

Another Point of View

Reflections on "Environmental Education: Promise and Performance"

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Open and intellectually honest critiques of any field of inquiry are essential. Without the opportunity for multilogue and the inclusion of diverse points of view, academic integrity becomes highly questionable. To the extent that criticism forces us to reflect upon our own values, beliefs and working paradigms, I welcome that criticism wholeheartedly. There is a demonstrated need for multiple forums for the productive testing and critiquing of our work, our assumptions, and our vision for the future, if environmental education is to grow and prosper both in its scholarship and its practice. For providing an additional forum for reflection, I thank the editors of the *Canadian Journal of Environmental Education*.

However, criticism must itself be able to meet tests of rigor. Unfortunately, much of the research that Michael Sanera proffers as evidence of the flaws within environmental education is flawed itself and does not meet the expectations of accepted research methodology. Without going into great detail, the research cited (Sanera 1996 and 1997) to support his thesis that environmental education materials are biased, was conducted with no control for the author's own bias. The 1996 study does provide limited information regarding how the content analysis of textbooks was conducted, however, well recognized procedures were not followed (see Kerlinger, 1964; Fraenkel and Wallen, 1993). For example, although categories for coding are set, no research evidence is produced to explain why those particular categories were selected. Perhaps even more fundamentally, no provisions for controlling for researcher bias were attempted. Typically, when a quantitative analysis is utilized as is the case here, multiple researchers code the information, providing the opportunity to determine inter-rater reliability. Similar concerns can be raised about the 1997 study. Again, all of the content analysis was conducted by the author with no check for possible bias. In this particular study, opportunities for triangulation existed (e.g., interviewing students enrolled in the courses, interviewing course instructors), but these sources of information were not pursued (Champeau, 1998).

Questions of research methodology aside, much of the reasoning is equally lacking. As an example, Sanera brings into doubt the factual accuracy of two documents, *The Kids' Environmental Book*:

What's Awry and Why published in 1993 and *Save Our Planet: 750 Everyday Ways You Can Help Clean Up the Earth* published in 1990. However, the problem is that the publications cited as evidence of the factual inaccuracies were not published until 1996. To make matters worse, the quotation by Slobodkin (1996) used by Sanera to refute estimates of rates of species extinction is taken from a book review of a publication that references a second book where the theory of island biogeography is actually developed. Although Slobodkin clearly is dissatisfied with some of the conclusions drawn from the theory of island biogeography, in this particular context, he never discusses the validity of any specific estimates of rates of species extinction. As a final example, Sanera questions how the issue of global climate change will be treated by asking ". . . will students be able to decide for themselves whether to support or oppose the Kyoto global warming treaty if they have not been presented the temperature readings by NASA satellite which show no warming trend since 1979?" In posing his question, Sanera fails to mention that the satellite data Spencer (1990) reports on was collected only between 1979 and 1984.

Perhaps more disturbing is Sanera's seeming lack of understanding of education in general and environmental education is particular. He provides us with a scenario of a hypothetical teacher named Mary Jones. He suggests that for Ms. Jones to teach environmental education, she would need "detailed knowledge of several different disciplines plus many different skills." He further suggests that this hypothetical teacher would need a background in science, psychology, political science and economics, and concludes that "[i]ndividuals confronted with this complex and diverse goal are likely to select only part of it." In essence, Sanera is arguing that asking teachers to understand and teach about a number of subject areas is unrealistic.

My question becomes, what does Sanera think teachers do everyday in the classroom. The "typical" primary school teacher provides instruction in science, mathematics, health, art, music, social studies, reading, language arts, and, depending on the school district, physical education. This teacher is also expected to understand a variety of educational theories such as emergent literacy and multiple intelligences, teach to varying learning styles, address the needs of students from culturally diverse backgrounds (including those whose native language is not English), work with students who have physical and educational disabilities, and the list goes on. The task of the classroom teacher is immense and more often than not underappreciated. However, to suggest that "typical" classroom teachers are not up to the task of teaching environmental education because of the complexities involved does not give these professionals due credit.

Along these same lines, Sanera paints a picture of needed expertise that is less than reasonable. He concludes that a teacher “. . . will have to be a scientist, a psychologist, a political scientist and an economist. For her to successfully teach her students, she must keep up with the rapidly changing research by reading peer reviewed scientific journals in all of these academic fields.” Following this line of logic, for a teacher to introduce a unit on nutrition and health, she would need to read the Journal of the American Medical Association as well as other medical journals on a regular basis, have a complete understanding of agronomy, possess a background in biochemistry, understand the economics and politics behind funding for research into the nutritional impacts on cancer, diabetes, and heart disease, and be an expert on human physiology and aging.

