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Four Strong Schools: Developing a Sense of Place Through School Architecture

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Abstract

The driving premise of this paper is that students should be schooled in built and natural environments that afford them ways of understanding of how their daily physical actions and social choices affect the earth. Views of prominent philosophers and scholars in support of this premise are described. Next, four cases illustrate how schools can provide students with opportunities to develop ecological mindfulness through practical activities that are enhanced by natural and built environments. The examples—from Canada, the United States, and Australia—span the primary, secondary, and tertiary levels of education. It is concluded that schools and curricula that focus on a sense of place are able to support the practical activities that lead to meaningful relationships between members of the community, and between people and the land.

Introduction

By the time this day is done, we who live on this planet will destroy close to 60,000 hectares of tropical rainforests (United Nations, 2003). We will eliminate as many as 140 species of living beings (Ryan, 1992), and over 27,000 children will die from hunger (Bell &

Renner, 2001). Striking as these numbers are, they remain fundamentally incomprehensible to most people. American philosopher Mary Catherine Bateson (1994) has written eloquently about this kind of blindness, describing how we pay attention only to a small portion of the information we receive, blocking out what is in the periphery of our vision.

This paper is predicated on the notion that learning statistics will not shape the lifelong thoughts and actions of students. Rather, students must be schooled in places where the built and natural environments serve as teachers, so children and young adults come to know and love the land around them, ultimately making daily and lifelong choices that serve to steward the planet. After examining some of the philosophical writing and educational research related to this premise, four vibrant settings are described to show the potential of built and natural environments in shaping students' learning and actions.

Literature

American environmentalist David Orr claims that education for sustainability must connect knowledge of subject disciplines with knowledge of the hands and heart (Orr, 1992, 1999). In developing his argument, Orr (1992) refers extensively to the work of Henry David Thoreau, characterizing Thoreau's approach as "an antidote to the idea that education is a passive, indoor activity occurring between the ages of six and twenty-one" (pp. 125–126). In Orr's view, living at Walden Pond provided an example of how personhood, pedagogy, and place could be united. Indeed, Orr claims that it was not Thoreau who wrote Walden, but Walden that wrote Thoreau.

Orr (1992) also makes the sobering observation that place has no particular standing in contemporary education. He suggests it is easy to overlook the importance of place in schooling because schools are both immediate and mundane. A study conducted at the Thomas Jefferson Center for Educational Design at the University of Virginia resonates with Orr's view, where explanations are offered as to why schools have remained essentially unchanged for centuries (Bradley, 1997). First, most school construction is set in motion to renovate or replace unsafe or overcrowded facilities. The primary catalyst is not to create inviting learning environments, or environments that put issues of sustainability at the forefront, but rather, to eliminate transportable classrooms or to fix a roof. Second, school districts producing innovative designs often meet with opposition because there is a perception that such designs are necessarily more costly. Third, school districts see no need to change what is already working as measured by standardized test scores. Fourth—and most important of all—the general public simply does not think about the contribution the natural and built environments make to the education of our youth.

An equally powerful reality is that many people in the world's most consumer-driven countries are what Orr calls "deplaced." The architectural expressions of "displacement" are the ubiquitous shopping malls, apartments, inter-state freeways, glass and steel office towers—and schools. None of these architectural expressions encourage a sense of connection or responsibility. Can a sense of place be provided through schools?

Over a century ago, philosopher John Dewey embraced the idea that place could serve as an important context for education. Dewey's (1900) claim was that schools should be

thought of as embryonic communities, with activities in schools selected to reflect the undertakings of society as a whole. Place then, according to Orr and Dewey, contains both the physical environment and the work and relationships of the community. Indeed, philosophers, economists, and scientists have argued that environmental degradation has arisen with remarkable speed, and that this degradation is associated with the simultaneous loss of citizenship (Berry, 1996; Capra, 1997; Carson, 1962; Lovelock, 1987; Orr, 1992). A sense of place and the social relationships among people are inseparable.

There is also the issue of beauty—so difficult to define, yet so central to the natural world and to a sense of wellbeing. James Lovelock (1987), originator of the Gaia hypothesis, speculated that beauty might be an essential element in linking human behaviour with the natural world. Lovelock wondered if the same instincts that recognize beauty are also those that recognize fitness in the environmental sense. While he acknowledged that it would be exceedingly difficult to “test experimentally the notion that the instinct to associate fitness with beauty favours survival ... it might be worth a try” (p. 143).

