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Environmental Education in The United States

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ABSTRACT

Environmental education is an established but not pervasive presence in the public schools of the United States. Teachers' lack of the content and action skills necessary for effective environmental education is an impediment to widespread infusion across the curriculum. Environmental education most often takes the form of nature study; energy, outdoor, or conservation education. At its best, it emphasizes the student's appreciation for and interaction with the natural and social environment and teaches the skills needed for informed decisions, responsible behavior and constructive actions concerning the environment. This article presents examples of innovative, interdisciplinary environmental education programs which promote active student involvement in solving environmental problems.

ABSTRAK

Pendidikan alam sekitar merupakan kelahiran yang telah kekal di sekolah-sekolah awam di Amerika Syarikat tetapi tidak menyeluruh. Kekurangan isi dan kemahiran tindakan yang diperlukan bagi pendidikan alam sekitar yang bukan merupakan penghalang terhadap penyebaran secara meluas kedalam kurikulum. Pendidikan alam sekitar selalunya disajikan dalam bentuk kajian semula jadi; tenaga, lapangan atau pendidikan pemuliharaan. Pada tahap paling baik, ia menekankan penghayatan pelajar terhadap dan interaksinya dengan alam sekitar semula jadi dan sosial dan mengajar kemahiran yang diperlukan dalam pembuatan keputusan berpengetahuan, kelakuan yang bertanggungjawab dan tindakan yang konstruktif mengenai alam sekitar. Makalah ini mengemukakan contoh-contoh program pendidikan alam sekitar yang bersifat inovatif dan antara disiplin yang menggalakkan penglibatan pelajar yang aktif dalam menyelesai masalah-masalah alam sekitar.

INTRODUCTION

Orr advocates 'ecological literac', which he defines as the 'capacity to observe nature with insight', the development of an 'affinity for the living world' and 'sense of kinship with life' (Orr 1992: 86-87). It encompasses 'knowing, caring and practical competence'. It cannot be separated from ethical questions. It must involve 'study, design and implementation of

solutions' in order not to disintegrate into an exercise of despair (p. 92). Orr's 'ecological literacy' is a compelling rationale for environmental education.

The purpose of this paper is to examine the historical context of environmental education in the US and its theoretical framework. Case studies of innovative environmental education for K-12 will be discussed followed by an assessment of future directions.

In the US, teaching about the environment began with nature study. Beginning the early 19th century authors such as Aldo Leopold, Lewis Mumford, Rachel Carson, E.F. Schumacher, Wendell Berry, Lester Brown, Wes Jackson, Annie Dillard, and Carolyn Merchant have presented thoughtful alternatives to society's patterns of overconsumption and disregard for the environment. All these authors have been grounded in a deep attachment to and knowledge of the natural world.

In the 1960's the definition of environment in the US broadened to include both the natural world and the human environment (Cowan & Stapp 1982: vii). In the present day the concept of environment encompasses the man-made physical environment and related political, economic, cultural, technological, social and aesthetic environments as well as natural, biophysical environments.

The term environmental education came into common usage in the United States in the 1970's. The commonly accepted definition was that echoed in the UNESCO goals statement of 1976:

> to develop a world population that is aware of and concerned about the environment and its associated problems, and which has the knowledge, skills, attitudes, motivations and commitment to work individually and collectively toward solutions of current problems and the prevention of new ones (Barry 1976 p.1-3).

The newest equation in discussions of environmental education is the notion of sustainability. Orr (1992) posits six characteristics of sustainability: (a) humans are limited, fallible creatures; (b) the need for an active, competent citizenry; (c) attention to past practices and folk wisdom as well as to creation of new knowledge; (d) nature as the model for design of human environments, economies and technologies; (e) attention to issues of scale and centralization with a bias toward decentralization; and (f) the search for interrelatedness. (p.28-38).

