

# Early Childhood Experiences in Nature: Does it Matter who is Present with Children?

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## Abstract

**In a phone survey, residents of the largest metropolitan areas in the continental United States were asked about their strongest early memory of an outdoor experience. For many respondents, the experience involved trees. Most reported that the experience was pleasant and that they were not alone when it happened. If they were not alone, they were asked follow-up questions about those present with them, such as if there was more than one person present and if those present were significant in the experience. They were also asked questions about their adult attitudes towards trees. People who reported that there was one person who was particularly important in their childhood experience were more likely as adults to strongly agree that trees are important to their quality of life than people who said there was not one particular person. Respondents who perceived that an important or influential person present had very positive feelings about nature were also more likely to strongly agree that trees are important to their quality of life.**

**Keywords:** significant life experience, response to nature, environment, people-plant interaction, quality of life, human issues in horticulture

## INTRODUCTION

In 2014, it is estimated that 54% of the world's people live in urban areas, and the percentage is growing rapidly (United Nations, 2014A). The number of "mega-cities" (more than 10 million people) has swelled from 10 in 1990 to 28 in 2014, with 12% of the world's people now living in them (United Nations, 2014B). As the globe becomes more urbanized and more cities grow into mega-cities, more trees and forests will be removed to make room for new development. Weather changes from global warming will directly and indirectly kill more trees (Tubby and Webber, 2010; Lohr and Relf, 2014). Questions have been raised about children raised in the stark surroundings of urban areas and what their future appreciation for nature will be when their childhood is spent in surroundings where opportunities to interact with nature are limited. We now know that being raised around plants and interacting with nature as children promote more positive attitudes towards nature in adults (Lohr and Pearson-Mims, 2004; 2005; Thompson et al., 2007). This study addressed the question of whether childhood experiences with nature in the presence of other people also have positive effects on attitudes toward trees in adults.

Various childhood experiences have been associated with adult attitudes and actions toward nature. People who reported frequent childhood participation in outdoor activities, such as planting trees or visiting parks, were more likely as adults to strongly agree that urban trees are calming than people who did so less often (Lohr and Pearson-Mims, 2004). People who lived near busy streets or large buildings as children were less likely as adults to say that trees had personal or symbolic meaning to them than people who did not live near such elements as children (Lohr and Pearson-Mims, 2005). Self-reported physical and emotional benefits from accessing nature were higher in adults who reported that they frequently visited woodlands as children than in those who reported that they did not visit such places as children (Thompson et al., 2008). Adult environmentalists typically report that childhood experiences contributed to their adult concerns for the environment (Tanner,

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1980). Similar trends between childhood experiences and adult concerns for the environment have also been documented in college students from a wide range of disciplines (Ewert et al., 2005) and in young environmental leaders (Arnold et al., 2009). Most of the research in this area indicates that any contact with nature can be helpful in fostering positive adult attitudes towards nature and that increased nature contact increases the positive attitudes.

Many programs to encourage nature interactions for urban children are promoted around the world today (Xinyan, 2012; Robbins, 2014; Shonstrom, 2014; Silva, 2014). What is less reported is the importance of other people in these childhood experiences. For example, are parents more effective than other people, such as siblings, other relatives, friends, teachers, or strangers, in influencing future attitudes towards nature? A better understanding about others present could be helpful in designing more effective programs. The specific objective of this study was to understand the nature of early childhood memories of strong or meaningful experiences outdoors and to determine the influence of the presence during the experience of other people with adult attitudes toward trees.

## **MATERIALS AND METHODS**

A nationwide telephone survey of adults in the 112 most-populated metropolitan areas in the continental United States (U.S.) was conducted. Participants were surveyed regarding their current attitudes toward urban trees, their childhood memories of the surroundings where they were raised, and their early experiences with nature. Asking people about childhood memories has been shown to elicit relatively accurate information about past events. (Mullen, 1994; Bauer et al., 2014). Demographic information, including gender, age, and ethnicity, also was gathered.

