Environmental Education in an Age of National Standards and Videophilia

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Abstract

This article is based on the work of Louv (2005, 2008) and Lowell (2008) and their ideas are explored with regard to barriers to, as well as opportunities for, effective environmental education. State curriculum standards in the U.S. include substantial environmental education (EE) content. Despite this, overall education policy stymies educators' efforts in enacting effective classroom programs. While the education policies of every country should be reassessed in light of what scientists are telling us about the "global macroproblem," policy efforts alone will fail unless educators recognize that outdoor experience has to be a key component of a contextualized, place-based EE. Part of a rational response to environmental issues is to educate our children as to their relationship to, dependency upon, and responsibilities to their ecosystems. Addressed are the role of EE in the school curriculum and the value of addressing learners' connections to nature from a personal rather than intellectual viewpoint.

> In the patent-or-perish environment of higher education, we see the death of natural history as the more hands-on disciplines, such as zoology, give way to more theoretical and remunerative microbiology and genetic engineering . . . as the young spend less and less of their lives in natural surroundings, their senses narrow, physiologically and psychologically, and this reduces the richness of human experience. (Louv, 2008, pp. 2-3)

How EE is Compromised by Standards-Based Reform

In the United States (U.S.), environmental education (EE) has not been a priority in the current era of educational standards and high-stakes testing, testing that has significant consequences for the school or the test taker (e.g., grade retention or type of diploma). Our 50 states developed their individual curriculum frameworks in the 1990s in order to achieve compliance with the national Goals 2000 legislation, requirements in the Elementary and Secondary Education Act, and the No Child Left Behind Act (NCLB) (Council of Chief State School Officers, 1995).

Environment-related content is included in U.S. national standards documents for science (American Association for the Advancement of Science [AAAS], 1993, 2009; National Research Council, 1996), geography (Geography Education Standards Project, 1994), and social studies (National Council for the Social Studies, 1994). For example, in science, standards can be found relating to concepts such as the water cycle, trophic levels and food chains, ecological succession, and natural resources. These national documents, however, were written as guidelines only, but state standards based upon them are mandatory as required by the NCLB Act. Illustrated in Figure 1 is the environment-related content in Virginia's science standards for Grade 3. While this inclusion of EE content has some merit, the work of school-based environmental educators is now prescribed and restricted by whatever content their state documents specify. Standards-based reform has rigidified disciplinary boundaries, thus presenting an obstacle to interdisciplinary environmental education.

