From Yard to Garden

Interventions in the Landscape of Play

PLACE RESEARCH AWARD

Researchers: Susan Herrington, assistant professor of landscape architecture, Iowa State University; Kenneth Studtmann.

Changes to the design of a pre-school play yard expand the range of children's activities and enrich their developmental opportunities.

Stepping-stone paths encouraged children to take meandering routes and to explore new areas of the play yard; previously they had taken the most direct route to their destination, often a piece of play equipment.

Photos: **Susan Herrington**

Millions of pre-school children in the U.S. are in out-of-home care settings, such as institutional or commercial child-care facilities. But while child-care- center playgrounds have become surrogates for the backyards and open spaces known to previous generations, they often provide children with little contact with nature, denying them the developmental and emotional benefits that outdoor play spaces could offer.

The outdoor environments of child-care centers typically consist of isolated pieces of equipment placed in monocultures of grass. This equipment-based design approach to playgrounds does not speak to the experiential qualities of being outdoors; landscapes that evoke emotions, passion, beauty and wonder are rarely encountered. Moreover, play equipment primarily addresses children's physical development, while social, emotional and cognitive developmental needs are largely ignored.[1]

This project focused on how to work with a typical play area that would expose children to the unique aspects of being outdoors and support their various developmental needs. It was conducted in two outdoor play yards at Iowa State University's Child Development Laboratory, one for pre-schoolers and one for kindergartners. The research spanned approximately two years and entailed both temporary and permanent interventions of natural materials; children's activities were observed before and after the interventions. The

project was directed by Susan Herrington and Kenneth Mark Studtmann with support from the director of the school.

The research sought to expand knowledge about how natural materials (such as plants, stones and earth) could be incorporated into an existing outdoor play area to support children's social, emotional, physical and cognitive development.[2] The project employed landscape design principles like ordering systems, spatial sequences and sense of place to guide the composition and shaping of outdoor play areas. These principles are derived from a range of theoretical and applied research in landscape design, geography and environmental psychology.

The permanent design interventions focused on using natural materials to create various types of enclosure and promote certain paths of movement. In the preschool yard these included a sixteen-foot diameter "sensory–motor" circle, plantings next to a bridge and other play equipment, a patch of unmown lawn and plants installed in cut-outs in the asphalt. In the kindergarten yard these included two four-foot by four-foot rooms defined by three-foot high vegetation — one room with a grass surface and one room with boulders arranged on the grass.

The results suggested that the simple landscape elements introduced into these yards did, in fact, broaden the children's development. A series of stepping stones expanded the children's physical use of the space and altered their cognitive understanding of the space; vegetative rooms transformed the social structure of the kindergarten class and gave children better opportunities for controlling their environment and establishing places of significance. The results also suggested that the "landscape-based" design approach was useful in helping designers understand how to structure the children's cognitive understanding of the yards.

Spatial–Cognitive Awareness

Prior to the interventions, children in both yards ran from the classroom exit doors directly to the play structures. Outdoor play was oriented towards the use of the existing prefabricated playground equipment. Most of the children's time was spent moving from one play structure to the next.

Each district supports various activities and developmental stages.

Sketch of District	District	Activities	Development
	1. Porch	Time out quiet play line up	emotional emotional social/ emotional
	2. Asphalt area	ridding tricycles bouncing balls	physical cognitive/ social
	3. Wooden Deck (lab A)	quiet play	emotional
	4. Play structures	climbing swinging	physical physical
	5. Sand	digging, building	cognitive, physical social, cognitive
	6. Shed	getting toy	social/ physical
	7 Climbing tree	climbing, imaginative play	physical, cognitive social, emotional
	8. Beyond fence	viewing out	cognitive
	9. Hill/ mounding	running up/down hill viewing out	physical/ emotional cognitive
	10. Vegetative rooms (phase II intervention)	imaginative play fantasy play play with plants movement through plants	social/ emotional social/ emotional cognitive cognitive

Researchers tested a range of design interventions to determine their impact on the development of preschoolers.

