

# The Need for Nature: A Childhood Right

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## Shrinking Childhood Outdoors

**A** GROWING NUMBER OF PROFESSIONALS ARE BEGINNING TO EXPRESS CONCERN that children are spending less time outdoors. Louv (1990) and Nabhan and Trimble (1994), for example, are often quoted as sources of anecdotal evidence, to which Hillman and Adams (1992) give empirical weight. To these statements of apprehension, add the concerned voices of children-environment researchers raised at professional meetings and the observations of writers in the popular press. All comment on both the negative impact on children of physical changes happening in the outdoor environment and the more tightly structured culture of childhood that is tending to keep children indoors for more time. Japanese photographer Keiki Haginoya (1994) for almost two decades made wonderful photographs of children's play in Japanese cities. In the last few years, children have disappeared so rapidly from his viewfinder that he has had to bring this chapter of his work to an end. Either indoor spaces have become more attractive, or outdoor spaces have become less attractive — or both.

Historically, making space for children has never been the top priority for city planning. However, former vacant land and open areas of the city — like waterfronts, abandoned railroads, and old industrial areas — have often been used by children informally, with or without the knowledge and consent of the owners. In more recent years, these once vacant areas have been redeveloped or fenced for security as urban land use has become much more tightly planned or replanned. The net loss to children has been substantial, since these erstwhile play areas have not been replaced by officially sanctioned spaces.

The findings of Hillman and Adams (1992) confirm my own research with eight-to-12 year olds in England in the mid-1970s (Moore, 1986a) that children are losing access to outdoor space. In the earlier study, examples of unhealthy (or

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“developmentally inappropriate”) restrictions on children’s use of the outdoors were rare. Fifteen years later, Hillman and Adams present them as commonplace.

### Factors Restricting Access to Outdoors

The list of barriers and restrictions on the changing world of childhood has increased substantially in the last few decades:

*Traffic Dangers:* When the results of the British study referred to above (Moore, 1986a) are combined with the results of a similar study of the urbanizing San Francisco Bay region (Moore, 1980), and combined with an international review of the empirical research from the same period (Moore and Young, 1978), there is one inescapable conclusion. The increase in traffic density on residential and arterial streets was the one universal factor above all others that restricted the development of children’s spatial range, thereby limiting children’s knowledge of the community environment — including its natural characteristics and components.

Traffic danger has been with us ever since horses rode into town. The invention of the horseless carriage increased the level of danger, greatly reinforced by the lack of attention to the needs of pedestrians in the design of residential streets. Early reactions to these unhealthy conditions in the form of “play streets” (closing streets to traffic during times when children were most likely to be outdoors) were instigated in New York, London, and other European cities beginning in the 1950s. As levels of traffic increased, some cities began to physically reconfigure residential street layouts to accommodate pedestrian activity more safely. At the same time, the British New Towns (Stevenage, for example) went several steps further by providing complete “grade-separation” between pedestrians and motorized traffic. The most recent innovation in the design and redesign of urban neighborhoods in favor of pedestrians was the introduction in the 1970s of the *Woonerven* in the Netherlands and Germany.

Even though several proven solutions now exist to redress the street environment in favor of pedestrians, the great majority of the world’s municipalities have yet to adopt them on a scale that would make a measurable difference to children’s quality of life. Gaster (1991), investigating changes in children’s access to a neighborhood environment in New York City over three generations, noted that the earliest and most continuous parental restrictions related to traffic. Research in Australia and the U.K. (Hillman and Adams, 1992; Tranter, 1993) has shown that the ever-increasing dominance of traffic continues to bar children from their natural social habitat of the street — where playmates and natural resources can be found and where the public life of the community happens.

*The Bogeyman Syndrome:* The Bogeyman Syndrome was coined by Louv (1990) and indicates parental fear of children being abducted, kidnapped, or physically harmed when playing outdoors. Sensationalization by the media has greatly reinforced paranoia and overreaction regarding this issue (Finkelhor,

Hootaling, and Sedlak, 1992). A highly distorted sense of reality has resulted, where a bogeyman is seen around every corner, again restricting children's outdoor activity. In some countries (Australia, the U.S., and U.K., for example) the child's right to play is being substantially curtailed by adult perceptions of threats to child safety in the outdoor spaces of residential areas (Hillman and Adams, 1992; Louv, 1990; Tranter, 1993). Even parents who understand the importance of outdoor play find themselves caught in the middle, between allowing freedom and *irrationally* fearing the consequences.

