

Shape NC *Intervention Component* – OLE

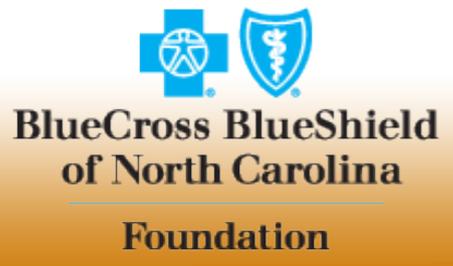
Outdoor Learning Environment (OLE)



NC STATE UNIVERSITY

Shape NC Team

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Shape NC *Intervention Component – OLE*

Outdoor Learning Environment (OLE)

- Define OLE.
- Explain **why** OLE is an important component of Shape NC.
- Describe how the NLI intervention process is designed to improve the OLE.
- Describe the OLE best practice indicators.
- Report challenges in meeting best practices.

Define OLE

Regulated childcare center outdoor space, where:

- Children engage in supervised, spontaneous play;
- Programmatic activities are organized by educators;
- Community events may be held;
- Parents or other family members spend time sharing special moments and meeting other parents.

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Low quality OLEs

DCDEE Survey of Perceptions of Quality of OLEs, 2011

Division of Child Development and Early Education survey of Licensing Consultants and Environmental Rating Assesseors

Response rate 72.4%

- Poor: 36%
- Average: 54% Poor + Average 90%
- Good: 7.5%
- Very Good: 1.2%
- Excellent: 0