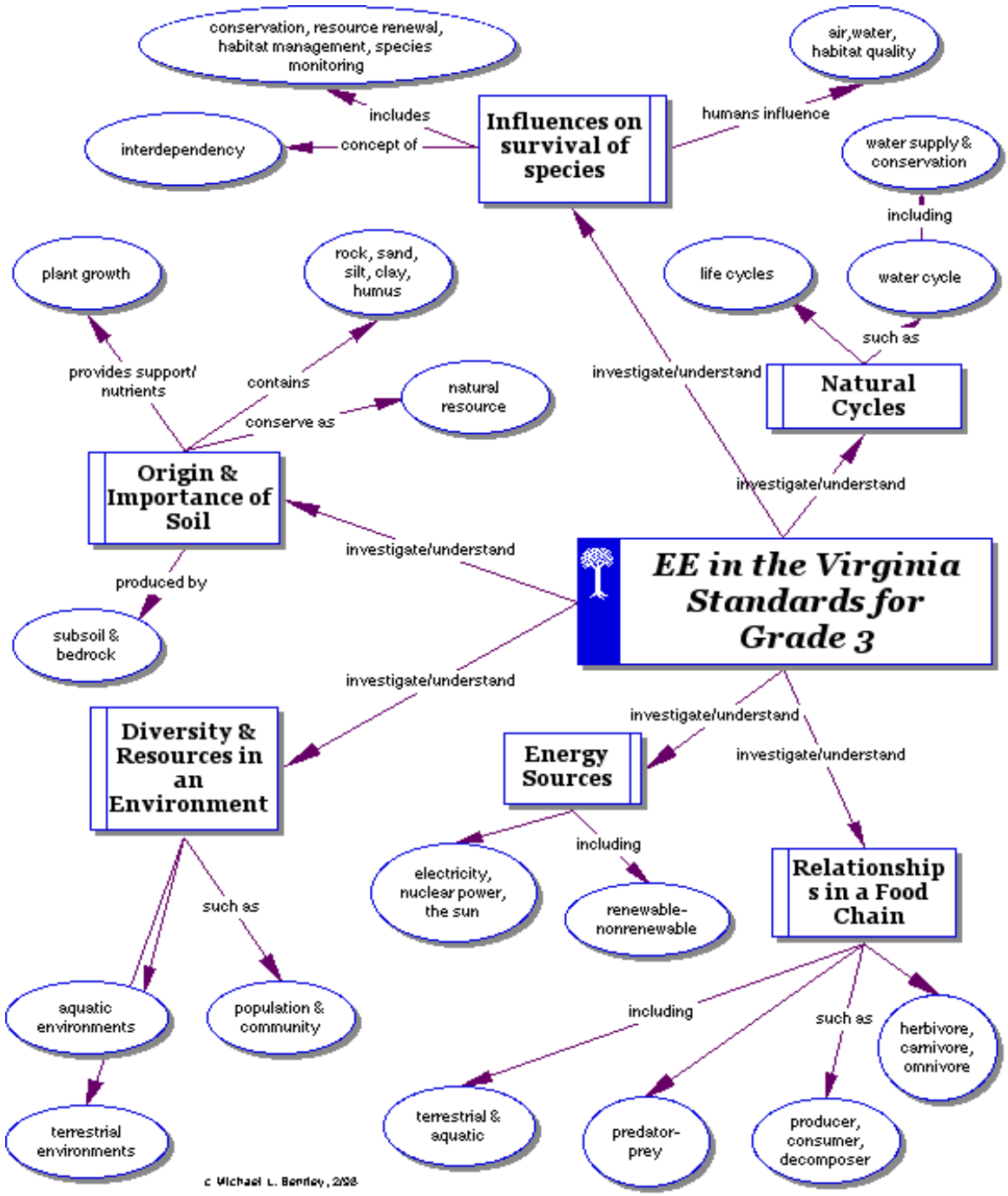

Figure 1. An example of environmental content in the Virginia state curriculum standards.

In addition, the implementation of standards-based accountability has been detrimental to EE due to schools placing too much importance on student test scores and annual yearly progress (AYP). This focus has resulted in a shift in teacher-preferred pedagogies and also to a neglect of the affective domain. Teachers have now returned to more didactic methods as more suitable ways for "covering" the large amount of curriculum content prescribed for state tests, and away from indirect or inquiry methods. According to Jones, Jones, and Hargrove (2003), "the negative effects of high-stakes testing on teaching practices can include an unbalanced emphasis on teacher-centered approaches and a reduction in teacher and student creativity" (p. 44). Further, according to Au (2007):

> High-stakes tests encourage curricular alignment to the tests themselves. This alignment tends to take the form of a curricular content narrowing to tested subjects, to the detriment or exclusion of nontested [*sic*] subjects. The findings of this study further suggest that the structure of the knowledge itself is also changed to meet the test-based norms: Content is increasingly taught in isolated pieces and often learned only within the context of the tests themselves. Finally, in tandem with both content contraction and the fragmentation of knowledge, pedagogy is also implicated, as teachers increasingly turn to teacher-centered instruction to cover the breadth of test-required information and procedures. (p. 263)

Affective outcomes such as the development of children's attitudes and motivations and their ethical development in relation to the environment, which would be very important from the perspective of a John Dewey, are typically absent in technicist, standards-based lesson plans. This absence is significant because, as Dennis and Knapp (1997) note, "environmental education includes both cognitive and affective dimensions. . . . [There is a] strong concern for attitudes and motivation" (p. 8). The most effective programs in EE have been found to be those in which "products (test scores) are not emphasized, inquiry is sparked, open-ended questions are generated, and students actively participate and appear involved" (Price & Hein, 1991, p. 510). In its own guidelines, the North American Association for Environmental Education (NAAEE) (2004) includes personal and civic responsibility as one of four strands for EE in the K-12 curriculum. The graphic of Figure 2 illustrates the framework NAAEE suggests for EE. That students should learn about the natural history of their own locales is strongly implied in the framework. Unfortunately, NCLB has not fostered contextualized, place-based EE and has actually shifted teacher's preferred pedagogies in a different direction.

In terms of this shift in pedagogies brought about by standards reforms, teachers have moved away from the use of inquiry strategies and toward more use of direct instruction, and thus there has been a decline in student field studies and experiential learning (Amrein & Berliner, 2002; Blair & Archer, 2001; Brown & Bentley, 2004). This shift in pedagogies may impede other educational purposes, such as the development of student interests, autonomy, and independent thinking. The focus on recalling information in order to raise standardized test scores distracts students from the intellectual substance of the content and transforms "their efforts to learn into efforts to please" (Lantieri, 1995, p. 387).

