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VIEWPOINT

Environmental Education: What Went Wrong? What Can Be Done?

LARRY M. GIGLIOTTI

The title of this article suggests that environmental education has been a failure. However, such an assessment can be made only in response to a commonly accepted definition of environmental education:

> Environmental education is aimed at producing a citizenry that is knowledgeable concerning the biophysical environment and its associated problems, aware of how to help solve these problems, and motivated to work toward their solution (Stapp et al. 1969).

Depending on which outcomes and the type of evaluation you consider, environmental education can be evaluated in both positive and negative ways. There are many outcomes considered to be succesful products of environmental education, the most important and visible of these being the broad-based support for the environmental movement. According to William K. Reilly, administrator to the U.S. Environmental Protection Agency, "The public . . . has come to an unprecedented awareness of the threats to our environment" (Reilly 1990). Almost everyone claims to be an environmentalist—just ask any candidate for office.

What I am proposing is that environmental education has produced ecologically concerned citizens who, armed with ecological myths, are willing to fight against environmental misdeeds of others but lack the knowledge and conviction of their own role in the environmental problems. It is likely that most people would be unwilling to make great personal sacrifices for the sake of the environment; that is, the necessary changes in values have not really occurred. Instead, people have selectively screened the environmental education messages and constructed belief structures to support their own value systems rather than alter their lifestyles to any great degree.

On the plus side, the environmental movement has had a significant role in the reduction of many pollutants. For example, DDT and other pesticides are highly regulated today. Most industries are concerned about their image and are therefore usually careful to dispose of waste in a safe and legal manner. The potential for hefty fines as well as public outcry against environmental misdeeds could spell disaster for an industry. Similarly, the mounting public pressure to recycle may be considered another successful outcome of the environmental movement.

Although environmental education has been successful at producing an environmentally concerned citizenry, there have been some undesirable outcomes as well. We seem to have produced a citizenry that is emotionally charged but woefully lacking in basic ecological knowledge. Arcury and Johnson (1987, 36) reported that "public environmental knowledge remains at an alarmingly low level even though the environmental movement has been highly publicized for over two decades." An educator might interject here that the hard part is done and that all we need do now is add knowledge, either through traditional methods or through new and innovative ones. Iozzi's (1989) review of the literature suggested that the "affective domain" is the key entry point for environmental educa-

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tion—that one must first obtain positive environmental attitudes before dealing with the cognitive domain. Unfortunately, a closer examination of the problem and of human nature revealed that the solution may not be that simple. Iozzi finally suggested a more holistic approach of dealing simultaneously with both the cognitive and the affective domains.

Our citizenry does not completely lack information. Instead, it is attitudes, which are based on a number of interrelated beliefs and values, that are the problem. These beliefs are often either not ecologically sound or are not based on comprehensive knowledge, such as information on the alternatives and consequences of actions, and information on possible individual action.

Therefore, simply providing more information may not alter attitudes. The task of changing one's belief structure is more difficult than simply adding knowledge; this is especially so in the United States because the current belief structure supports the value system (Langenau and Peyton 1982). Of particular importance is the finding that the current value system of most people is not really that much different from what it was before the environmental movement began. Thompson and Gasteiger (1985) reported that between 1971 and 1981, changes in environmental attitudes of students at Cornell University were in the "direction of a more materialistic lifestyle with less consideration for environmental/energy issues and concerns." It seems pertinent to look at this population in 1991 to see if this trend has continued or if the pendulum is now swinging in the other direction.

Somehow, environmental education efforts seem to have trained people to believe that while nature is good, all human impacts on the environment are bad. This internal conflict (note that now the individual must reconcile his or her position in relation to the environment) has no doubt contributed greatly to the support of, and commitment toward, the environmental movement. People can now label themselves as "good" environmentalists who are committed to fighting against those who harm the environment, and by denying their own personal role in the problem, they can escape the "good-bad" conflict. Indeed, everyone seems willing to speak out and demonstrate against other people, especially industry. There is very little individual sacrifice needed when you blame someone else for the problem.

The underlying belief-value structure that most needs changing is the myth that people are separate from the environment—that we are somehow different from all other living things.