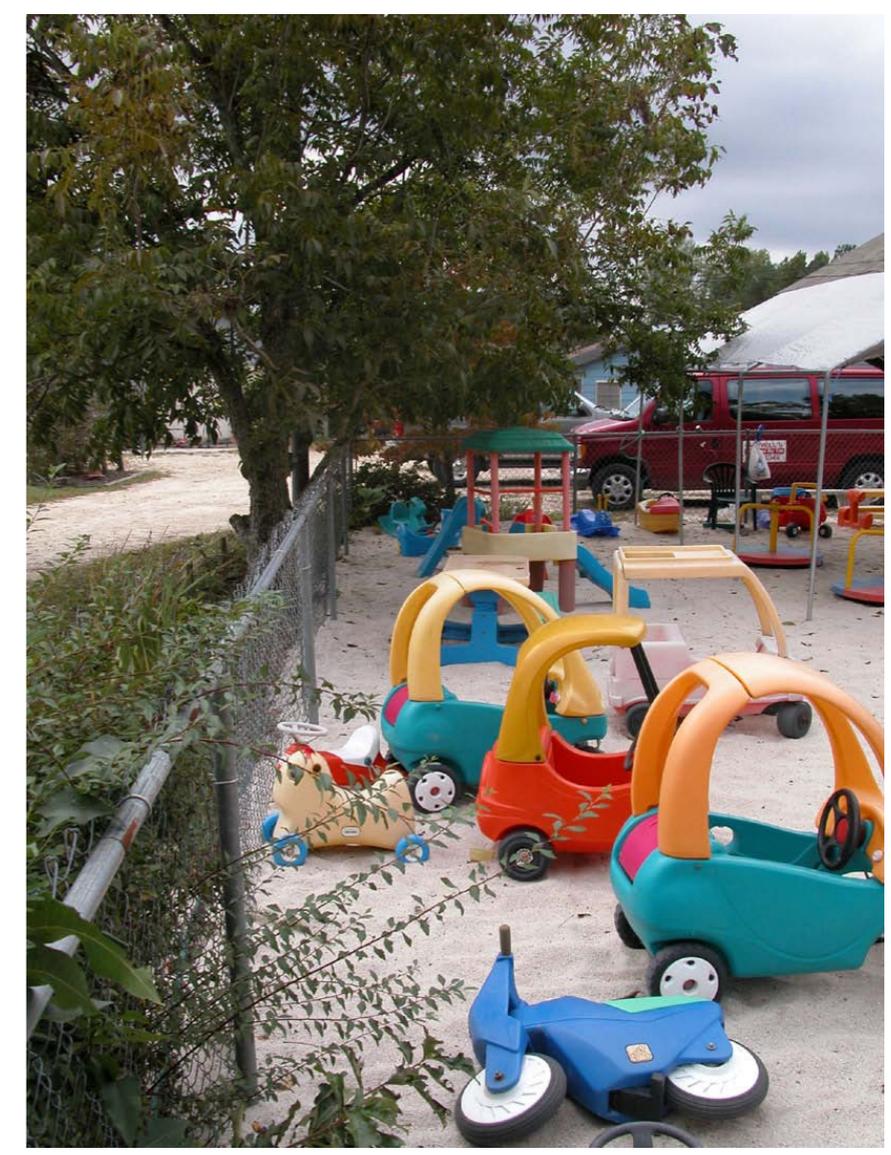
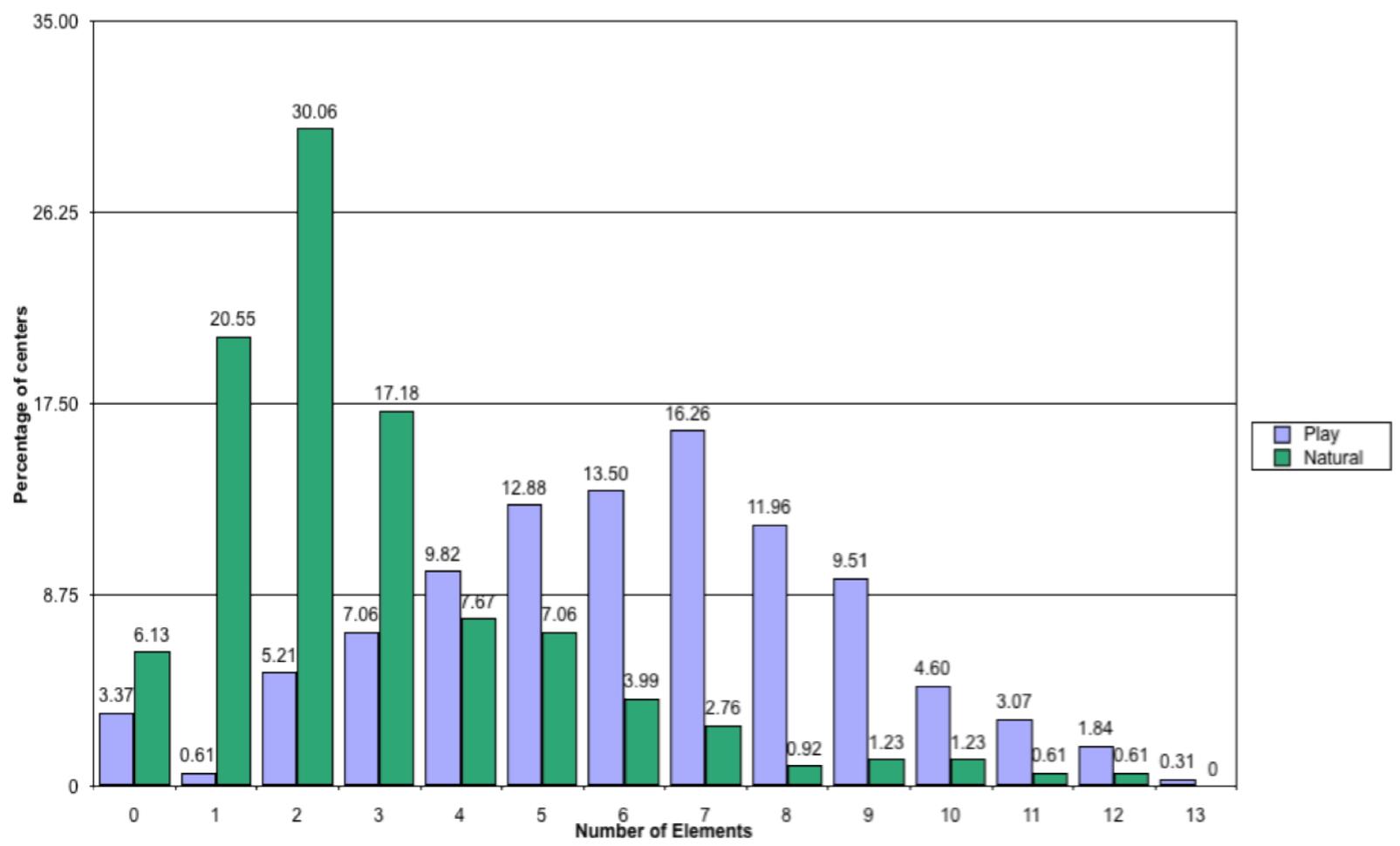
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Low quality OLEs

Statewide Survey of OLEs, 2002

Natural Learning Initiative, 10% convenience sample

Number of Manufactured and Natural Elements



Shape NC *Intervention Component – OLE*

2007 NC Outdoor Learning Environment Alliance success

“Playground” redefined as “Outdoor Learning Environment” in DCDEE *Child Care Rules*

10A NCAC 09 .0605 CONDITION OF OUTDOOR LEARNING ENVIRONMENT

- (a) All equipment shall be in good repair and shall be maintained in useable condition. All commercially manufactured equipment shall be assembled and installed according to procedures specified by the manufacturer.
- (b) Equipment shall be sturdy, stable, and free of hazards that are accessible to children during normal supervised play including sharp edges, lead based paint, loose nails, splinters, protrusions (excluding nuts and bolts on sides of fences), and pinch and crush points.
- (c) All broken equipment shall be removed from the premises immediately or made inaccessible to the children.
- (d) Children shall not be allowed to play on outdoor equipment that is too hot to touch.
- (e) Any openings in equipment, steps, decks, and handrails shall be smaller than 3 ½ inches or greater than 9 inches to prevent entrapment.
- (f) All upright angles shall be greater than 55 degrees to prevent entrapment and entanglement.
- (g) The outdoor play area shall be protected by a fence or other protection. The height shall be a minimum of four feet and the top of the fence shall be free of protrusions. The requirement disallowing protrusions on the tops of fences shall not apply to fences six feet high or above. The fencing shall exclude fixed bodies of water such as ditches, quarries, canals, excavations, and fish ponds. Gates to the fenced outdoor play area shall remain securely closed while children occupy the area.
- (h) All stationary outdoor equipment more than 18 inches high shall be installed over protective surfacing. Footings which anchor equipment shall not be exposed. Loose surfacing material



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Outdoor Play is Required – CCR.1718(10), 0102

Written schedule must include a minimum of one hour of outdoor play, if weather conditions permit.