In the essays of the philosopher and architecture critic Lewis Mumford (1946), one also encounters the notion that place, beauty, and pedagogy should be united through community engagement. Mumford’s idea of the “regional survey” offers a way to engage students in the notions of fitness as described by Lovelock (1987). This approach, based on a proposition made by Patrick Geddes in the 1890s, can be traced back to the ideas proposed by Froebel in the mid-19th century and, even earlier, to those of Rousseau.

By regional survey, Mumford meant students should learn about their communities by closely examining the places in which they live, and in so doing, learning about the networks of relationships formed by the physical geography and human community of the region. Indeed, Lovelock (1987) wrote about how his own feeling for natural things developed as a result of the frequent walks he took with his father. As a boy, then, Lovelock was involved with a regional survey of his own. It is not a great stretch to speculate that the Gaia hypothesis emerged, albeit indirectly, from these childhood experiences.

Mumford did not regard the regional survey as something to add to an already overburdened curriculum, but as an approach that would be the “backbone of a drastically revised method of study, in which every aspect of the sciences and the arts is ecologically related from the bottom up, in which they connect directly and constantly in the student’s experience of his [*sic*] region and his community” (pp. 151–152). Mumford’s idea of the regional survey involved acting and doing, breaking down what he called the “disabling breach between facts and values” (p. 153).

Indeed, the most prominent educational philosophers of the 20th century also considered manual or practical skills as essential to the development of thinking (e.g., Dewey, 1900; Montessori, 1967; Whitehead, 1929). Whitehead claimed there is an essential reciprocity between thinking and manual creative activity, because through activity, “knowledge loses its abstractness, becoming in the application to specific places and problems tangible and direct” (p. 50).

When did we lose admiration and respect for the activities we do with our hands? It was once commonplace for men, women, and children to spin and weave, sew their clothes, grow crops, cook and preserve food, and build shelters. Mumford (1946) observed it was during

the Renaissance when the “daily discipline of manual effort” (p. 156) involved in humanistic and cultural activities was eroded by the growing view that educated persons did not work with their hands. Mumford said, “the inability to work with one’s hands became a point of pride among the educated classes” (p. 156). This view persists; many so-called educated people take pride in the fact that they never cook or clean. The ethos of schooling reflects the changes that came with the Renaissance—school is most often characterized as a place to learn about facts and figures (not about cooking and gardening), a characterization visibly reflected in the obsession with achievement results on mathematics and language measures (Gardner, 1999; Orr, 1992). But a foundational claim for this paper is that such “manual” activities—activities requiring the engagement of hands and the body—ought to be central to schooling. For this to happen, the built and natural environments must provide affordances for such learning to take place, so knowledge—like the statistic that 60,000 hectares of rainforest will be destroyed by the end of this day—is not about memorizing abstract facts but about building understanding through physical, intellectual, and social engagement.

Curriculum theorists and educational researchers have also highlighted the importance of the built and natural environments in schooling and in learning about place through practical activity. A well-received series of curriculum materials, developed to support the learning of the core curriculum subjects through a study of place, was produced in the United Kingdom in the mid-1990s (c.f., Rhydderch-Evans, 1993; Thomas, 1993). In the book that focuses on science in the school grounds (Thomas, 1993), activities include comparisons between mowed grass and indigenous long grass, bird surveys, insect and pond studies, weather statistics, waste management, and study of the materials used in the construction of the school building itself. These extensive curriculum resources indicate the kinds of knowledge students can acquire through a study of place, and in addition, include ways that students’ progress might be assessed. Similar curriculum approaches have been developed in North America (c.f., Burriss & Boyd, 2005), some of which are based on observations of children’s spontaneous play.

Another approach is to examine how outdoor environments contribute to students’ physical and social growth. Early childhood educators demonstrate how children who are not involved in play will suffer developmentally—a loss that is not only physical, but intellectual and social (Adams, 1991; Brett, Moore, & Provenzo, 1993; Moore & Wong, 1997; Stine, 1997). Moore and Cosco (n.d.) cite a Swedish study by Patrik Grehn comparing two groups of children. One group of children attended a typical Swedish nursery school; the other children attended a school with an “outdoors-in-all-weather” approach where a wild garden was the main outdoor space. The children at the outdoors nursery were more physically advanced, found it easier to concentrate, were sick less often, and demonstrated more diverse play in the affective, imaginative, and creative domains.