The underlying belief-value structure that most needs changing is the myth that people are separate from the environment—that we are somehow different from all other living things. People must discard this myth and realize that the environment places the same limitations on people as it does on other living things. From this must flow the realization that each individual is responsible for the current levels of pollution and resource depletion. Environmental education messages must make this connection and also provide information detailing what individual actions people can take to alleviate environmental problems. To have credibility, these messages must also show logical connections between individual actions and solutions to environmental problems.

Environmental Education and Minorities

Another way to evaluate the success of environmental education is by examining the level of minority support for the environmental movement. The environmental movement is primarily a white, middle-class cause (Kellert and Berry 1981; Humphrey and Buttel 1982). In a small study of black university students, Kreger (1973) reported that black respondents felt that blacks are not as interested in ecology as whites are. Dolin (1988) summarized two studies that found that blacks' interest in, and knowledge about, wildlife was much more limited than that of whites. However, Caron (1989) concluded that blacks are just as concerned as whites about certain types of environmental issues, such as toxic wastes and other health threats from pollution. Considering that minorities are a fast-growing, significant proportion of the population, it is important that minority concerns be addressed and education messages be prepared with these audiences in mind. For example, environmental education that focused on far-off problems seemingly unrelated to local issues would probably be a "turn-off" for them.

In Kreger's (1973) study, a number of blacks reported that their lack of interest in, and concern with, ecological problems was related to their low economic status, implying that their level of environmental concern would not increase until they have the capabilities and resources to enjoy more of the benefits of society.

Environmental Education and Special Interest Groups

Another negative outcome is that environmental education and the environmental movement seem to have produced a citizenry that is especially difficult to work with on resource management problems. For example, we have ecologically concerned citizens who will demonstrate against environmentally sound dump sites but who at the same time will continue to be opposed to increased disposal fees. Others will demonstrate against pollution but will remain opposed to

pollution devices placed on cars. Still others will demonstrate against commercial use of wildlife, claiming it is morally wrong to profit from nature. Yet, mankind's existence (and that of all other living creatures) depends on the ability to exploit the environment. As living organisms, people instinctively breathe, eat, drink, and reproduce. We are no different from other animals (and plants) who must also "exploit" the environment.

Consider the statement by Cleveland Amory, founder and president of Fund for Animals, that hunting has no place in a civilized society (Satchell and Schrof 1990). The Fund for Animals, which is leading the fight against legal hunting, bases its opposition on the premise that man is separate from, and harmful to, the environment. It is a fact of life, however, that many animals eat other animals; man is no different. Yet, the "animal rights" movement has directed significant amounts of money and time into an effort that has done nothing for wildlife populations. Regulated hunting (*as practiced today*) removes only a part of the annual surplus of wildlife. Eliminating hunting would eliminate a source of food for man that would have to be replaced by increasing farm output, leading to a further reduction in wildlife habitat.

Another result of the myth that people are separate from, and harmful to, the environment has been the vast and growing support for refuges or other areas set aside for protection. Designating protected areas only furthers the myth. It also reduces personal responsibility by lulling people into the belief that because areas have been set aside to be free of man's influence, we can feel good that we have saved at least part of the environment. At the same time, however, we can continue harmful activities—business as usual. Scientists, though, now know that no area is free from the effects of pollution; pesticides have even been measured in Antarctica.

What Can Be Done?

Education has been viewed as the salvation of pending environmental problems—if we could produce environmentally literate citizens, maybe we could begin to solve the environmental problems in time. But if, after 20 years of effort, we have not accomplished this goal, then we need to consider new and drastic measures. The first thing we must keep in mind is that no single answer will likely be the sole solution—the task is too complex. We will need to constantly evaluate proposed solutions and make corrections where needed.

First we need to spend more time and research on problem definition. Too often we waste effort researching misdiagnosed problems. We rush in and look for solutions before we fully understand the problems; that approach often leads to a concentration on dealing with symptoms rather than the real problems. When we have an accurate definition of the problems, the decisions that follow are often clearer (although not necessarily easier) and solutions tend to be more long term. A case in point is this article, which is just one person's assessment of environmental education based on a cursory examination of some of the evidence. This article should not be taken as a complete definition of the problem; rather, what should follow is research to further clarify the problem. For example, I hypothesized that environmental education has made little progress in producing a citizenry willing to make personal sacrifices. Few researchers have measured environmental concern in this form.

