

School yards and Children's Learning and Play

The following is excerpted from a longer article entitled "Children's Environmental Learning and the Use, Design and Management of Schoolgrounds." by Karen Malone and Paul Tranter, published in *Children, Youth and Environments* 13(2), 2003. The full article can be found here:

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Introduction

Many children around the world, whether in industrialized or developing cities, live in overcrowded, unsafe and polluted environments that provide little opportunity for learning, play or leisure. Children are vulnerable to environmental and social degradation, in terms of both the likelihood of personal harm and the constraints this places on their capacity to reach their full potential. Urban children, in particular, are often trapped in environments that provide little opportunity for self-discovery and natural environmental experience.

Spontaneous unregulated play in neighborhood spaces, particularly in affluent areas of cities, is increasingly becoming an activity of the past. Many children have lost access to traditional play environments, including streets and wild spaces, partly through parental fears about traffic danger, bullying and "stranger danger," partly through the loss of natural spaces and partly through perceptions of what is best for children (Tranter and Doyle 1996; Valentine and McKendrick 1997). Children are encouraged to participate in regulated play environments in their homes, friend's homes and commercial "play or recreation" facilities (Hasluck and Malone 1999; McKendrick, Bradford and Fielder 2000). This type of regulatory practice may help to "protect" children from being exposed to environmental hazards, but has long-term consequences for their social and emotional competence (Tranter and Pawson 2001). When neighborhoods are not supportive of children's needs, children are limited in their capacity to experience and explore their environments and engage in cognitive play and outdoor learning— behaviors that lead to environmental learning.

Children and Play

All children have a right to play. This has been ordained for years in the United Nations Convention on the Rights of the Child (Article 31). Play is not only inherently valuable as an enjoyable activity; it is also a process through which children learn. Play enhances problem solving ability and promotes opportunities to experiment with creative thought. Dramatic or symbolic play contribute to a range of developmental virtues including communication, cooperation, interpersonal problem solving, creativity, personal responsibility and imagination. The type, quality and diversity of children's play environments directly affect the type, quality and diversity of children's play (Moore, Goltsman and Iacofano 1992). Play is a means by which children learn without being taught. It involves doing, exploring, discovering, failing and succeeding.

With increasing age children normally play in more integrated ways. Identifying the level of social participation in play activity can be representative of a child's maturity in social and cognitive development. The best play environments for children are those which are developed on the basis of children's natural play needs, taking into account the play behavior engaged in at different developmental periods, including the social, physical and cognitive forms of play. Conflicts or withdrawal are more likely to occur when children are crowded and play equipment and materials are limited. Even in play environments with considerable space, paucity of equipment and materials limits children's play options and leads to increased levels of boredom and aggression and lack of social, physical and cognitive development.

Research on play shows that children prefer and use playgrounds with high degrees of challenge, novelty and complexity (Fjortoft and Sageie 2000). A modifiable and malleable environment offers more opportunities for environmental learning, with corresponding behavioral consequences (Moore and Wong 1997)...

The Value of Interacting with Nature

Children have a particular attraction to natural environments. Numerous studies have found that children often prefer to play in natural or wild spaces (Maxey 1999; Cunningham, Jones and Taylor 1994). Such

spaces appeal to children because of their diversity and their feeling of timelessness (White and Stoecklin 1998). Children's access to nature provides an important aspect of growing up, with many adults remembering natural or outdoor environments as the most significant places in their childhood (Sebba 1991).

There are "cognitive and psychological benefits of natural environmental experiences" (Wells 2000, 780). These benefits have been found for prisoners, hospital patients, college students and children. Even the presence of "naturalness" (e.g., trees) in the views from children's homes has been found to enhance children's cognitive ability (Wells 2000). Several studies have found that playing in nature has positive impacts on "children's social play, concentration and motor ability" (Fjortoft and Sageie 2000, 84). Natural environments have advantages over purpose built playgrounds (e.g., climbing apparatus) because they stimulate more diverse and creative play (Fjortoft and Sageie 2000). According to the National Environmental Education and Training Foundation in the U.S., when schools make a concerted effort to integrate natural environments into their education (using local areas or their own schoolgrounds) academic performance improves across the curriculum (National Environmental Education and Training Foundation 2000).

