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# Promoting a Concern for the Environment.

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A general tenet of environmental education is that humans use ecosystems, affect ecosystems, are affected by ecosystems, exist in complex interactions with ecosystems, and are ultimately accountable for their effects on ecosystems (Willard et al, 1976). Many environmental educators postulate three ways of viewing this interaction: dominion, humans over nature; stewardship, humans caring for nature; and union, humans as part of nature (Boulding & Senesh, 1983).

Environmental education is a process of moving individuals toward stewardship and ultimately a union view of the relationship of people with nature. Environmental education is process more than it is content: environmental education is usually infused into various curricula, particularly in the sciences (Disinger, 1987) and is an integration

of disciplines with no exclusion of strategies and with synthesis of information (Roth, 1988) that can occur more readily than when disciplines are isolated. In this process, cognitive understanding is not sufficient; affective and behavioral development is necessary to affect significant value, belief, behavioral, and cognitive shifts in individuals. When such shifts do occur, environmental education is no longer a "band-aid" but is an agent of transformation enabling epistemological change (Naidoo, Kruger, & Brookes, 1990).

How such shifts are achieved is fully dependent upon the learner, the teacher, and the setting. Yet, there are general precepts that can guide a teacher to fully incorporate a philosophy of environmental stewardship or union into all teaching settings.

One is that a holistic, experiential, and value-neutral presentation of the content enhancing creativity is achieved through the emotional, intellectual, and ethical development of the individual (DuShane & Hug, 1978). Another suggests that understanding the complexities of the interrelationships with the environment is a necessary condition to the maintenance and improvement of environmental quality (Disinger & Howe, 1992). Given demands on the educator, whether in a formal or a non-formal setting, environmental lessons, experiences, and activities must be integrated into the curriculum and limited instructional time (Warpinski, 1979). Integration must deal equally with all environmental concern areas, and not focus on a narrow topic at hand.

It is possible to examine the means by which these precepts are incorporated into teaching by considering three philosophical positions. The first can be called "imposition"; the second "infusion"; and the third, "framing."

As the label implies, imposition is placing onto the required study a subject called "environment" or a specific focus within the environment. Libraries and teachers' shelves are full of materials created for specific topics such as water quality, solid waste, energy, rainforests, acid rain, ad infinitum. Whether a special curricular guide, a course of study, or a special study segment, these materials are often the most readily available to educators and the most simply introduced into the teaching/learning setting. Such resources are often funded by or developed by industry, specific issue-focused groups, government agencies, or environmental groups, all of which have a desire to get information into the classroom. The quality and value of the materials are as wide ranging as the topics; yet in the hands of a master educator, even lesser quality guidelines can provide a strong basis for learning that will shape present and future environmental decisions. Unfortunately, many of these materials address topics in isolation and deny the "complex nature of the natural and built environments resulting from interactions of physical, biological, social, economical, and cultural aspects" (Stapp et al, 1979). When treated in this manner, environmental education suffers because it is undefinable in terms of how it relates to existing programs (Disinger & Floyd, 1990).

Infusion involves incorporating environmental concerns into existing curricula and content. For the educator, the challenge is how to permeate learning experiences with environmental education (Smith, 1987). In many cases, infusion may be thematic for a class or group, but often involves creating opportunities to include environmental issues as the application of the field of study (e.g., math, physics, biology). Myriad resources provide educators with quick references for activities that incorporate environmental themes or topics into traditional disciplinary approaches. Some widely used resources are "Clearing" and "Ranger Rick"; in addition, numerous collections of activities for environmental education are available for the educator (for example: Bowman, 1979; Sampler of Tips, 1991).

Philosophically, the infusion approach attempts to integrate or infuse into the mainstream of public schooling the knowledge, skills, attitudes, experience, and commitment that will result in informed decisions, responsible behavior, and constructive actions. Environmental education, therefore, includes science, math, social studies, language arts, health, and physical education. Environmental education is the grounding for all schooling and the foundation for organizing schooling into natural systems rather than by arbitrary disciplinary boundaries (Charles, 1987). Disinger and Howe suggest that infusion often "flounders on the reticence of discipline-oriented curriculum designers and teachers" to rely on content from other than their own area of expertise (1992, p. 6).

The third philosophic approach suggests that the arbitrary boundaries of traditional disciplines be eliminated in lieu of creating a framework of study in which subject areas become related and integrated rather than isolated and disparate. This break with tradition can be best accomplished when educators and students investigate, interpret, explore, manage, discover, and make decisions about larger encompassing studies (Indiana DOEd). This approach frames learning in a manner that challenges old assumptions about teaching and learning.

Hines et. al. (1987) identified four factors that comprise environmental education: (a) knowledge of environmental issues; (b) knowledge of specific action strategies to apply to the issues; (c) the ability to take action on environmental issues; and (d) the ownership of certain affective qualities and personality attributes. Using these factors as a basis for constructing learning, disciplines become less distinct as life skills are developed, and the application of traditional disciplinary skills drives the need to know of the learner. The result is not only an acquisition of traditional knowledge cognitively, affectively, and behaviorally, but also an ability to transfer such learnings.

Framing learning for environmental education requires moving beyond traditional methods of classroom teaching (Rubba, 1987). Science-Technology-Society schools and concept/magnet schools (for example, environmental schools) are approaches that embrace such change through using traditional disciplinary skills to define technological, scientific, and societal aspects of real world problems that use problem-solving and

decision-making processes to address the problems (National Science Teachers Association, 1982). A less radical approach is to use supplementary curricular guides that, at least for a few learning segments, transform the learning process into an environmental focus rather than a discipline-based and separated structure. Examples of such projects include Project WILD, Project Learning Tree, and non-formal educational materials and programs provided by 4-H, scouting, and others. These short-term programs usually evoke very positive responses from both teachers and learners. Longer-term programs, however, may suffer from problems that range from economics to personnel qualifications to lack of administrative support (Scharmann, 1990). What is yet unclear is whether the problems stem from real problems in creating settings for learning of this nature or from the reluctance of individuals to affect the significant changes that framing for environmental learning requires.

Just as with environmental issues themselves, there is no uniformity on how to best introduce and use environmental issues in the teaching and learning exchange. Each individual can champion the manner that is consistent with personal beliefs about learning and teaching. Forcing a teacher to incorporate fundamental principles of environmental education through a means that is not comfortable to the individual is like trying to make the environment fit into all disciplines. That the environment is inherently present is not the question; that we are arbitrarily forcing change is. If indeed the goal is the increasing introduction of environmental issues and the skills to address issues into classrooms, nature centers, or clubs, then all we can do is the best we can do. Ultimately, however we choose to incorporate environmental education into our ongoing efforts, we can provide learners with understandings they need to make better decisions for the environment.

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