, where educators learn the design principles for creating natural playscapes, as well as introducing educators to ideas for "do-it-yourself" playscape projects and low-cost ways to enrich playscapes, such as those listed in Keeler (2008).

The research literature suggests the importance of settings for nature play that are have diversity and variation in vegetation type and density, as well as diversity in ground cover, slope, and topography. Many of the photos in this study illustrated this diversity

and variation. Preservice and inservice participants' responses as to most and least conducive sites didn't suggest a pattern relating to diversity and variation. Settings such as the playground, park pavilion, and dense forest with one type of tree were selected as among those most conducive, yet lacked apparent diversity and variation. Similarly, settings that showed diversity of topography and terrain were among sites selected as least conducive. However, also among their selections of sites least conducive to educational outcomes were settings that were clearly non-diverse, such as the open mowed grassy area and the open, unmowed grassy area. Thus, it is unclear from their selection of settings the degree to which participants recognize the value of diversity and variation in outdoor settings. However, when asked as to what makes a setting conducive to meeting educational outcomes, responses did not include characteristics such as diversity of vegetation or diversity of ground cover. This suggests a need for inservice professional development and preservice preparation efforts that help educators recognize the importance of these characteristics in providing a wider range of learning opportunities not available from other outdoor play space options (Frost, 1992).

Settings that are unstructured and can be manipulated are also emphasized in the research literature. Preservice respondents selected the pebbly shoreline of a large lake as among sites perceived as educationally conducive; this setting is well-aligned with Nicholson's (1971) use of seashores as an ideal example of a physical environment that has a constantly changing nature, a degree of disorder, and a range of found components that provide endless possibilities for play, interaction, exploration, discovery and creativity. Two of the settings selected as educationally conducive by inservice respondents (the dense forest with narrow footpath and the open forest with fence-lined gravel path) could be considered as having a degree of disorder and containing loose parts, yet the paths (particularly the fence lined path), while conducive to being used for nature hikes, suggest more of a structured nature, connoting "what should be done" rather than "what could be done." Similarly, their responses as to why they perceived these sites as educationally conducive didn't include references to being unstructured or manipulative.

Similarly, two of the three settings selected by preservice participants as being least conducive had no paths. This seems consistent with preservice and inservice participants' preference for sites that are easy to use, as well as for the inservice participants' responses regarding needing signs that indicate where to go. This would suggest that these educators perhaps are less aware of the importance of unstructured or "disorderly" settings and the open-endedness of natural materials (materials where there isn't a single right way to use them) in fostering creative and imaginative play, problem-solving, and cooperation. It seems that while respondents recognize the value of unstructured play, efforts to raise their awareness of unstructured environments are needed. And as noted prior, this may result in reflection on and re-evaluation of their use of outdoor settings, leading them to create or use more stimulating settings, as in Creaser (1985) and Jones (1989).

CONCLUSION

Although often associated with physical movement, outdoor settings can be as effective as indoor settings in enhancing young children's development in all domains (Henniger, 1993).   While outdoor environments are important settings for young children's development and well-being, natural outdoor environments in particular hold endless possibilities for learning and development across all domains, and the importance of nature experiences in early childhood education is well established in the research literature (Irving, 2014). Natural settings offer "a diversity of environmental stimuli that contributes to increased use of senses, increased health benefits, interactive physical activity, and experimentation with social situations that prepare children for future life experiences" (Parsons, 2011, p. 11). Yet many childcare outdoor environments in the U.S. consist of isolated pieces of equipment and a monoculture of grass (Herrington & Studtmann, 1998), with little room for creative play on equipment with a finite number of ways to be used (Walsh, 1993).

Similarities across the preservice responses in Ernst and Tornabene (2012) and inservice responses from this study suggest a stability or consistency that is useful for understanding how early childhood educators perceive a range of outdoor settings. For both, the playground was perceived as most conducive to meeting educational outcomes; likewise, both groups indicated a preference toward maintained rather than natural settings. These preferences are consistent with their use/intended use of these settings for unstructured play and their preference for settings that are safe and easy to use. This suggests a need for professional development/pre-service preparation that includes how outdoor settings other than parks and playgrounds can support unstructured play, as well as how particular outdoor settings are more conducive to certain kinds of play than others.   Further, this suggests an opportunity for environmental educators to work with park/land managers in modeling how more natural outdoor settings can be used in a safe and feasible manner to promote unstructured play.

