

INTO THE WOODS: A STUDY EXPOSING CHILDREN TO OUTDOOR CLASSROOMS

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1 ABSTRACT

All day/all weather outdoor classrooms, known as forest kindergartens, are governed by four educational principles: 1) create opportunities for creativity and curiosity; 2) direct sensorial contact with nature; 3) build self confidence and trust through risk-taking; and 4) provide unstructured play for development of sociality and conflict resolution (Moore and Marcus, 2008, p.164). A 2003 study found that forest kindergarteners performed as well as their conventional peers on fine motor skills and significantly better on tests of gross motor skills, academic achievements, creativity, attention spans, stress levels, and happiness (Grahn et al., 1997; Robertson, 2006 p.4-6; Watkins, 2011, p.1-3). While research evidence has fueled the increase of forest kindergartens throughout the world, especially in Europe, it has done little to encourage their development in the United States.

A survey given to parents and faculty of a childcare center located in Muncie, Indiana, determined the impediments to establishing forest kindergartens. Because of positive survey results, for comparative analysis, a classroom of seventeen three to five year old children were observed. Landscape architecture students conducted behavioral mappings to determine the length of time the children spent at a given space, the activities they engaged in, and the density of the children in each space, in order to establish design principles based on child-reaction to natural settings. Based on the observations, three design principles must be followed to establish forest kindergartens: 1) engagement in a diversity of spatial configuration, dimension and materials; 2) utilization of pathways between nature classrooms as learning spaces; and 3) the facilitation of deep immersion in nature for all day/all weather classrooms.

1.1 Keywords

forest kindergarten, children, outdoor education, childcare

2 INTRODUCTION

Children are developing aversions to interacting with and in natural landscapes. Policies that have give priority to automotive access in public space are paired with fenced in play areas for children (Pangburn, 1927, p.178). The landscapes children are allowed access to - home, school and public spaces - limit the diversity of natural and ecologically dynamic experiences of children. With natural landscapes missing in their formative years, it is no wonder that a third of all children are nervous about getting dirty (Day, 2007) and that overall wellness is in decline (Health, 2011, p.2-8).

When Friedrich Fröbel established the first formal kindergarten in Germany in 1840 (Mills, 2009, p.3), Fröbel decided to, "call the institution 'kindergarten' to mirror his pedagogical view; he saw the child as a plant and the teacher as a gardener who was to make the plant flourish" (Änggård, 2010, p.6). Fröbel believed that children needed a direct connection with nature. In his curriculum, children learned to love nature early, gaining their appreciation for nature through experiences and observations (Änggård, 2010, p.5).

Fröbel's contemporary, Jean Jacques Rousseau, believed that children should be brought up in nature to avoid the damaging influences of society. Children were to learn through their own experiences in nature rather than through instruction (Änggård, 2010, p.5). Nature became a source of knowledge through physical interaction with the world, beginning with a child's closest environment and gradually including more. Rousseau also believed that children needed to spend considerable time outdoors preferably lightly dressed and barefoot (Änggård, 2010, p.5).

By 1856, kindergartens were introduced in the United States and started to multiply rapidly. As kindergartens spread throughout the world, the underlying concept of children connecting with nature was lost. In the 150 years that have passed, children have become increasingly sedentary and spend less time outside. As a result, children are less connected with nature (Braccidiferro, 2006, p.1; Taylor and Kuo, 2006, p.124).

In recent years, a public educational movement to teach children in the outdoors has steadily increased in Europe. Preschool classes, known as forest kindergartens, allow children ages three to five to be in outdoor "classrooms" learning, interacting, and playing with each other within natural landscape settings. Although referred to as forest kindergartens, the natural settings are not limited to forests, some might include woodlands, prairies, wetlands, etc. Forest kindergartens are governed by four principles: 1) create opportunities for creativity and curiosity; 2) direct sensorial contact with nature; 3) build self confidence and trust through risk-taking; and 4) provide unstructured play for development of sociality and conflict resolution (Moore and Marcus, 2008, p.164).

The first forest kindergarten started in Denmark in 1950 (Coleman, 2011, p.2) and then spread through Scandinavia. In the 1990's, the movement became popular in Germany (Weisshaar, 2006, p.1) when it became legally recognized as a public child care option. For many years the outdoor kindergarten was only available to the very wealthy (a condition still prevalent in the United States and Canada). The break-through legislation in Germany gave all children equitable access to the benefits of outdoor learning: higher competencies in all areas of educational performance through high school and improved social and physical health (Taylor and Kuo, 2006, p.124).