The ways in which children relate to each other can also be strongly influenced by the types of natural elements in play environments. In a U.S. study, Herrington and Studtmann (1998) noted that when children played in an environment dominated by play structures rather than natural elements such as plants and bushes, they established social hierarchy by means of physical competence. However, after an open grassy area was planted with shrubs, children played very differently in these "vegetative rooms." Fantasy play and socialization developed. More importantly, the social hierarchy became based less on physical prowess and more on a "child's command of language and their creativity and inventiveness in imagining what the space might be.... Children who were dominant in the equipment-based play yard were not always the dominant children" in the yards with the new plantings (Herrington and Studtmann 1998, 203).

For children to develop a sense of place, they benefit from direct contact with the natural aspects of their environment, including vegetation, soils, people and animals (Orr 1992). However, if they lose their independent access to their environment they are deprived of the chance to develop this sense of place (Tranter and Pawson 2001). Due to the impacts of rapid urbanization, children in many cities throughout the world now have less access to natural or wild environments, especially on their own (Cunningham, Jones and Taylor 1994; Freeman 1995; Gaster 1991; Rivkin 1997; Malone 2001). Natural outdoor spaces are diminishing, there is increasing fear of violence in public spaces, parents have busy schedules and many play areas are now synthetic rather than natural (Herrington and Studtmann 1998).

Schoolgrounds as Learning Environments

The schoolground is, for many children, one of the few places where they can interact with their peers in a natural, outdoor environment. Consequently, children could benefit significantly from maximizing the environmental learning opportunities of schoolgrounds. Schoolgrounds should be places where children engage in a range of play activities. Play should be fun, active, spontaneous, self-initiated, challenging and linked closely with learning and development. The schoolground is the "stage" where children act out, spontaneously and freely, the events that touch their lives. It is the space where they connect with the social, cultural and ecological domains of childhood. Schoolgrounds should promote learning and development.

Research has revealed the way in which children can learn especially through play is strongly influenced by the nature, the design and the policies informing the use of schoolgrounds (Moore 1989; Titman 1994; Moore and Wong 1997). Their size, the features they contain, and how they are utilized, managed and perceived by staff and students, can all influence the life and work of the school and the quality of education.

The relationship between the outside environment and the learner has not been articulated in the same way as inside spaces. That is not to say outside spaces have not been designed without models in mind. The "surplus energy theory," so powerful in play theory, has been the most influential model applied to the

design of schoolgrounds and the view of children in relation to the outdoor environment. Indeed, schoolgrounds have typically been seen as areas for play and sport, and not for education and the serious stuff of schooling. The “surplus energy theory” was first proposed by the nineteenth century psychologist Herbert Spencer, in his book *Principles of Psychology*, published in 1855. Spencer believed that the main reason children play is to get rid of surplus energy. His ideas, although rejected by many researchers and developmental theorists, have found a strong following among educators since their introduction over a century ago and have become deeply embedded in the school culture.

We can distinguish between schoolgrounds that are part of the formal educational curriculum, and those in which learning through environmental interaction occurs via unregulated exploration and play. Titman (1994) has referred to this as the “hidden” or the “informal” curriculum. Play in school is very different from play in the local park. Supervised play in an educational context has an attachment to a hidden curriculum that tells a story to the children about the culture and ethos of the school.

Schoolgrounds have potential as a rich resource for formal learning; they are outdoor classrooms that can be explored by children outside classroom time. Schoolgrounds can provide access to real life natural experiences (e.g., conceptual exploration of living and non-living things, interdependence, biodiversity, life-cycling, recycling and food webs). As well as these obvious connections with the “natural” world, a diverse and well-designed play environment provides an opportunity to develop important lessons on cooperation, ownership, belonging, respect and responsibility. Schoolgrounds also convey messages to children about school ethos that can influence their attitude and behavior (Johnson 2000). Where the quality of the environment does not reflect the espoused ethos of the classroom, children get the message “adults say one thing but do another.” The grounds are symbolic: at a macro level they represent the school and its place in the world; at a micro level they represent the child and their place in the school. Children can spend up to a quarter of their day engaged in play-oriented activities in the schoolgrounds. This time, although often undervalued and identified as “filling in time” or as a “break” from formal learning, is essential to learning. Often identified as the “informal curriculum,” what children do or learn during this time can either be positive and productive or negative and counterproductive. The essential issue is that they are learning something and play is a fundamental component of that learning (Titman 1992).

