

Mattering

I am not empty
a place abandoned
and subject to squatters' rights

my flesh is solid, solid
resisting crowds and all
that would move through me

my skin is browned and sloughed
in the furnace of the sun
but never melted or consumed

my bones, erect, deliberate
support this fortress frame
their marrow, substantial as bread

my vapours are an atmosphere
not to be staked and claimed as galaxy
by any but what my breath invites

the impenetrable depth of my waters
will capsize all who voyage recklessly
across the surface of my insides

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Photo by David Pauls

ecological communities,

—edge effect: “the line that connects the
pointsof accumulated or abrupt change...
is a stress line or ecotone” (Clements 1907: 297)

introduction

Ask most children about their favourite subject in school, and they invariably reply “recess”. One doesn't have to think too long about elementary school days to remember the agony of watching the clock tick towards that magical time when the bell rings and a collective sense of relief rises from students and teachers alike. Recess is naturally any child's favourite subject. It is the only time of the day when children can run around, stretch their legs, talk to friends and play. Recess represents a fleeting freedom that ends each time the bell rings and summons everyone back into the classroom.

The division between recess and the rest of the school day is profound, marked by bells, whistles, on-duty teachers and rigidly defined play spaces. Although there are many physical and psychological benefits of recess for both teachers and pupils, the boundaries between recess and the school day reflect a wider and more problematic division. Education at all levels has failed to bridge the gap between the world of the human and the world of the non-human. In so doing, it has failed to educate our young people about the “real” world, that is to say, the natural world. As a result, students graduate ill-equipped to face the challenges of the current global ecological crisis.

In this paper, I will outline some of the hidden and not-so-hidden divisions that exist between the school community and the ecological community. The notion of a division between communities will be used as a metaphor for describing the current state of education about the environment. In ecological jargon, the term for this division is “edge effect,” which describes the dynamic boundary between two distinctly different ecological zones (or biological communities), such as a forest and an open field. In the natural world, the boundary is not a definitive line, but a zone of transition, where the characteristics of both communities meet in a climate of interspecies tension and competition. This ecological phenomenon is a useful metaphor for the tension that exists at the boundaries of the school classroom and the ecological community.

According to the generally accepted scientific definition, an ecological community comprises a group of organisms of different species types along with the abiotic elements of soil, air and water which surround them. These “community members” interact with each other within a prescribed physical space, for example a field or a forest. Similarly, students and teachers interact with each other within the physical space of the classroom as one level of a human community. Although it is problematic to oversimplify the definition of community (human or ecological), it is not my intent within this paper to discuss the implications of the androcentric values implied within the broadly accepted scientific definition. Rather, I wish to use the metaphor of tension between communities to explore where some of the conflict between the human and non-human worlds has occurred. More importantly, if we consider human beings as *part of* the wider, global ecological community, why then are we incapable of actively participating within this community for its greater good? One reason for this lack of participation may be due to the divisive way in which education, particularly education about the environment, has been implemented in the Western world.

school communities: blurring the edges

by Yolanda Wiersma

“we’ve got lots of grass but we can’t use it ever.
teachers won’t let us go on it because we’ll make a mess.”

—elementary school student (Titman 1994: 34)

I will discuss the division between the human/school community and the non-human/ecological community in the context of physical spaces, structures and curriculum. I will subsequently present some current educational innovations which attempt to bridge this gap. Although the discussion will focus on the elementary school structure, the philosophical concerns behind creating and breaking down boundaries between the classroom and the natural world apply to education at all levels, and indeed, have implications for society as a whole.

what boundaries?

Educators are of a general opinion that the school playground is reserved for the students’ recess space, and should not be utilized for other school purposes. However, children view the yard as an important part of the school, and their outdoor time as an important part of the day. For children, the out-of-doors is a place that can be filled with adventure, wonder and discovery with respect to the beauty and diversity of the natural world. They do not generally view the natural world with disgust or revulsion, as such responses are often taught to children by adults. As Rachel Carson (1984) puts it,

a child’s world is fresh and new and beautiful, full of wonder and excitement. It is our misfortune that for most of us that clear-eyed vision, that true instinct for what is beautiful and awe-inspiring is dimmed and lost before we reach adulthood (42-43).

The boundaries between the school community and the ecological community are boundaries created and enforced by the adults responsible for educating our young people. By continually reinforcing this gap, adults are not fostering this “true instinct,” which may have already been lost. Paul Shepard believes that this instinct is a vital part of ontological development in humans. He describes human development as a sequence of bonding events; first to mother, then to nature and finally to cosmos. According to Shepard, the bond to nature is “the least understood. It embraces the child’s fascination with nature, his spontaneous enthusiasm for the names and natural history of plants and animals, and the soaking-in-a-place which makes it the basis of the intuition of an orderly universe” (1982: 111). Without this bonding to nature (or true instinct), Shepard feels that the child cannot grow up to feel any meaningful relationships to the wider world. Similarly, Edith Cobb (1959) writes about the importance of childhood experiences in nature which she feels help formulate a basis for a high level of adult development: “there is a special period, the little-understood, prepubertal, halcyon, middle age of childhood...when the natural world is experienced in some highly evocative way, producing in the child a sense of some profound continuity with natural processes” (540).

