



EETAP *Resource Library*

"Advancing Education & Environmental Literacy"

November 2000

Number 78

Using Nonformal Environmental Education to Help Schools Meet Education Reform

To help educators understand and define non formal and formal environmental education, the components of these terms are defined. The term *environment* refers to both the physical or constructed surroundings and to the affective environment created by the interaction of the educator, the individual learner, the group of learners, the content, and the physical environment. (Heimlich and Norland, 1994) *Education* is learning opportunities constructed to create a framework for the transfer of knowledge. (Heimlich, 1993) Environmental Education thus can be defined as a learning process that empowers people with awareness, knowledge, skills, and attitudes on ecologically-related social issues in the environment which enables people to make informed decisions and behave responsibly.

Formal education is controlled by the teacher/school and takes place within the formal education system (elementary, secondary, technical schools and colleges); whereas, non formal education occurs in businesses, non-profit organizations, and other institutions. Non formal environmental education sites include a variety of settings such as nature centers, science centers, zoos, aquariums, parks, gardens, forests, wildlife refuges, camps, backyards, etc. and the media (TV, radio, newspaper, internet).

Since environmental education requires understanding concepts in all disciplines, multiple standards in core subjects are met. For further discussion on this topic, please read EETAP Infosheet #51-"Environmental Education in a Standards-Based Curriculum." In addition to understanding concepts, environmental education focuses on developing higher level thinking skills such as problem solving, communication, critical thinking/reasoning, and connecting to other subjects and the world. These skills are repeated standards in the core subjects. For example, the debate about

whether to breach dams or not is a current environmental issue. The learner has to learn the ecological and social (human) concepts involved, research and analyze the multiple sides of the issue, discuss the findings, develop solutions, and then make a decision on what to do. This process empowers the learner to make responsible decisions.

Education reforms

In 1983 a publication, "A Nation at Risk," reported that the United States had declining test scores, poorly prepared high school graduates, low literacy levels, and low academic achievement scores when compared to Japan and other European countries. The U.S. responded with the "Goals 2000: Educate America Act," whose purpose was to graduate seniors who can use their minds and become productive, responsible citizens in our ever-changing world. Goals 2000 contains 8 goals. Of particular importance to environmental education are goals #3- Competence in Core Subjects K-12 (standards and standardized testing), #4-World Class Status in Math and Science, #7-Professional Development for Teachers, and #8-Partnership Building. Standards were defined as guidelines stating what students should know and be able to do. This infosheet describes the correlation and understanding of these goals through nonformal environmental education.

Goal # 3-Competence in Core Subjects K-12

Nonformal sites are looking at curriculum standards and adapting or creating programs to meet those standards. Since nonformal sites do not have captive audiences, they develop enticing, creative, and educational programs that support what the students are learning in the classroom and are responsive to the needs of the learner. These programs also accommodate various learning styles and abilities while providing a holistic experience. The participants take in the information at their own pace and construct their own meaning and relevance.

Usually, the participants see the real world connections to school subjects.

To improve performance on tests, consider the following participant-focused tips for learning. First, the audience has to feel comfortable, safe, and secure within the environment. Next, let the physical setting be the starting point of learning, rather than the ending point. In other words, let the learners construct their own understanding and meaning through hands-on explorations in the environment first, before discussing the topics. Be sure to allow for diverse interpretations as there is no "right and wrong" answer.

Goal # 4-World Class Status in Math and Science

The National Science Teachers Association (NSTA) advocates partnerships between schools and nonformal institutions because these sites spark curiosity and engage students in scientific topics. NSTA also states that "informal science education complements, supplements, deepens, and enhances classroom science studies." Concrete learning in natural settings helps students see interrelationships. Studies have indicated that nonformal sites have an impact on career paths because students had positive interactions with professionals in a scientific field.

Goal # 7-Professional Development

Many teachers feel they lack science background resulting in low confidence in their abilities to teach environmental education. Nonformal sites have knowledgeable staff, resources, and programs to share. Usually these programs include lessons and activities that are participant-centered, so learning can occur independently or cooperatively. Also, the staff is available to answer questions and offer encouragement. Exposure to these programs, attending workshops, and using supplemental materials and resources from these sites may help teachers implement similar strategies within their curriculum and provide continued professional development.

Goal # 8-Partnership Building

Throughout education history, three views on learning have emerged: children learn what they are taught, children should learn through life experiences, and John Dewey's combination belief that academic learning could be harmonized with real experiences that involve discovery and excitement for learning. Nonformal environmental education provides the opportunities to link hands-on investigations of the real world with formal environmental education in the schools. Contrary to

society's current belief, schools are not solely responsible for the education of our youth.

Education is a shared responsibility among other institutions like families, businesses, non-profit organizations, churches, and governments. Since schools do not have the power and resources to do it all, they should actively build relationships with these institutions. Collaboration between formal and nonformal environmental sites is essential to reach the full potential and impacts of environmental programs that promote environmental literacy and understanding. (Waddock, 1995)

Conclusion

Research shows that ". . . many students and young adults attribute a large amount of their knowledge of environmental concepts, problems, and issues to out-of-school (nonformal) educational settings and experiences." (Howe, 1998) Research also shows that many people attribute their attitudes and values to similar experiences, which confirms that nonformal experiences have a meaningful and long-lasting impact. Educators need to take advantage of this impact and establish partnerships. By combining environmental education goals with nonformal sites many objectives such as offering meaningful experiences in subjects, working towards a citizenry stronger in math and science, helping retention for tests, and providing professional development can be successfully achieved.

References and resources from ERIC

Waddock, Sandra A., *Not by Schools Alone*, Westport, Connecticut, London: Praeger Publishing (1995).

This book states that many institutions in society, along with the school system are responsible for educating youth.

Heimlich, Joe E. (1994), "Nonformal Environmental Education: Toward a Working Definition," *The Environmental Outlook*, May 1, 1993. (ED 360154).

This article defines formal, nonformal, and informal learning environments and connects them to environmental education. The article discusses methods for improvement at nonformal sites.

Howe, Robert W. and Disinger, John F., "Teaching Environmental Education Using Out-of-School Settings and Mass Media," *Environmental Education*, digest 1, 1998. (ED 320759). Research shows many students attribute their knowledge and attitudes of environmental concepts to nonformal sites. This digest explains the data and connects the use of these sites with school programs.

Nelson, Thomas G., "School Change and the Introduction of New Content: The Case of Environmental Education," 1998. (ED 424109) This article defines 3 education traditions and recommends environmental education be used as a vehicle to learn about interdisciplinary subjects.

This information sheet was prepared by Denise Kilkenny-Tittle, graduate student and Dan Sivek Ph. D. of University of Wisconsin-Stevens Point; and Sabiha S. Daudi GRA, and Joe E. Heimlich Ph.D. of EETAP Resource Library at Ohio State University Extension.