

## Outdoor Learning Environment (OLE)



### Goals

The goals of Outdoor Learning Environments (OLE) are 1) to decrease childhood obesity, 2) to increase the time that children spend outdoors, 3) to increase the level of childhood physical activity, and 4) to improve the quality of outdoor environmental diversity (source: [naturalearning.org](http://naturalearning.org)).

### Program Features

There are several key steps in the development of outdoor learning environments.

The first activity is to train teachers how to use the outdoors to promote physical activity and healthy nutrition.

Second, provide redesign assistance of outdoor play and learning environments that includes preschool staff/volunteers and helps modify these environments to support children's daily nutritional and physical activity needs. Designs should recognize that infants and toddlers have their own separate outdoor learning environment from preschool age children. Spaces should be designed to meet the developmental needs and abilities of each age group.

Third, centers need resources to buy or receive donated plants, tools, and materials to build the OLE. Lastly, volunteers and/or contractors are used to build the actual OLE.

Strong OLE's have a community engagement component which recognizes the project as a vehicle for community empowerment and knowledge transfer, which, in turn, drives the project execution. External professionals are seen as partners in the process and provide technical support and knowledge. Centers receive assistance with design of the outdoor learning environment. Typical improvements include wheeled toy pathways, water and sand play, multipurpose lawns, outdoor classrooms, shade trees, shrubs, permanent edible landscapes, and designated vegetable gardens.

The Natural Learning Initiative (NLI) housed at NC State University provides technical assistance for development of outdoor learning environments. When NLI works with a center, they begin with an assessment of the outdoor learning environment using the Preschool Outdoor Evaluation Measurement Scale (POEMS). Teachers and parents are asked to complete a short survey about what they like and dislike about the outdoor space. Center personnel then attend a full-day workshop where they review their POEMS data, discuss their site, and learn about the process for designing a new outdoor learning environment. A design team discusses the design plans and steps for implementation

### Outdoor Learning Environment Snapshot

- **EC Profile Indicator:** H60 - Percent of low income children age 2-4 who are at a healthy weight
- **Clearinghouse Rating:** None
- **Research supports use** with early childhood professionals and children in child care
- **Related Smart Start outcomes:**
  - Increase in the children's practice of healthy behaviors
- **Purveyor training required:** Yes
- **Suggested Assessments:** Preschool Outdoor Environment Measurement Scale (POEMS)
- **Implementation Guidance:**  
<http://naturalearning.org/content/projects>

For more information regarding outdoor learning environments use this link:  
<http://naturalearning.org/content/projects>

## Target Audience

Early care professionals and children in child care

## Documented Outcomes

	Type of Study	Outcomes
		Increase in children’s physical activity*
Cosco et. al. (2014). <sup>i</sup>	Non-experimental	✓

*This table contains outcomes found to be associated with the program or approach. Individual studies may contain additional outcomes that were tested and not found to be associated with the program or approach.*

\*Aligned with the Smart Start outcome *Increase in children’s practice of healthy behaviors*

## Research Evidence

- The evidence suggests that the layout of an outdoor site in a childcare center along with teacher training may support an increase in children’s physical activity.

## Review of Experimental and Quasi-Experimental Studies

None

## Review of Meta-Analyses

None

## Review of Descriptive and Non-Experimental Studies

<b>Citation</b>	Cosco, N., G., Moore, R. C., & Smith, W. R. (2014). Childcare outdoor renovation as a built environment health promotion strategy: Evaluating the preventing obesity by design intervention. <i>American Journal of health Promotion, 28(3)</i> , pp. S27-S32.
<b>Population and Sample</b>	The study worked with 10 North Carolina county Smart Start Partnerships. The partnerships chose three childcare centers each from a pool of centers participating in childcare quality enhancement programs across the state. The evaluation included 27 centers.
<b>Methodology</b>	Non-experimental; pre/post intervention
<b>Purpose</b>	To evaluate the effectiveness of Preventing Obesity by Design (POD), a childcare center outdoor renovation intervention. POD is based on research that shows (1) children’s physical activity is motivated by diverse outdoor environments, (2) active preschoolers retain higher levels of physical activity as school-aged children, (3) the preschool outdoors is a determinant of preschool physical activity, and (4) gardens that support children’s engagement with vegetables and fruits and frequency of their consumption are associated with acceptance of diverse tastes as a positive strategy to support healthy eating
<b>Measures &amp;</b>	<ul style="list-style-type: none"> <li>• Behavior mapping</li> </ul>