Not only are childhood experiences in nature important for psychological well-being in adult life, bonding towards nature can also stimulate strong emotional reactions when environmental degradation occurs. For example, John Livingston (1981) recalls the strong emotions which the amphibians of a nearby pond evoked for him during his childhood:

There were frogs and toads and newts. If you lay very quietly in the grass at the water’s edge, you could observe them. The longer you looked, the more deeply you were mesmerized... possessed. There was no world whatever, outside that world... nothing beyond shimmering light on water, smooth clean muck, green plants, trickling sounds, flickering tadpoles, living, *being*... (101).

Livingston’s feelings of wonder and affinity for the pond creatures turned to feelings of rage and helplessness when he discovered that the pond was to be destroyed by a development project. Similarly, when school children’s out-of-doors space becomes littered, paved over, denuded of trees and generally neglected, children feel that their space and their experiences within that space are not important to their teachers. Thus, the hidden curriculum of the school yard carries important lessons of which educators may not be aware.¹ Similarly, when teachers do not take their classes into the school yard (which only happens in the odd physical education class, when weather conditions are right and equipment needs are met), the lesson for the students is that the only important learning takes place inside the four walls of the school building.

Yet, as we have seen, children possess a sense of wonder and curiosity about the world around them, a sense of wonder which aids in promoting healthy ontological development. It is therefore essential to foster an eagerness to learn about ecological communities if we are to be successful in fostering a new sense of community which transcends human created boundaries. Although classroom curricula do teach separate units about “Plants,” “Insects,” “Trees,” and “Weather,” these topics are generally taught heedless of the context of processes which occur just outside the classroom window. Instead, “ecological education” is carried out through pictures, videos, CD ROMs and controlled indoor experiments. With such an abstract presentation of “ecological” themes, is it any wonder that these students grow up to be adults who cannot equate their purchase of paper products to the crisis of deforestation?

The educational theorist Chet Bowers (1994) has suggested that an understanding of the relationship between culture and the environment is essential for an understanding of how Western cultural norms have contributed to the ecological crisis. These norms are embedded in our attitudes, thought processes, and language, all of which are manifested in the educational system. Indeed, Bowers takes the architecture of our school buildings to be a kind of language, suggesting that “classrooms without windows, or rooms with one-way windows” or those that have “fences, and door entry ways are further examples of sign systems that define and regulate relationships” (32). According to Bowers, these expressions of cultural norms contribute to the disconnected Western cultural experience of wild nature, a set of relationships which are implicitly passed on to students through the subtle sign systems of the immediate school environment.²



curriculum guidelines of division

Physical barriers between the school community and the ecological community are not the only problem facing an education movement that attempts to address the ecological crisis. Pedagogical attitudes and curriculum content reflect similar boundary problems. As educational theorist and environmentalist David Orr (1994) states, "We have fragmented the world into bits and pieces called disciplines and subdisciplines, hermetically sealed from other such disciplines" (11). The current educational culture of discipline-based curricula, teaching specialists and subject experts has left our schools completely unprepared to teach basic ecological concepts that demand an interdisciplinary understanding. Thus, instead of fragmenting the curricula, ecologically sensitive educators should attempt a more holistic, cross-disciplinary approach to learning. As Orr says, "all education is environmental education" (1992: 90), a statement that suggests that all aspects of the curriculum should focus on connecting students with the natural world and on increasing awareness of their dependence upon ecological processes. Steve Van Matre (1990), a practitioner of environmental education, echoes this sentiment. He argues that environmental education should not be a supplemental part of education, but rather should exist as "*focused, sequential instructional programs*" and "as a regular, integrated part of the whole curriculum" (1990: 4). Throughout their discussion of curricula, Van Matre and Orr propose a blurred edge between the classroom and the ecological community, thus creating an environmental education that is a part of *all* learning. In so

partnership, flexibility, diversity and coevolution" (1994: 132). These basic principles closely mirror the key elements of Van Matre's elementary school Earth Education programs.

However, Orr takes these arguments a step further, and feels that in order for educators to foster ecological, or "real" intelligence, they must provide first-hand knowledge of nature. This takes us back to the issue of physical boundaries, particularly when the provision of experiences in the natural world "means breaking down walls made by clocks, bells, rules, academic requirements, and a tired indoor pedagogy" (1994: 52). In order to achieve a new kind of intelligence, our educational system needs new kinds of learning environments that unify rather than fragment a student's experience of the world.