In spite of considerable overlap, some unique insights surfaced through this study of inservice early childhood educators. Perhaps because of their teaching experience, inservice early childhood educators were able to offer additional insight into logistical needs (transportation, access to bathrooms and drinking water, signs, and clearly marked boundaries), as well as their desire for settings that offer possibilities for exploration.   These needs and preferences provide an opportunity for park/land managers to consider how they might make portions of their natural settings seem more feasible and desirable to educators for use with young children.

While it is unclear from participants' selection of settings and responses the degree to which participants recognize the value of diversity, variation, manipulability, and unstructuredness in outdoor settings, the results seem to suggest these characteristics may not be at the forefront of early childhood educators' thinking about outdoor

settings. Instead safety and feasibility may be guiding their assessment of the appropriateness of a particular outdoor setting. This understanding can guide professional development efforts to encourage selection and use of quality outdoor settings within early childhood education, helping bridge a likely gap between research and practice and overturn prevailing practice regarding outdoor settings requiring less educator attention than indoor settings.

References

Almon, J. (2013). *Adventure: The value of risk in children's play*. Annapolis, MD: The Alliance for Childhood.

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

Ball, D., Gill, T., & Spiegel, B. (2012). *Managing risk in play provision: Implementation guide*. London, England: Play England.

Bixler, R., & Floyd, M. (1997). Nature is scary, disgusting, and uncomfortable. Environment and Behavior, 29(4), 443-467.

Brofenbrenner, U. (1999). Environments in developmental perspective: Theoretical and operational models. In S. L. Friedman & T. D. Wachs(Eds.), *Measuring environment across the lifespan: Emerging methods and concepts* (pp.3-28). Washington, DC: American Psychological Association Press.

Creaser, B. (1985). The outdoors as a learning area: Experiences of Australian teachers. *Beginnings,* Summer, 3-6.

Danks, S. (2010*). Asphalt to ecosystems: Design ideas for schoolyard transformation*. Oakland, CA: New Village Press.

Davies, M. (1996). Outdoors: An important context for young children's development. *Early Child Development and* Care, 115, 37-49.

Davis, J., and Elliott, S. (2004). Mud pies and daisy chains: Connecting young children and nature. *Every Child* 10(4) 4-5. (2004).

DeBord, K., Hestenes, L., Moore, R., Cosco, N., & McGinnis, J. (2005). The preschool outdoor environment measurement scale. Kaplan Learning Company.

Dimensions Educational Research Foundation. (2007). *Learning with nature idea book: Creating nurturing outdoor spaces for children.* Lincoln, NE: The National Arbor Day Foundation.

Dyment, J., & Bell, A. (2008). Grounds for movement: Green school grounds as sites for promoting physical activity. *Health Education Research, 23*(6), 952-962.

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.

Elliott, S. & Davis, J. (2009). Exploring the resistance: An Australian perspective on educating for sustainability in early childhood. *International Journal of Early Childhood. 41,* (2), 65-77.

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

Finch, K. (2012). *But…but…but…Isn't it dangerous? Risk and reward in nature play.* Omaha, NE: Green Hearts Institute for Nature in Childhood.

Fink, A. (2003). *How to manage, analyze, and interpret survey data.* Thousand Oaks, CA: Sage Publications.

Fjortoft, I. (2004). Landscape as playscape: The effects of natural environments on children's play and motor development*. Children, Youth and Environments, 14*(2): 21-44.

Fjortoft, I., Kristoffersen, B., & Sageie, J. (2009). Children in schoolyards: tracking movement patterns and physical activity in schoolyards using global positioning system and heart rate monitoring. *Landscape and Urban Planning, 93*: 210–217.

Fjortoft, I., & Sageie, J. (2000). The natural environment as a playground for children: Landscape description and analysis of a natural playscape. *Landscape and Urban Planning, 48*, 83-97.