A recent study (Grahn et al., 1997) conducted in Sweden compared forest kindergartens to traditional preschools. The study showed that children who attend forest kindergartens have a higher attendance rate, have better concentration, have better motor functions, and play more imaginatively. They also found that forest kindergarteners performed as well as their conventional peers on fine motor skills and significantly better on tests of gross motor skills and creativity (Robertson, 2006, p.4-5; Watkins, 2011, p.1-3).

Design for this type of educational experience may necessitate parameters for empowered child-centered learning, which is distinctly different than designing outdoor spaces for the controlled and safe environments that exist in contemporary playgrounds built in a car-dominated world. The legislators in Germany recognized that being able to play outdoors during recess or being able to have access to natural playgrounds were good achievements but these were still different in the benefits observed from engaging in "all day, all weather" outdoor learning.

Although these preschools continue to be popular and are spreading throughout Europe, they have been slow to emerge in the United States because of legislative restrictions which include mandatory access to restrooms and hand washing stations; children not being able to be outside in temperatures below 25 degrees with wind chill; and children being elevated from the ground while taking a nap (IFSSA,

2013, p.6-8). Other barriers include perceived limited outdoor space, safety concerns, and parental backlash. As a result, benefits of the “all weather” outdoor classroom are only available to a limited number of children, where circumstances and happenstance facilitate the opportunity in spite of the fear and control issues of the governing bodies.

3 THE SETTING

Apple Tree YMCA Child Development Center, located in Muncie, Indiana, has a long standing positive relationship with Ball State University. Because of previous experiences with Ball State and because of Apple Tree's interest in providing the best possible child care, Apple Tree partnered with the authors in a research project to observe a classroom of three to five year olds in a forest setting to identify the design principles for a forest kindergarten setting.

Cooper Farm and Skinner Field Area, a Ball State University owned research field station, operated by scientists and landscape architects, was used as the research site. This location was used because of its close proximity to Apple Tree and because of its old growth forest and restored prairie ecosystems.

An environmental analysis of Cooper Woodland was conducted and GIS, an analytical tool frequently used by landscape architects, was used to overlay existing conditions of the site, soil characteristics, and other information to generate the characteristics of the locations within the forest that the children gravitated towards.

The portion of Cooper Farm and Skinner Field Area that was used for the study is known as Cooper Woodland and is approximately 20 acres in size. The woodland has a path that meanders through it, making it accessible to all children. The woodland provided a landscape full of possible outdoor classrooms because the trees, landform, understory, and ground conditions formed natural edges making windows, thresholds, and “classrooms” that children and adults could perceive.

The vegetation in Cooper Woodland is a mixture of ash, oak, and maple trees. It also has wild flowers, sedges, and grasses that provide a varied ground cover throughout the seasons. Because the native aspect of the woodland is maintained, poison ivy is prevalent during the late spring and summer months. The woodland floods during heavy precipitation; this causes a dense mosquito and tick population during the spring and summer seasons.

4 THE RESEARCH

Observational research was conducted at Apple Tree and at Cooper Woodland to gain a better understanding of how the physical and temporal conditions in a classroom and in a natural setting limits or promotes learning. The research hypothesis was that the child's responses to spatial and temporal configurations in a diverse landscape would be different than those in an indoor classroom.

The director of Apple Tree and of the YMCA in Muncie felt that observing the children's experiences in the woods would help them better understand how outdoor experiences could be integrated in the design of and access to outdoor classrooms. The outcome from the experience in the woods could yield more specific spatial and temporal design parameters for the design of outdoor classrooms conducive to the educational and emotional needs of the preschool children specifically but not limited to Apple Tree YMCA Child Development Center.

Clare Cooper Marcus' book, *People Places: design guidelines for urban spaces* (1997), was used as a reference for the behavioral mapping method. The methods identified by Robin Moore's group (2010) were used as guidelines to specifically map the behavior of small children. (Cosco, p.514)

Three sets of observational data were collected: the indoor classroom, the playgrounds, and Cooper Woodland. At each setting, the observers, students from Ball State's Department of Landscape Architecture, who were all Institutional Review Board (IRB) trained to work with small children, watched and documented the length of time the children spent at a given space, the activities they were engaged in, and the density of the children in each space.