Reliable empirical study would help greatly to clarify this issue. Prospective sources include police records and field investigations. The systematic studies of children's use of the urban landscape — conducted in the 1970s by Hart (1979), Moore (1980, 1986a), and others (Moore and Young, 1978) — indicated that the bogeyman issue was present, but with only a minor influence over children's use of the outdoors. Unreasonable restrictions, especially by parents over children's use of the outdoors, were few and far between, with the exception of two reoccurring issues documented by the above studies: on average, girls spent less time outdoors than boys did, and the spatial range of their activities was less than for boys. This gender gap has surely grown since, but we do not know by how much. To assess changes in outdoor use by children, follow-up studies are needed using the same participatory methods as in the earlier investigations.

*Lack of Play Space:* The sheer lack of space designed for children's use in residential areas continues to limit opportunities for experiencing the outdoor environment (Gaster, 1991). The rising cost of urban land, building upon vacant sites, the shift of public resources away from parks and recreation as a public service, and the lack of legally mandated norms for space allocation in most countries continue to reinforce this trend. In 1979, only nine countries had some form of standard for play spaces in residential areas (Esbensen, 1979). An unpublished follow-up survey conducted by this author in 1989, using Esbensen's methodology, indicated little change. Most countries do not even have a general guideline for play space allocation. To this issue, Evans (1995) adds the fact that free play outdoors is being substituted by organized sport in Australia. This may mirror a broader international trend toward investing public funds in sports areas rather than in multi-choice space for free play.

*Curtailed of Children's Playtime:* Children's playtime has been curtailed by more tightly structured schedules and the reduction or elimination of school recess periods. The tightly defined out-of-school schedules of many middle-class children have left them with hardly any free time, including time for free play outdoors. Moreover, there is an alarming trend, especially in the United States, toward the reduction of recess during the school day (Guddemi and Jambor, 1992). This directly contravenes the *Convention on the Rights of the Child* (CRC), Article 31, which addresses the right to rest and relaxation (United Nations, 1989).

*Changing Family Relations:* Changes in family structure and lifestyle (growth in both single-parent families and families where both parents work) have left a void in children's lives. Many neighborhoods where children enjoyed outdoor play with multi-mothered supervision now lack daytime adults. Over 50% of mothers of under-tens are now working away from home. New types of social infrastructure are required to replace full-time mothers for healthy child development to flourish. This is particularly so in the U.S., where television companies and their advertisers have irresponsibly filled the void with inappropriate programming.

*Electronic Media:* For Garbarino (1995), television is a significant part of what he terms the "socially toxic environment," where too many children grow up today. He cites powerful evidence linking television to the growth of violence in children and society. To make matters worse, the violent messages are now transmitted in settings where there is less chance of adults being around (p. 34). The deeply ingrained, unhealthy TV habit (along with electronic games and computers) is keeping children indoors for longer periods of time (Guddemi and Jambor, 1992), especially where the outdoors is insufficiently diverse and attractive to "pull" them out to play and explore.

*Air Conditioning:* The rapid growth of residential air conditioning in the United States during this century has surely encouraged children to spend more summertime indoors, now combined with the attraction of electronic media. In 1910, just 12% of housing units had air conditioning. By 1950, the level had risen to 49% and by 1970 it was 72% — an almost straight line relationship (U.S. Bureau of the Census, 1960–1995).

*Commercialization of Play:* The private sector has responded rapidly to the paranoia of parents, tightly scheduled family lifestyles, and the lack of safe outdoor play spaces. For-profit indoor play centers are developing around the world. Until now, they have offered a narrow range of gross motor activity and packaged birthday celebrations.