Disinger and Howe (1990:1) note that the most significant trend in the past two decades of environmental education has been a pronounced shift from its historical antecedents - nature study, outdoor education and conservation education. There has been a certain tension between those who would emphasize appreciation of and knowledge of the natural world and those who stress the interaction between humans and nature. For example, Ritterbush (1982) claims that "Environmental education aims to improve our understanding of the natural and social support systems as an interactive,

interdependent whole...it is the normal functions of these interactions meeting demand, increasing efficiency, maintaining and immproving quality, planning or investing for the future that are the central concern of environmental education...Understanding of the options, constraints, opportunities and costs related to use and functions of these systems" is needed. He calls nature appreciation a "sentimental vein" which should not take the place of knowledge of interactions between nature and human society (p.215-216). In point of fact, most comprehensive environmental education programs begin with nature study for young children and progress to thoughtful action which relies on skills and knowledge.

In 1977 a landmark intergovernmental conference on environmental education was held in Tbilisi, Georgia, USSR, organized by the United Nations Environment Program (UNEP) and the United Nations Educational, Scientific and Cultural Organization (UNESCO). The Tbilisi Conference was the culmination of a three-year phase of the UNESCO/UNEP International Program for Environmental Education which grew out of the UN Conference on the Human Environment in Stockholm in 1972. At that conference there was "a remarkable amount of agreement between the developing and developed countries, and the Eastern and Western European countries" (Cowan & Stapp 1982:13).

A meeting in Belgrade in October 1975 of environmental education specialists formulated recommendations and guidelines for a comprehensive cooperative international program of action in behalf of global environmental education. The Belgrade meeting was followed by six regional seminars in Congo, Thailand, Kuwait, Colombia, Finland and the United States. When the delegates convened in Tbilisi, there was already a common sense of purpose.

The Tbilisi recommendations largely form the framework for environmental education in the US today:

1. "To foster clear awareness of and concern about economic, social, political and economic interdependence in urban and rural communities.
2. To provide every person with opportunities to acquire the knowledge, values, attitudes, commitment and skills needed to protect and improve the environment.
3. To create new patterns of behavior of individuals, groups and society as a whole towards the environment" (Jeske 1982:101-103).

The Tbilisi Conference identified five categories of environmental education objectives: (a) awareness of and sensitivity to the total environment; (b) knowledge of the environment gained through experience and understanding; (c) formation of attitudes and values which included concern about the environment; (d) skills in identifying and solving environment problems; and (e) participation which provided an opportunity to be actively involved in the resolution of environmental problems (Jeske 1982:108).

The Tbilisi guiding principles mandated

1. Considering the environment holistically - natural and built, technological and social.
2. Making environment education a lifelong process beginning at preschool;
3. An interdisciplinary approach.
4 A process of examining environmental issues from a local, national regional and international perspective.
5. A historical perspective.
6. Promotion of cooperation at every level in the prevention and solution of environmental problems.
7. The explicit consideration of environment in development and growth plans.
8. A learner-centered approach which provided opportunities for the learner to make decisions and accept the consequences.
9. Beginning with the local community at an early age.
10. Helping learners to discover the symptoms and causes of real environmental problems.
11. Emphasizing the complexity of environmental problems.
12. Utilization of diverse learning environments and a diversity of approaches to teaching and learning (Jeske 1982: 109).

The Tbilisi Conference led to the publication in the United States of *Toward an Action Plan: A Report on the Tbilisi Conference on Environmental Education* produced by the Subcommittee on Environmental Education of the Federal Interagency Committee on Education and a *From Ought to Action National Leadership Conference* conducted by the Alliance for Environment Education in 1978. Ngo's received encouragement from the conference to increase their environmental education activities. During the late 1970's governmental agencies were also mounting new efforts on behalf of environmental education (Jeske 1982:103-104).

During the 1970's landmark environmental legislation was also passed in United States: National Environmental Policy Act (1969), establishment of the Environmental Protection Agency (1970), Environmental Education Act (1970), Soil and Water Resources Conservation Act (1977). The first Earth Day was held in 1970. Hundreds of new environmental groups were born at both the local and national level. The National Education Association and the American Federation of Teachers drew up a comprehensive rationale for environmental education to be distributed to teacher centers throughout the country.