There is convincing evidence that play is also essential in the years of pre- and early adolescence (Wood, 2005). In all of these accounts, scholars and practitioners emphasize the importance of providing landscapes that are, in some sense, unfinished (Frost, 1992) or rough (Moore & Cosco, n.d.) and aesthetically appealing (Adams, 1991), demonstrating that pristinely tailored landscapes and playgrounds leave little scope for imaginative play. Frost goes so far as to say that some of the most meaningful play settings for learning—such as

construction areas containing scrap lumber and tools, and natural areas with indigenous plantings and animal habitats—are often not supported by adults. Another aspect of untailored or rough landscapes is that they contain what Moore and his colleagues describe as “all manner of loose parts”—petals from flowers, pebbles, decaying leaves, and so on (Cosco & Moore).

Landscape architect and scholar Robin Moore provides striking evidence gathered from a play area at the Bay Area Discovery Museum (R. Moore, personal communication, February 9, 2006). In that setting, children make most frequent use of the *least* refined play areas and materials available—the loose parts. He shows how a simple gravel pit and an old boat fostered more play and exploration of cause and effect than the most sophisticated (and expensive) interactive exhibits. If it is the case, as Moore suggests, that scientific play develops spontaneously and deeply in outdoor settings as those he describes, then the potential for the kind of engagement called for by Orr, Dewey, Mumford and others is greater in schools where natural settings are enhanced, where the curriculum supports Mumford’s regional survey approach, and where social relationships within the school and community are nurtured.

What follows is an examination of four educational institutions where beauty and a sense of place are paramount. The curriculum in each of the examples resonates with the setting, and to a greater or lesser degree, adults in the community are also committed to forming strong social relationships and, along with the students, taking political action. The descriptions are based on published cases; the first two cases are further enriched by interviews with architects and educators involved in the two schools, and by observations made during school visits.

The Cases

The Shearwater Mullumbimby Steiner School, New South Wales, Australia



The Shearwater Mullumbimby Steiner School is located at the edge of a rainforest near the northern border of New South Wales. It was founded in 1993, with 37 students, and the first classes were held in the home of one of the founding teachers. Within half a year, the population had almost doubled, so land was purchased and the first buildings were erected. This remarkable growth continued with the same speed and abundance as the remnant rainforests that skirt the edges of the property. By 2005, there were over 500 students in Kindergarten through to the end of secondary school. Konrad Korobacz was one of the school’s two founding teachers and currently serves as an administrator for the school. He understands well the notion of *genus*

loci; for him there is no question that the phenomenal growth of the Shearwater School is partly attributable to place (K. Korobacz, personal communication, May 17, 2005).

Shearwater is located in an area where powerful geographies converge: the winds sweep from the most easterly point of the Australian coastline, and the school sits in a rainforest valley where two mountain ranges meet on the volcanic soil that marks the turbulence of the past. But the strength of Shearwater is more than just the good fortune of being located in such a place. In this school, place serves as inspiration for lesson content. Through an explicit examination of race, language and culture, taking into account Australia's weather, geology, flora, and fauna and its indigenous population and their relationship to place, the curricular directions for the school have been deliberately fashioned by the teachers and administrators.

Here is an example of how the flora and fauna of this setting are embodied in the curriculum and involve learning through manual or practical skills—what Dewey (1900) called learning by doing. From the very first year of the school's operation, sewage has been



treated on the school grounds. This is accomplished by means of a reed bed through which sewage and other wastewater flows. The reeds are healthy and beautiful; twice a year, when the reeds become as tall as in the accompanying photograph, students harvest and compost the reeds for other gardens. The reeds grow under a flat enclosure, an impressive timber structure with a translucent roof, designed and built by a class of Grade 11 students. The kinds of manual activities Whitehead (1929) and Mumford (1946) so heartily endorsed—designing and building the reed bed and its enclosure, and the ongoing harvesting of the reeds—are but a

few of the labours that the students attending the school undertake. And these labours lead to more than learning about how to treat sewage in ecologically mindful ways, although such learning alone is highly unusual in school settings. As a result of this mindfulness, students have initiated other projects—such as the replanting of indigenous rainforest trees near the creek—projects that involved teachers, parents, and other members of the community, thereby linking place with community action.