### **Impact of Restrictions on Children's Access to the Natural World**

The sources cited above indicate that the number of restrictions on children's use of the urban outdoors has grown in quantity and severity in recent years. Most alarming is the fact that children are losing contact with nature in their daily lives (Louv, 1990; Nabhan and Trimble, 1994). From being a simple matter of running free in the streets, open spaces, and open country, outdoor play has become highly constrained. Children are spending more time indoors either because it offers new attractions and/or the outdoors has become a threat to safety, or because it is perceived that way. A dangerous self-fulfilling prophecy is underway. In restricting options for autonomous outdoor exploration and personal experience of nature, what magnitude of injury is being done to children's development? What are the implications of these changes for society and planet Earth?

In the early 1970s, studies conducted with children in the interdisciplinary field of design research began to address the issues of environmental quality related to children. Because of its problem-solving thrust, much of the research took a field-oriented, naturalistic approach, involving children themselves in the work and exploring a variety of rural and urban contexts on both sides of the Atlantic. Multi-method approaches included questionnaires, interviews, drawings, and child-led field trips (Hart, 1979; Moore, 1980, 1986a; Moore and Young, 1978). Results of work from this period indicated that there were key controlling factors on the size of children's territorial range (parental controls, automobile traffic) and that there were characteristics and features of the environment that made certain types of places attractive to children (space around the home, low-traffic streets, parks and playgrounds, rough ground, etc.).

In these studies of autonomous use of the outdoors, natural elements such as vegetation, water, soil, and wildlife are attractive to children because their biological attributes are not provided by synthetic environments — a difference articulated by Sebba (1991). Natural environments are attractive because they are alive. Roger Ulrich's research (1983, 1991), demonstrating the beneficial impact of nature on physical, cognitive, and emotional well-being in adults, lends empirical weight to the conclusions of other investigations of children and nature (Bogdanets and Smirnova, 1992; Chawla, 1988; Sebba, 1991). The conclusion is inescapable. Natural settings stimulate children's development in ways not provided by other means.

These results have important implications for the institutions used by children, especially if by obligation, as in schools. The results of research sponsored by the Learning Through Landscapes Trust (U.K.) suggest that the presence of nature is a primary reason why children feel positive about their school environment (Titman, 1994). This is part of the "hidden curriculum" of nonverbal messages transmitted by adults to children, through the environment, about how seriously their needs are being addressed. A study of Swedish school grounds by Lindholm (1995), and Harvey's (1989) study of children's experiences with vegetation, support Titman's conclusions.

School buildings surrounded by asphalt, chain-link fencing, and prohibitive notices communicate control, authority, and unfriendliness. If the place looks and feels like a prison, how will the child feel upon entering, compared to a school setting of trees, shrubs, and flowers? These conclusions were reinforced by findings from research conducted at the Environmental Yard, in California. Children were attracted by the natural settings because of their diversity, sensory variety, and ever changing, interactive potential (Moore, 1986b, 1989). In natural settings, compared to the synthetic settings of asphalt and play equipment, attention spans increased by several magnitudes. Children spent more time in cooperative group activity; the level of positive social interaction was elevated; and there was far more mixing by age, sex, and ethnic background. The whole

atmosphere was more creative and peaceful. Both the formal and nonformal educational advantages of the naturalized school site were extensive. Alert, creative teachers were quick to pick up on the possibilities offered for integrating the formal classroom curriculum into the world of children's high motivation for discovery outdoors through play (Moore and Wong, 1997).

The benefits of natural settings were found to be diverse, like nature itself. Natural settings stimulate all aspects and stages of child development through multi-sensory experience. They integrate informal play with formal learning in natural learning cycles and thus help build the cognitive constructs necessary for sustained intellectual development. They stimulate imagination and creativity in a special, boundless way, and supply construction materials for children's architecture and artifacts. They integrate children by age, ability, and ethnic background. They help children feel good about themselves. They enhance self-esteem and offer children a peaceful feeling. They focus the perceptions of children on the region of the Earth where they actually live. They help children understand the realities of natural systems through primary experience. They demonstrate natural principles such as networks, cycles, and evolutionary processes. They teach that nature is a uniquely regenerative process. They support interdisciplinary, environmental education curricula. They provide microclimatic comfort and flexible, forgiving settings that are aesthetically appealing to all people. By implication, these are some of the advantages to children that are becoming lost as their use of the outdoors diminishes.