However, an emphasis on problem definition should not lead to inaction. Depending on the urgency of the problem, it may be necessary to implement potential solutions before all the facts are known. The key in such situations will be to remain flexible enough to be able to change when evidence suggests new directions are needed.

Yambert and Donow (1986) proposed that since environmental problems are too complex for people to understand, we should teach a basic code of ethics that, if followed, would solve the problems. This approach is like teaching science (environmental education) as a religion. First, a religion can be as easily rejected as accepted. Similarly, it can be accepted by one generation and rejected by the next. More likely, only a segment of the population would accept it at any given time. Why would people in the United States give up their high rate of consumption (their luxuries) to follow an environmental code of ethics if they did not understand the basic underlying ecological reasons? Second, people want and are taking more control over their lives and will not likely give up this independence to be ruled by an environmental ethics code. Independence and freedom are not to be given up lightly, and I think that it will become easier for people to make lifestyle changes only when they understand the reasons.

Environmental educators need to supply information of a very practical nature, addressing the role of the individual in environmental problems and what alternatives and/or actions are necessary to solve such problems. Most important, educators must be sure their messages are ecologically sound and that they do not perpetuate environmentally irresponsible myths.

To evaluate new environmental issues and understand ways to solve these problems, every citizen needs to understand basic ecological principles. Education researchers have been saying this for years (Hungerford et al. 1980). However, instead of worrying about whether environmental education is infused equally across curriculum materials as suggested by Simmons (1989), *we need to make environmental education the focal point of the entire educational process.* Environmental education should not only share equal

status with reading, writing, and arithmetic; it should also be an integral part of all courses. Along with this shift in emphasis we need to instill a goal into every single student: To work toward the development of a stable population of people living harmoniously in a quality environment.

Why is such a dramatic change needed? Why can't we continue on as before? The answer can be explained in ecological terms. Certain activities and behaviors that can be sustained can be injurious at a higher population level. In other words, people must change because the circumstances in which we now live have changed. As Malone and Corell have (1989) said of the future:

> The capacity of the global life-support system to sustain a technologically advanced and exponentially expanding civilization is likely to collapse within the foreseeable future. (p. 7)

If we plan for change, the changes will be less difficult. If we wait for the changes to hit us head on, fighting each crisis as it arises, the social and environmental upheavals could make life very miserable.

Planning for change through education means that the K–12 education system will need to be restructured. Changes are also needed at the college level, where we are educating individuals who will be doing research and guiding future policy and, thus, will have a larger impact on the future. Also, we cannot continue to produce environmentally illiterate teachers. Hooper (1988) reported that there were a number of common misconceptions about wildlife management among California grade school teachers. There are probably misconceptions among teachers about other natural resources, and certainly about the alternatives available to resolve resource management issues.

There has been a long-standing philosophical debate about whether higher education should produce generalists or specialists. Yambert and Donow (1986) stated that "fields of knowledge have grown so complex that no one can master more than a few of them." However, environmental policy cuts across many fields and requires generalists who understand the language and basic concepts of those fields. Schenker (1972) pointed out the importance of both generalists and specialists, and said it is vital that both types work together. I would agree with Schenker.

Conclusion

Environmental education has not produced a citizenry that is able and willing to solve today's environmental problems. Although we have an environmentally aware population, people still lack the necessary knowledge about the roots of the problems and specifically what actions they can and should take. It may be a very difficult task to get people to accept the need for personal lifestyle changes that may be necessary to solve some environmental problems.

Environmental education needs to break down the environmental myths of today and start showing the individual connections to today's environmental problems. At the same time, education should help individuals learn what they can and should do to improve the environment and create a desire in each person to take the correct actions, including those that require individual sacrifice. For this to happen, people must first believe that solutions to environmental problems are necessary. They must also fully understand the consequences to the environment and to themselves of not taking action to correct these problems. To get this message across, environmental education must become a focal point of the entire educational system, from elementary through higher education.

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