

ENVIRONMENTAL EDUCATION, PROBLEM SOLVING, AND SOME HUMILITY PLEASE

Bob Jickling

I believe that a significant challenge for environmental educators in the 1990's will be to seriously re-examine their goals. Environmental concern has recently become an important part of the public agenda and we can expect an increased interest in education. However, if we are to continue having an impact, we must be sure that what we do is logically coherent and educationally sound. We are told that environmental education has definition and structure and that questions about goals should have been laid to rest years ago (Hungerford, Peyton, & Wilke, 1983.) While environmental education may be defined, it is less sure that these persuasive definitions are appropriate. Such assertions arise either out of a misunderstanding of the nature of educational discourse, or as Robottom (1987) describes, from "an attempt to control the language of environmental education" (p. 93). There is, in fact, much to do. For the purposes of this paper, I will limit my concerns to the concept of "problem solving." I will argue that use of this term exaggerates the abilities of environmental educators and students and conclude that self-confidence must be tempered with humility; we must be more modest in our claims.

Recently Schoenfeld (1989) reported that the birth of environmental education has coincided with a rise in public awareness about such problems as pollution, pesticides, population, and people's habits and this field of study mirrored concern for those "problems." The importance given to their solution was reflected in objectives for environmental education identified by Bill Stapp. Among others, he suggested we help individuals acquire:

A fundamental understanding of the biophysical environmental problems confronting man, how these problems can be solved, and the responsibility of citizens and government to work toward their solution. (1969, p. 31)

Since then, there have been other expressions of the same or similar, aims (Unesco-Unep, 1976; Ramsey, Hungerford, & Tomera, 1981; Hungerford and Volk, 1984; North American Association of Environmental Education: Mission Statement). Most recently I find that:

We are no longer debating whether real-life problem solving and action have places in our goals, curriculum materials, and school programs. (Marcinkowski, 1988-89)

Marcinkowski is, I think, correct in his observation that there is little or no meaningful debate. However, there should be.

Consider the implications of establishing problem solving as a goal of environmental education¹. Such talk implies first, that there is a solution, and second, that the students are expected to find it. Inability to do so would constitute failure on the part of the child to succeed at a prescribed aim for the activity in which

he or she is engaged. While it makes sense to talk about problem solving in mathematics, I do not believe that the same can be said for environmental education. For example, an algebraic question requires the manipulation of a number of known factors so that the value of an unknown variable can be determined. The answer to such questions are, characteristically, precise and these problems have discrete solutions. It is certainly disputable that environmental problems have such discrete or solvable solutions. In fact, it appears more likely that environmental educators have misappropriated a term which finds its natural home in mathematics. Problem solving denotes a level of precision, exactness, and plausibility alien to the careful investigation of environmental issues. Expecting a child to solve environmental problems without proper regard for their infinite complexities, is setting the child up for potential failure. One can speculate how the resulting failure might be devastating for kids. To continue to urge action which is unattainable and futile is a disservice to persons and serious thought about these issues (Kennedy, 1983). Perhaps we are not sufficiently humble about our understanding of complex environmental phenomena and the limitations of our mission. The inevitable failure, either immediate or masked by a false sense of accomplishment, will be discussed further. First, however, it is important to consider inherent characteristics of the word "problem."

Use of the word problem is normative; by applying this term to a situation, an evaluation has been made. A circumstance may be contentious, but, if we decide that it constitutes a problem, we have made a judgement and decided that it is not to our liking. It follows that the identification of a problem, a necessary condition for its resolution, will in itself be problematic. Consider the difficulties this can pose.

A teacher can cast about, identify problems, and advance these as suggestions for student investigations. This is, of course, unsatisfactory. As the suggestions are judged by the teacher, they will not necessarily reflect the concerns of the students. Further, they advance the ethical and political position of the teacher, and finally, their pre-selection bypasses the critical step of evaluating the issue.

Alternatively, students can select their own problems. Intelligent evaluations will be based on careful consideration of the premises of the competing positions, the logical consistency of the arguments, and the quality of evidence. At least two difficulties face aspiring problem solvers. First, they may select problems with inadequate encouragements to carefully evaluate the issue, and perhaps the inability to do so. On the other hand, they may find that after considerable investigation, their problem is, something other than what it once seemed; they might find that they have nothing left to solve, or that they have been barking up the wrong tree. In this case their education and pursuit of truth might get in the way of problem solving. In any case, it should

be clear that evaluation of an issue is a rigorous process which must precede any attempts to resolve conditions judged problematic. Further, there is no certainty that the issue investigated will yield a resolvable problem. This could result in the absurd situation where a student has carried out a thorough investigation, engaged in sophisticated analysis of the available data, rigorously debated the assumptions, and arrived at an intelligent conclusion about the issue, yet remains unable to fulfill one of the stated aims of environmental education.

Notwithstanding the above difficulties, an environmental problem can be intelligently selected. Indeed, there are issues which we can broadly agree are problematic, such as pollution. However, as I suggested earlier, these do not appear to offer the promise of concrete or definitive solutions in the way that mathematical problems do. This, I will argue, is due to fundamental differences in their inherent natures.