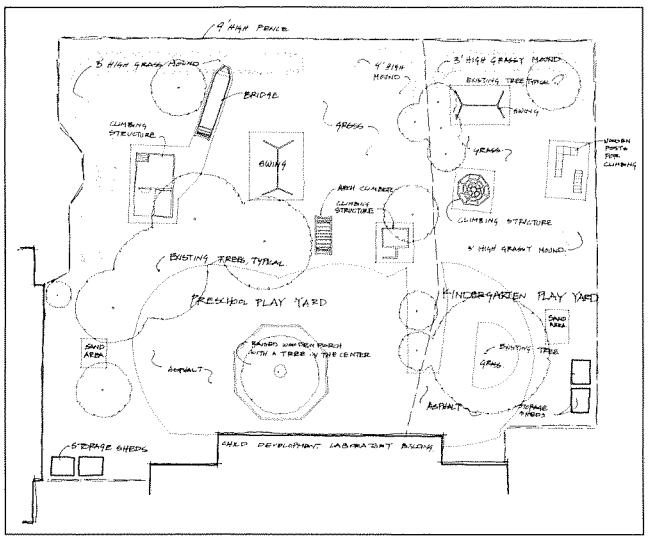
Graphic: **Susan Herrington**

Stepping stones were placed in both yards to provide a different path of movement; the stones in the preschool yard were placed in a meandering line and wove through typically unused spaces. After the stones were installed, the children followed them, even into the formerly unused spaces, in which they eventually stayed and played.

The meandering path modified the children's spatial experience and understanding of the yard because it offered a continual line of movement that was distinct in character. The material, texture, color and overall form of the stones was different from the existing surface. The stepping stones were also effective because they led somewhere, through a sequence of grassy open spaces to connect to different play structures and land forms.[3]

Social Structure

Prior to the permanent plant interventions, play structures were the primary location of activity in both yards. In the kindergarten lab, the play structures helped create a social hierarchy based on physical prowess: children who were stronger, faster and able to climb higher became social leaders.



Left: **Preschool play yards before design changes**

Right: **Preschool play yards after design interventions**

Graphics: **Susan Herrington and Kenneth Studtman**

The use of the vegetative rooms in the kindergarten lab changed the hierarchy of the class by de-emphasizing the use of the play equipment. The vegetative rooms became the prime area for socialization and fantasy play. Children tended to use these rooms more frequently and for longer duration than the equipment. Eventually, the social hierarchy became based on a child's command of language and creativity in imagining what the space might be. Hence, the social hierarchy was now directly linked to cognitive, social and emotional skills.

Naming and Place Learning

The kindergartners invented specific names for the two vegetative rooms in their yard, "Princess Palace" and "Eagle's Nest." The names denoted specific activities and genders: "Princess Palace" was utilized by primarily girls for quiet fantasy play while "Eagle's Nest" fostered active adventure play for both boys and girls.

Significantly, the children named these two rooms with no encouragement or direction from teachers or researchers. The conscious naming and continual reference to these vegetative rooms as "Princess Palace" and "Eagle's Nest" by the children describes how the children are attempting to control their environment through language and the power of place.[4]

Conclusion

Contact with natural elements in outdoor play environments is a vanishing childhood experience.[5] With children spending as much as fifty hours per week in institutional, commercial and other out-of home care situations, the play yards associated with these settings could become a primary place where young children can gain experiences with nature. Careful landscape design, moreover, can address a fuller range of developmental goals and milestones than simple play equipment can.

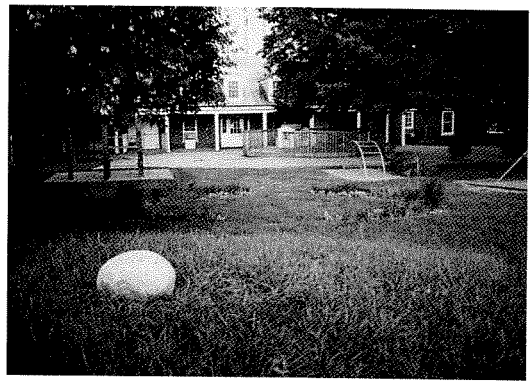
This research suggests a number of processes that can other child-care centers can use to address the conditions typically found in outdoor play environments. Because the study involved installing plants and other landscape elements as part of the existing yard and equipment, this approach could be transferred easily, and at low cost, to other child care locations. The strategy of making small, incremental changes to the physical environment and observing how children react to them enables centers to test which changes would be most meaningful to the children they nurture.