Standards-based curriculum subtly communicates to the public the curriculum fallacy of universalism. This is the view that some particular content can be identified that is of fundamental and universal significance regardless of context, or of the characteristics of the student. Universalism is the fallacy of believing there is a "best" curriculum (Doll, 1996). The U.S. *National Science Education Standards* commit to this very fallacy in proclaiming that the content identified by the National Research Council (NRC) (1996) must be learned by every student regardless of age, gender, race or ethnic background, disabilities, interests, motivation, or aspirations.

Standards-based reform has fostered the deskilling of teachers by prescribing for them the content they are to enact in their classroom curricula, thus narrowing the decision-making processes within their work (Center for Educational Policy, 2008; U.S. Government Accountability Office, 2009). It has transferred curriculum decision-making from the local level to the state and national levels. The push for conformity and uniformity ignores the importance of both context and diversity in teaching strategies and methods. As state assessments are tied to standards, more "teaching to the test" has resulted, and that in turn has resulted in less attention to teaching higher-level thinking skills. As pointed out in her new book, *The Death and Life of the Great American*

School System, educational historian Diane Ravitch (2010) claims that NCLB has led to a mechanistic and anti-intellectual education and that we have lost sight of the goal of education, which is to produce educated people. She argues for the democratic, civic purposes of public schooling and against using tests to make "consequential judgments" (p. 153) about students and schools. As I see it, the purpose of education should emphasize "diversity, creativity, social responsibility, empowerment to think and, more particularly, to act" (DeBoer, 1991, p. 240).