The telephone survey was administered by the Social and Economic Sciences Research Center at Washington State University. Participants were not told that the survey was about trees before agreeing to participate in the survey. Nearly all people who began the 20-minute survey completed it, so it is unlikely that only people who care about trees responded. Also, the demographics of the survey respondents were similar to those for the sampled population, so the sample appears to be representative of all adults in living in large cities in the U.S. More details of the survey methodology are available elsewhere (Lohr and Pearson-Mims, 2004; Lohr et al., 2004; Lohr and Pearson-Mims, 2005).

Surveys were completed by 2,004 adults. The overall response rate was 51.8%, which is high for residents of large metropolitan areas (Groves and Couper, 1998). Respondents had a mean age of 42 years, with a range from 18 to 90 years. More than half were female (56%), and more than half of the sample had not completed a 4-year college degree (59.2%). Most of the respondents identified themselves as White/European (75%), while 8.5% said they were Black/African American, 5.1% said Hispanic/Latino, and the remaining 11.4% said Asian American/Pacific Islander, Native American, multi-ethnic, or other. Approximately 60% had an annual income of \$50,000 or less.

Respondents were first asked about their current activities and habits, such as whether they went to public talks for their own enjoyment, participated in volunteer activities, or recycled newspapers. They were then asked their opinions about trees and nature, including reasons to use trees in cities, such as to provide shade, and reasons to not use trees, such as because they drip sap. Following these items, respondents were asked questions about their childhood, such as whether they had lived in the city or the country, and what they had done in nature before age eleven, such as gardening or fishing. These items were followed by asking them to "...think about the single memory that is the strongest or most powerful of those early memories of what you did outdoors."

Survey questions about this strong early memory, whether other people were present, and the attitudes towards nature of others present were selected to examine for this paper.

Nearly all of the items in the survey were closed-ended, meaning that respondents were given specific choices to select, such as strongly agree, agree, disagree, or strongly disagree. One question about this early memory was open-ended: "In a few words, please tell me what aspect of nature was most prominent." To examine whether the level of agreement with the statement "You consider trees important to your quality of life" varied based on others present, a univariate analysis, using chi-square statistics from two-way frequency tables, was conducted. Because most people strongly agreed with this statement about trees and few people disagreed with it, all responses other than strongly agree were condensed into one category, which yielded enough responses per category to conduct the two-way analysis.

## **RESULTS AND DISCUSSION**

When respondents from the largest cities in the continental U.S. were asked to recall and answer questions about "...the single memory that is the strongest or most powerful of those early memories of what you did outdoors," 93% said the experience was "pleasant" (Table 1). Only 10% were alone during the experience, while about half said that "a few" people were present. For most respondents, the experience was not a single event, but occurred more than once (84%).

Respondents were asked to say in "a few words" what aspect of nature was most prominent during "...the single memory that is the strongest or most powerful of those early memories of what you did outdoors." More than half (62%) mentioned particular plants, such as maple trees, moss, and poison ivy, or types plants, such as trees, vegetables, and woods (Table 1). Animals, including birds, deer, horses, worms, salamanders, butterflies, and bees, were mentioned by 30%, and water, such as ocean, ponds, streams, and waterfalls, was mentioned by 27%. Aspects of nature that did not include plants, animals, or water were only stated by 13% of the respondents; these often related to the weather (fresh air, rain, sunshine, tornado) or geology (dirt, mountains, rocks) or were non-specific (everything, nothing in particular, outdoors in general, walking).

Half of those surveyed reported that there was "one person who was particularly important or meaningful in this experience" (Table 2). Respondents were then asked about their relationship to this person or to the person "... who was most influential to you during the experience" if they said there was not one particularly important or meaningful person present. For half of the respondents, this person was a parent. For 30%, it was another relative. Thirteen percent said this person was a friend, and 6% said something else, such as a teacher, another child, or a stranger. These results do not say that non-relatives, such as teachers or friends, are not influential in important childhood experiences with nature, just that people's strongest memory typically included relatives. Respondents were then asked about the attitudes towards nature of the most important or influential person present, whether that person was a relative or not. More than half said they thought they were very positive (64%); only 11% reported the attitudes as either neutral or negative.