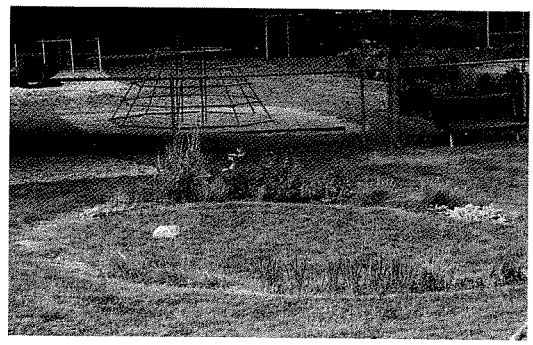
Jury Comments

HALSBAND: This is a great presentation format: talk about reaching America.

GANTT: The significance of this socially is that day-care centers are, increasingly, becoming the social space for the development of our children. More children find themselves at one or two years old in day-care centers with play yards...

ZEISEL: The researchers took two groups, they intervened, they checked it out, they learned something. The presentation format is very intriguing, and that is related the conciseness of the idea and the thinking. The design of the package has a lot to do with the information that is in it. They said "We took a little plot. We did this, we checked it with little people, this is what we found out and we should do that again." It's very clear. You can easily read the entire thing.





Vegetative rooms replaced play equipment as the primarily play areas. Social relationships were based on language and creative processes, rather than physical prowess.

Photos: **Susan Herrington**

FRANCIS: The new ground that this research breaks is that there have been many studies about kids and play and playgrounds and play equipment. This research says let's take the natural environment and use it in a new way; make it the focus of the play environment in a very thoughtful way. This is the best project that I've seen that combines design with some empirical research.

ZEISEL: And communication.

VERNEZ-MOUDON: I think it looks interesting and it's neatly packaged and going in the right direction, but objectively, it's lacking the kids' opinions.

HALSBAND: No, because they measured how many kids used which stones, then they came back and moved the stones, then they counted again to see which kids jumped on them.

GANTT: I'm not sure whether that kind of testing really tells us as much as we think it does.

VERNEZ-MOUDON: When you do a project, you want to know about the people you're doing it for. It doesn't mean that you represent the children.

ZEISEL: It may not, but if you are talking about a stone and where it sits ... this research is not making a huge thing of a small item. It is matching the level of design to the level of intervention to the level of what we are asking about.

Notes

1. J. L. Frost, "Play Environments for Young Children in the U.S.A., 1800-1950," *Children's Environments Quarterly* 6:4 (1989),17.

2. T.D. Wachs, "Toys as an Aspect of the Physical Environment. Constraints and Nature of Relationship to Development," *Topics in Early Childhood Special Education* 5:3 (1985), 31-46, and Robin Moore, *Childhood's Domain: Play and Place in Child Development* (1986).

3. This underscores research by Donald Appleyard that people mentally organize space through topological and positional methods. See Donald Appleyard, "Humanscape: Environments for People," in Stephen Kaplan and Rachel Kaplan, *Styles and Methods of Structuring a City* (Ann Arbor, MI: Ulrich's Books, 1982), 80. The uniform spacing of the stones may be pertinent as well. Lynch in his cognitive studies of Los Angeles found that "...once a path has directional quality, it may have the further attribute of being scaled: one may be able to sense ones position along the total length, to grasp the distanced traversed or yet to go." See Kevin Lynch, *The Image of the City* (Cambridge, Mass.: MIT Press, 1960), 55. Although Lynch was referring to scaled markers in a city (such as urban blocks), the uniformly spaced stepping stone may also provide a similar scaling tool for understanding space.

4. Yi-Fu Tuan writes: "The right to name and have the name stick ... is empowerment," Yi-Fu Tuan writes. Yi Fu Tuan, "Language and the Making of Place: A Narrative-Descriptive Approach," *Annals of the Association of American Geographers* 81:4 (1991), 685, 684.