The Environmental Education Act set in motion a grant program in elementary and secondary education for curriculum development in "the preservation and enhancement of environmental quality and ecological balance". The premise of the Act was that choices facing our society

required a new level of citizen participation. It asked how citizens could "fulfill their individual responsibilities of trusteeship for future generations" (Ritterbush 1982:218-219).

In the late 1970's the US experienced an energy shortage which heightened the awareness of environmental issues. A 1978 public opinion poll revealed that 65% of those polled did not want to slow the environmental cleanup to ease the energy shortage or get the economy going again (Langton 1982:131). Concern for the environment was no longer at the edge, in many ways it had become institutionalized. Over the intervening 15 years, however, this concern has not translated into a comprehensive environmental education program for the public schools.

In 1966 ERIC was established by the US Office of Education. The ERIC Clearinghouse for Science, Math, and Environmental Education, housed at Ohio State University, has accumulated the most extensive collection of documents related to environmental education in the United States. Hundreds of environmental and other ngo's, government agencies, and industries are producing materials for the schools related to energy education, technology, population, wildlife, environmental activisim, conservation, groundwater protection, litter control, recycling and other topics.

During the late 1970's and 1980's the global education movement was also growing in the US "Planet knowing and planet caring" were two important tenets of global education. Community-based global education which looked for local connections to the international community saw its counterpart in community-based environmental education which began with helping a student to know on an intimate basis the place where he/she lived.

One of the most articulate early spokespersons of a holistic, community-based approach to environmental education was a teacher named Mark Terry who wrote a book called *Teaching for Survival* (1971). Terry regarded all education as environmental education (p. xvii). His objective was to sensitize students to their immediate environment. To accomplish this mission, he postulated a series of erroneous environmental principles to be refuted through environmental education.

1. "Any amount of garbage is ok, as long as you don't litter.
2. Population growth is good. Bigger families are more fun and more people mean more friends.
3. The Asians won't starve as long as I eat everything and we harvest the sea.
4. Water won't be polluted as long as we pay 'them' to build sewers.
5. Man has always had problems and he will always be able to solve them through science and industry.
6. Wildlife is a precious but unnecessary resource.
7. Hydroelectric dams bring nothing but good.
8. Standard of living is based on annual income and purchasing power.

9. Driving to school is approved if I am a licensed driver, permitted by my parents, and safe.
10. The history of man is the history of his growing mastery over nature".

Terry doubted the ability of schools to function as role models when they exhibited no concern for their own use of resources such as paper; when they discouraged the development of the senses in the classroom, or provided little opportunity for student contact with real objects. He believed that environmental education should do all it could to improve the *school's* environmental relationships. The concerns he expressed in 1971 are still being raised by thoughtful environmental educators today. His model for using the school as an environmental laboratory emphasized such activities as doing an environmental inventory of the school. Terry would have children become sensitive to the aesthetics of their environment, beginning with the school itself.

Despite the seeming public attention to environmental education in the US, one could pessimistically note that little has really happened in the schools as a result. The main process has been infusion of environmental education into existing courses with a few specialized classes in Environmental Sciences at the high school level. Disinger's 1987 survey of current practice of environmental education in US curricula found that the forms of environmental education commonly cited by elementary schools were nature study, energy education, outdoor education and conservation education. Secondary schools cited infusion of environmental education in science or biology courses, followed by environmental content in social studies courses. Few of the 40 states responding to the survey had progressed as far as Wisconsin which infuses environmental concepts into all its curriculum guides including art education, health education, science education, social studies education as well as providing a guide specifically for environmental education (Engelson 1987:46-48).

The author's home state of Ohio provides a microcosm of approaches to environmental education. Ohio has a full-time environmental education coordinator and a state mandate for environmental education. Because of the decentralized nature of control in the US system of public education, local districts in Ohio as well as other states, respond to various mandates such as environmental education, in a variety of ways.

One of the thrusts of the Ohio Department of Education's program is in-service education through Project Learning Tree, a multidisciplinary approach to environmental education focusing on the forest. Ohio has also supported the development of secondary electives in Environmental Science with energy and resource conservation required in all schools. Social studies classes look at "science-related social issues" and some industrial technology classes examine "technological literacy" (Disinger 1987:132).

