

Since it was first defined in 1969, the practice of and perceptions about environmental education have evolved over time (EE Link, 2000). 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, 1969).

In 1970, the Environmental Education Act was signed into law. The Act defined Environmental Education as the educational process dealing with man's relationship with his natural and manmade surroundings, and includes the relation of population, conservation, transportation, technology, and urban and regional planning to the total human environment (Environmental Quality Education Act, 1970).

Environmental education, as properly understood, should constitute a comprehensive lifelong education, one responsive to changes in a rapidly changing world. It should prepare the individual for life through an understanding of the major problems of the contemporary world, and the provision of skills and attributes needed to play a productive role towards improving life and protecting the environment with due regard given to ethical values (UNESCO, 1977).

Environmental education follows some guiding principles. Environmental solutions are not only scientific, but include historical, political, economic, and cultural perspectives. These perspectives are important to consider in the

practice of environmental education. The guiding principles are as follows:

- Environmental education is a human component in exploring environmental problems and their solutions
- Environmental education rests on a foundation of knowledge about social and ecological systems
- Knowledge lays the groundwork for analyzing environmental problems, resolving conflicts, and preventing new problems from arising
- Environmental education includes the affective domain: the attitudes, values, and commitments necessary to build a sustainable society

(Environmental Education Toolbox, 2000)

Understanding and incorporating these perspectives are important when considering the development of environmental education programs for youth. Young people today care about the natural environment. They realize that the natural environment, from parks to beaches to water and air, is affected by the actions of Americans both young and old.

The environment is part of their lives and many young people express a good deal of knowledge about it and report interest in learning more. Concern about environmental matters exists among students from disadvantaged areas, as it does among their non-disadvantaged

counterparts, though a wider set of other concerns weighs heavily on their minds, often shaping their perceptions of environmental issues and problems. Research has also shown that disadvantaged students generally have less opportunity to experience the natural environment (National Environmental Education and Training Foundation, 2000).

Evidence also suggests that within an environment-based context, student enthusiasm and engagement work together to improve self control and decrease discipline and classroom management problems. Furthermore, these same students perform better in terms of academic achievement than their traditionally instructed peers (Lieberman, 1998).

Larger parks and natural areas such as Yellowstone Park, Adirondack Park in New York State, and the Everglades National Park operate visitor interpretive centers. These centers are located in different areas of the parks and serve as environmental education and traveler orientation sites. The Adirondack Park Visitor Interpretive Centers provide indoor exhibits using multi-image presentations to present topics in areas such as natural history, geology, and local ecology. Children and teenagers can find "touch tables", games and puzzles to spark their interest in animals, insects, and plants. The centers provide lectures on animal behavior, orienteering classes and many public programs annually. During the summer, there are regularly scheduled interpretive trail walks, a Junior Naturalist series, astronomy classes, and live birds of prey sessions (Adirondack Park Visitor Interpretive Centers, 2000). These serve as some examples of the types of programs that can be offered through its Visitors Center.

Within metropolitan areas, Botanical Gardens or Centers are primary resources for environmental and botanical education. Most botanical gardens attract an array of visitors, from those out seeking to enjoy the outdoors to those seeking to learn more about plant life. Many offer educational programs and hands-learning experiences for children (Prebich, 2000).

Botanical gardens have often been identified as "plant museums." Typically, they house a wide array of specimens from the entire plant kingdom, from various geographical regions. Although many specimens are aesthetically pleasing, many are selected for scientific and educational purposes (Holden Arboretum, 2001). The wide arrays of plant specimens are often contained within, distinct, self-contained ecosystems. The interpretive plans for these centers not only provide the context for these specimens, but also often call for the incorporation of these specimens into a historical context.

For example, The Arboretum of Los Angeles County has been designed as an "environmental museum," housing learning centers highlighting the inter-relation of plants, humans, and animals during pre-Columbian times (Morse, 1998). Additionally, many botanical gardens, have incorporated into their centers, man-made structures, ranging from grandiose plantations, to early pioneer homes, to slave quarters to reconstruct a historical center, complete with the plant-life native to the times as well as plants worked by the people of these times (Feltwell & Odenwald, 1992).