Perhaps most disturbing to me personally, because of my involvement with the National Project for Excellence in Environmental Education, is the misuse of the *Environmental Education Materials: Guidelines for Excellence* (NAAEE, 1996). The *Guidelines* attempt to provide a holistic view of environmental education as a process. In an attempt to assure that these *Guidelines* reflect a reasonable and widely shared understanding of environmental education, they were developed using a process of critique and consensus and were circulated to over 1000 individuals and organizations. Reviewer comments were incorporated into successive revisions of the document. When published, the *Guidelines* described key characteristics of high quality environmental education materials. For each of these characteristics, guidelines are listed. Finally, each guideline is accompanied by several indicators that suggest ways of gauging whether materials being evaluated or developed follow the guidelines. In all there are six key characteristics, 28 guidelines, and over 100 indicators. All are designed to be taken together, as a synergistic whole, in evaluating or developing environmental education materials.

Unfortunately, Sanera chose to apply only one of the key characteristics (Fairness and Accuracy), focusing primarily on only two of its guidelines (Factual Accuracy and Balanced Presentation of Differing Viewpoints and Theories). He chose not to address the remaining two guidelines and their indicators (Openness to Inquiry and Reflection of Diversity). It is interesting to note that in his report on preservice education in Wisconsin (Sanera, 1997), he does not even list Reflection of Diversity as being a guideline supporting the key characteristic of Fairness and Accuracy. To arbitrarily choose which of the key characteristics and guidelines are to be scrutinized violates both the spirit and the intent of the *Guidelines*. Focusing one's attention only on factual accuracy (or any one of the key characteristics for that matter) is limiting. Analysis of materials without any consideration of the depth of understanding being developed; the critical thinking, creative thinking and problem-

solving skills being taught and applied; the degree to which materials encourage learners to examine the possible consequences of their behaviors and evaluate choices they can make; the degree to which the materials are learner-centered, connect to the learners' everyday lives, and address different ways of learning; and are well designed and easy to use is incomplete at best.

But the misuse of the *Guidelines* goes even deeper. Sanera applies his interpretation of the *Guidelines* as an absolute. In his review of college textbooks, Sanera states that his "study shows that five of the six texts failed to pass and the sixth only partially meets the guidelines." The *Guidelines* were never intended to be used as a test with fixed right and wrong answers (as a point of information, the *Guidelines* were not developed with textbooks in mind either). The introduction to the *Guidelines* clearly states that they are ". . . a set of ideas about what a well-rounded environmental education curriculum might be like" and should be used "as a tool to inform judgement" (NAAEE, 1996). Both the National Project for Excellence in Environmental Education and the World Wildlife Fund have made an attempt to use the *Guidelines* as a tool to review a broad range of curriculum materials. At this point in time, two volumes of reviews have been published, *The Environmental Education Collection—A Review of Resources for Educators* (NAAEE, 1997) and *The Biodiversity Collection—A Review of Resources for Educators* (WWF, 1998). In conducting this work we gathered teams of teachers, environmental educators, and content specialists to evaluate curriculum materials using the *Guidelines*. Reviewers were all trained in how to use the *Guidelines*. Each set of materials was reviewed by at least three people. In those cases where reviewers disagreed, the materials were evaluated by at least one more person.

Even with multiple reviewers, trained to use the *Guidelines*, it was recognized that these evaluations are, by their very nature, subjective and that the nature of the reviews are qualitative. In describing how one might want to use the Environmental Education Collection, we ask readers to remember that "the reviewers tried to highlight the strengths, but also point out weaknesses or constraints that they felt other educators would want to know about before purchasing a resource. It is important to point out that what one reviewer might consider a weakness, another might consider a strength. At the same time, some reviewers felt more strongly about some issues than other reviewers." We go on to suggest that the reader should "just keep in mind that the write-ups are meant to guide you and that you need to read the entire review to get a feel for the curriculum." Pulling one quotation, looking at only one of the key characteristics, or only examining the "Things to Consider" column of comments does no justice to the materials, the in-

tegrity of the reviewers, or the intended application of the *Guidelines*.