4.1 Indoor Classroom

The first set of observational data was collected in an indoor classroom at Apple Tree. The visits to the indoor classroom established a student-teacher and student-student relationship between the observers and the children.

In the indoor classroom, the preschool children typically behaved in a certain way. They knew what stations they were allowed to be at and how many people could be there at one time. They knew when it was snack time and when it was nap time. Their day was completely scheduled and regulated. Because of this structure, their behavior within the indoor classroom was very structured and regulated as well. The rules of the indoor classroom were known by each child and by the teachers; as a result, the children were able to govern themselves and each other according to how well they understood the rules. When the children did not govern themselves, the teacher used the rules to acknowledge the children's lack of self-governance.

The idea of educational content and regulation is important to understand because it is embedded with spatial messages that are reinforced every day. This, in part, explains how and why the preschoolers grouped themselves socially and why they interacted with each other the way that they did. For example, in the classroom at Apple Tree, the children stayed in clusters of three and the average time spent at a station was between three to five minutes. This repeated observation happened because the teacher encouraged small groups at the stations and encouraged the children to move to another station after a period of time. When the group became too large one of the members would leave or would inform the teacher of the intrusion by the other child. The children's duration at a particular station had to do with interest in the activity and the teacher's management of the group.

4.2 Playground at Apple Tree

The second round of behavioral observations was observing the children experiencing the outdoor playgrounds. Three playgrounds at Apple Tree are used by the three to five-year olds. The playgrounds are primarily grassed areas with built-in play structures. All of the playgrounds are secured with chain link fence. Within each playground, there are only a few natural features, trees, flowers, and rocks.

The first playground is referred to as the "truck pit". The truck pit has a concrete ground area where children play with tricycles and other large play elements. The second playground is known to the children as "the slides" and houses a typical plastic round-edged playground structure that was installed a few years ago. The structure is surrounded by approved fall zone material. The third playground is known as the geodome. It has a dramatic play area in the form of a grass bermed amphitheatre and is home to the geodome greenhouse that currently is not being used.

The observations on the playgrounds established how the children typically played outside. The rules that govern the playgrounds are different than the indoor classroom, which allows the children to act and socialize differently. There are still rules and regulations on the play equipment, and the children know what they are allowed to do.

The playground, in a way, is very similar to the indoor classroom; the rules for the play equipment are enforced and regulated, with the teachers being the regulators. A universal rule for all of the playgrounds is that the children must be in sight of one of the teachers at all times; this limits how the children play. Even with this rule, the children tended to hide in the small spaces of the playground and play equipment.

Consistent with the indoor classroom, the children usually played in groups of three to four. In the playgrounds (truck pit and geodome) where there were more choices of toys to play with, the children transitioned between activities every three to five minutes. On the slide playground, where there is little variation offered, the children's duration was longer with a play activity; however, the children tended to become bored on this playground, which increased their lack of self governance.

4.3 Cooper Woodland

The final set of observations occurred in the woods at Cooper Farm and Skinner Field Area. The observations occurred during regular business hours of Apple Tree, so as to not interrupt the parents' or children's routine. The observers recorded the children's spatial and temporal relationships. Observers recorded how the children interacted in the woods and how they related to each other in the wooded space. Both mapping and timers were used to record observations within the structure of space and time.

A 14-passenger activity bus was used to transport the children to the woods. The class was divided into two groups because of childcare regulations and limited seating on the bus. Two adults were on the bus at all times and at least two teachers were in the woods with the children at all times to ensure the safety of the children.

In preparation for the preschoolers' initial visit to the woods, the undergraduate researchers (observers) visited Cooper Woodland. They were asked to identify rooms within the forest based on edges, both physical and visual. The researchers were given walkie-talkies so that they could communicate with each other while exploring the forest. Three classrooms were initially identified by the researchers. The classrooms were marked with surveyor's tape so that they could be easily recognizable. Two other classrooms were later identified by the preschool children during the subsequent visits.

The initial visit with the researchers, not only identified possible classrooms, it also ensured the safety of the children when they visited the woods. By becoming comfortable with the woods before the children visited, the anxiety caused by not being familiar with an area was limited.