In addition, the Ohio Department of Natural Resources (ODNR) maintains a full-time environmental education specialist who provides support for Project WILD, a multidisciplinary program focusing on wildlife, and has developed a Litter Control curriculum. ODNR also co-sponsors with the Soil and Water Conservation Districts an annual Envirathon for secondary students promoting competitions in the areas of forestry, soils, aquatic life, wildlife, and environmental issues (Stork 1993). During the 1970's and 1980's the state parks of Ohio were very actively involved in environmental education with the aid of their interpretive naturalists. Budget cuts in recent years have severely curtailed this program.

McClaren (1987) nominates environmental education for inclusion as a 21st century basic. He sees significant barriers to the realization of this goal, including the lack of experience of teachers with the models of teaching required for effective environmental education, the fear of the affect and values inherent in the issues orientation of environmental education which challenge the "dominant tone of emotional flatness and control", and the wariness and lack of skills of school authorities in dealing with action strategies (p.55-56). Other problems are the generally poor background in the sciences of all but a handful of public school teachers and their lack of training in interdisciplinary approaches to subject matter.

Although environmental education cannot be said to be a major force in the curriculum of the public schools, there are numerous innovative programs which have been developed by various groups for use in the K-12 context and beyond. Following is a discussion of six approaches to environmental education which are entirely or partly aimed at K-12: Project Learning Tree, Project WILD, Project Common Ground, The Monday Group, Earth Train USA, and "Captain Planet." All are interdisciplinary and promote active student involvement in solving environmental problems.

Project Learning Tree and Project WILD are two large-scale in-service efforts in association with the development and dissemination of supplementary environment-related curriculum materials by the Western Regional Environmental Education Council (WREEC). Project Common Ground and The Monday Group are school-based environmental education programs involving high school ecology clubs. Earth Train USA is a youth-initiated environmental lobbying effort and "Captain Planet", the cartoon brainchild of media mogul Ted Turner, delivers environmental messages via television.

PROJECT LEARNING TREE

Project Learning Tree was developed in 1975 in a collaboration between the Western Regional Environmental Education Council and the American Forest Foundation. WREEC began in 1970 as a federal project through a US Office of Education grant and became an independent non-profit in 1976. Revised

and evaluated since 1977, Project Learning Tree employs professional educators to train in-service teachers in the use of these materials in 49 states, 6 Canadian provinces, Sweden, Finland and Mexico (Disinger & Howe, 1990:19). Its applicability in non-US setting has thus been well demonstrated.

Project Learning Tree begins with trees to explore the relation between living and non-living things. The development of their materials has involved elementary, secondary teachers, state and federal resource management personnel, state department of education consultants, professional foresters, representatives of the wood products industry, school administrators, representatives of private conservation organizations, and college professors. The unique collaboration between groups who often held opposing points of view about the environment produced an extraordinarily balanced and thoughtful group of supplementary interdisciplinary curriculum materials for K-12.

The two points of view which were accommodated within Project Learning Tree are:

1. The forest as producers of usable products. Man's role is designer of technologies which allow efficient harvesting of trees and maintenance of long-term ecological health of the forest lands.
2. The forest as a limited resource which is threatened by man's impact. The need is to decrease the human impact on the forest and minimize environmental damage through reuse, recycling, and design of longer-lived energy efficient products (*Project Learning Tree* 1987:v).

The guiding philosophy of Project Learning Tree illustrates the complexity of environmental issues. "What is important for educators to recognize is that in forest conservation as well as in most human activities there are no right and wrong answers - only wise and intelligent choices. Therefore, the goal of the teacher should be to help students develop skills in evaluating information and in making careful decisions rather than to indoctrinate them with `correct' opinions" (p. vi).

The materials in Project Learning Tree are interdisciplinary. They are compatible with the Tbilisi Principles. They emphasize the student's interaction with the natural and social environment. The materials are community-based, urging teachers to study social processes through which people make and implement environmental decisions such as through government and law, in the communities where they operate.