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

Gandini, L. (1998). Educational and caring spaces. In C. Edwards, L. Gandini, & G. Foreman (Eds.), *The Hundred Languages of Children: The Reggio Emilia Approach – Advanced Reflections* (pp. 161-178). Greenwich, CT: Able.

Gill, T. (2007). No fear: Growing up in a risk adverse society. *London: Calouste Gulbenkian Foundation.*

Hannon, J. & B. Brown. (2008). Increasing preschoolers' physical activity intensities: An activity-friendly preschool playground intervention. *Preventive Medicine 46* (6): 532-536.

Hamarstrom, J. (2012). Perceptions of naturalized playgrounds: A qualitative study. Unpublished thesis. Utah State University, Landscape Architecture.

Hart, R. (1979). *Children's experience of place*. New York: Irvington.

Henniger, M. (1993, Winter). Enriching the outdoor play experience. *Childhood Education, 70*(2), 1-7.

Herrington, S., & Studtmann, K. (1998). Landscape interventions: New directions for the design of children's outdoor play environments. *Landscape and Urban Planning, 42*, 191-205.

Hesteness, L., Shim, J., & DeBord, K. (2007, March). *The measurement and influence of outdoor child care quality on preschool children's experiences.* Presentation to be given at the Biennial Conference for the Society for Research in Child Development, Boston.

Irving, H. (2014). *The natural choice: Connecting children to the learning and development benefits of nature.* Unpublished dissertation. University of Roehampton, Early Childhood Studies.

Jones, E. (1989). Inviting children into the fun: Providing enough activity choices outdoors. *Exchange*, December, 15-19.

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.

Kirkby, M. (1989). Nature as refuge in children's environments. *Children's Environments Quarterly*, 7-12.

Konopak, B., Readence, J. & Wilson, E. (2001). Preservice and inservice secondary teachers' orientations toward content area reading. *Journal of Educational Research, 87*(4), 220-227.

Kytta, M. (2004). The extent of children's independent mobility and the number of actualized affordances as criteria for child-friendly environments. *Journal of Environmental Psychology, 24*, 179-198.

Lester, S. & Maudsley, M. (2007). *Play, naturally: A review of children's natural play.* London: National Children's Bureau.

Martin, N., Yin, Z., & Mayall, H. (2006, February). *Classroom management training, teaching experience, and gender: Do these variables impact teachers' attitudes and beliefs toward classroom management style?* Paper presented at the annual conference of the Southwest Educational Research Association. Austin, TX.

Miller, D., Tichota, K. & White, J. (2009). *Young children learn through authentic play in a Nature Explore Classroom.* Lincoln, NE: Dimensions Foundation.

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

Nabhan, G., & Trimble, S. (1994). *The geography of childhood: Why children need wild places.* Beacon Press: Boston, MA.

National Association of Child Care Resource and Referral Agencies. (2013). *Child care in America fact sheet*. Retrieved May 16, 2014, from http://www.naccrra.org/public-policy/resources/child-care-state-fact-sheets-0.

National Association for the Education of Young Children. (2008). *Overview of the NAEYC Early Childhood Program Standards.* www.naeyc.org/academy (accessed April 18, 2013).

National Institute on Child Health and Human Development. (2000). The relationship of child care to cognitive and language development. *Child Development, 71*: 960–980.

Nicholson, S. (1971). How not to cheat children: The theory of loose parts. *Landscape Architecture, 62,* 30-34.

Noren-Bjorn, E. (1982*). The impossible playground.* West Point, NY: Leisure Press.

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

Parsons, A. (2011). *Young children and nature: Outdoor play and development, experiences fostering environmental consciousness, and the implications on playground design.* Unpublished Thesis, Virginia Polytechnic Institute and State University, Blacksburg, VA.

Pajares, F. (1992). Teachers' beliefs and educational research: Cleaning up a messy construct. *Review of Educational Research, 62*, 307-332.

Renick, S. (2009). *Exploring early childhood teachers' beliefs and practices about preschool outdoor play: A case study.* Unpublished dissertation. College of Professional Education, Texas Woman's University, Denton, Texas.

Rosin, H. (2014, April). The overprotected kid. *Atlantic Monthly*. Retrieved May 1, 2014 from http://www.theatlantic.com/features/archive/2014/03/hey-parents-leave-those-kids-alone/358631/.