Sanera's application of the *Guidelines* fails to recognize that educators make judgements about the materials they use and that they do not use materials in a vacuum. In the introduction to the *Guidelines* we suggest that "it is not reasonable to expect that all environmental education materials will follow all of the guidelines. For example, a set of materials might not present differing viewpoints, as outlined in guideline 1.2. This shortcoming does not necessarily mean that the materials should not be used. An instructor could work them into a larger set of activities that explores different viewpoints and helps learners discern opinion and bias in individual presentations of the issue. In cases such as this one the *Guidelines for Excellence* can point out a weakness that instructors can compensate for in the way they use the materials."

Let me make myself perfectly clear. I do not endorse factual inaccuracy, bias, or examples of poor pedagogy. I believe there is a great deal of evidence that there is more right with environmental education than Sanera would lead us to believe. We are accomplishing much of the promise of environmental education. The results of the Third International Math and Science Study or TIMSS (Peak, 1996) bear this out. According to the TIMSS report ". . . The U.S. is among the top countries in the world in Environmental Issues and the Nature of Science, and we are also above the international average in Earth Science and Life Science." Over the long term, one of the most cost-effective efforts that can be undertaken to improve environmental education is to support pre-service and in-service educator preparation. Excellent, proven programs exist. National and international programs such as GREEN (Global Rivers Environmental Education Network), Project Learning Tree, Project WILD, and Project WET prepare over 100,000 educators each year. Programs such as the National Project for the Advancement of Environmental Education are working to enhance local and state-level organizational development, to improve collaborative efforts among all of the stakeholders. Initial studies such as the one completed by Lieberman and Hoody (1997) indicate that schools that use environment as an integrating concept show increases in academic achievement in the natural sciences, language arts, and social sciences. Increases in grade point averages and standardized test scores were reported by over three-fourths of the schools.

Are there poor examples of environmental education being used in the schools? Of course. Do our teacher education institutions need to include environmental education in their pre-service education programs? Of course. But the answer is not throwing environmental education out the window and as Sanera suggests ". . . returning to first things. In environmental education, this means developing a knowledge base on environmental issues for teachers

and students alike.” Focusing only on the knowledge dimension gets us no closer to a society that is capable of making sound decisions. Focusing on facts, as Sanera seems to suggest, only perpetuates a type of education that is “thin” and does not develop in the learner the ability to ask questions and resolve problems. Instead, they are doomed to learning and relearning “facts” at an ever rapidly increasing pace as our knowledge base changes. Environmental education needs to facilitate the development of essential concepts (e.g. social, ecological, cultural, political, and economic understandings), but also the thinking skills and predispositions that promote civic responsibility. I worry about what is being taught in classrooms today, because I know those students will be making decisions over a lifetime. We are faced, and will continue to be faced, with conflicts related to environmental issues. We will continue to need to make informed decisions as individuals, as consumers, as workers, and as a society. Our students need to be prepared to face future challenges—challenges that we cannot even imagine—and they need to be able to make well informed decisions. To make these well informed decisions, they will need a whole host of knowledge, skills and dispositions, not just a laundry list of facts.

Note on Contributor

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References

- Champeau, R. (1998). University of Wisconsin Stevens Point (personal communication).
- Fraenkel, J. & Wallen, N. (1993). *How to Design and Evaluate Research in Education*, 2nd Edition. New York: McGraw-Hill, Inc.
- Lieberman, G. and Hoody, L. (1997). *Making Education Real: Using the Environment as an Integrating Concept* (Interim Report). State Education and Environment Roundtable, San Diego, CA.
- North American Association for Environmental Education (NAAEE). (1996). *Environmental Education Materials: Guidelines for Excellence*. Troy, OH: NAAEE.
- North American Association for Environmental Education (NAAEE). (1997). *The Environmental Education Collection—A Review of Resources for Educators*. Troy, OH: NAAEE.
- Peak, L. (1996). *Pursuing Excellence: Initial Findings from the Third International Mathematics and Science Study*. Washington, D.C.: U.S. Government Printing Office.
- Sanera, M. (1996). *Environmental Education in Wisconsin: What the textbooks teach*. Wisconsin Policy Research Institute Report vol. 9, No. 5.
- Sanera, M. (1997). *Teaching environmental education to Wisconsin teachers: A review of university course materials*. Wisconsin Policy Research Institute Report, Bol. 10, No. 7.
- Slobodkin, L. (1996). Islands of peril and pleasure. *Nature*, 381(May 16).
- Spencer, R. W., Christy, J.R. & Gody, N.C. (1990). Global atmospheric temperature monitoring with satellite microwave measurements: Method and results, 1979-84. *Journal of Climate*, 3.
- World Wildlife Fund (WWF).(1998). *The Biodiversity Collection—A Review of Resources for Educators*. Washington, D.C.: WWF.