The use of early childhood learning opportunities is another facet to be accessed in a park setting. Play and creativity are fundamental building blocks of personal, social, cultural, mental, and spiritual growth. Realizing the creative potential of individuals develops constructive attitudes in them as well as building up a certain degree of resistance to negative influences (Leeds Metropolitan University, School of Applied Social Sciences, 2000).

A developed method to work with children in an experiential environment is playwork. Playwork is a term used for the field of non-formal education where play is the main focus of activity. It encompasses a broad range of professional roles which includes working directly with children in non-formal settings indoors and outdoors to university-based coursework.

Settings for playwork include parks and playgrounds, afterschool children's centers, children's museums, children's hospitals, toy libraries, family entertainment centers, play gardens, zoos, centers for children with special needs, and many others (International Playworkers Association, 2000).

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Local Environmental Education Programs with Education Facilities

Cibolo Wilderness Center – It is located in Kendall County and provides environmental education programs to school groups and the community through a nature center, museum, indoor and outdoor exhibits, self-guided trails and living history demonstrations.

Friedrich Park – It is located in Bexar County and offers environmental education and interpretive services primarily to school groups and the community. This includes outdoor exhibits, environmental education activities, guided tours and interpretive talks.

Last Chance Forever - A rehabilitation center for birds of prey like the redtail hawk. The center will place an emphasis on education by offering classroom space for specific community programs and a special area set up for veterinarian students.

San Antonio Botanical Gardens - It is designed as a living plant museum that offers educational events, programs, and classes year-round. Classes and programs are available for everyone from children in kindergarten to retired seniors. The mission is to increase public enjoyment and understanding of plants; their intrinsic value,

their role in world ecology, and their importance to and use by humans.

Bat Conservation International - A Foundation funded project that will have an education and visitors center. The project is still underway.

References

- Adirondack Park. (2001). Adirondack Park Visitor Interpretive Centers Page [online]. Available: <http://www.northnet.org/adirondackvic/thevic.html>
- Alcosser, Murray. (1991). America in bloom: Great American Gardens open to the public. New Your City: Rizzoli International Publications, Inc.
- Dallas Arboretum. (2002). Education at the Dallas Arboretum. [online]. Available: <http://www.dallasarboretum.org/Education.html>
- Environmental Education Toolbox, (2000). Defining environmental education - principles of environmental education. [online]. Available: <http://www.nceet.snre.umich.edu/principlesofenvironmentaleducation.html>
- Environmental Quality Education Act. U.S. Public Law 91-516. (1970).
- Feltwell, J. & Odenwald, N. (1992). Live Oak Splendor: Gardens along the Mississippi. Dallas: Taylor Publishing Company.
- Foundations of Environmental Education. (2000, November 10). EE Link: Perspectives [online]. Available: <http://eelink.net/perspectives-foundationsofee.html>
- Holden Arboretum. (2001). An Arboretum defined. Brochure.
- International Playworkers Association. (2001). PlayWork Page [online]. Available: <http://www.ipausa.org/playwork.htm>

Leeds Metropolitan University. (2001). Peace through Play at LMU Page [online]. Available: <http://www.lmu.ac.uk/hen/ass/playwork/play2htm>

Lieberman, G.A. & Hoody, L.L. (1998). Closing the achievement gap: Using the environment as an integrating context for learning. Poway, CA Science Wizards.

Morse, J. (1998). Interpretive planning: Why we are unique. Los Angeles Arboretum Foundation Newsletter, Spring. [online]. Available: <http://www.arboretum.org/arboretum/articles/spring1998/interpretive.shtml>

National Environmental Education and Training Foundation. (2000). Environmental Attitudes

of Youth [online]. Available: <http://eelink.net/ROPER/Intro.html>

Prebich, J. (2000). Planting some life lessons. Garden Magazine. July 7, 2000. [online]. Available: http://www.findarticles.com/cf_0/m1082/4_4/63398207/p1/article.jhtml

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

Texas Parks and Wildlife. (2002). State parks within 100 miles of San Antonio, Texas. <http://www.tpwd.state.tx.us/park/cityarea/satarea.htm>

UNESCO. (1977). Final Report - Tbilisi. Intergovernmental Conference on Environmental Education