Australian philosopher John Passmore put the distinction succinctly: "an ecological problem is not, in the first place, the same thing as a problem in ecology" (1974, p. 43). By this he means that a problem in ecology is a scientific problem arising out of the fact that scientists do not understand a particular phenomenon. Having identified a gap in their knowledge, they can then employ their various techniques in an attempt to solve the puzzle. On the other hand, an ecological problem (Passmore uses "ecological" here in a way that would be interchangeable with "environmental") is in fact a type of social problem. It is deemed a problem, not because of a gap in knowledge, or our failure to understand a phenomenon, but because the environmental problem describes a phenomenon which we do not like and have judged socially unacceptable. Problems of this kind are not resolved. Rather, they cease to exist when steps are taken to reduce the irritation to socially acceptable levels of tolerance.

I think most would agree that it would be impractical, if not impossible, to totally eliminate pollution; production of waste is a condition of our survival. Though this kind of problem may appear to go away under certain circumstances, it is not ultimately solvable.

Some might argue that one can work to reduce pollution to particular levels or standards. This, however, may be no solution at all. First, consider the arbitrary nature of the standards; there are not absolute values of acceptable pollution. Standards require constant re-evaluation in light of new evidence and argument as various interests advance competing claims. To simply aspire to reduce pollution to some such standard of acceptability would, at best, constitute a partial solution and, at worst, a pseudo-solution. Satisfaction with such results would beg important questions about the appropriateness of the compromise inevitably involved in the establishment of standards. It should be clear that at the heart of the issue are questions about what is, or should be, socially acceptable. Critical reflection about those values which determine social acceptability is essential to clear thinking about an issue. Perpetuating the "problem solving" myth is antithetical to the notion of such clear thinking. Ethical positions are not static and do not provide concrete solutions; they are constantly being re-examined, re-evaluated, and re-defined. Surely this sort of activity is more consistent with the educational enterprise. Unfortunately, concentrating on the idea of problem resolution often distracts from these more fundamental issues. Because the ultimate issues are not resolvable in a way which is satisfactory to the scientific mind, pseudo-problems are created.

Pseudo-problems, or problems which are defined without regard to basic questions, allow people to address immediate concerns although underlying difficulties are over-looked or ignored. In reality, proponents are often simply managing the symptoms of a much more complex and difficult issue. This tinkering with symptoms can be likened to applying patches to conceptually leaky boats. Immediate treatment of symptoms can be very important, but, the idea that this constitutes problem solving overstates the nature of the accomplishment. As such, it tends to be self-congratulatory, intellectually dishonest, and dangerous.

Another issue concerns the development of problem solving skills. What is at issue here is the use of the word "skills." Others have argued extensively about the inappropriateness of trying to reduce complex intellectual activities to a set of skills (McPeck, 1981 & Barrow, 1987.) I will not attempt to recreate their arguments here. However, given the previous discussion, environmental problem solving, or more correctly, issue investigation, is a complex intellectual activity. Therefore, talk about a discrete set of environmental problem solving skills is facile. Attempts to reduce the study of environmental issues to problem solving exercises and talk of problem solving skills would appear to be symptomatic of a much larger problem in the education community. Through attempts to simplify difficult matters for the easy consumption of unwilling clients, we often trivialize them.

Having been critical of one of the institutions of environmental education, I must now state that I have no alternative blueprint. Furthermore, I think that to attempt to provide a recipe would be antithetical to the nature of educational debate². However, I do see directions for inquiry which require more attention. First, our task as educators is not to train students to necessarily solve environmental problems; it is to educate them. This is inextricably linked to acquisition of knowledge and understanding, clear and critical thinking, and care about the use of reason.

Education will not only help students to understand science, but also the limits of this discipline. We must resist inappropriate attempts to cast complex social issues into the language and methodologies of science; science will not solve many so-called environmental problems. Fundamental to these issues are questions about who we are, our attitudes to non-human components of the environment, and what values will enable us to build a better society. Having argued about our premises, there will be questions about how these should be logically interpreted and implemented in specific instances. It follows that we must prepare students to participate in ethical debate and, heaven forbid, metaphysical discussion. This does not mean that we should abandon the investigation of environmental issues. These preparations can only take place in some context, with content and issues to examine. Critical and intelligent pursuit of current issues should be central to an educator's efforts, and should justifiably occupy an important place in environmental education.

While investigation of issues is important, we must be more humble in our aspirations; we must curtail our zeal to solve environmental problems. We must pursue our investigations with passion, and encourage passion in our students. But, let us be passionate about pursuit of truth, rightness, and humility. Indeed, let us work with humility, that sense of being small, ever diminutive, in a large complex world. Humility does not mean paralysis. We must allow students to think about things which

are important to them. They must be able to participate in issue investigation, and be permitted to act, if they so choose, on the best available evidence and argument. However, intellectual integrity dictates that they, too, pursue actions with humility; students will not be solving problems. They will simply be participating as intelligent individuals in the constant re-examination and re-casting of society.