Project Learning Tree also facilitates a global perspective on environmental issues, providing many opportunities for students to look at other cultural contexts in historical perspective. The conceptual framework for the materials involves seven concepts: (a) environmental awareness, (b) diversity of forest roles, (c) cultural contexts, (d) social perspectives on issues, (e) management and interdependence of natural resources, (f) life support systems of the planet, and (g) lifestyles.

PROJECT WILD

Project WILD proclaims itself to be an "interdisciplinary, supplementary environmental and conservation education program for educators of kindergarten through high school age young people" (1992:v). Sponsored at the state level by resource management agencies, Project WILD operates in 49 states and all but one Canadian province. It was originally developed as a joint project of WREEC and the Western Association of Fish and Wildlife Agencies. Since 1983, 380,000 educators have been trained in the use of Project WILD materials through workshops, reaching an estimated 25 million youth (*Project WILD* 1992:vi). Project WILD is also regularly evaluated and revised.

Project WILD defines wildlife as "any non-domesticated animal". It is "based on the premise that young people and their teachers have a vital interest in learning about the earth as home for people and wildlife" and the "need for human beings to develop as responsible members *of* the ecosystem" (p. vii). It stresses the need for "developing awareness, knowledge, skills and commitment to result in informed decisions, responsible behavior and constructive actions concerning wildlife and the environment upon which all life depends" (p. viii). Its conceptual framework is similar to Project Learning Tree: awareness and appreciation; diversity of wildlife values; ecological principles; management and conservation; people, culture and wildlife; trends, issues and consequences; and responsible human actions.

PROJECT COMMON GROUND

Project Common Ground is a joint venture of the Ohio Environmental Protection Agency, the Institute for Democracy in Education at Ohio University and high schools across the state of Ohio. The aim of the project is "to stimulate and support student led research and action on environmental issues" (Kousaleos 1993). The project links environmental clubs across the state. Representatives from participating schools attend conferences at Ohio University where they share their projects and participate in workshops covering such topics as project planning, computer training, and documentation (1992 conference program). They hear from experts in various fields such as recycling, land use and planning.

A unique feature of Project Common Ground is its linking of all participating schools via Academy One, an electronic bulletin board of the National Public Telecomputing Network. Under Academy One a teacher submits an experiment, such as testing the quality of ground water, and invites other schools to do similar experiments throughout the state, the nation and the world. The original teacher agrees to share results as others

do the experiment. Students have the data in a wider context and perhaps reach different conclusions than through an isolated single experiment. Students develop computer literacy as well as environmental literacy.

Project Common Ground makes a conscious effort to provide a multicultural and rural-urban mix among its members. It is funded by a grant from the Ohio Environmental Education Fund, which receives its monies from one-half of all civil penalties collected by the Ohio Environmental Protection Agency's air and water pollution control programs, as well as gifts, grants and contributions. The Fund is based on the "philosophy that the State's environmental problems are more effectively resolved with cooperative efforts if citizens are provided accurate and balanced information on environmental issues" (Ohio EPA 1991:2).

Project Common Ground is community-based. Some of its schools' current projects are the organization of Ultimate Recycling Days, river clean-ups, elementary school environmental education programs, and a project on endangered species. One school purchased a section of rain forest in Belize which is now protected from exploitation. One group described their work as the three-pronged attack of "education, action and community service" (Matuszak 1992: A-5).

An outgrowth of Project Common Ground is a proposal from Athens High School to outside funding agencies to support a school within a school which would develop "explicit connections between students' schooling and their lives in their community. Central to our proposal is that what we ask students to do should have an inherent value beyond its use as a means to assess their performance on learning objectives" (Stork 1993). The proposal would put a selected number of high school students in an integrated program which includes science, social studies, English and art. The theme will be the Hocking River, which runs through Athens. Students will be involved in water quality monitoring, a photo essay and oral history of settlements along the river, an investigation of overlapping jurisdictions and responsibilities of government agencies and their impact on efforts to preserve and develop this river resource. The project's aim is that the product of student learning will impact the community. Tom Stork, high school science teacher, characterizes this proposal as the kind of reform which is needed to fix America's educational system (Stork & Kousaleos 1993).