- Child Care Weather Watch Chart
- Air Quality Index Chart
- No active precipitation

Child Care Weather Watch

Wind-Chill Factor Chart (in Fahrenheit)

		Wind Speed in mph								
		CALM	5	10	15	20	25	30	35	40
Air Temperature	50	50	48	40	36	32	30	28	27	26
	40	40	37	28	22	18	16	13	11	10
	30	30	27	16	9	4	0	-2	-4	-6
	20	20	16	4	-5	-10	-15	-18	-20	-21
	10	10	6	-9	-18	-25	-29	-33	-35	-37
	0	0	-5	-21	-36	-39	-44	-48	-49	-53
	-10	-10	-15	-33	-45	-53	-59	-63	-67	-69
	-20	-20	-26	-46	-58	-67	-74	-79	-82	-85
	-30	-30	-36	-58	-72	-82	-87	-94	-98	-102



Comfortable for out door play



Caution



Danger

Heat Index Chart (in Fahrenheit)

		Relative Humidity (Percent)															
		15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
Temperature (°F)	110	108	112	117	123	130	137	143	150								
	105	102	105	109	113	118	123	129	135	142	149						
	100	97	99	101	104	107	110	115	120	126	132	138	144				
	95	91	93	94	96	98	101	104	107	110	114	119	124	130	136		
	90	86	87	88	90	91	93	95	96	98	100	102	106	109	113	117	122
	85	81	82	83	84	85	86	87	88	89	90	91	93	95	97	99	102
	80	76	77	77	78	79	79	80	81	81	82	83	85	86	86	87	88
	75	71	72	72	73	73	74	74	75	75	76	76	77	77	78	78	79

Air Quality Color Guide

Air Quality Index	Guidelines to protect your health	Care for the air
Good 0-50 <i>Code Green</i>	No health effects expected.	<ul style="list-style-type: none"> ■ Conserve energy: drive less and use less electricity. ■ Carpool, use public transportation, bike or walk whenever possible. ■ Keep your car, boat, lawnmower and other engines tuned and maintained. ■ Keep tires properly inflated and wheels aligned. ■ Never burn your trash. This is illegal and releases toxic chemicals. <p>Avoid burning leaves and brush, which is sometimes legal but always pollutes the air.</p>
Moderate 51-100 <i>Code Yellow</i>	Unusually sensitive people: consider limiting prolonged or heavy exertion.	
Unhealthy for Sensitive Groups 101-150 <i>Code Orange</i>	Children, active people, older adults, and those with heart or lung disease (like asthma): limit prolonged or heavy exertion.	
Unhealthy 151-200 <i>Code Red</i>	Children, active people, older adults, and those with heart or lung disease (like asthma): avoid prolonged or heavy exertion. Everyone else: limit prolonged or heavy exertion.	
Very Unhealthy 201-300 <i>Code Purple</i>	Everyone: avoid all exertion.	

Consequences of low quality OLE

- **Lack of shade** reduces comfort for children and teachers—reducing time outdoors;
- Children exposed to harmful levels of ultraviolet radiation;
- Inadequate support for spontaneous play and physical activity;
- Overlooked opportunities for vegetable gardens and “edible landscape;”
- Users disengaged from sense of identity and ownership (weak affective domain).

Shape NC *Intervention Component – OLE*

Precedents – NLI Comprehensive Projects

Preventing Obesity By Design (POD)

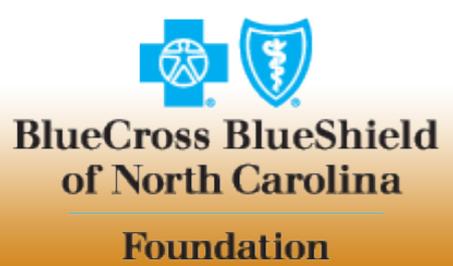
BCBSNC Foundation
NC Partnership for Children

Outdoor Learning Environments Demonstration Project

Department of Public Instruction (DPI),
Office of Early Learning

Creating a Supportive Network

Training and Resources for Licensing
Consultants and Environmental Assessors
NC Division of Child Development and Early
Education



Shape NC *Intervention Component – OLE*

Engaging the Center Community

- Vehicle for participation
- Articulating needs—the design program.
- Understand the importance of spatial structure and effect on physical activity.
- Making it edible.
- Sense of ownership.
- Engage the forces of implementation.