5 CLASSROOMS IN COOPER WOODLAND

Both researchers and children identified classrooms in the forest. One classroom found by the researchers was a fallen log with a deteriorated middle. The researchers thought this would be a good area for the preschoolers to develop their gross motor skills. The log provided a place on which the children could walk, balance, climb and test their own fears as they mastered it.

Another classroom identified by the researchers was found around a large tree with fallen logs that provided a seating area. The classroom resembled "waldsofas" that are common in European forest kindergartens. A waldsofa or "forest couch" acts as a central gathering place for a forest kindergarten. As the seasons progressed, the classroom flooded, becoming a place where the children experienced and played in water instead of a place to wait and gather.

The last classroom identified by the researchers was a part of the forest that did not have physical barriers, but had visual ones. There were several fallen logs that acted as edges; however, the children did not seem to notice because of the spacing between the logs. This classroom ended up being used for hide-and-seek.

The two classrooms that were discovered by the preschool children occurred during later visits to Cooper Woodland.

The first classroom discovered by the preschoolers was close to the fallen log classroom. This classroom had several fallen logs as well as standing water. Although similar to the other classrooms, this classroom gave the preschoolers an opportunity to explore water and a fallen log at the same time. The roots of the fallen log made a space for the preschoolers to climb in and around, similar to a den.

The second classroom that the preschoolers discovered had defining edges due to fallen trees and limbs. When the preschoolers found this classroom, they unknowingly stayed within the walls that the classroom naturally had. A defining feature of this classroom was a tree that had fallen to form an arch. The top of the arch was about 8 feet high.

With these five distinct classrooms, an outdoor classroom typology was discovered. Based on the research, one type of outdoor classroom either has a central feature or attraction, like the waldsofa classroom or the fallen log classroom. Another type is the classrooms defined by edges. The arch classroom or the hide and seek classroom are examples of edge classrooms. The other type of classroom is along the way. The transition spaces between the outdoor classrooms is similar to a hallway in a traditional school building; the purpose being way finding, while being educationally enriched.

6 THREE VISITS TO COOPER WOODLAND

6.1 Visit 1

The first visit to Cooper Woodland was in November. The leaves on the trees were a golden color and lots of leaves were on the ground. The children were dressed in cold weather gear. The children clung to the teachers and the undergraduate researchers and stayed in a line as they entered the forest. They were very careful to stay on the path. While walking on the path, some of the children were curious about the trees and plants, but were too nervous to touch them.

As the children approached the fallen log, the children were unsure of what they were allowed to do, looking to their teachers for direction. They asked for help to get on and off the log and were scared to try to play on it. They all clustered in a couple of areas of the log that were very close to the ground (Figure 1).

As they became more comfortable on the log, the children began to be less clustered and allowed each other space to maneuver. The children were very aggressive as they were climbing on the log,

almost acting like this opportunity would be taken away at any minute and that they needed all the time they could get on the log. (Figure 1)



Figure 1. Fallen Log Classroom. 2011. Photos by Amy LaTomme

They were at the log for at least twenty minutes and would have stayed there longer. This was the first indication that the temporal experience of the children in the outdoor classroom could be much longer than was currently programmed in the indoor classroom. As a result, researchers began observing the duration of attention spent on task in the outdoor classroom and comparing it with the attention spent on task in the indoor classroom.

So that the children could experience all of the identified classrooms, the group was moved to the waldsofa classroom. (Figure 2) The children were asked to identify the corners and the edges of the classroom. A few did this exercise, but as more and more were called upon they went and stood next to their friends instead of identifying a wall or corner.

One of the preschoolers decided to pick up a branch and wanted to build something with it. All of the classmates joined in to build a house. (Figure 2) Although the branches were bigger than they, the preschoolers were aware of each other and of the branches so no one was injured.



Figure 2. Wald Sofa & Hide and Seek Classrooms. 2011. Photos by Amy LaTomme

Once the house was built, the children were then taken to the hide and seek area. One of the undergraduate researchers was the seeker. The children hid behind logs and in hollowed stumps, either individually or in groups of three to four (the grouping reflective of their indoor classroom behavior). Once found, they would hide again immediately (Figure 2).

This classroom was where the children were allowed to run free because there was a greater visual distance. In this space there were not things to manipulate or move, but the children began to understand their connection to the woods. They also began to explore on their own and were not afraid to.

The first visit to Cooper Woodland was successful. The preschoolers were given an opportunity to go into the woods and personally experience it. In retrospect, the teachers and researchers were very much in control of this visit. However, by the end, the teachers and researchers learned to not be overbearing or overprotective, but to let the children learn and experience on their own.

