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Impact of Environmental Education Activities on Environmental Literacy of Learners

The ultimate outcome of environmental education is promoting citizen action; in other words, to be environmental literate, a person must possess citizen action skills. It is thus crucial for environmental educators to focus on environmental literacy as the main goal of environmental education.

Components of Environmental Literacy

There are seven variables that foster environmental literacy- (1) knowledge of issues, (2) beliefs concerning issues, (3) individual values, (4) individual attitude, (5) locus of control, (6) environmental sensitivity, and (7) knowledge and skill of environmental action strategies. (Sia, 1985/1986.) The development of environmental literacy is a multi-step process that begins with knowledge and results in active citizen participation. The knowledge component is based on the idea that before an individual can act on an environmental problem, that individual must understand the environmental problem (Hines, et. al. 1986/1987). The knowledge base is comprised of two key aspects- knowledge of ecological systems and knowledge of social and human impacts on the environment. More specifically, the development of knowledge includes the development of an individual's values and attitude- helping an individual realize his or her personal values and attitude toward environmental issues. The concepts of individual and group locus of control must also be addressed in the knowledge development.

The final step in the process is using citizen action to work towards solutions of the identified environmental issue, which involves two key activities. First, the individual must apply his or her knowledge by investigating and evaluating environmental issues and potential solutions is fundamental to citizen action. Second, the individual must chose which course of action is best in the

given situation.

Environmental Education, Environmental Literacy and Schools

Environmental education is the vehicle for developing environmental literacy. The development of environmental literacy has been divided into two categories- kindergarten-12 and post secondary schooling. There are distinct strategies to address environmental literacy development for each. For children under the age of 18, there are five key issues. First, teachers should assess where the learners are in regard to knowledge and skill level through pre-testing. Pre-testing is important to ensure that lessons are developed at the knowledge level, not above or below it. Second, it is necessary to develop knowledge and understanding of fundamental aspects of natural systems. Also, it is important to focus on empowering the individual to deal effectively with positive and negative relationships between people and environment. Fourth, teachers should help students develop an awareness of their skills to impact environmental issues. Lastly, teachers should focus on helping students learn how to think not what to think. For students of the ages 18 and higher, teachers should employ two key strategies. First, teachers should reinforce fundamental scientific principles and human relationships with natural systems. Additionally, teachers should help foster a sense of empowerment to help solve environmental problems. Students must believe that their decisions actually do make a difference in problem solving. This empowerment is essential because students can use it to address environmental issues in different realms rather than simply understand what to do about specific problems.

Strategies to develop environmental literacy through

environmental education

The majority of environmental education programs focus on the knowledge element of environmental literacy. Knowledge is the most targeted for two reasons. First, knowledge is a fundamental goal of environmental education. The second reason behind the focus on knowledge is that some educators believe that a proper knowledge base is the key to environmental literacy. This is important because citizens are given factual information and resources to be used to make responsible decisions with regard to the environment because of their knowledge of human impact on the environment (Pooley, 2000).

Other environmental educators believe that the development of environmental literacy has to go beyond a knowledge base. For example, Sia (1984) believes that the more skillful in citizen action skills and the more knowledgeable of action strategies an individual is, the more likely he or she will behave in an environmentally responsible manner (Sia, 1984).

A common strategy used to increase environmental literacy of middle school students is a method called Issue Investigation and Action Training (IIAT). IIAT is designed to focus on the development of responsible behavior by directing instruction at the seven specific variables listed earlier. IIAT is interdisciplinary and introduces students to environmental issues and skills needed to apply responsible action. IIAT is a series of six modules that are completed during one semester and provide training in the investigation and action skills needed to develop environmentally responsible behavior in citizens. For example, students learn how to write research questions, obtain and evaluate secondary data, develop surveys, and learn methods of citizen action.

References

Hines, Jody M. et.al. "Analysis and synthesis of research on responsible environmental behavior: a meta-analysis." *Journal of Environmental Education*. Winter 1986-1987. Volume 18, Number 2. Pages 1-8.

Pooley, Julie Ann and O'Connor, Moira. "Environmental education and attitudes." *Environment & Behavior*. September 2000. Volume 32, Number 5. Pages 711-724.

Sia, Archibald. "Selected predictors of responsible environmental behavior: an analysis." *Journal of Environmental Education*. Winter 1985-1986. Volume 17, Number 2. Pages 31-40

Additional Resources

Additional resources on the effects of

environmental education activities on environmental literacy can be found on both the Eisenhower National Clearinghouse (ENC) database and the Educational Resources Information Center (ERIC) database. Additional resource regarding specific scientific studies can also be found on both of these databases. For further information, please consult the following resources.

ERIC

Culen, Gerald R. and Volk, Trudi L. "Effects of an extended case study on environmental behavior and associated variables in seventh and eighth grade students." *Journal of Environmental Education*. Winter 2000. Volume 31, Number 2. Pages 9-16.

Ramsey, John M. "The effects of issue investigation and action training on eighth grade students' environmental behavior." *Journal of Environmental Education*. Spring 1993. Volume 24, Number 3. Pages 31-36.

Roth, Charles E. *Benchmarks on the way to environmental literacy K-12*. Massachusetts Secretary's Advisory Group on Environmental Education, Littleton. January 1996.

Smith-Sebasto, N.J. "The effects of an environmental studies course on selected variables related to environmentally responsible behavior." *Journal of Environmental Education*. Summer 1995. Volume 26, Number 4. Pages 30-35.

Weilbacher, Mike. "Confronting the enemy within: why our students are environmentally illiterate." *Clearing*. January/February 1997, p. 17.

Wilke, Richard. "Environmental literacy and the college curriculum." *EPA Journal*. Spring 1995, p. 28.

ENC

<http://www.energynet.net/>

<http://www.earthwatch.org/ed/home/html>

<http://www.eelink/net/~npeee/npeee.html>

This information sheet was prepared by Becky Weber and Beth Lesure, graduate students 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.

EETAP Resource Library is a project of the Environmental Education and Training Partnership effort. The goal of the Resource Library is to increase educators' access to and use of databases such as ENC and ERIC. This information sheet