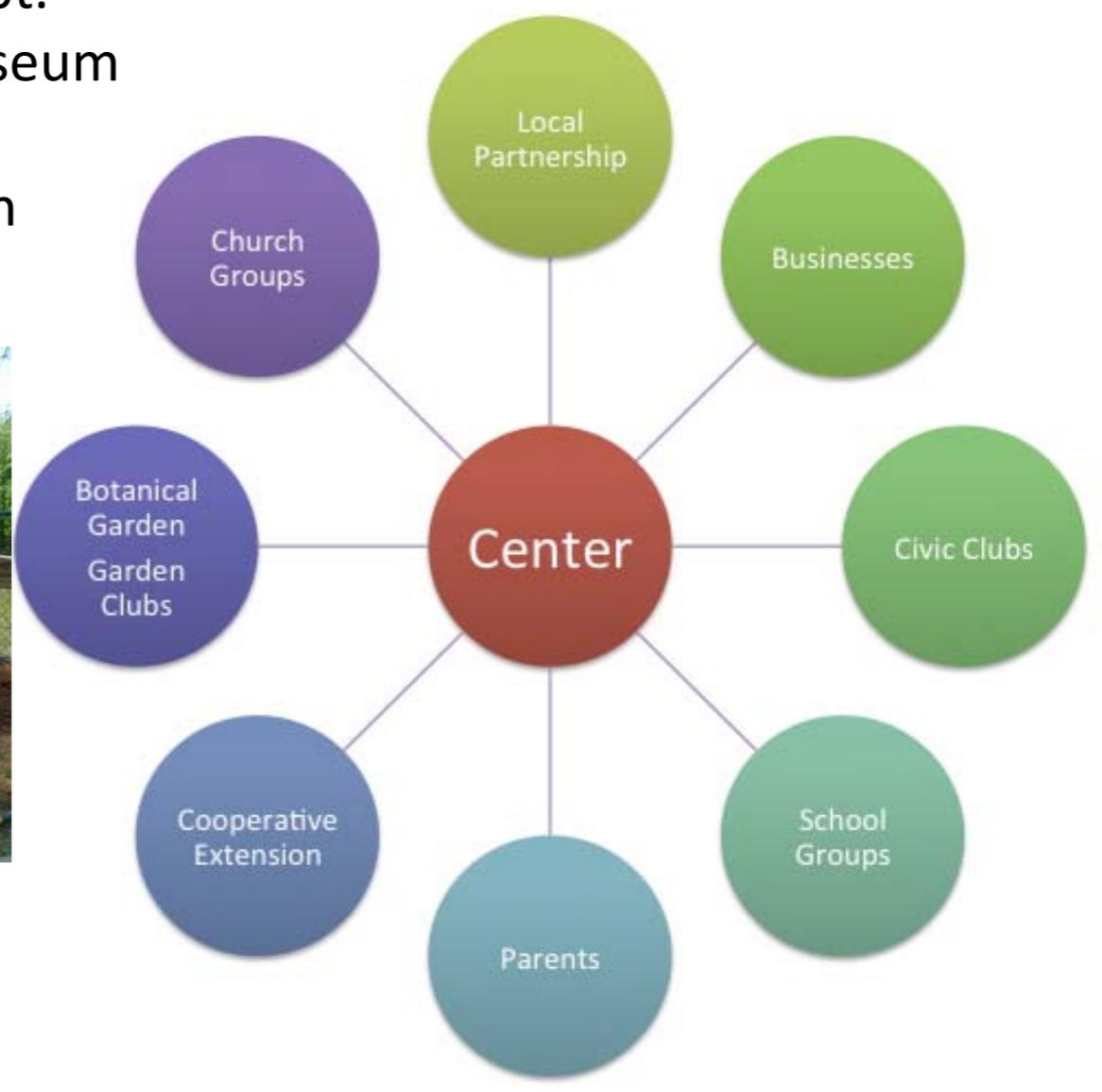


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Engaging the Center Community

- Botanical garden, garden clubs
- Girl and Boy Scout Troops
- Rotary, Kiwanis, Junior League
- Local Partnership Board
- Local Hospital
- Grocery stores
- County Health Department
- Nurseries and garden centers
- Landscaping companies
- Farmers
- NC Cooperative Extension
- Community Colleges
- Child Care Health Consultant

- Parks & Recreation Dept.
- Arts Council or Art Museum
- Businesses
- Community Foundation
- Community Colleges