Rossas, C. & West, M. (2009). Teachers beliefs about classroom management: Pre-service and inservice teachers' beliefs about classroom management. *International Journal of Applied Educational Studies, 5*(1), p. 54-61.

Sebba, R. 1991. The landscapes of childhood. *Environment and Behavior, 23*(4), 395-422.

Simmons, D. (1993). Facilitating teachers' use of natural areas: Perceptions of environmental education opportunities. *Journal of Environmental Education, 24*(3) 8–16.

Simmons, D. (1994). Where is EE taught? Urban teachers' experiences. In Mrazek, R. (E.), *Pathways to partnerships: Coalitions for environmental education* (pp. 123-129). Troy, OH: North American Association for Environmental Education.

Skamp, K., & Bergmann, I. (2001). Facilitating learnscape development, maintenance and use: teachers' perceptions and self-reported practice. *Environmental Education Research*, 7(4), 333-358.

Sobel, D. (1990). A place in the world: Adults' memories of childhood's special places. *Children's Environments Quarterly*: 5-12.

Staempfli, M. (2009). Reintroducing adventure into children's outdoor play environments. *Environment and Behavior*, 41(2), 268-280.

Stephens, E. (2007, July). *Designing for preschoolers: The engagement of natural spaces for play.* White Paper. Faculty of Landscape Architecture, State University of New York, College of Environmental Science and Forestry.   Retrieved on May 15, 2011   from http://www.esf.edu/la/capstones/2007/Stephens_Eleanor_07/Stephens_report_07.pdf.

Walsh, P. (1993). Fixed equipment: A time for change. *Australian Journal of Early Childhood, 18*: 23-29.

Weaver, L. (2000). *Learning landscapes: Theoretical issues and design considerations for the development of children's educational landscapes.* Unpublished Thesis, Virginia Polytechnic Institute and State University, Blacksburg, VA.

Wenner, G. (2001). Science and mathematics efficacy beliefs held by practicing and prospective teachers: A five-year perspective. *Journal of Science Education and Technology, 10*(2), 181-187.

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

Wilson, R. (1996). *Starting early: Environmental education during the early childhood years.* ERIC Digest, ED 402147. Columbus, OH: ERIC Clearinghouse for Science, Mathematics, and Environmental Education.

APPENDIX

Questionnaire Items used in the Early Childhood Educator Study

Note: Questionnaire used in Ernst and Tornabene (2012) can be obtained through an email to the author.

Instructions for Participant:

This survey is to be completed by the person at your center/site considered to be the lead teacher of preschool-aged children. After completing this survey, please return it with the photo packet in the return mailer. Please note this survey pertains to preschool-aged children; thus, if you also care for children of other ages, please respond based on what is true for your care of preschool-aged children. For this study, "educational outcomes" refers to cognitive, socio-emotional, physical, health and wellness, and environmental appreciation outcomes.

Using the set of photos provided in the plastic envelope, please answer the following questions. In doing so, please note that each photo has a number on the back; you can use that number as the label for the photo. Also please do not write on the photos, as others may be using this same set in the future. Thank you!

1. Which three places do you feel are *most* conducive (best suited) to meeting educational outcomes for your preschool-aged children? (Educational outcomes refers to

       Photo # _____,   Photo # _____, and Photo #_____

2. Why did you select these three photos? What about these places/photos make them the ones you feel are most conducive to meeting educational outcomes?

3. For each of the three photos you selected, please indicate what you would do with your preschool-aged children in a place like this.

Photo#___:

Photo#___:

Photo#___:

4. For each of the three photos you selected, please indicate what you feel you would need in order for it to be a successful outing to this place for you and your preschool-aged children.

Photo#___:

Photo#___:

Photo#___:

5. Which three places do you feel are *least* conducive to meeting educational outcomes for your preschool-aged children?

Photo #___   Photo #___   Photo #___

Why did you select these three photos? What about these places/photos make them the ones
you feel are least conducive to meeting educational outcomes?

Dr. Julie Ernst is Professor and Director of Master of Environmental Education Program at University of
Minnesota in Duluth, Minnesota. She can be reached at jernst@d.umn.edu.