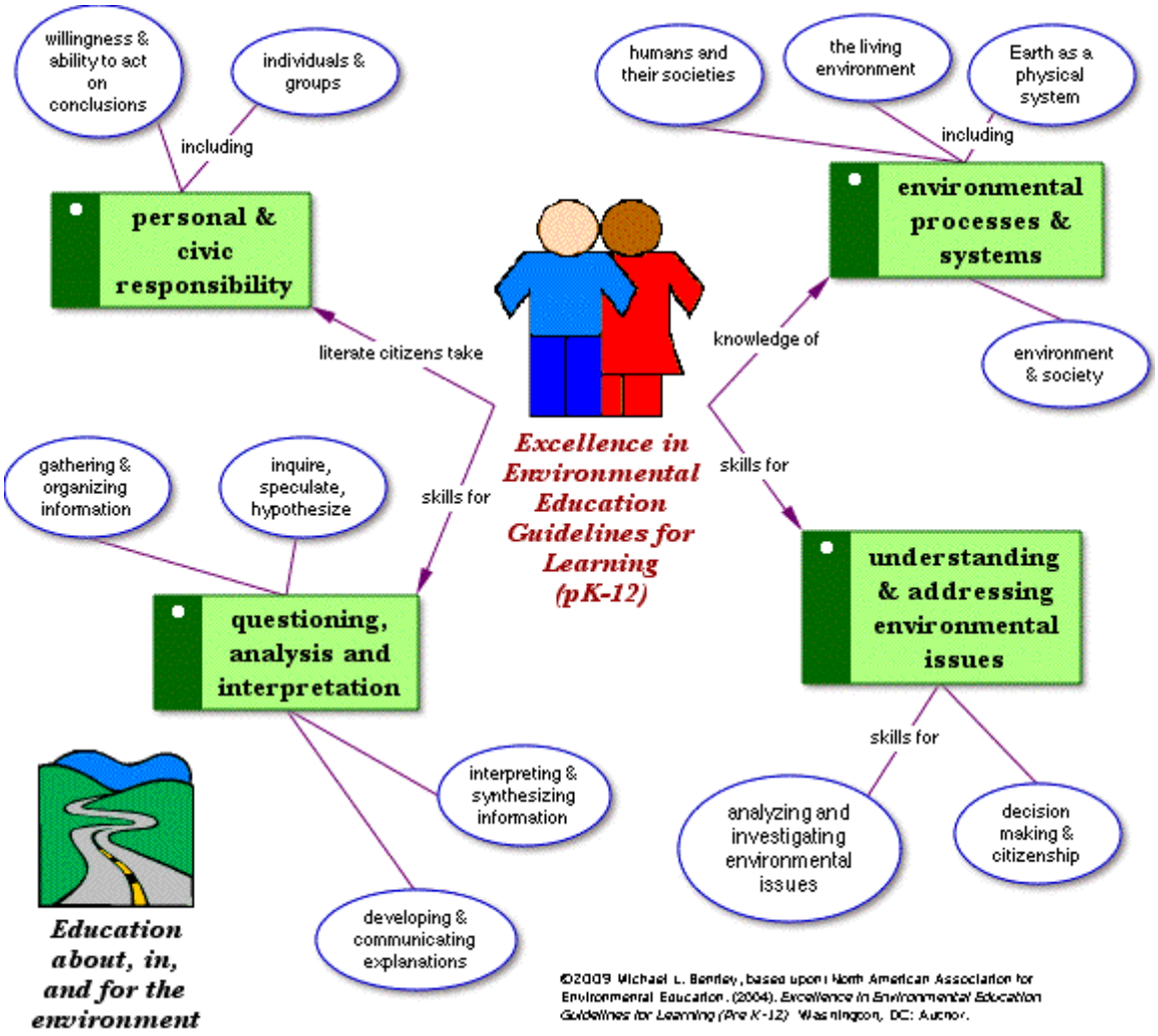

Figure 2. An illustration of the strands in the North American Association for Environmental Education (NAAEE) (2004) guidelines.

Epistemologically, the standards-based curriculum is thoroughly modernist, but postmodern thought stands against the metaphysical idea of a universal human nature and features a deeper appreciation of human individuality. David Elkind (1997) points out that "what has come to the fore in postmodern times is the awareness of the importance of difference" (p. 242). As Linda Lantieri (1995) argues:

> The problem is not with standards as such; it is with standards imposed entirely from without - impersonal standards that turn students into objects and disrupt connections between teachers and students and between students and their work. (Effective) teachers . . . have high expectations of their students, but the expectations are constructed in collaboration with the students, and they are translated into 'informational' rather than

> ‘controlling’ feedback. Controlling feedback is ‘outcome oriented,’ while informational feedback ‘is focused on the ongoing activity.’ (p. 392)

So, the issue is not with standards per se, as standards certainly did exist before the current reform movement and teachers should have appropriate academic standards; expectations that are recognized alike by student, teacher, and parents. However, standards are properly established at the local level because every child is unique, having his or her own history, personality, learning preferences, gifts and talents, interests, and aspirations. Individual achievement standards are best negotiated between student, parents, and teachers.

Nature Deficit Disorder Appears as an Upshot of the Digital Revolution

The phenomenon of nature deficit disorder (NDD) was introduced by writer and child advocate Richard Louv in his book, *Last Child in the Woods,* first published in 2005 and expanded in a 2008 edition. Louv writes about the lifestyles of today’s American youth and about how little the experience of nature is part of their lives. He documents what most of us already have observed; that students nowadays are far more focused on their screens than on the out-of-doors. The consequence of this situation, he argues, is the declining health of our population as well as other growing societal ills. He calls the problem nature deficit disorder, which he is careful to point out is not a medical diagnosis. In 2008, the National Audubon Society (n.d.) presented its Audubon Medal to Louv for encouraging more contact between children and the natural environment.

Louv cites a variety of studies to support his argument, many of which document increasing screen time and declining physical activity for U.S. children. The Center for Research on the Influences of Television on Children (CRTIC) at the University of Texas at Austin found that children in America spend more time watching television than in any other waking activity, with additional time devoted to video and computer games and to using the Internet (Vandewater et al., 2005). In fact, U.S. households contain some 250 million TV sets--more than the number of our children (Herr, 2007)--and our children watch more TV than children in any place else in the world.

Clare Lowell (2008) writes of videophilia as the tendency “to focus on sedentary activities involving electronic media” (p. 219) and says this new obsession of our society has “virtually supplanted the need for ‘biophilia,’ or the urge to affiliate with other forms of life” (p. 219). She sites researchers Hofferth and Sandberg (2001) who found that the “proportion of 9- to 12-year-olds who engage in outside activities such as hiking, walking, fishing, beach play, and gardening has declined by 50 percent . . . [and] children’s free play time in a typical week has declined by a total of 9 hours over a 25-year period” (p. 220). The health consequences for such sedentary lifestyles include obesity and a host of diseases such as diabetes, hypertension and heart disease, depression, and cancer, and then there are the social and economic costs of these lifestyle issues (Lorenzo, 2009). The prevalence of obesity in American children has increased dramatically with 1 in 5 children 12 to 19 years old now being overweight (U.S. Department of Health and Human Services, 2009, Table 67).

