

RESEARCH SUPPORTING EE

Children and Outdoor Experiences Today and Impacts

Nature-deficit disorder is not an official diagnosis but a way of viewing the problem, and describes the human costs of alienation from nature, among them: diminished use of the senses, attention difficulties, and higher rates of physical and emotional illnesses. The disorder can be detected in individuals, families, and communities (Louv, 2005).

In Richard Louv's book, *Last Child in the Woods* (2005), he coins the phrase "nature deficit disorder." What Louv is referring to is the **increased lack of contact our children have with nature and the result consequences on the social, cognitive and physical development and health of our children**. According to the Kaiser Family Foundation (2005), our children are spending less than half the time out of doors that their parents did growing up. Another longitudinal study found that children under 13 living in the United States spend on average only about half an hour of unstructured time outdoors each week (Hofferth & Sadberg, 2001). Even more recently, a 2010 survey reveals that our children are spending as much as 7.5 hours a day in front of electronic media (Kaiser Family Foundation, 2010). It is clear that our children today spend much more time indoors than they do outdoors and some believe this is leading to some significant impacts. Louv (2005) sites research to suggest that this emerging "nature deficit disorder" among our children is linked to epidemic rises in childhood obesity, increasing social and cognitive delays as our children enter the school systems and rises in diagnoses of Attention Deficit/Hyper-Active Disorder (ADHD), to name a few.

This is supported in a recently published research article, *Using Nature and Outdoor Activity to Improve Children's Health*, written by McCurdy, et. Al and published in the journal, [*Current Problems in Pediatric and Adolescent Health Care*](#) (May 2010). In the forward to the article, editor Ruth A. Etzel, MD PhD, stated, "Within just one generation, the definition of 'play' has changed dramatically among children in industrialized countries." Gone for many of our children are afternoons and weekends spent playing outdoors. The authors note "Physical activity is shown to improve children's health, and a growing body of evidence suggests that exposure to natural environments can improve attention and decrease stress in children. Advising outdoor play in nature is a practical method for pediatric health care providers to address chronic conditions such as childhood obesity, as well as mental health; and one that is cost-effective and easily sustainable." McCurdy and colleagues raise concerns that today's children may be the first generation to have shorter a lifespan than previous, noting children's sedentary lifestyles are not only tied into childhood obesity and related diseases (diabetes and cardiovascular disease), but also linked to increased childhood asthma, sleep apnea, vitamin D deficiency, ADHD and depression.

As our children spend less and less time outdoors, they become less and less connected to the world around them and our awareness, knowledge and understanding of the environments in which we live is not at a sufficient level for use

to make informed and responsible decisions. In a compilation of ten years of survey data, the National Environmental Education Foundation found that the average American cannot pass a basic environmental knowledge test, scoring, on average only about three out of ten questions correct (NEEF, 2005). This survey was replicated in Kansas with the average Kansas adult scoring marginally better (3.3 out of 10 questions correct) than the national average. It is important to note that in this same survey, 98% of Kansas parents indicate they support having environmental education taught in schools (KACEE, 2001).

Benefits of Providing Children with Outdoor Experiential Activities and Environmental Education

It's intuitive—many of us know the benefits of spending time out of doors because that was our experience growing up. We learned many valuable skills—observation/inference, team work, interdependence, independence and self-confidence, natural consequences and more. We learned science while digging in the dirt, playing in the pond or climbing in trees. The following are just some of the key benefits of providing children with outdoor experiences and learning that are supported by research:

- **Studying EE Creates Enthusiastic Students, Innovative Teacher-Leaders** - EE offers opportunities for rich, hands-on, real world and relevant learning across the curriculum (Archie, 2003).
- **EE Helps Build Critical Thinking, and Relationship Skills** - Environment-based education emphasizes specific critical thinking skills central to “good science”—questioning, investigating, forming hypotheses, interpreting data, analyzing, developing conclusions, and solving problems (Archie, 2003).
- **EE Instructional Strategies Help Foster Leadership Qualities** - Environmental education emphasizes cooperative learning (i.e., working in teams or with partners), critical thinking and discussion, hands-on activities, and a focus on action strategies with real-world applications (NAAEE & NEETF, 2001). EE provides opportunities for students to develop and practice leadership skills such as:
 - Working in teams
 - Listening to and accepting diverse opinions
 - Solving real-world problems
 - Taking the long-term view
 - Promoting actions that serve the larger good
 - Connecting with the community
- **EE Schools Demonstrate Better Academic Performance across the Curriculum** Schools that adopt environmental education as the central focus of their academic programs frequently demonstrate the following results (Liberman & Hoody, 1998; NEETF, 2000; Archie, 2003):
 - Reading, science, social studies, and mathematics scores improve.
 - Students develop the ability to transfer their knowledge from familiar to unfamiliar contexts.