Schoolgrounds are important sites for children to develop both social and cognitive skills. Interesting and diverse spaces increase the intensity of play and the range of play behaviors; bland or crowded play spaces limit behavior, restrict opportunities for social interaction and ecological experience, and worsen problems such as bullying and depression (Evans 1997; Moore and Wong 1997). The schoolground in this way offers a set of affordances. The affordance of an environment is a measure of its capacity to support children's development. Gibson (1979) argues that the affordances of an environment are those elements it offers or provides for the user. Affordances are ecological resources from a functional point of view. They are an objectively specifiable and psychologically meaningful taxonomy of the environment. As children's psychological and physical characteristics change developmentally, the resources the environment offers also change. For example, an environment that offers an opportunity to climb or hide underneath elements, or contains features that are manipulative or malleable, is perceived, used and transformed in different ways at different stages of the child's development. Therefore, there is a developmental dimension to the environment, just as there is for the individual child. The utilization of the outdoor environment increases with the child's age, alongside their cognitive, affective and behavioral capacities; the environment should be designed to facilitate, support and encourage this developmental growth (Uzzell 1988).

Wohlwill and Heft (1987) also use the notion of affordances by articulating the environment-child relationship in schoolgrounds in terms of three characteristics:

Sensory stimulation- the potential of environmental features and settings to provide stimulation through variations in color, shape, pattern, dimension and texture.

Response feedback- creating an environment that is responsive and malleable to the child's actions, so that it provides constant feedback to children about their competencies, capacities and behaviors. Schoolgrounds that support and stimulate children's actions are beneficial to their development.

Affordances- Wohlwill and Heft (1987, 319) provide the following view of affordance: “affordance stresses the action possibilities that environmental features and environmental settings encourage or permit ... the affordance framework may aid the designer in explicitly formulating design features with user characteristics in mind.”

Alongside the behavior mapping and observations, children's drawings in the form of cognitive maps of the schoolground as it exists and how it might look after they had made changes to improve it were used to draw out these three areas of the child-environment relationship.

The design and management of the grounds largely determine what children do in the schoolground, though children can and do respond to restrictive rules by deliberately playing prohibited games behind the teachers' backs (Evans 1995b). Even the most social and imaginative child will find it difficult to be creative and sociable in a bleak, sterile and largely tarmac place. The grounds need to provide diversity of places and habitats so those children have the maximum opportunity for interaction with others and the environment. Titman (1994, 58) identified a list of four elements children looked for in the schoolgrounds she studied:

A place for doing, which offered opportunities for physical activities, for 'doing' all kinds of things, and which recognized their needs to extend themselves, develop new skills, to find challenges and take risks.
A place for thinking, which provided intellectual stimulation, things which they could discover and study and learn about, by themselves and with friends, which allowed them to explore and discover and understand more about the world they live in.

A place for feeling, which presented color, beauty and interest, which engendered a sense of ownership and pride and belonging, in which they could be small without feeling vulnerable, where they could care for the place and people in it and feel cared for themselves.

A place for being, which allowed them to 'be' themselves, which recognized their individuality, their need to have a private persona in a public place, for privacy, for being alone with friends, for being quiet outside of the noisy classroom, for being a child.

Qualitative studies focusing on the value of improved schoolgrounds as an educational resource demonstrate an enrichment of students' attitudes, behaviors and learning skills (Titman 1994; Young 1990; Moore and Wong 1997). Aside from this research which has focused on the qualitative indicators of improved learning outcomes resulting from schoolground learning, several recent U.S. studies have attempted to measure learning outcomes by quantitative changes in standardized test scores, grade point averages and learning skills indicators. These studies demonstrate positive relationships between learning that takes place outside of the classroom and improved learning (Lieberman and Hoody 1995; State Education and Environment Roundtable 2000).

Schoolground Design

The ways in which children can learn- especially through play- is strongly influenced by the nature, the design and the policies informing the use of schoolgrounds (Moore 1989; Titman 1994; Moore and Wong 1997). Moore and Wong's 1997 long-term project in an elementary schoolground in Berkeley, California, demonstrated the impact on children's play of redesigning the schoolgrounds. Part of the asphalt schoolgrounds was transformed into natural features such as woodland, gardens and ponds. This coincided with children having more positive relationships with each other in these natural areas and exhibiting more creative play and learning activity than previously. The change in schoolground design also encouraged teachers to utilize the new space as an outdoor classroom, reinforcing and connecting children's play experiences through the formal curriculum. Children took on the new role of being knowledge generators rather than just knowledge consumers.