THE MONDAY GROUP

The Monday Group is the High School Environmental Education Seminar class program in Lee County Schools in Fort Myers, Florida. It began with a group of high school students in 1970 in the advanced track science program who organized ecology clubs in each of the middle and high schools

in Lee County. One of the many projects undertaken by these clubs was an extensive litter collection along US Highway 41 and a speaking rally in one of the bank parking lots in Fort Myers. When the students wanted to carry their campaign to change the environment to the level of the County Commissioners, their advisor asked them what they knew about the Commissioners. In the ensuing discussion, "it became very clear that-despite their unusual sophistication and understanding of the scientific problems as well as the ecological relationships and applications in this community-the students actually had little knowledge and few skills for resolving conflicts or implementing change. They did not know how to use the democratic process. As a result, they repeatedly sought solutions based on emotion rather than a skillful application of facts, data and skills" (Hammond 1992: 354).

Out of this realization came the impetus for initiating the High School Environmental Education Seminar class program whose goal was to "help students acquire and refine skills through practical experience in addressing significant community problems" (p. 354). High schools in Lee County were asked to send their most outstanding student leaders once a week for the all-day seminar. When local principals expressed reservations, they were asked to also include some of their most "negative" leaders. The first year the seminar met once a week for a full day, Monday. For the past twenty years the class has met biweekly and granted one academic credit for a full year's participation - "usually in Science and occasionally in Social Studies and Language Arts, depending on the nature of an individual student's project work in the seminar" (p. 355).

Each student is required to do a significant project which relates to the environment. These have included anthologies of poetry, original songs on endangered species and energy topics, water quality surveys of canal systems, surveys of manatees in a river. "Most of the projects have made significant contributions to the body of knowledge and environmental literacy in this community" (p. 355).

There is also a class project selected by consensus which is a community issue that involves interacting with elected officials. Through this project students have an opportunity to organize themselves and deal with the frustrations of working through a committee system and dealing with those who carry through with or do not carry through with their work.

During the first month students are taken on a residential camping trip to build community in the group and to minimize student dropout during the year. The premise of the seminar is "helping students understand natural models: the principles of diversity, change, interdependence and the interrelationships of all things on the planet, including the ways matter cycles and energy flows, making those cycles possible over and over again" (p. 356). Instructors act as facilitators who ensure that all viewpoints on all

issues encountered in class are represented. The course is experiential. "Students must do rather than simply be told" (p. 356).

Truth, honesty and consistency guide the rules of the class. Students are required to be for something rather than against. The norm is to express a positive wish. Students must do homework. They learn that persistence is critical for bringing about change in a democratic society. They also learn about "force fields". In "force field we try to take that positive energy from those who agree with us and support our views, and try to at least neutralize those who do not agree with us so that their energy is not counter to ours as we try to implement solutions" (p. 357). In working with the force field, students learn that small steps, not radical departures from the norm, make the difference.

In this class everyone is treated as an individual human being of worth and respect. Stereotypes are not acceptable. If a goal is not accomplished, students must recycle themselves through the process again until they discover what they did not do effectively the first time. They are not allowed to blame anyone else for their lack of success.

The Monday Group has successfully accomplished a remarkable set of projects over its twenty-year lifespan. These include the purchase and protection of a six mile cypress swamp. The first year of the swamp project, students conducted a biological survey, an ownership survey, a geological survey, a hydrological survey and a land-use survey and produce a booklet on Six-Mile Cypress Swamp. Next year's group was able to get a public tax referendum on the ballot to allow citizens to acquire the Six Mile. The third year the students convinced voters, one-third of whom were retirees on fixed incomes, to tax themselves to buy the swamp. The next year the Seminar established a Park Master Plan for the Six Mile Cypress Swamp and became a technical assistance arm of the Lee County Parks and Recreation master plan group. They also helped to negotiate the actual purchase of the swamp.