Strangely, the field of people-plant relations that has emerged in the U.S. over the last few years, driven by horticultural scientists, horticultural therapists, and landscape designers, has paid little attention to children. Biannual interdisciplinary meetings held since 1990 have yielded three volumes of fascinating proceedings, but include very few studies related to children-plant relations (Flagler and Poincelot, 1994; Francis, Lindsey, and Rice, 1994; Relf, 1992). Is this lacuna attributable to a scientific bias away from children's needs, to the difficulty of attracting research funding, or to an assumption that issues related to children lie only within the domain of education?

Natural scientist Stephen Kellert's research into the relationships between human values and nature (primarily animals) did include children. His book, *The Value of Life* (1996), not only enlarges the people-environment field in breadth and depth, but also considers the development of childhood values both genetically and societally. Here we find significant support for the experiential value of primary experience of nature and the critical role of education in the process of children acquiring pro-nature values on the path to adulthood.

Restricted access to nature has an impact not only on the quality of children's lives, but also on their development. The need for nutrition, good air, and water is obvious. Kellert's nine basic values broaden the scope beyond this obvious level of physical survival. For example, what are the implications for human

development if children's needs for sensory stimulation are not met? Kellert points out that early childhood is the time when we acquire an emotional response to the physical and social world. Informal play provides us with primary experience of nature, through which our values are formed. The problem is that the natural sources of primary experience are being eroded from children's lives. In his book, *Necessity of Experience*, Edward Reed (1996) argues that Western philosophical thought has consistently devalued primary experience in everyday life. His arguments are lucid, powerful, and convincing, and they gain force from being linked to the wisdom and insights of John Dewey, the United States' most formidable educator, who started raising the alarm on these issues over 100 years ago. How much more pertinent they are today, in a culture drowning in depersonalized secondary experience — in childhood especially (see Rivkin, 1998, for recent commentary).

In a world where children have space and time for primary, playful engagement with their everyday surroundings, childhood culture has the possibility of being continuously renewed by the experiences of the new generation, especially in understanding the processes of nature (Rivkin, 1995). The problem is that in our present-day society, primary experience of nature is being replaced by the secondary, vicarious, often distorted, dual sensory (vision and sound only), one-way experience of television and other electronic media. Reed paints a grim picture of a nihilistic society resulting from these trends. Where lies the future of the Earth if human society is driven by the dominance of values for synthetic rather than natural experiences?

### **Social and Environmental Aspects of the Ecology of Childhood**

In making sense of the apparent withdrawal of children from primary experience of their local outdoor environment, Bronfenbrenner's ecologically based analytical framework of human development provides a useful frame of analysis (Moore, 1986a: 5). First, at the micro-level of individual development, the ecology of child development has an aesthetic dimension, which we might call "informal," in contrast to transmission of formal, classic culture. Children live through their senses. Sensory experiences link the child's exterior world with their interior, hidden, affective world. Since the natural environment is the principal source of sensory stimulation, freedom to explore and play with the outdoor environment through the senses in their own space and time is essential for healthy development of an interior life (Cohen, 1994).

Ecology is a process through time. Children, like many other animal species, are genetically programmed to learn about the world and to grow and develop in it through free play. If sensory perception is the means, then play is the process of activation. As context, the natural world provides both the major stimulus and the most significant content of experience. Free play is so important because human beings are so diverse. The stimulus for individual development must come from

inside the person as a reflection of their particular needs at any point in time. These needs are so complex and variable that there is no possible way they can be matched by environments managed as resources based on predictive needs, as "bureaucracies" often do. This approach is only appropriate in special therapeutic situations to resolve very specific developmental problems. Typical, healthy children need to choose stimulants from their physical surroundings. Nature (the seemingly infinite universe of plants, animals, soils, precipitation, air movement, skylines, temperature, and light) is the best option because by being alive, it offers constantly changing diversity and the broadest range of possible interactions. It is the most open-ended experiential universe possible, supporting all the physical, social, and psychological dimensions of development. It is the source of dynamic perceptions that stimulate thought and build knowledge.