- Students “learn to do science” rather than “just learn about science.”
- Classroom discipline problems decline.
- All students have the opportunity to learn at a higher level.
- **Self Control/Self Discipline Benefits for Children with ADD/Inner City Youth** - Taylor and her colleagues found that children with attention-deficit disorder (ADD) benefited from more exposure to nature -the greener a child’s everyday environment, the more manageable are the symptoms of ADD (Taylor, 2001). Taylor also observed that access to green spaces for play, and even having views of green settings, enhances peace, self-control, and self-discipline among inner-city youth, especially among girls.
- **Increased Focus/Improved Cognition** - Wells observed that proximity to nature, access to views of nature, and daily exposure to natural settings increases the ability of children to focus and improves cognitive abilities. (Wells, 2000).
- **Health Benefits** - At the school environment level Bell and Dymont observed that children who experience school grounds or play areas with diverse natural settings are more physically active, more aware of good nutrition, more creative, and more civil to one another. (Bell, 2006)
- **Development of Positive Social Skills** - Play in diverse natural environments reduces or eliminates anti-social behavior such as violence, bullying, vandalism, and littering and reduces school absenteeism. (Coffey, 2001; Malone, 2003; Moore, 2000).
- **Conservation Benefits** - Higher levels of environmental knowledge correlate significantly with a higher degree of pro-environment/conservation behavior. The more people know, the more likely they are to recycle, be energy efficient, conserve water, etc. (NEETF, 2005).

EE Related State Legislation and Executive Activities:

Because of the many benefits of outdoor experiential activities and environmental education, many states have proactively supported these opportunities for their youth, families and communities. The following provide a summary of these efforts at the state level:

Kansas Governor Issues Executive Order Creating Kansans for Children in Nature!

Executive Order may be viewed at: <http://www.kacee.org/kansas-coalition-children-nature>

[California SB 207 - Outdoor Environmental Education and Recreation Program, 2007.](#) This bill would establish the Outdoor Environmental Education and Recreation Program, to be administered by the Director of Parks and Recreation (director), for the purpose of increasing the ability of underserved and at-risk populations to participate in outdoor recreation and educational experiences by awarding grants to

education programs that are available to the public and are operated by public entities or nonprofit organizations.

[New Jersey EE Fund](#), 1994. Creates an EE fund for the state that supports EE efforts as well as a mandate for the integration of EE into core curricular standards for schools that are tested on a regular basis.

[New Mexico HB 369 - Outdoor Classrooms](#), 2007. A \$500,000 fund established for the creation and support of outdoor classrooms in on New Mexico public lands.

[North Carolina Office of EE Legislation](#), 1993. Established an Office of EE in North Carolina to serve as a clearinghouse for information and resources for EE implementation and to administer grant funding in support of these efforts in schools.

[Ohio EE Fund](#), 1990. Created an advisory group that oversees the \$1M competitive grant program (awarded annually) supporting EE efforts in Ohio.

[Washington House Bill 2910 - EE Study PL](#) , 2006. Created and funded a directive for the Superintendent of Schools in the state of Washington to conduct a year long study of the benefits of EE and recommendations for EE initiatives in the state.

[Wisconsin EE Board 1989 Act 299](#), 1989. Established a board for EE in Wisconsin charged with overseeing the creation of an EE grants program and the establishment of an office for EE at the University of Wisconsin, Stevens Point.

The governor of Kansas issued a proclamation establishing Environmental Education Week in Kansas in 2007 and 2008.

The governor of California issued a proclamation establishing a Children's Bill of Rights <http://www.calroundtable.org/cobor.htm>

The governor of Michigan issued a No Child Left Inside Day proclamation http://www.michigan.gov/gov/0,1607,7-168-23442_25488-162823--,00.html

The governor of Pennsylvania hosted a conference followed by community hearings on the issue, which resulted in this report with policy recommendations: <http://www.connectoutdoors.state.pa.us/>

The governor of Maine hosted a conference on the issue.

The governor of Washington signed legislation establishing a \$1.5 million grant programs for school children to visit parks and other natural areas. <http://www.parks.wa.gov/NoChildLeftInside/>

The governor of Maryland issued an executive order in 2008 creating a Partnership on Children and Nature to develop policy responses to the issue.

References:

- Archie, M. (2003). *Advancing Education through Environmental Literacy*. Alexandria, VA: Association for Supervision and Curriculum Development.
- Bell, Anne C.; and Janet E. Dymont. "Grounds for Action: Promoting Physical Activity through School Ground Greening in Canada." *Evergreen*. 2006.
- Center for a Livable Future. *Perspectives on Childhood Obesity Prevention: Recommendations from Public Health Research and Practice*. Johns Hopkins Bloomberg School of Public Health, Baltimore MD, 2007.
- Cobb, E. *The Ecology of Imagination in Childhood*, New York, Columbia University Press. : 57-58. 1977.
- Coffey, Ann. Transforming School Grounds, in *Greening School Grounds: Creating Habitats for Learning*, (eds) Grant, Tim and Littlejohn, Gail., Toronto: Green Teacher and Gabriola Island, BC: New Society Publishers. 2001.
- Faber Taylor, A., Kuo, F.E. & Sullivan, W.C. "Coping with ADD: The surprising connection to green play settings." *Environment & Behavior*, 33(1), 54-77. 2001.
- Faber Taylor, A., Kuo, F.E. & Sullivan, W.C. "Views of Nature and Self-Discipline: Evidence from Inner City Children," *Journal of Environmental Psychology*, 22, 49-63. 2002.
- Faber Taylor, A., Wiley, A., Kuo, F.E., & Sullivan, W.C. "Growing up in the inner city: Green spaces as places to grow." *Environment and Behavior*, 30(1), 3-27 1988.
- Hofferth, S.L. & J.F. Sandberg. "Changes in American Children's Time, 1981-1997." In S.L. Hofferth & T.J. Owens (Eds.), *Children at the Millennium: Where Have We Come From, Where Are We Going?* (pp. 1-7). New York: JAI, 2001.
- Hofferth, S.L. & S.C. Curtin. "Changes in Children's Time", 1997-2002/3: An Update, 2006.
- Kaiser Family Foundation. *New Study Finds Children Age Zero to Six Spend As Much Time With TV, Computers and Video Games As Playing Outside* Available at: <http://www.kff.org/entmedia/entmedia102803nr.cfm> (accessed April 14, 2008).
- Kaiser Family Foundation (2010). *Generation M2: Media in the lives of 8 to 18 year olds*. Available at: <http://www.kff.org/entmedia/upload/8010.pdf> (accessed October 27, 2010).
- Kansas Association for Conservation and Environmental Education (2001). *The Kansas environmental report cards*. Available at: <http://www.kacee.org/files/KS%20Env%20Report%20Card%20FINAL.pdf>.
- Kuo, Frances E.; and Andrea Faber Taylor. "A Potential Natural Treatment for Attention-Deficit/Hyperactivity Disorder: Evidence from a National Study." In *American Journal of Public Health*, Vol 94, No. 9, September 2004.
- Liberman, Gerald. & Hoody, Linda. (1998). *Closing the Achievement Gap: Using the Environmental as an Integrating Context For Learning*. Science Wizards, Poway, CA.
- Louv, Richard. *Last Child in the Woods: Saving our Children from Nature Deficit Disorder*. Algonquin Books. 2005.
- Malone, Karen & Tranter, Paul. "Children's Environmental Learning and the Use, Design and Management of Schoolgrounds," *Youth and Environments*, 13(2), Accessed from cye.colorado.edu. 2003.
- Moore, Robin & Cosco, Nilda. "Developing an Earth-Bound Culture Through Design of Childhood Habitats, Natural Learning Initiative." paper presented at Conference on People, Land, and Sustainability: A Global View of Community Gardening, University of Nottingham, UK, September 2000.
- Moore, Robin. "Impact Nature: The Role of Playing and Learning Gardens on Children's Lives," *Journal of Therapeutic Horticulture*, 8, 72-82. 1996.
- Moore, R. & Wong, H. "Natural Learning: Rediscovering Nature's Way of Teaching." Berkeley, CA MIG Communications. 1997.
- Moore, Robin C. "The Power of Nature Orientations of Girls and Boys Toward Biotic and Abiotic Play Settings on a Reconstructed Schoolyard." *Children's Environments Quarterly*, 3(3). 1986.

Kansas Association for Conservation and Environmental Education, 2010

The National Environmental Education and Training Foundation. (2000, September). *Environment-Students*. Washington, DC: National Environmental Education and Training Foundation.

The National Environmental Education and Training Foundation. (2005). *Environmental Literacy in America*. Washington, DC: National Environmental Education and Training Foundation.

<http://dev.neefusa.org/pdf/ELR2005.pdf>

The North American Association for Environmental Education (NAAEE) and The National Environmental Education and Training Foundation (NEETF). (2001). *Using Environment-Based Education to Advance Learning Skills and Character Development*. Washington, DC: NAAEE and NEETF.

Taylor, Andrea Faber; Frances E. Kuo; and William C. Sullivan. "Coping with ADD: The Surprising Connection to Green Play Settings." *In Environment and Behavior*, Vol. 33, No. 1, January 2001.

Taylor, Andrea Faber; Frances E. Kuo; and William C. Sullivan. "Views of Nature and Self-Discipline: Evidence from Inner City Children." *Journal of Environmental Psychology*, 21, 2001.

Wells, N.M. "At Home with Nature: Effects of 'Greenness' on Children's Cognitive Functioning." *Environment and Behavior*. Vol. 32, No. 6, 775-795. 2000.

Wells, Nancy M. & Evans, Gary W. "Nearby Nature: A Buffer of Life Stress Among Rural Children." *Environment and Behavior*, 35(3), 311-330. 2003.