Shape NC *Intervention Component* – OLE

POD Precedent



Before renovation 2009

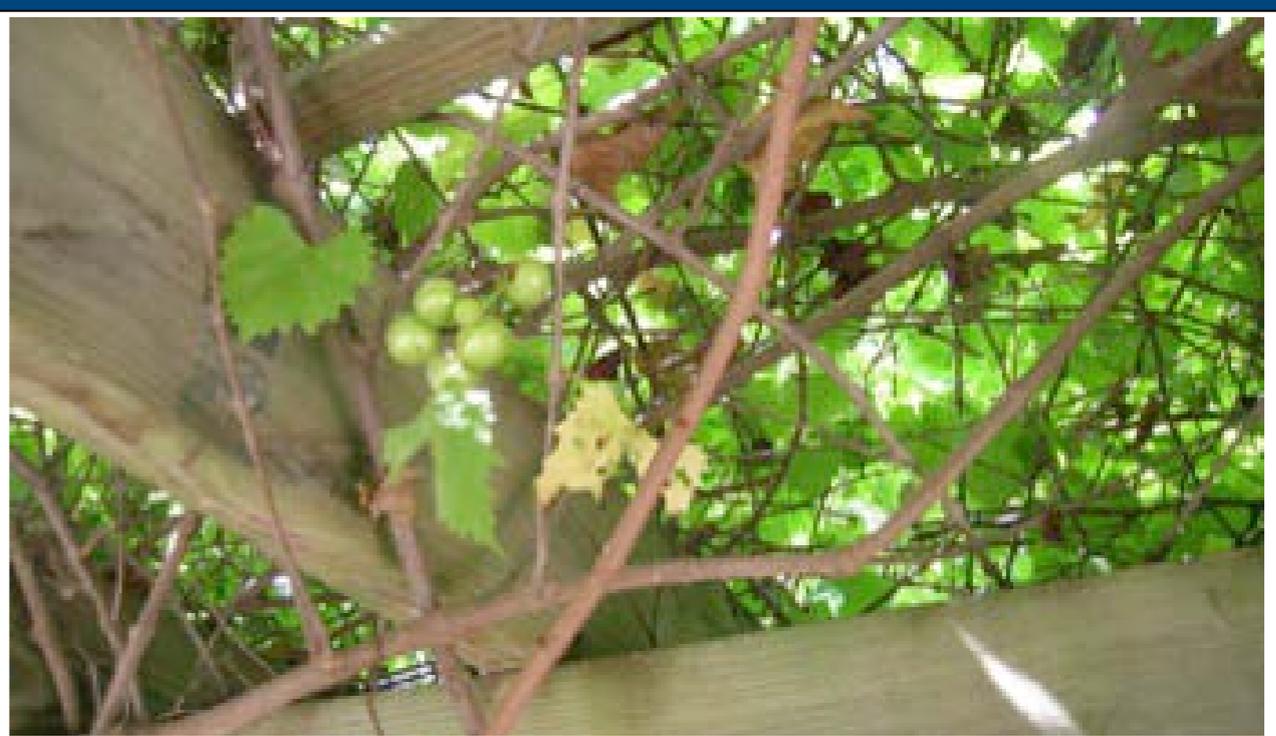


After renovation 2010



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Indoor–Outdoor Curricular Connections



Children and teachers actively engaged in studying, harvesting, and preparing food from the center “orchard” scattered throughout the OLE. Gardening strategies effective generators of fresh produce interest. Benjamin, 2011.



Shape NC *Intervention Component – OLE*

OLE Evidence base

Diverse, natural environments associated with gross motor development, attention functioning, diverse play activities.

- Kuo, 2010. NRPA Monograph.
- Boldemann, et al, 2006. 197 children, 11 preschools Stockholm. Pedometry, UV radiation. High/low vegetation—Mean step count/min 21.5/17.7; % UV 14.6/24.3. Wide range both measures.
- Fjørtoft, 2004. Controlled study, 6 and 7yo. Motor fitness sig diff between nature play and trad PG.
- Faber Taylor, et al, 2001.
- Grahn, et al, 1997.

Open space, grassy areas, lower play space density.

- Nicaise, et al, 2011. OSRAC-P including environment, two sites, 51 preschoolers, Xsect.



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OLE Evidence base

Outdoors vs indoors—higher levels of physical activity

- Raustorp et al, 2011. Accelerometer study in Malmö, Sweden and RTP, NC, USA.
- Brown, et al, 2009.
- Hinkley, et al, 2008. Review of PA correlates 1980-2007.
- Benham-Deal, 2005. 39 children. Heart-rate monitors, parent logs, weekday 71%, weekend 46% recommended amounts MVPA. Afternoons more important.

Pathways—higher PA

- Nicaise, et al, 2011. OSRAC-P including environment, two sites, 51 preschoolers, Xsect.
- Cosco, 2006.

Balls, portable equipment, manipulative objects (“loose parts”).

- Nicaise, et al, 2011. OSRAC-P including environment, two sites, 51 preschoolers, Xsect.
- Raustorp et al, 2011. Accelerometer study in Malmö, Sweden and RTP, NC, USA.
- Ward, et al, 2010. Review 19 studies, 3 report positive association.
- Hinkley, et al, 2008. Review of PA correlates 1980-2007.

Shape NC *Intervention Component – OLE*

OLE Evidence base

Higher MVPA associated with teacher prompts and teacher-arranged activities, i.e., programming.

- Nicaise, et al, 2011. OSRAC-P including environment, two sites, 51 preschoolers, Xsect.

Increased time outdoors supported by child development policy, pedagogical programming.

Malmö preschoolers spent 46% time outdoors compared to 18% RTP.

- Raustorp et al, 2011. Accelerometer study in Malmö, Sweden and RTP, NC, USA.