This situation is to be deplored for more than one reason. For parents, the health consequences for their children alone should raise an alarm. But for a democratic society, this trend could result in a population of citizens less sensitive to environmental issues. Even today many Americans either deny that serious environmental problems exist or discount the necessity of acting to ameliorate them because, for example, it will hurt the economy.

A generation is now growing up less physically active and less connected to nature. Yet natural history, the systematic study of natural objects, phenomena, and organisms, is virtually ignored by the two major reform documents that guided the development of most of the state science standards, *Science for all Americans* (AAAS, 1989) and the *National Science Education Standards* (NRC, 1996). While proposing a substantial body of content related to earth and life science, these documents do not recommend methodical studies of nature by students (Melear & Hagevik, 2007).

Thus we see a decline in the U.S. of contextualized, place-based environmental education. During the school day, the pressure on teachers to cover their state standards increasingly usurps field studies and time outdoors. Many schools have abolished recess above the primary grades (Henley, McBride, Milligan, & Nichols, 2007). Further, many schools now require teachers to justify field studies exclusively in terms of addressing particular standards.

What is to be Done?

So, what can school-based environmental educators do? For one thing, they are advised to study their state standards to identify the environmental education content therein, as is illustrated for the Grade 3 Virginia science standards (Figure 1). They can also look for compatible and complementary standards in their state's social studies, health and physical education, and other standards documents. Cross-linking standards can be used to justify curriculum integration, one of the strengths of environmental education. Environmental educators will have to fight hard for field-based studies and affective education, but, of course, that is something we have always had to do.

Recognizing the priority of EE and natural history studies as part of the curriculum is only one part of the solution. One of the biggest obstacles educators may face in the classroom is a mindset, or misconception, identified by Daniel Quinn (1996) as the Great Forgetting, an overarching world view or paradigm that "blinds us to the fact that we are a biological species in a community of biological species and are not exempt or exemptible from the forces that shape all life on this planet" (p. 307). The educational implication of Quinn's hypothesis, as I interpret it, is that EE should be infused with a paleontological and archaeological perspective. The historical perspective can be integrated when teaching ecological concepts and principles. This perspective also is compatible with field studies and place-based education. Such EE can help children construct more sophisticated, broader understandings of our species' genetic and pre-historical context. Man: A Course of Study (MACOS), a National Science Foundation (NSF) funded curriculum project of the 1970s, was a course that helped students perceive such a long view.

Finally, those of us who teach in schools should recognize more fully the value of informal environmental education; that is, programs and experiences developed outside the classroom by institutions and organizations that include:

- nature centers and environmental education centers, children's and natural history museums, zoos and aquaria, botanical gardens and arboreta, parks, and scientific research laboratories,
- media (print, film, broadcast, the Internet, and other electronic forms), and
- community-based organizations and projects and youth organizations.

Researchers have documented the significant impact of informal learning experiences on youth. Informal education institutions provide professional development for teachers and enrich the education of students and the public (Coffield, 2000). From my own observations, I have found

that schools could do much more to engage with EE resources in their communities. Many agencies employ educators who specialize in interpreting different phenomena and issues to the public using hands-on and engaging experiences (Pranis & Duffin, 2009). Groups like the Sierra Club (2010) often provide natural history interpretations as part of their regular outings.

Exemplary Practice: Signs of Hope

In education, the public good is not always best served by the government-sponsored schools. In the U.S., unlike in Britain, private schools are exempt from state curriculum standards and testing. One not-for-profit, non-sectarian private school whose curriculum is rich with opportunities for experiential outdoor learning is Community School (CS) (n.d.), located in Roanoke, Virginia. For 40 years, CS has served a diverse population of 150 students from pre-K through middle school. The affiliated Community High School (CHS) (n.d.) was started in 2001 and serves 60 students in Grades 9-12.

Community School's non-traditional educational program features a learner-centered curriculum enacted in non-graded, multi-aged classes with a low pupil-to-teacher ratio. The curriculum is interdisciplinary and includes a strong experiential environmental education and community service component. Fridays each week of the school year are typically devoted to field studies and students are given several choices of trips and activities. Overnight and week-long camping opportunities are offered, with longer stays for the older students. In the spring, middle school students may opt to study environments in more distant places, such as the Florida Everglades National Park and sites in other countries. My own daughter visited tropical forests in Bolivia as part of a student exchange with a Bolivian middle school.