6.2 Visit 2

The second visit to the woods happened in early February. The day was chilly and the children were again dressed in their winter gear. Another entrance into the woods was used in order to have direct access into the woodland. The paths in the woods were very muddy. This gave the children an excuse to leave the paths.

The children followed the teacher into the woods, and then were allowed to direct where they wanted to go. They initially stayed in groups and were fascinated by the lack of color in the woods at the time. The children, unknowingly, found the log with the deteriorated middle. They were allowed to climb and master the log without the aid of adults. The adults acted as spotters to ensure the safety of the children.

This time, the children were not as timid and were willing to climb the other side of the log which is about seven feet off the ground. (Figure 3) At some points, a preschooler was higher than the teacher could reach. The children learned that they were safe, even if they were not within the reach of an adult.

Some of the preschoolers moved off the log to find another area. They found another fallen log that had made a cave with its roots (Figure 3). Only a couple of children could fit in that space at a time and they were very selective in whom they allowed in.

Next to this log was a puddle of water. The children at first walked around, afraid to get wet. Then one child with boots on, trudged through the water. After that, the rest of the children were splashing and running through the water (Figure 3). Some children stayed out of the water because they did not have proper boots. None of the children immersed themselves in the water; however, when they got to the bus, water poured out of their boots.



Figure 3. Second Visit to Cooper Woodland. 2012. Photos by Amy LaTomme

During this visit, the children were allowed to explore the woods under their own direction more than the first visit. Because of licensing regulations, the children were always in the appropriate child to adult ratio, which for that age group is 10:1. The children were also always within view of the teachers. The children were never in danger of getting lost, or critically injured at any time.

6.3 Visit 3

The third visit was in March, during a time when there was uncharacteristically warm weather in Muncie, Indiana. Early signs of spring were showing; the golden leaves of the fall had dropped, the rains had created pools in the low areas and the woods had greater visual porosity.

The children were in coats and boots because of the recent wet weather. The children were very excited to be in the woods because it had become familiar to them; several of the preschoolers indicated that this was their favorite place to be. It was obvious to the researchers that the children felt more comfortable with the woods, and that the adults had loosened their control, allowing the children to explore on their own.

The children were asked to look for hiding places and shapes within the woods. Some participated in the exercise, but most were distracted and more interested in playing and exploring. Because of this exercise, the children found an entirely new classroom. The space was marked by fallen logs on three sides; the other side had trees that acted as an open wall. The children stayed in this defined space without really realizing why they were contained in that area.

In this new classroom there was a hiding spot within a tree stump (Figure 4). The children were at first scared of going in, but again, as soon as one of their classmates went in, they all had to try. The same thing occurred when an arch made from a fallen log was discovered. The peak of the arch was at least eight feet tall. As soon as one of the preschoolers climbed to the top, several others had to try (Figure 4). The children also noticed that a log was lying on another log and realized that it could be a teeter-totter.



Figure 4. Third Visit to Cooper Woodland. 2012. Photos by Amy LaTomme

At the same time, some of the other children had gone exploring. They found an enormous puddle of water. This puddle was exactly where the waldsofa classroom was (Figure 4). The house that they had built with the branches during the first visit was still intact. The children, and a few of the teachers, did not recognize the space as one of the original classrooms because of the large presence of water.

Unlike the previous visit, the children were up to their waists in the water, and some fell in. The forest character that they knew from the previous visits had changed entirely due to the season and the presence of the flood. The same “play” area was entirely different in material and use. Now instead of engaging with soils and leaves, the children were splashing each other in the very same location. By the end, most of the children were soaking wet. This became a bit of a problem when they got back to their indoor classroom. They all had to be changed into dry clothes.

7 FINDINGS AND LIMITATIONS

Because the outdoor classroom experience was similar to a “field trip” it was not possible to consider behavioral response to an “all weather, all day” forest kindergarten. This limited the effect of a forest kindergarten to a couple of hours once a week grossly curtailing the opportunity to fully understand the magnitude of temporal exposure on their spatial preferences.

The childcare teachers were unfamiliar with the idea that the outdoor classroom that was trying to be replicated was not a special event but a normal condition. The trips to Cooper Woodland were often seen as fun and the child had to be good to be allowed to go. In a traditional forest kindergarten, the children are outside no matter what, attendance has nothing to do with behavior.