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OLE – Swedish practice



Shape NC

Participating Local Partnerships • Model Early Learning Center (MELC) Locations • Hub Specialist-MELC Links



- ★ Shape NC Hub Specialist
- Hub Specialist-MELC Links
- Shape NC Model Early Learning Center (MELC)
- Shape NC Cohort One
- Shape NC Cohort Two
- Multi-County Partnerships

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Creating MELC OLEs Friendly Avenue Christian Academy



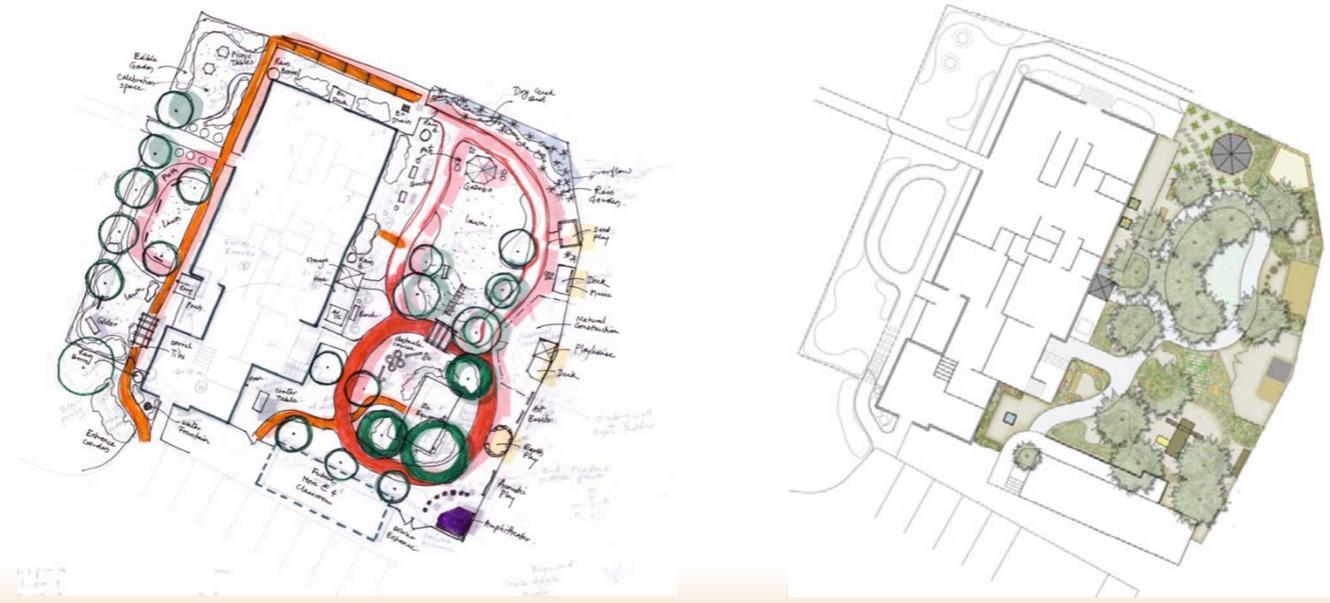
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Creating MELC OLEs Friendly Avenue Christian Academy



Shape NC *Intervention Component – OLE*

Creating MELC OLEs Spanish For Fun



Shape NC *Intervention Component – OLE*

Creating MELC OLEs *Spanish For Fun*



Key

Perennials, Shrubs, Groundcover

Lawn

Mulch

Path



Stepping Stone Path

Log Seats

Deck or other Wooden Construction

Arbor



Spanish for Fun Preliminary Cost Estimate of Phase One

Note: These figures are preliminary, and are not to be used for construction purposes.

Plantings

	Unit	Quant.	Unit Price	Step 1 Material Cost	Step 2 Material Cost	Notes
Tree Large (Height: 70-100')	2" caliper	1	\$ 165.00	\$ 165.00		
Tree Medium (Height: 40-70')	2" caliper	5	\$ 160.00	\$ 800.00		
Tree Small (Height: 12-40')	2" caliper or 20 gal.	7	\$ 145.00	\$ 1,015.00		
Shrub Medium (Height: 6-10')	3 gal	15	\$ 20.00	\$ 300.00		
Shrub Small (Height: 1-5')	3 gal	15	\$ 15.00	\$ 225.00		
Shrub Edible	3 gal	11	\$ 18.00	\$ 198.00		
Vine	3 gal	13	\$ 15.00	\$ 195.00		
Groundcover	4" pot	68	\$ 4.00		\$ 272.00	Step 2 installed Spring 2012
Perennial	1 gal	79	\$ 10.00		\$ 790.00	Step 2 installed Spring 2012
Grasses	3 quart	14	\$ 7.50	\$ 105.00		
Top Soil/Soil Amendment	cy	8	\$28.00	\$ 224.00		
Mulch - for plantings	cy	6	\$23.00	\$ 138.00		
Mulch - for ground surface (not equipment use zone)	cy	15	\$23.00	\$ 345.00		
Planting Subtotal				\$ 3,710.00	\$ 1,062.00	