Children are experiential beings. They learn together by interacting with their environment through their senses. This type of self-activated, autonomous interaction is what we call free play. Individual children test themselves by interacting with their environment, activating their potential and reconstructing human culture. The content of the environment is a critical factor in this process. A rich, open environment will continuously present alternative choices for creative engagement. A rigid, bland environment will limit healthy growth and development of the individual or the group. A boring environment will likely lead to antisocial, unhealthy behavior.

Defined as an ecological phenomenon, health is a quality of the organism, including its relations with other organisms and their shared habitat. It is the health of this ecosystem that offers each child the opportunity to grow and develop, to reach full potential, and together with others create culture. The natural environment offers the diversity of experience that children seek.

As we know, however, nature is not benign. It can be a source of disease and threats to health. Children need protection from nature's negative, aggressive aspects. Protection must not result in withdrawal, though. There is a difference between reasonable and necessary protection — and unhealthy overprotection that can have a detrimental impact on child development. To the extent that a child grows up with inadequate opportunities to interact with the natural world outdoors, developmental potential will be lessened. The most critical result may be the diminished sense of personal competence and self-esteem of the child who is not allowed to freely and safely roam outdoors. Natural spaces and materials stimulate children's limitless imaginations and serve as the medium of inventiveness and creativity observable in almost any group of children playing in a natural setting (Moore and Wong, 1997).

For healthy, prosocial community development, the best strategy is to combine creative play leadership with the stimulus of a natural environment over which children have control. This was the genesis of the adventure playground movement launched in Denmark over 50 years ago (Brett, Moore, and Provenzo, 1993).

It combines two realms: a space dedicated to children's free-play interaction with each other and the basic substance of the natural world (earth, fire, water, plants, and animals), and nurturing, facilitative relationships with trained professional play leaders working in a nonformal educational setting.

If such environments do not exist, what then? The traditional approach has always been for adults to step in and make up for the lack of opportunities in the child's "deprived environment." From the point of view of play and child development, adults can act as creative play leaders or facilitators of playful, open-ended activity if they themselves are playful and open-ended, and can stimulate creative action. Parents and other adult family members are the other critical social factor, obviously; because of our contemporary lifestyle, however, these significant adults are becoming replaced by others with child-rearing roles: childcare center staff, classroom teachers, recreation leaders, youth club workers, leisure center staff, and so on.

Yet let us not overlook the importance of child-to-child relations. Most children are naturally inclusive social beings. As Margaret Mead pointed out many years ago, one cannot talk of the "child," but only of children as social beings constantly interacting, learning from each other (good and bad), reinventing culture. Because of their constantly changing diversity, natural settings provide a richer spectrum of choice for supporting prosocial behavior among children.

All children need help to reach their potential. More than ever before, they need help to *prevent* them from becoming unhealthy, or to *restore* their health when negatively affected by dysfunctional environments. The planet, too, needs the same approach.

The ultimate truth is that the human species is utterly dependent on the biosphere for its survival. It does not work the other way around. Planet Earth will continue to evolve without *Homo sapiens*. Indeed, at this point in its history, it would revert to a more healthy state if our species were removed. We are permanently reducing the ecological quality of the planet at an unprecedented rate, to the point of destroying whole ecosystems containing thousands of species not yet discovered (Wilson, E.O., 1992). Fools may argue that Earth has recovered from natural calamities in the past and it will do so this time. Yet this crisis is different, brought on by one of the Earth's own species, rather than by greater cosmic forces (Leakey and Lewin, 1995; Wilson, E.O., 1992). Furthermore, we have the unique ability to recognize, analyze, and reflect on the consequences of our own behavior — and to change it if necessary to restore or enhance the quality of our lives. The invention of plumbing systems is a good example. In much of the world (although still not enough), humans have learned how to protect themselves from the scourge of the most common communicable diseases through the development of physical systems for delivering clean water and disposing of human waste. The collective use of these systems is motivated by individual behavior. When such motivation is lacking, because the threat to our quality of life

is more distant in time and space, as in the case of natural resources, the collective will fades and we have the *Tragedy of the Commons* (Hardin, 1968). The “commons” has become the whole biosphere and the impacting unit has changed from medieval herdsmen to gigantic global corporations of unprecedented power, competing to maximize profits.