In another class project students did a survey of the manatee population in the Orange River. That survey led to the class being called upon to intervene in a dispute between the Florida Power and Light and the EPA over heated water discharges made by the power company into the river. The students' research challenged the EPA application of its regulations in this particular situation as being more threatening to the manatees than the continuation of the Florida Power and Light discharge into the river. The Seminar class's actions were the forerunner of Florida's state manatee laws supported by another student group two years later.

The Director of Environmental Education in Lee County Schools characterizes the Seminar class as "supporting the possible." This mix of students from five public and one private high school in Lee County are likely to be "change agents in their communities in the future." The Seminar class gives them a chance to practice their leadership skills in real situations,

dealing with real problems. They learn about their community, come to understand community relationships and know how to bring about change which *they* "believe is desirable and needed for a healthier, happier, wiser, more loving, more ecologically sound community" (p. 360).

PROJECT EARTH TRAIN

On September 21, 1992, 150 youth leaders from around the world embarked on a train ride from Los Angeles to Washington, DC, stopping along the way to try to motivate America's youth to take action in their own communities. The project was a demonstration that youth care about global problems. It was funded by the Gateway Pacific Foundation. In "A Call to Action" (1992) Earth Train Youth Leaders urged Congress to join them in seeking solutions and implementing Earth Train recommendations for racism, fossil fuel dependency, air pollution, education and deforestation. They also asked Congress to pay attention to the problems and solutions outlined in "Agenda 21" (1992), a youth document produced by 60 youths from around the world at the Global Youth Summit held in June, 1992, in conjunction with the United Nations' Conference on Environment and Development. This document addressed overconsumption, water pollution, ozone depletion, youth involvement and waste management.

Another of Earth Train's activities was a "National Youth Survey on US Social and Environmental Issues" conducted by PSL Marketing Resources in September, 1992. A random national sample of 500 high school students, grades 9-12, was surveyed by telephone. The results were presented to Congressional leaders on October 2, 1992. The students surveyed ranked AIDS as the most serious global problem, followed by drug abuse, education, crime, environment and racism. Those polled regarded air pollution as the first government priority with regard to the environment. The survey found that these students saw TV as the most credible source of information about social and environmental problems. Governmental officials and celebrities were regarded as least credible.

CAPTAIN PLANET

"Captain Planet" is a 26-episode animated environmental action-adventure cartoon series, which debuted in fall 1990 on Turner Broadcasting System stations. Its stated intent is to "inform viewers about such serious issues as global warming, pollution and species extinction." Although it is not the only children's program to deal with the environment, "Captain Planet" is the only children's program devoted solely to environmental issues.

The premise of the series is that "Gaia, the spirit of Earth, awakens from a 100-year nap to discover the devastating effects people have had on our planet's environment in the 20th century. Fearing for the future, she calls upon five special young people from around the world - Wheeler (North America), Linka (Soviet Union), Gi (Asia), Kwame (Africa) and Ma-Ti (South America) - to lead the battle against further destruction of the Earth. She gives these Planeteers magic rings that enable each of them to control one element of nature - Earth, Fire, Water, Wind and a very special power, Heart. When the Planeteers join their powers together, Captain Planet, an environmental superhero, is summoned. Together, they battle the eco-villains who are trying to destroy the Earth. Each episode ends with a 30 second epilogue including tips for viewers on how they can be a part of the environmental solution through recycling, carpooling, etc." (TBS Productions 1990)

Captain Planet certainly makes no effort to present all points of view. An episode on logging the rain forest simply brands the use of the rain forest by humans as evil. A segment on strip mining is a bit better balanced as it demonstrates ways to reclaim the land and advocates cutting down on energy consumption to lessen the need for mining of fossil fuels.

However, the intrusion of commercials into the episodes, and the attendant marketing of Captain Planet products, albeit with the caveat that "wherever possible, these products will use alternative sources of power, such as the Captain Planet water-powered watch that is regenerated by placing it under a water-faucet", tend for this writer to counter the message of the programs. Licensees may use recycled materials, less packaging, or alternatives to foam pellets, but they are still encouraging a level of consumption which many find to be at the heart of environmental problems.