Barbour (1999) provides an important study comparing two school playgrounds, each with very different opportunities for children. Playgrounds that emphasize exercise play show gross motor activity as the primary mode of peer interaction. Such schoolgrounds favor children with high physical competence, while

children with low physical competence are “constrained by their reluctance to or inability to participate” (Barbour 1999, 94). However, diverse play equipment and materials can support the low physical competence children and some features (e.g., construction opportunities) encourage cooperative rather than competitive play.

Various elements may be important in high-quality schoolgrounds. These include: water features; possibilities for children to choose their own play activities and create their own play places; access to nature (trees, ponds, shrubs, flowers, long grass, insects and animals); fields to play on; places and features to sit on, lean against or hide in; and an unstructured and manipulable environment, including loose materials for children to play with (Fjortoft and Sageie 2000; Moore 1986; White and Stoecklin 1998).

Frost and Klein (1979) developed a typology of four dominant contemporary playgrounds. Their work was later used in the development of Rohane's (1981) four philosophies of play that informed playground design and more recently by Brett, Moore and Provenzo (1993) in their complete guide to playgrounds. The four types of playground are outlined below.

Traditional- a model where play is seen as synonymous with physical exercise and recreation. Typified by “mass produced” gym equipment, grey tarmac and a high percentage of green, which is the recreation field or sports field. Traditional playgrounds promote gross motor skills.

Designer- aesthetics is introduced alongside exercise in a structured, architecturally designed manner. A variety of materials and textures led to play environments that had predetermined play activities, for example: “red wooden fire engines, blue horses on springs.” They permit a wider range of experiences of play than traditional playgrounds but view the child as a passive recipient rather than an active play maker.

Adventure- the adventure playground, which emerged from Scandinavian countries, utilizes the natural environment of hills, scrub, grass, water and trees, and loose materials, wood, mud, and tires. It typically has very limited pre-designed aspects and is often constructed with and through the child's play. The focus is on flexibility- a place with minimal structure and permanency. Often adventure means risk, as children are encouraged to climb trees, build cubbies and construct water channels. Adventure playgrounds encourage creative, imaginative and constructive play. They require trained pedagogical personnel. Nordic countries are the only countries where they have been successfully maintained because pedagogical personnel are held in the same esteem as educators in formal settings (Brett, Moore and Provenzo 1993).

Creative/comprehensive- the comprehensive playground is a synthesis of all other types. It incorporates a sports field, jungle gyms and slides in amongst natural pathways of ponds, rock features, hills and wild spaces. It is the most diverse type and accommodates the greatest variety of opportunities for informal and formal play and learning. It is a micro-universe of play settings which encourages all types of play experiences.

Frost and Klein (1979) concluded that a majority of U.S. playgrounds fell in the category of traditional playgrounds (ball courts, swing sets, jungle gyms); they were frequently geared towards exercise or functional play and most of the space was devoted to sports fields, ovals or asphalt courts.

Policies and Programs Encouraging Environmental Learning in Schoolgrounds

Organizations in many countries, especially in some European countries, have recognized the educational importance of schoolgrounds. In the UK, environmental learning in schools now enjoys strong national support through the Learning through Landscapes (LTL) organization, which has researched and developed school landscapes since 1990 (Johnson 2000). This led to a change in British government policy on schoolgrounds, and to publication of *The Outdoor Classroom* as a guide to improving schoolgrounds. By 1997, LTL had improved at least one-third of Britain's 30,000 schoolgrounds. LTL has inspired a similar program in Canada, *Learning Grounds*, and a Swedish program, *Skolans Uterum* (Rivkin 1997). Such programs involve a commitment to greening schoolgrounds to improve their value to children, both intrinsically and in terms of environmental learning outcomes.

There are a number of U.S. organizations dedicated to improving the quality of educational opportunities provided in schoolgrounds. One of these is the Boston Schoolyard Initiative , which in a partnership with the City of Boston is revitalizing schoolgrounds (Education Development Center, Inc. and Boston Schoolyard Funders Collaborative 2000). Nationwide, more than 40 organizations or sponsor programs are committed to enhancing the environmental quality of schoolgrounds. Many of these have a focus on wildlife conservation (e.g., the National Wildlife Federation) and see schoolgrounds as places to encourage environmentally responsible attitudes (Rivkin 1997)...

In summary, the literature argues that schoolgrounds are important sites for children to develop both social and cognitive skills. Interesting and diverse spaces increase the intensity and range of play behaviors. Bad play spaces, in contrast, limit behavior, and restrict opportunities for social interaction, ecological experience and the production of cultural capital. Bad play spaces have also been attributed to enhancing behavioral problems such as bullying and depression.