### International Action to Save the “Commons”

Global concern was activated in the 1960s leading up to the Stockholm Summit on the Environment (1972) and was followed by the Vancouver Habitat Conference (1976). Environmental issues were brought to a world summit again in Rio in 1992, this time attempting to coexist with “development.” The issues of shelter and urban development came up again to the global level at the Habitat II conference in Istanbul in 1996. Initially in the agenda-drafting process, children and youth hardly appeared in the text, again demonstrating a peculiar blind spot of adult intelligence and the need for constant pressure to get children’s interests represented.

Each of these international meetings produced declarations and policy statements to stimulate national and local-level actions to implement environmental and urbanization policies — Local Agenda 21, for example. It is easy to be skeptical about the fine words and paper frameworks for action, and to overlook the function of these meetings to cause a stir, bring many interests together, reach agreement on actions that must be taken, and, above all, help extend and deepen the network of those involved in addressing the issues, to strengthen our sense of global solidarity.

Recognition of children in this work has been strengthened by a growing acceptance of their rights. In 1959, the U.N. *Declaration on Children’s Rights* gave children international legal standing. In 1989, these rights were greatly amplified by the CRC, now ratified by almost all nations (but still not by the United States, which is perhaps indicative of the low standing of children in our country). Fundamental in the CRC is the right to a healthy, developmentally appropriate environment. Disregard of children’s rights, and lack of visibility of their needs in political agendas, trickles down to ensure their exclusion from all manner of initiatives where children should be included. For example, in the latest urban planning trend toward “new urbanism” (reducing suburban sprawl with higher density neighborhoods by placing more focus on social relations among residents), children are almost never mentioned as *bona fide* residents with needs of their own. A review of recent books in the field revealed only one work that included the word *children* in the index. In the equally current field of “ecological design,” the same observation can be made.

Another key concept that has emerged through international meetings is “sustainable development,” i.e., development today that does not steal natural resources from tomorrow — from all our tomorrows. Yet, as we confront the post-

Rio and post-Istanbul calls for sustainable development, the trend of childhood away from nature continues, with serious negative implications. The degree to which the environmental needs of children are overlooked in both design research and practice is profound and disturbing.

### Needs for Action

Reversing the trend of childhood away from nature will require a massive, coordinated effort by professional researchers, practitioners, and political allies. All professionals working with children, including designers and especially those involved in the urban greening movement, need to work together as advocates for and *with* children to highlight their environmental needs in urban design policies. The aim is to create neighborhood landscapes that offer safe, unrestricted places where childhood and its natural inheritance can be reunited and flourish together.

*Giving Voice to Children and Youth:* Children have a *right* to a voice in issues that affect their lives (CRC, Article 12). One of the problems with professional meetings is that it is difficult to meaningfully involve children and youth. It is difficult to convince adults of the wisdom of this strategy. Furthermore, logistically and practically it is not easy to ensure genuine and legitimate involvement unless facilitated by experienced and committed adults, who must be constantly vigilant to assure that the interests of children are not trivialized. For genuine participation, the local level is more effective (Hart, 1996). Children are the evolutionary bridge, continuously rebuilding the connection between present and future states of planet Earth.

*Landscapes for Learning and Development:* The leading 19th- and 20th-century educational philosophers and child development theorists emphasize the importance of experiencing the natural world daily throughout childhood. Nature was considered an essential educational vehicle by Dewey, Froebel, Montessori, Steiner, and others. Furthermore, these educators endorsed the significance of children's play as the process of self-learning, especially through engagement with natural surroundings. Piaget, too, recognized this (Howe and Johnson, 1975). Within the progressive education movement, concern for the experiential quality of the child's everyday environment is still strong (Adams, 1991; Cohen, 1994). The field of environmental education also shows concern, although in the primary grades the focus is too often on telling children what is wrong with the world instead of helping them discover how beautiful it is (Hansen-Møller and Taylor, 1991; Wilson, R., 1995).