Community High School (CHS) represents a new and unique niche in education: the "museum school." This concept has emerged only recently with only about 20 examples in the U.S., with these representing a variety of designs. There is no commonly accepted definition of a museum school, but such schools typically involve partnerships with local institutions of informal learning and offer a curriculum with long-term projects that involve students in working with objects, exhibits, or museums. Community High School is charting new territory, particularly in developing the practice of collaborations between a formal school and multiple agencies using real-world learning sites.

In both schools, environmental education is infused in an integrated curriculum that involves outdoor experiential learning. Of course, there are other examples of schools with exemplary EE. The *New York Times* has reported on the Waldorf School of Saratoga Springs, New York, where students spend 3 hours outdoors each day, regardless of the weather (Leyden, 2009). Jane Goodall's Roots & Shoots (n.d.) program, and many of the outdoor schools in California, are other examples of exemplary practice.

Another area where there is a sign of hope is teacher education, which includes professional development for teachers. My colleague Claudia Melear's worked for many years with graduate students and pre-service science teachers on Ossabaw Island, off the coast of South Carolina. The course (Melear, 2006) involved an extended camping trip to this remote and pristine island. Teaching duties were shared with scientists from the fields of ecology, biology, and other disciplines. During the program, students made extensive collections of specimens, used field guides, and planned environmentally-based lessons for their own future students. Melear's work in facilitating studies in, and reflection about, the island's natural setting is an example of the kind

of pre-service education and professional development that results in a bonding between teachers and nature and the development of a conservation ethic.

I have directed a number of grant-funded professional development institutes for teachers that have included extensive field studies and emphasized community-connectedness. The most recent of these is the 2009-2010 Hollins University Inquiry, Integration and Differentiation Project, involving an intensive 2-week summer institute for Grades 4-6 teachers and follow-up academic year seminars (Bentley & Godard, 2010). A unique feature of the project, funded by an Improving Teacher Quality grant from the State Council for Higher Education of Virginia, is the partnership with two local museums, a zoo, a wildlife center, a soil and conservation district, and a land-grant university outreach program.

One last example that represents a hopeful development is online parent education. I recommend you explore the enormous bank of accessible resources freely available on the popular Education.com (2010a) website. This online parents' resource currently receives some 1 million visits per month. For Earth Day 2009, I served as editor of a Special Edition for Education.com focusing on nature deficit disorder (NDD) (Education.com, 2010b). The 33 essays in the issue provide information to parents on specific ways they can help their children more richly experience natural environments from rivers and beaches to fields and forests.

As parents become more aware of the value of outdoor experience, new organizations are being created to provide such opportunities. A new organization where I live is Kids in the Valley, Adventuring! (KIVA) (2010). The purpose of the organization is to provide opportunities for children in the Roanoke Valley to get outdoors and explore. The family that started the group received a $1,000 award from Disney and Family Fun Magazine and now hundreds of families participate in the group's hikes and other nature activities.

Finally, one result of Richard Louv's wake-up call is that the No Child Left Inside Act (NCLI) passed the U.S. House of Representatives in 2008. The Senate did not consider the act and thus it has not been enacted into law. However, if the act is brought back, it could provide funding for schools and non-formal environmental education centers, as well as authorize the creation of state environmental literacy plans so that children would have more opportunities to discover their personal connections to the natural world. This act should become law for the simple reason that today's youngsters are tomorrow's leaders. We should not want to be led by people who are alienated from wild environments or ignorant of the value of nature's ecosystem services.

Conclusion

Standards-based reform, with its high-stakes testing, may eventually fade away, as did management-by-objectives (MBO) and other technicist educational fads, but for the present environmental educators must be pragmatic and make the best of the situation. This modernist curriculum development model devalues the work of the teacher, since, among other things, it is about prescription rather than negotiation and ignores the reality that teaching practices are embedded in the assumptions and professional motivations of the teacher (Bentley, 1998).

This is a time in the history of the world at which we all need to reassess how we live our lives in light of what the scientists are telling us about the global macroproblem; environmental pollution, land degradation, forest and wetlands losses, accelerating species extinctions, resource depletions, and global climate change. Part of a rational response to our current global condition is to better educate our children as to the reality of their connection to, and dependency upon, nature. Our

children need to be grounded in reality, rather than in video game fantasy. As Hofferth and Sandberg (2001) note, "conservation will fail unless it is better connected to people, and people start out as children who need to revere their connection to nature from a personal, rather than intellectual, viewpoint" (p. 222).

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