There are other ways in which the Shearwater School pays homage to its geographical location. The architects and school founders designed the school around an imposing white fig tree (D. Jacobson, personal communication, June 14, 2005). The tree serves as a physical and symbolic center for the school, and is visible from the classrooms and the administrative

wing. Classrooms are shaped in ways that also highlight the physical surroundings, reflecting a sense of place as well as the architectural and philosophical tenets of Rudolf Steiner.

There is a small waterfall, flowing from the creek that runs under several of the pavilion-type classroom buildings. These buildings, constructed from locally produced timber, rest on pillars and are joined by a system of covered verandahs and walkways. As students move from one building to another, they walk over the creek, past the white fig tree and the reed bed, with views of the rainforest beyond. These students do more than spend time outdoors, engaged in the manual labours involved in gardening and planting. The design of the building itself is a daily reminder to students of the *particular* place in which they live. Even the youngest child, who passes over the creek day after day, has an opportunity learn from the design features, for when the child sees that the creek has turned brown and muddy after a major rainfall, the child is informally involved in a regional survey (Mumford, 1946) and in the kind of play that arises naturally in outdoor settings with “loose” parts (Moore & Wong, 1997). This observation reflects another critical point: the learning that occurs at Shearwater School should not—and cannot—be the same as in other settings. Building the identical school in a desert would neither be beautiful nor afford students ways of learning about the place or region in which they live.

Seabird Island Community School, Agassiz, British Columbia, Canada

The notion of place as a teacher is understood and honoured by Aboriginal peoples the world over. Seabird Island is on the Fraser River and is surrounded by mountains on all sides. The island is a traditional home for the Sto:ló Nation: the people of the river. The Seabird



Island Community School was intended to be much more than a school for Kindergarten through Grade 12 students (J. Patkau, personal communication, July 7, 2005). Positioned at the head of the village, the school is integrated with the other public spaces in the community, including a village common space, the Band Office, and Seabird Island itself.

Patkau Architects of Vancouver used a participatory process in designing a school that mimics the shapes of the mountains beyond, resulting in a building with considerable spatial complexity (Dudek, 2002). Its interior and exterior are reflective of the Aboriginal peoples of the area: traditional post and beam construction was used. More important, it was members of the Sto:ló community who formed the building crew for school construction. Years later, both the architects and community members relate how taking part in the building served the

young men of the community: they developed practical skills, took pride in their work, and in some cases, later built their own homes and found work in other settings.

The structure of the porch along the south side is evocative of the racks used to dry the salmon that the Sto:ló have traditionally harvested—in fact, not far from the school there are



salmon drying racks still in use. Gracie Kelly is the programs coordinator for the Seabird Island Band, and her love for the building is deeply evident. She claims that if one looks closely, it is possible to see one of the figures embedded in the form of the building (G. Kelly, personal communication, July 6, 2005). Indeed, it was a goal of the architect to encapsulate the

aboriginal view that there is life in inanimate objects, and to do so in such a way that was not “some clichéd expression of aboriginal beliefs” (J. Patkau, personal communication, July 7, 2005). By placing the school as the symbolic centre for the community, and by locating a large kitchen in the center of the school itself, Patkau hoped that the school would become a community centre as well. This has transpired: community events occur within the school throughout the year. A major feast was scheduled for the end of July (2005)—a time when many North American schools lie dormant or have been boarded up to prevent vandalism.

Joseph Adam Lewis Environmental Center, Oberlin College, Ohio

By the early 1990s, the Environmental Studies program at Oberlin College had outgrown its space. Professor David Orr (1999) envisioned designing a building that would embody the principles he had espoused for decades. A forum of twenty-five students and a dozen architects met over two semesters to develop the core ideas for the new building. They determined a set of design criteria for the 14,000 square foot facility, including generating more electricity than it would consume, discharging no waste water, using no materials known to be carcinogenic, using materials grown or manufactured in a sustainable fashion, landscaping to promote biological diversity, meeting the requirements of full-cost accounting, and promoting ecological competence and mindfulness of place. In Orr’s words, the building would cause “no ugliness, human or ecological, somewhere else or at some later time” (Orr, 1999, p. 142). With a new president arriving in 1995, plans for the building went forward, albeit under rather restricting conditions imposed by the trustees of Oberlin College.