As academics we too must be more humble and introspective. Let us invite discussion, debate, and criticism about our foundations and principles. Any suggestion that practitioners accept definitions un-critically is both insulting and arrogant. It is ironic that as educators we attempt to engage students in critical reflection, yet we find an article in an influential international journal which discourages critical scrutiny in environmental education. To oppose discussion about aims and aspirations can only be described as anti-intellectual.

Notes

1. I have recently been reminded that teachers often use the term **problem solving** to describe practical activities or methodologies which they employ in their teaching. In this sense, problem solving is more a description of pedagogical means than educational goals. While consideration of the implications of this pedagogical use of **problem solving** might be useful, this is not my main concern in this paper.
2. For discussion about the nature of educational debate see: Jickling, Bob. (1988). Paradigms in curriculum development: Critical comments on the work of Tanner and Tanner. *Interchange*. 19(2), 41-49. Jickling, Bob. (1988). A tough nut: A rejoinder to Robin Barrow and Daniel and Laurel Tanner. *Interchange*. 19(2), 64-67.

References

*Barrow, R. (1987). Skill talk. *Journal of Philosophy of Education*, 21(2).

*Hungerford, H.R., Peyton, R.B. & Wilke, R.J. (1983). Yes, environmental education does have definition and structure. *Journal of Environmental Education*, 11(3), 42-47.

*Hungerford, H.R., & Volk, T.L. (1984). The challenges of K-12 environmental education. *Monographs in environmental education and environmental studies*, 1.

*Kennedy, E. (1983). *A critical analysis of selected aspects of environmental education*. Unpublished master's thesis, Simon Fraser University, Burnaby, B.C.

*Marcinkowski, T. (1988-89). Commentary on "When words speak louder than actions." *Journal of Environmental Education*, 20(2), 3-5.

*McPeck, J.E. (1981). *Critical thinking and education*. New York: St. Martin's Press.

*Passmore, J. (1974). *Man's responsibility for nature: Ecological problems and Western traditions*. New York: Charles Scribner's Sons.

*Ramsey, J., Hungerford, H., & Tomera, A. (1981). The effects of environmental action and environmental case study instruction on the overt environmental behaviour of eighth-grade students. *Journal of Environmental Education*, 13(1), 24-27.

*Robottom, I.M. (1987). Towards inquiry-based professional development in environmental education. In I. Robottom (Ed.), *Environmental education: practice and possibility*. Deakin University, Australia: Deakin University Press.

*Schoenfeld, C. (1989). The concept of environmental education. *Journal of Environmental Education*, 21(1), 3-4.

*Stapp, W.B. et al. (1969). The concept of environmental education. *Journal of Environmental Education*, 1(1), 30-31.

*Unesco-Unep. (1976). The Belgrade charter: A global framework for environmental education. *Connect*, 1(1), 1-9.

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GATEWAY: A NEW ORGANIZATION FOR ENVIRONMENTAL EDUCATION

From: Bill Devall

Gateway, a unique organization aiming to foster a shift in ecological consciousness, was conceived at a national meeting in June, 1991.

A group of educators, writers, environmental activists and organizational development experts met in Berkeley, California to discuss ways to train deep ecology practitioners. This group reviewed current activities in schools, colleges and universities, public organizations, and adult learning centers which help people develop an ecological identification and greater maturity as social activists.

Members of this ad hoc group saw a strong need for a new organization to promote Deep Ecology Experiential Education by providing wide access to trained facilitators, learning materials and educational opportunities.

They decided to establish Gateway.

Among the founders of Gateway are Bill Devall, Joanna Macy and John Seed.

Bill Devall has taught college level courses on experiential education for many years. He is the author of **Simple In Means, Rich In Ends** and co-author of **Deep Ecology**. He is the author of many articles on the deep, long-range ecology movement.

Joanna Macy, Ph.D. whose books include the recently released **World As Lover, World As Self** and **Despair and Personal**

Power in the Nuclear Age, teaches Buddhism and general systems theory at the California Institute for Integral Studies and the Starr King School for Ministry.

John Seed, co-author with Joanna Macy of **Thinking Like a Mountain: Towards a Council of All Beings**, is a long-time forest activist and environmental educator who conducts Councils of All Beings and other workshops in Australia, where he lives, and in many other countries.

"We need new modes of teaching teachers to help students realize their potential for broader, transpersonal identification," said Bill Devall. "Students and many adults have wide access to information about environmental problems in this country. Yet they have little access to guided, experiential learning which is necessary in order to educate our emotions as well as our rational brains to cope with the enormous destruction which is occurring on earth during our lifetime."

Joanna Macy said, "My experience shows that participants in what I call 'Deep Ecology Work' develop attitudes and behaviours which are grounded in awareness of the interconnectedness of all life forms. This awareness is essential to a healthy and sustainable relationship with our planet." As Macy, who teaches courses and leads workshops in the U.S., Europe, and