Hardscape

Item	Unit	Quant.	Unit price	Total cost	Total Installed Price	Notes
Arbor					no cost	
Arbor with deck below					no cost	
Deck and playhouse with storage					no cost	
Dramatic play deck					no cost	
Gazebo					no cost	
Lumber for sand play enclosure and seating	6" x 6" x 12'	12	\$28.97	\$347.64		
Lumber for sand play enclosure and seating	6" x 6" x 8'	8	\$18.97	\$151.76		
Brackets and fasteners for sand play lumber				\$75.00		
Cedar timber for planters with edibles	1" x 6" x 12'	8	\$19.28	\$154.24		
Cedar timber for planters with edibles	1" x 6" x 8'	8	\$8.98	\$71.84		
Mulch path	6" deep and 5' wide (in cy)	19	\$23.00	\$437.00		
Edging material for path						
Sand for sand play	unit = 1 ton (in bulk)	11	\$35.00	\$385.00		18" depth. Assume delivery fee.
Hardscape Subtotal				\$1,622.48		
Grading and Demolition				\$850.00		

Step 1 Materials Cost: \$6,182.48 (includes grading and demolition)

Step 2 Materials Cost: \$1,062.00



Shape NC *Intervention Component – OLE*

Best Practice Indicators: *Natural Diversity*

1. Diversity of trees, shrubs
2. Shade
3. Ten settings or more
4. Five-six feet wide looped or double looped path
5. Grassy area, big enough for a group of children
6. Vegetables, fruit trees, fruiting vines, and nuts within play areas
7. Designated vegetable garden
8. Natural materials
9. Outdoor toys
10. Settings for a variety of gross motor activities



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Shape NC *Intervention Component – OLE*

Best Practice Indicators: *Shade*

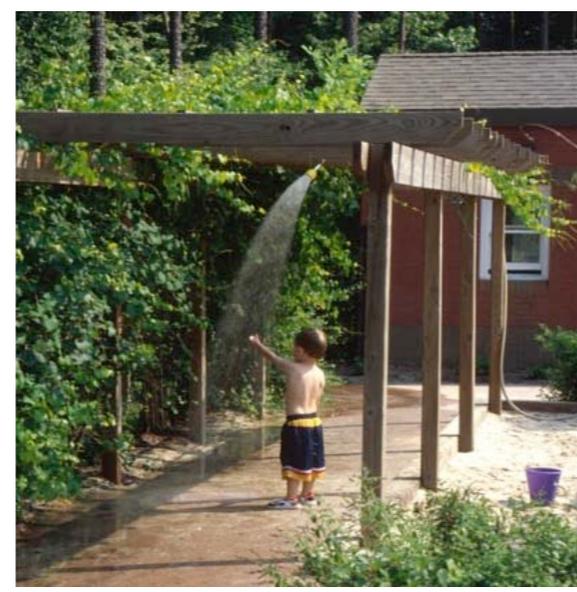
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Shape NC *Intervention Component – OLE*

Best Practice Indicators: *Settings*

1. Diversity of trees, shrubs
2. Shade
3. Ten settings or more
4. Five-six feet wide looped or double looped pathway
5. Grassy area, big enough for a group of children
6. Vegetables, fruit trees, fruiting vines, and nuts within play areas
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Each added adjacency, 2% MVPA – prelim. results, 30 centers, behavior mapping data.

Shape NC *Intervention Component – OLE*

Best Practice: Shade, Play and Learning Settings

- A. At your center, how many shade structures, in addition to trees, are provided to accommodate children's activities in outdoor learning environments (pergolas, porches, awnings, canopies, other shade structures)?



Shape NC *Intervention Component – OLE*

Best Practice Indicators: *Pathway*

1. Diversity of trees, shrubs
2. Shade
3. Ten settings or more
4. Five-six feet wide looped or double looped pathway
5. Grassy area, big enough for a group of children
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Shape NC *Intervention Component – OLE*

Best Practice Indicators: *Grassy area*

1. Diversity of trees, shrubs
2. Shade
3. Ten settings or more
4. Five-six feet wide looped or double looped pathway
5. Grassy area, big enough for a group of children
6. Vegetables, fruit trees, fruiting vines, and nuts within play areas
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10. Settings for a variety of gross motor activities



Shape NC *Intervention Component – OLE*

Best Practice: Pathways, Open Grassy Areas

<p>A. In your center's outdoor learning environment, what kinds of paths are available for children to use wheeled toys in the outdoor learning environment?</p>	<p><input type="radio"/> No path.</p>	<p><input type="radio"/> A straight linear path, but it is less than 5 feet in width and is not connected to the building</p>	<p><input type="radio"/> A circular path less than five feet wide</p>	<p><input type="radio"/> A curved looped or double looped path five feet wide that is connected to the buildings & settings</p>
				
<p>B. Is there an open, grassy area for games, activities and events?</p>	<p><input type="radio"/> There is NO grassy area</p>	<p><input type="radio"/> There is a small grassy area, large enough for approx. 6-8 children</p>	<p><input type="radio"/> There is a medium-sized grassy area, large enough for approx. 9-15 children</p>	<p><input type="radio"/> There is a large grassy area, big enough for 25 or more children</p>
				