The design team included the graduates of the class involved in the original planning, and a cadre of architects, scientists, and engineers associated with the William McDonough and Partners architectural design firm. The Joseph Adam Lewis Environmental Center opened in January of 2000, and offers classes on conservation biology, sustainable architecture, ecological design, environmental education, and solar energy, among others

(Oberlin College, n.d.). A small wetland and forest were restored, and gardens and orchards were planted. The overall result “instructs users in the arts of ecological competence and the possibilities of ecological design applied to buildings, energy systems, waste water, landscapes, and technology” (Orr, 1999, p. 146). Here we have an example of how the students’ study of their own environment resulted in actions of various kinds—not the least of which was the political work involved in convincing trustees to move forward with a project they had initially resisted with vehemence. Ultimately, the design work of these young people, in harmony with professionals in their community, resulted in the construction of a building embodying sustainable building principles of the highest order.

Edible Schoolyard, Martin Luther King Middle School, Berkeley, California

The first plantings in the Edible Schoolyard of the inner city Martin Luther King Middle School in Berkeley occurred in 1995. When the project was launched, the school cafeteria was closed and students bought packaged food from a shed at the back of the parking lot. What was once a cracked asphalt expanse is now a one-acre organic spread of bountiful produce. Students grow corn, blackberries, citrus fruits, apples, plums, cherries, blackcurrants, hazelnuts, figs, raspberries, edible bamboo, hibiscus, jasmine, mint, gourds, tomatoes, pear trees, asparagus, loquat, chives, grapes, peas, pole beans, onions, peppers, basil, broccoli, and collard greens—to say nothing of the olive trees and of the eggs produced by the garden’s Aracana and Rhode Island chickens (The Edible Schoolyard, n.d.).

The process of designing the garden was a highly participatory one, beginning with a design symposium involving landscape architects, teachers, parents, chefs, administrators, business people—and students. Thus, from the very beginning students were involved in both the practical work of creating a garden as well as developing an understanding of the work involved in a major change to curriculum and to the ways a school community functions.

The first year plantings of fenugreek, crimson clover, and vetch were spread throughout the acre to cleanse and break up the soil. During the same year, the 1930s school cafeteria was refurbished as a kitchen classroom. The kitchen classroom was relocated in 2001 after an earthquake retrofit, and the new kitchen classroom is located in an old bungalow directly adjacent to the garden. In designing the new kitchen classroom—which now also serves as a gathering place for family events—many of the redwood drawers and cabinets from the original kitchen were recycled.

As students plant, harvest, and prepare seasonal produce, they learn about food production and about fundamental principles of ecological literacy, through their direct involvement with the garden and through the curriculum designed to support their gardening endeavours. The Center for Ecoliteracy (n.d.), established by Fritjof Capra and others, plays a central role in designing the curriculum foci around which students learn about the intricate networks involved in gardens. The garden is a site for learning about interdependence, diversity, nested systems, cycles, energy, succession, self-organization, and stability—for learning about the web of life (Capra, 1997). As Cosco and Moore (n.d.) so provocatively claim, children need to be makers of their own environments, and gardens made by children “add a layer of special meaning to the place.” They add, “in our ever more complex,

restrictive urban world, such childhood experiences (involving all senses) cannot be left to chance.” The Edible Schoolyard is a fine example of a highly urban environment where students are, indeed, makers of their own environment.

The Center for Ecoliteracy also sponsors a state-wide program called *Rethinking School Lunch*. In this way, students also contribute to the larger political arena, helping influence state policy regarding food and schools. Alice Waters writes passionately about the role that public education must play in restoring the rituals of the table to children’s lives. She claims:

Public education has the required democratic reach. And it desperately needs a curriculum that offers alternatives to the fast-food messages that saturate our contemporary culture. These messages tell us that food is cheap and abundant. That abundance is permanent; that resources are infinite; that it’s okay to waste; that standardization is more important than quality; and that speed is a virtue above all others. In school cafeterias, students learn how little we care about the way they nourish themselves—we’ve sold them to the lowest bidder (2003, p. xxx).

The notion of school gardens is taking hold in other countries too. In 2002, twenty-one schools in England launched a program called *Growing Schools* (n.d.) to transform barren playgrounds into gardens. E.B. White, children’s author and essayist, said he was pessimistic about the future of humanity because its approach to nature was “to beat it into submission,” adding that we might stand a “better chance of survival if we accommodated ourselves to this planet and viewed it appreciatively instead of skeptically and dictatorially” (cited in Carson, 1962, p. vii). Students who tend school gardens learn it is not possible to beat nature into submission. Instead, one hopes that they develop lifelong habits of stewardship for the natural habitats they know and love.