*Establishing Priorities:* Research-based urban development policies that address the need of children for daily experience of the natural world through outdoor play have been presented elsewhere (Moore, 1986a). This earlier formulation must be revised in light of the newly emerging issues of increased restrictions on children's spatial range. More than ever, we need to plan and design appropriate settings for children of all ages where they can interact safely

with natural materials and phenomena. Growing “green children” as a social and environmental strategy for saving the planet from destruction requires children to live in green places, with “green” parents, attending “green” schools, in a “green” corporate society managed by “green” governments. How can we contribute toward this goal as child environment professionals? We must address the needs of children in the emerging “new urbanism” and “ecological design” movements. We should focus on formal education environments — the places where children are legally obliged to spend many hours each day in school and childcare settings. Canada, Sweden, and the U.K. have national organizations working on improving school grounds; many U.S. organizations are beginning to follow suit. We should also recognize the potential of after-school nonformal education programming with trained animators and play leaders in natural settings, where “it is O.K. to pick the flowers!” Such places could be located in parks, playgrounds, school grounds, and greenways. They should function as nonformal education “safe havens” or play sanctuaries for urban children — as an antidote to mindless, secondary TV experience. An added advantage of natural urban places is that they accommodate the needs of children of *all abilities* more readily than places where only manufactured play equipment is available.

For positive support, we have the *Convention on the Rights of the Child* (United Nations, 1989), the Istanbul Declaration, and the Habitat Agenda (UNCHS, 1997), which together make explicit the connections between childhood, environmental quality, participation, education, and sustainable development. With this international commitment, we must forge a new partnership with young people to redirect the course of history.

### A New Sense of Child-Biosphere Relations

Each child is born from and into the biosphere upon which all humans depend. Healthy humans cannot exist without a healthy biosphere. It is our home. Indeed, health in the broadest sense can be defined as a quality of relationship between people and planet.

To feel part of the biosphere, children must live in it, intimately, in a way that is developmentally appropriate. Chawla (1988) emphasizes that children’s concern for the natural world is shaped through opportunities for direct contact with it. Urban children, in particular, need to live in a landscape designed to meet their needs, where they can explore and experience natural materials and phenomena each day of their lives. Children need places where their own culture can flourish. As a design researcher of such places, I believe they must be based in nature — for the good both of children and the planet.

The childhood significance and developmental function of direct interaction with the natural environment have been succinctly summarized by Sebba (1991). If we assume that early childhood experience becomes embedded in the psyche of healthy adults, permanently affecting their behavior, attitudes, and values, then we

had better start paying greater attention to the quality of the environments where those dimensions of personality have their experiential roots.

The last 20 years have seen a lull in action research related to the urban environment of childhood. Notable exceptions have addressed the enormous issue of traffic and its negative effects on the childhood landscape all over the world. In countries where cars have been celebrated and accommodated uncritically as a positive aspect of 20th-century living, children's freedom has been reduced. This is most obvious in the U.K., as evidenced by Hillman and Adams' (1992) longitudinal study. It is also the case in the U.S., where, ironically, the "new urbanism" initiatives aimed at reducing the dominance of the private automobile have so far largely ignored children as a potentially beneficial group.

In countries where policies have been developed to control traffic in urban neighborhoods with the aim of creating pedestrian-friendly, child-friendly environments, children have managed to retain a larger degree of freedom as measured by such basic territorial "licenses" as being allowed to cross roads on their own, come home from school on their own, travel to leisure destinations on their own, use buses on their own, and bicycle on main roads.

Germany, Sweden, Denmark, and the Netherlands have addressed the issue of childhood environmental quality — most clearly by introducing traffic-calming design policies at the individual street level and neighborhood-wide. One reason for success is the higher density of cities in these countries, compared to cities in the "New World" of North America and Australia. For example, the lower density of the planned city of Canberra results in a far more traffic-dominated environment than characterizes older European cities. This introduces the perceived, if not actual, risk to children of physical harm from traffic. It also disperses the relatively ample supply of open space further from the children's homes. Because most adults drive and the destinations are more dispersed, the streets contain far fewer adults, who might otherwise look out for children. This increases parents' fear of their children being molested (Tranter, 1993).