People who reported having someone present during their strong or powerful childhood experience in nature who was perceived as particularly important or meaningful to the experience were significantly more likely to strongly agree that trees were important to their quality of life (86.1%) than people who did not report the presence of such as person (79.8%, Table 3). When respondents considered this particularly important person or an influential person present if no one was mentioned as particularly important and thought about the feelings of that person towards nature, another significant effect was evident: 89.9% of those who perceived this person's attitudes as being very positive strongly agreed that trees were important to their quality of life, while only 77.1% of those who felt this person's attitudes were not very positive agreed.

Previous research has shown that people who said their parents expressed very positive feelings about nature were more likely as adults to strongly agree that urban trees are calming than people who reported less positive parental feelings about nature (Lohr and Pearson-Mims, 2004). Other researchers have reported a positive relationship between environmental attitudes of parents and those of their children, especially in girls (Leppänen et al., 2012; Meeusen, 2014). This study showed that people who remembered having a positive, strong experience outdoors as a child with parents or other relatives also had more positive feelings towards trees as adults than those who did not report having such an experience as a child. We should encourage family participation in green programs. Current examples of ways to do this include the new school program at Longwood Gardens in Pennsylvania that provides free family admission to encourage children from underserved populations to return to the gardens with their families (D. Needham, Longwood Education Dept. Head, pers. commun., 2014) and the camping and park programs for immigrants in Canada to help them learn about Canadian parks and positive values towards the outdoors that are common among Canadians (Lange, 2011).

## **CONCLUSIONS**

Many cities are increasing their efforts to retain or increase the amount of green in cities, for both environmental and human health co-benefits (Marsa, 2013). Green infrastructure involves using nature to solve urban environmental problems (EPA, 2014). Rain gardens can be used to treat urban storm water and help restore the natural hydrologic function to urban landscapes. Green roofs help reduce excessive temperatures in urban heat-island areas and air pollution (Rowe, 2011). Parks contribute to healthier residents; for example, there are fewer low birth weight babies born from mothers living in urban areas with more tree-canopy cover (Donovan, et al., 2011). These and other regreening efforts improve the environmental conditions in cities, contribute to healthier urban residents, and help mitigate some of the effects of climate change (Lohr and Relf, 2014). They also will provide more opportunities for children to interact with nature. Such interaction can contribute to more positive attitudes towards nature and trees in adults, especially if those interactions occur with people who are particularly important to the child, such as parents and other family members, and occur more than once.

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## **Tables**

Table 1. Responses of urban adults to survey items about their strongest or most powerful early childhood memory of what they did outdoors.

Item: Response	N	%
Early strong or powerful childhood outdoor experience was:		
Pleasant	1821	93
Unpleasant	127	6
Number of other people present:		
None	201	10
One	240	12
A few	1003	51
Many	500	25
Frequency of the experience:		
Single event	295	15
More than once	1647	84
Natural elements present <sup>1</sup> :		
Trees, forests, or other plants	1198	62
Animals or insects	590	30
Water	518	27
None of the above	249	13

<sup>1</sup>Responses on this item were open-ended, so individuals could be represented in more than one response category.

Table 2. Responses of urban adults to survey items about the presence of an important person during their strongest or most powerful childhood memory of what they did outdoors.

Item: Response	N	%
A particularly important or meaningful person was present during early strong or powerful childhood outdoor experience:		
Yes	769	50
No	738	48
Relationship to you of the most important or influential person present:		
Parent	510	50
Other relative	307	30
Friend	133	13
Other	62	6
Feelings about nature of most important or influential person present:		
Very positive	646	64
Somewhat positive	243	24
Neutral or negative	110	11

Table 3. Responses of urban adults to a survey item about how important trees are to their quality of life. Responses to this item are categorized based on who was present during their strongest childhood memory of what they did outdoors and the perceived feelings towards nature of a person present.

Item: Response	Strongly agree trees are important	
	Frequency	Percent
Particularly important or meaningful person present:		
Yes	662	86.1***
No	589	79.8
Feelings about nature of most important or influential person present:		
Very positive	580	89.8***
Not very positive	227	77.1

\*\*\* For the item, percent responses are significantly different at  $P \leq 0.001$ .