Discussion

While there are limits to the generalizations that can be made from case studies, the four examples demonstrate that, with certain features in place, it is possible for students to become meaningfully engaged with their environments through practical activities. Further, these activities afford students ways of forming stronger social connections in their communities, and in some cases, invoke political action leading to broader policy changes.

What are those features? In all of the cases—spanning three countries and involving students as young as four and as old as twenty-four—the particular ways of showing reverence for the natural world spring from the regions themselves. Covered verandahs and pathways across a creek with a reed bed for sewage treatment make sense in a tropical rainforest setting. A garden, limited by urban constraints but enhanced by the advantageous growing conditions of the Californian climate, makes sense in the inner city. Thus, the first feature necessary for environments to support a sense of place is that the built and natural elements must respond to the region, so that the regional survey activities (Mumford, 1946) are truly in harmony with the setting. The second feature, again demonstrated by all four cases, is that students are expected to take part in practical, manual activities that include gardening (Shearwater and the Edible Schoolyard), design (Edible Schoolyard and Oberlin), and building (Oberlin and Seabird Island). Third, in all of the cases, the teachers support

these practical activities through formal curricula and by actively involving other community members.

As a result of these three features—and likely others as well—meaningful links were formed between students and members of the community through further activity (such as the ongoing reforestation activities at Shearwater and the community events at Seabird), and through political work as well (such as the work students undertook with the trustees of Oberlin College and the contributions to state-wide school lunch policies made by students from the Martin Luther Junior Middle School).

While building technologies have advanced in the past few decades—as evidenced by the example of the Center at Oberlin College—the central ideas presented in this paper are not new. As revealed in the literature, educators have talked about the regional survey, in one form or another, for centuries. The idea of a school garden is also an old one. Steiner schools and Montessori schools, among others, involve students in the very kinds of activities that Dewey (1956), Mumford (1946) and Whitehead (1929) endorsed. Our collective challenge, now, is to take these old ideas into a broader range of rural and urban school environments. This is social and political work, beyond research, beyond curriculum development.

And it is also timely work. We will erect more structures in the first half of the 21st century than we have built throughout all of recorded history (Orr, 1999). As Orr suggests, if “we do this inefficiently and carelessly, we will cast a long ecological shadow on the human future ... and the resulting ecological and human damage will be very large” (Orr, 1999, p. 147). Orr also says, “more than any other institution in modern society, education has a moral stake in the health, beauty, and integrity of the world our students will inherit” (p. 147), claiming that education must serve an agenda, “designed to heal, connect, liberate, empower, create, and celebrate” (1992, p. x).

If education is to serve the agenda that the likes of Dewey, Mumford, and Orr propose, then the physical settings of schools must support such an agenda as well, so teachers can provide support from within. We do not have the privilege of another fifty years to think about these issues and come up with the same conclusions: there has never been a greater need for school ecology, especially in urban settings. Although we have seen that some of the best play environments—including natural areas, filled with wildlife, indigenous plantings, and loose parts—are not always supported by adults, it is equally true that there are teachers and parents who would embrace such learning environments, but find it challenging to do so in the urban settings in which they find themselves. Not everyone has the privilege of building a school in a rainforest or on an island surrounded by mountains. Although play in urban outdoor settings is restricted (c.f., Gomez, 2005), there are ways around such restrictions—reclaiming the ugliest of parking lots, as in the example of the Edible Schoolyard; or using non-school spaces, such as the indoor and outdoor spaces of museums illustrated by the work of Moore and his colleagues. There is no question that imaginative ways of bringing play and the outdoors to urban settings are possible. But without the *expectation* that such environments are necessary for schooling, innovative models in urban settings unlikely to be fostered.

Theologian Thomas Berry (1996) observes that students generally have a strongly developed moral sense of suicide, homicide, and genocide. But Berry claims relatively trivial

human rights now prevail over urgent rights of natural systems. Consequently, we have “no moral sense of biocide or geocide, the killing of the life systems themselves, and even the killing of the Earth” (Berry, 1996, p. 1). It behooves us to shape schools to develop these moral purposes as well, for as Moore and Cosco (n.d.) claim, the health of the planet is completely interdependent with the health of children. Daily experiences with nature are essential for children to learn that life depends on the biosphere. In their words,

Human greed is pitted against Gaia [and] children must learn to become defenders of Gaia. Design professionals and those who work with or advocate on behalf of children must collaborate to create environments for immersion in nature that are worthy of the Earth. (Online)

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