<b>Assessments</b>	<ul style="list-style-type: none"> <li>• Preschool Outdoor Environment Measurement Scale (POEMS)</li> <li>• Center Director Interview</li> </ul>
<b>Study Implementation</b>	<ul style="list-style-type: none"> <li>• The POD team worked directly with local early education technical assistance professionals and providers, using a train-the-trainers approach to transfer knowledge about designing and managing outdoor environments to support physical activity, increase food awareness, and encourage healthy eating.</li> </ul>
<b>Staff Qualifications</b>	<ul style="list-style-type: none"> <li>• Not addressed</li> </ul>
<b>Key Findings</b>	<ul style="list-style-type: none"> <li>• All POEMS ratings were higher post renovation. Physical Environment and Teacher/ Caregiver Role domains were positively associated with preschool activity. These domains assess environmental conditions and teacher expertise in outdoor play and learning, respectively.</li> <li>• Trained teachers allowed children to play freely without interruptions and did not intervene as often.</li> <li>• Changes in the built environment influence children’s activity and pathway layout is associated with increased preschool physical activity.</li> <li>• Findings indicate that social interactions in preschool outdoor learning environments were associated with the level of children’s activity.</li> <li>• Any type of teacher interaction (including positive) decreased the amount of children’s physical activity, as children stop what they are doing when an adult addresses them, engages in a conversation, or coordinates play activities. Therefore, the absence of teacher in the observation zone was associated with increased physical activity.</li> <li>• Lack of interactions with other children was also associated with increased activity possibly owing to the inability of coders to identify play partners when the activity was fast.</li> <li>• Behavior mapping showed that site layout attributes, including looped pathways, coupled with teacher training may support increased physical activity.</li> <li>• Teacher interaction was associated with decreased children’s physical activity. Absence of teacher or lack of child/child interaction was associated with increased physical activity.</li> <li>• After renovation, 68% of center directors reported positive changes in children’s behavior and 40% mentioned edible plant installations as greatest success.</li> </ul>

## End Notes

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<sup>i</sup> Cosco, N., G., Moore, R. C., & Smith, W. R. (2014). Childcare outdoor renovation as a built environment health promotion strategy: Evaluating the preventing obesity by design intervention. *American Journal of health Promotion*, 28(3), pp. S27-S32.

## Additional Resources

Boldemann, C., Blennow, M., Dal, H., Martensson, F., Raustrop, A., Yuen, K., & Wester, U. (2006). Impact of preschool environment upon children's physical activity and sun exposure. *Preventive Medicine*, 42(4), pp. 301-308.

Boldemann, C., Dal, H., & Wester, U. (2004). Swedish preschool children's UVR exposure: a comparison between two outdoor environments. *Photodermatology, Photoimmunology & Photomedicine*, 20(1), pp. 2-8.

Fjortoft, I. (2001). The natural environment as a playground for children: The impact of outdoor play activities in pre-primary school children. *Early Childhood Education Journal*, 29, pp. 111-117.

Grahn, P., Martensson, F., Lindblad, B., Nilsson, P., & Ekman, A. (1997). Outdoors at a day care centre, Alnarp, Sweden. *MOVIUM, Stad & Land 145*, Swedish Agricultural University, Alnarp, Sweden, pp. 4-115.

Martensson, F., Boldemann, C., Soderstrom, M., Blennow, M., Englund, J. E., & Grahn, P. (2009). Outdoor environmental assessment of attention promoting settings for preschool children. *Health &*

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Place, 15, pp. 1149-1157.

Soderstrom, M., & Blennow, M. (1998). Children in outdoor day care centers have lower absence due to sickness. *Lakartidningen*, 95, pp. 1670-1672.

Soderstrom, M., Martensson, F., Grahn, P., & Blennow, M. (2004). Outdoor environment in child daycare and its influence on outdoor stay and play. *Ugeskrift for Laeger*. 166(36), pp. 3089-3092.

The Natural Learning Initiative (NLI). (2012). *Impact of Preventing Obesity by Design* POD. College of Design, NC State University: Raleigh, NC.

The Natural Learning Initiative. (2012). *Preventing Obesity by Design*. Available from: <http://naturalearning.org/content/projects>.

Note: Research summaries could include verbiage directly reproduced from the research literature. Quotes and italics may be used to show a direct quote but not always.

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