Teachers’ attitudes and preferences also factored into the experiences in the woods. Some teachers were not comfortable in the forest and this projected onto the children. Because there is not a forest kindergarten in the area, it was difficult for the teachers to grasp the concept of child-led learning. This compromised the data and showed how the next steps in the research would have to include teacher training in forest kindergarten pedagogical methods.

The collected observational data was important in understanding the children’s interaction with the outdoor environment. The behavioral observations and mapping of the children showed how the seventeen three to five year olds recognized space in the indoors and outdoors, and how their unfamiliarity and comfort level with their surrounding environment affected their learning. These observations yielded three distinct design principles that need to be followed when establishing a forest kindergarten.

The first design principle the observational data verified is that children need diversity in spatial settings that seasonally change. The variety of settings allows children to be engaged as individuals as well as in small and large groups. Because of their regulated group size in their indoor classroom, the children struggle in larger groups and by themselves. Without the limitations of group size and with the spatial diversity that occurs naturally in an old growth forest, the children are allowed to self-regulate their activity and engage with friends as desired.

The second design principle addresses the perceived connection between the classrooms in the form of pathways. The outdoor classrooms with Cooper Woodland ranged across 20 acres of space. The running and walking distances between classrooms went beyond 100 meters. The children climbed well above double their height. The “stations” where they played were bigger by a power of 10. During the observations, the transition space between the classrooms became an important place for learning and for gathering. Like a hallway in a conventional school, the transition space or pathway is a place of way finding, direction, and learning.

The duration of play was also grander in scale, shifting from 3 minute intervals to half hour intervals when outside. Whether this was a result of self-regulation or the changing qualities of the woods is not known. Teachers reported that some children had a calmer and longer attention span after the outdoor experience even when they returned to the indoor setting.

The final design principle is that of facilitating deep immersion. Because of the size of Cooper Woodland, the children were able to get immersed in the woods. They were not able to see the subdivisions that are along the edges, they could not hear the cars that were passing by. The teachers' comfort with deep immersion was paramount to the children's access to deep engagement with nature. What the children experienced during the deep immersion at Cooper Woodland was the direct sensorial contact with nature that is fundamental to the establishment of a forest kindergarten. When the children walked back to the edge, their immersion would lessen, as well as their free range attitudes.

Taking children to the woods and other native landscapes allows and gives children opportunities to behave in ways that they are not allowed to in regulated settings including playgrounds and classrooms. Because of their visits to Cooper Woodland, their courage and creativity increased as well as the amount of time they spent engaged in exploring whatever they were seeing and doing.

8 CONCLUSIONS

Reflecting on how these "free range" children experienced that hour or two in their day, the scale of unprecedented dimensions is a critical part of the design of forest kindergartens. A couple of acres are the size of one classroom - not several – and those acres are embedded in acres of quiet and solitude. The larger mammals in the woods have similar habitat range. For example, a bobcat needs 25 square miles, so perhaps children are not so unique. Would children with attention problems start to behave differently after their brains had stayed on task for several half-hour sequences? Would our children develop confidence in their "can do" capacity after successfully climbing in places not pre-determined by either a designer or a regulator to be safe? The free range motion of the children in the woods contributes something to their spatial and cognitive development or it does not. That is to be determined in future research.

With the enormous legacy of parks and public lands across North America, land is not the constraining factor. Nor is public or parental will a daunting constraint. The biggest hindrance to giving children access to these kinds of spaces is in the hands of the educators, planners, and landscape architects who contribute expertise to the politicians who make the rules and regulations that govern what kind of environments are suitable and safe for children to grow in.

Access to deep woods experiences are difficult in highly urbanized landscapes especially when the critical impact of those experiences are diminished by the similar benefits children obtain by playing with natural elements like water, trees, rocks or dirt. "...you [do not] need to be in the countryside to be able to [have] a forest kindergarten... It's true that finding natural spaces can be more challenging [in an urban setting] but it's vital that children growing up in the city also have access to learn through nature too" (Watkins, 2011, p.3). In the deep urban experience, a forest kindergarten exists in landscapes where children can roam freely, feel empowered and are able to concentrate on whatever they are interested in for hours at a time. A forest kindergarten is a child's place that is designed and managed by an adult who can slip respectfully into a child's spatial and temporal reality.

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