On the basis of analyses of children's mobility in Canberra and the study of European approaches, Tranter proposes a set of policies for creating child-friendly cities that include changing the legal status of local streets, lowering residential speed limits, traffic-calming interventions (both local and citywide), increasing the sense of community and neighborhood, and changing the perception of the street as a shared, or pedestrian-dominant territory. In both the Canberra and U.K. studies, one of the measures of mobility was the number of leisure places children were allowed to go to alone. Unfortunately, no details were given about the types of leisure destinations; thus, the contribution of the "pull" of these places could not be evaluated and compared to earlier studies (Hart, 1979; Moore, 1980, 1986a), where the attributes of place featured as an important aspect of the analysis.

### Needs for Research

Our world is changing at an ever accelerating rate. This is especially true of the circumstances of childhood. There is a sense of new generations becoming alienated from nature, although we lack research to demonstrate how much, how fast, and with what long-term consequences — for children, society, and the planet. For this author, who spent his childhood roaming free in the woods and fields of southern England, it feels almost as if we are leaving a long, historic period of exquisite outdoor freedom and are heading toward a murky future far more challenging than before. Research priorities that could inform policy development to help address this challenge are as follows:

*Everyday Natural Settings:* Investigation of the role of the natural everyday environment in early childhood development. What do children learn through experience of the natural world? How does it support their development? What happens when children lack these experiences?

*Child-Friendly Urban Design:* Designers and urban policy developers need empirically based case studies of the best practices and model examples of how to provide greater access to natural environments and support autonomy of the child's exploration of his or her surroundings.

*Special Childhood Places:* Research on where children and youth do find autonomy and access to the natural world is underway and needs to be expanded. Urban examples include the nonformal education sites mentioned earlier, as well as parks and playgrounds. We also must be concerned with special natural areas and features in the landscape that go unrecognized and get destroyed in the development process. Urban conservation policies are required to preserve them for future generations of children.

*Children's Participation in Planning and Design of Their Environment:* Some of this work has been done, but more is needed, especially regarding impacts of these activities on children's self-esteem, sense of empowerment, and enhancement of democratic skills (Hart, 1996; Moore, Verheyen, and Anderson, 1995).

*Cross-Cultural, Transnational Studies of Childhood Environments:* The precedent for this direction was set in the Growing Up in Cities project by Kevin Lynch and collaborators 20 years ago (Lynch, 1977). It is difficult to control the variables in such studies to achieve consistent comparisons. Nonetheless, the effort has several advantages, including highlighting the global nature of emerging childhood environment issues, discussing how they might be addressed in professional practice, understanding how they relate to stages of national development (i.e., comparisons between least developed, developing, and developed countries), and opening doors to increased understanding of cultural and social differences between disparate geographic locations. A follow-up study of the Growing Up in Cities project is currently underway, involving an international research team spanning nine sites in eight countries: Argentina, Australia, India,

Norway, Poland, South Africa, the U.K., and the U.S. (Growing Up in Cities URL, n.d.).

### Conclusion

Daily hands-on contact with natural settings is essential to children's health. It is also a prerequisite for sustainable development education. Given that, there are negative implications for child development in the growing restrictions on children's use of the urban outdoors. Recent U.S. volumes express concern about children's loss of daily contact with nature (Louv, 1990; Nabhan and Trimble, 1994; Pyle, 1993). In the U.K. and Canada, articles in the popular press indicate a sharp increase in parental restrictions over children's use of the outdoors. Although these data are primarily anecdotal, they reinforce an increasing concern about negative implications for both child development and the future of the Earth. Longstanding restrictions caused by traffic danger are now joined by the worrisome "Bogeyman Syndrome" or fear of strangers. Reversing these trends will require a massive effort by parents, researchers, landscape designers, architects, horticulturists, educators, urban planners, and other professionals responsible for child development. We need to create safe, natural havens for urban children where childhood and its natural inheritance can be reconnected — as a right. We can do this by making the issue of children's access to nature an action-research priority, and by giving voice to children and youth in creating policies for improving children's access to environmental diversity.

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