Fragmented experiences lead us to a further division, which is the boundary between the individuals within the modern education system. As Bowers points out, current discipline-oriented curricula are individually-centred instead of focused on the culture as a whole. Such relativism leads to a situation where "the process of learning becomes more important than what [is] actually learned" (1994: 133). Thus, the question of which learning strategy (i.e. memorizing the reproductive organs of a flower from a textbook diagram and observing seeds sprout in a controlled indoor experiment) is most appropriate becomes more important than knowledge concerning the fate of the plants growing just outside the win-

when teachers do not take their classes into the school yard, the lesson for the students is

doing, educators help to produce citizens who are capable of understanding their inevitable connectedness to the earth's life-giving systems and the impact which their activities have upon these ecological processes.

A unified curriculum, where the ecological community becomes part of the school community will guide students toward what Bowers calls "ecological intelligence". According to Bowers, this "ecological view of intelligence would be [the] long-term sustainability of the Earth's ecosystems as the primary criterion [for intelligent behaviour]" (1994: 132). A societal shift in perception towards a valuing of ecological intelligence is therefore a precondition for an ecologically sustainable culture. As Bowers further suggests, a curriculum that promotes ecological intelligence provides a new way of looking at the relationship between culture and nature, one which includes the principal characteristics of natural ecosystems. Citing Capra's basic principles as a model, Bowers proposes a curriculum which includes "interdependence, sustainability, ecological cycles, energy flows,

dow. It is little wonder, then, that our "clever" students graduate incapable of grappling with issues such as monoculture cropping or the links between pesticide use and groundwater contamination.

As a response, educators such as Bowers, Orr and Van Matre feel that environmental education should become part of a wider cultural consciousness rather than a separate subject entity. They suggest that environmental education must go beyond teaching individuals about separate elements of the natural world, and should move towards teaching culturally-based models of sustainable relationships within an ecosystem.

eliminating the edge: new educational opportunities

As we have seen, the current educational system is rife with divisions, barriers and boundaries which divide the school community from the ecological community. However, there are a few innovative programs which break these



Photo by David Pauls

barriers and teach children in a holistic, creative manner. Although this is not the place to go into the curricular detail and practical aspects of these programs, I will present a brief outline of three unique and innovative programs.

The Institute for Earth Education, founded by Steve Van Matre, provides a series of structured three to five day programs for elementary aged children. These are generally carried out at camps or outdoor centres, and have been adopted world-wide. The program's strengths lie in their comprehensive and focused explanations of the basic ecological processes that sustain life on our planet. The programs are highly imaginative, presenting a type of outdoor education that is unique within the field. Unfortunately, the programs still largely maintain the field trip approach, and the experience at the Centre can be isolated from the classroom experience. Moreover, Earth Education programs are isolated from the cultural context of the ecological crisis.

A program that does attempt to place ecological learning within a cultural context is the Common Roots program, based in rural Vermont. Participants in the program learn the fundamental connections between food, community and ecological stewardship through hands-on experiences within their local bioregion. Learning is modelled on historical themes and, as students progress from kindergarten to the sixth grade, they trace the historical connections between various cultures, communities and their systems of food production. They also study natural systems around their school, blurring the physical boundary between the school

conclusion

Regardless of the specific model, a strong argument can be made that the future health of planetary ecosystems is dependent upon raising a generation of children who are sensitive to their place within the wider ecological community. Unfortunately, as I have suggested, most practitioners within the current educational system have created boundaries between school communities and ecological communities. This zone of tension is manifested through physical, pedagogical and curricular "edges" that represent the central divisions and contradictions contained within Western pedagogy and culture. These edges must be blurred, like their ecological counterparts, if our educational system is to meet the global ecological crisis. Some innovative programs have engaged the challenge of crossing the classroom/ecosystem boundary, but many more are necessary. Nothing short of a radical shift in educational theory and practice is required. Only then will we have a contiguous learning environment with which to understand the infinitely rich and complex connections between the human and non-human worlds.

notes

1. See Titman (1994) for a detailed, practical examination of these ideas.
2. Not all learning is completely devoid of contact with the ecological community. Many schools attempt to give their students a meaningful outdoor experience through trips to the local Outdoor Centre. Although such centres are important places in that they provide learning experiences within the ecological community, field trips do not adequately blur the edge between the school community and the ecological community. This division may be partly due to the nature of the field trip itself; students are away from their habitual surroundings, and hence perceive what they learn to be removed from their everyday experiences. Thus, despite well-intentioned efforts to provide students with ecological learning, the Outdoor Centre experience often becomes no more than a break from the classroom routine.

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community and the ecological community. The added strength of the Common Roots program is that it promotes both community-based ecological sustainability and a sense of place for its students.

As a final example, the Learning Through Landscapes program (based in the United Kingdom) combines school yard naturalization with out-of-classroom learning and community sustainability initiatives. The program also promotes the idea that the school yard is an important place that must be cared for. The program helps individual schools design and implement school yard naturalization plans which best suit the local community. This may involve simply planting trees and flowers for aesthetic effect, or more ambitious projects such as habitat restoration. Other schools involved in the Learning Through Landscapes program have created vegetable gardens and, in a few cases, curricula that are strikingly similar to the Common Roots program.

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