Shape NC *Intervention Component – OLE*

Best Practice Indicators: *Fruity Landscape*

1. Diversity of trees, shrubs
2. Shade
3. Ten settings or more
4. Five-six feet wide looped or double looped pathway
5. Grassy area, big enough for a group of children
6. Vegetables, fruit trees, fruiting vines, and nuts within play areas
7. Designated vegetable garden
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10. Settings for a variety of gross motor activities



Shape NC *Intervention Component – OLE*

Best Practice Indicators: *Designated veg.*

1. Diversity of trees, shrubs
2. Shade
3. Ten settings or more
4. Five-six feet wide looped or double looped pathway
5. Grassy area, big enough for a group of children
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Shape NC *Intervention Component – OLE*

Best Practice: Designated Garden, Fruiting Trees Shrubs

<p>A. In your center’s outdoor learning environment, what kinds of garden areas are available?</p>	<p><input type="radio"/> No garden is available</p>	<p><input type="radio"/> Vegetables and/or fruits that are planted in small pots and/or used as ornamentals</p>	<p><input type="radio"/> Vegetables, fruit trees, fruiting vines, and/or nuts that are planted adjacent to or inside play areas</p>	<p><input type="radio"/> Vegetables, fruit trees, fruiting vines, and nuts that are planted adjacent to play areas, AND include a designated vegetable garden</p> <p><input type="radio"/></p>
				
<p>B. If your center does have a vegetable garden, how much produce does it provide for your center?</p>	<p><input type="radio"/> No garden, not applicable</p>	<p><input type="radio"/> The produce supplied by the garden is minimal, not enough for all children to taste</p>	<p><input type="radio"/> The produce is used for taste tests or snacks during at least one season of the year</p>	<p><input type="radio"/> The produce is used for snacks and/or meals in two seasons of the year</p>
				

Shape NC *Intervention Component – OLE*

Best Practice Indicators: *Natural Materials*

1. Diversity of trees, shrubs
1. Shade
2. Ten settings or more
3. Five-six feet wide looped or double looped pathway
4. Grassy area, big enough for a group of children
5. Vegetables, fruit trees, fruiting vines, and nuts within play areas
6. Designated vegetable garden
7. Natural materials
8. Outdoor toys
9. Settings for a variety of gross motor activities



Shape NC *Intervention Component – OLE*

Best Practice Indicators: *Outdoor toys*

1. Diversity of trees, shrubs
1. Shade
2. Ten settings or more
3. Five-six feet wide looped or double looped pathway
4. Grassy area, big enough for a group of children
5. Vegetables, fruit trees, fruiting vines, and nuts within play areas
6. Designated vegetable garden
7. Natural materials
8. Outdoor toys
9. Settings for a variety of gross motor activities



Shape NC *Intervention Component – OLE*

Best Practice Indicators: *Gross Motor*

1. Diversity of trees, shrubs
1. Shade
2. Ten settings or more
3. Five-six feet wide looped or double looped pathway
4. Grassy area, big enough for a group of children
5. Vegetables, fruit trees, fruiting vines, and nuts within play areas
6. Designated vegetable garden
7. Natural materials
8. Outdoor toys
9. Settings for a variety of gross motor activities



Shape NC *Intervention Component – OLE*

Best Practice: Outdoor Toys, Gross Motor Development

<p>A. In your center’s outdoor learning environment, how many different kinds of toys and materials (e.g., wheeled toys, blocks, balls, pieces of cloth or ribbons, skipping rope, hoses, sand toys, water toys, rings/hula hoops, chalk, other) are available to support active play engagement ?</p>	<p><input type="radio"/> No outdoor toys are accessible for children</p>	<p><input type="radio"/> 2–3 items are present and children are allowed to play with them freely</p>	<p><input type="radio"/> 4–5 items are present and children are allowed to play with them freely</p>	<p><input type="radio"/> 6 items are present and children are allowed to play with them freely</p>
				
<p>B. In your center’s outdoor learning environment, which of the following physical activities and gross motor development activities are supported?</p>	<p> <input type="radio"/> balancing <input type="radio"/> climbing <input type="radio"/> crawling through <input type="radio"/> gliding (gliders) <input type="radio"/> hopping <input type="radio"/> jumping on/off <input type="radio"/> kicking <input type="radio"/> lifting <input type="radio"/> pedaling <input type="radio"/> rocking <input type="radio"/> rolling <input type="radio"/> running <input type="radio"/> skipping <input type="radio"/> sliding <input type="radio"/> swinging <input type="radio"/> throwing <input type="radio"/> Other. Specify </p>			

Shape NC *Intervention Component – OLE*

Keys to success / challenges

- Design creates shared vision, engages community, serves as development guide.
- **Laying out the design on the ground.**
- Management of incremental development
- Long term center commitment
- Strong community involvement to ensure sustainability
- **Education program linked to OLE** – increased time outdoors
- On-going training and technical support for providers (webinars, design institutes, on-call, website)

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Thank you!

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- www.naturalearning.org