WHERE DO WE GO FROM HERE?

Orr (1992) makes a case for a pedagogy of place. He justifies such a pedagogy on the grounds that place is defined on a human scale. He states that place is "nebulous to educators because to a great extent we are a deplaced people for whom our immediate places are no longer sources of food, water, livelihood, energy, materials, friends, recreation or sacred inspiration" (p. 126). "A place has a human history and a geologic past: it is part of an ecosystem with a variety of microsystems, it is a landscape with a particular flora and fauna. Its inhabitants are part of a social, economic and political order: they import or export materials, water and wastes, they are linked by innumerable bonds to other places. A place is a complex mosiac of phenomena and problems" (p. 129).

Orr's "sense of place" is the logical framework for environmental education. It begins where students physically live to build a knowledge

base, an aesthetic sensibility, and a capacity for informed action. Without a "sense of place," environmental education is mere abstraction.

Vice President Gore would have us broaden our "sense of place." He tells us that we must change "how we gather information about what is happening to the environment and organize a worldwide education program to promote a more complete understanding of the crisis... Central to any strategy for changing the way people think about the earth must be a concerted effort to convince them that the global environment is part of their `backyard'" (1992:354-355).

Orr sees a sense of urgency in developing an education which can deal with the "crisis of sustainability, the fit between humanity and its habitat." He argues that "what passes for environmental education is still mostly regarded as a frill to be cut when budgets get tight. Environmental education is done by teachers and faculty mostly on release time or on their own as overload" (1992:83).

Disinger and Howe (1990) note that while environmental education has established a presence in the nation's public schools, "it might be more accurately described as a toehold". They state that it is difficult to get reliable data on how much of it is actually practiced. "Surveys of commercial textbooks, state-and-local-level mainstream curriculum documents, and (on occasion) classroom teachers suggest that it is not pervasive—but there is some" (p. 5). In the 1987 ERIC/SMEAC survey of the individuals in state education agencies assigned responsibility for environmental education, Disinger found that environment-related instruction was included in the curricula of 80 percent of the elementary schools in nearly 45 percent of the responding states and of 80 percent of the secondary schools of nearly a third of the responding states (40 of the 50 states).

It is clear that, except in rare instances, environmental education which reflects the Tbilisi Principles and which is truly interdisciplinary in character, is the exception rather than the rule. When it is found, as in the case of Project Common Ground, the Monday Group, Project WILD and Project Learning Tree, it is a supplementary or extracurricular activity or a special class for the chosen few.

If we are to educate a citizenry of environmentally aware, knowledgeable and active citizens, we must clearly do better. One primary problem lies in the preparation of teachers. Because environmental education is at least multidisciplinary and at best interdisciplinary, it lies beyond the purview of any one discipline. Teachers rarely have training of any depth in the natural sciences, or more than the most rudimentary training in the social sciences. They lack both the content and action skills necessary for effective environmental education. If teachers want such training, they must take the initiative on their own or rely on sporadic in-service education. There is no lack of good materials and good ideas, but they all too seldom find their way into the K-12 classroom.

One promising initiative has been launched by the Alliance for Environmental Education, an umbrella group whose membership includes more than 50 non-governmental organizations having interest in the field. The Alliance has established a National Network for Environmental Education, which consists primarily of 72 university centers involved in teacher education and curriculum development. Its purpose is the provision of teacher in-service in environmental education and the exchange of ideas and materials among the centers. A key element is an interactive computer linkage through EcoNet, an international telecommunications network (Disinger & Howe 1990: 21). It remains to be seen how effective this network will be in infusing environmental education into the teacher education curriculum.

Environmental education also involves active student learning and involvement, often on politically sensitive issues. Teachers rarely have the experience or training to be comfortable in the action arena. Vice President Gore proposes a "Mission by the people of Planet Earth...involving as many countries as possible that will use schoolteachers and their students to monitor the entire earth daily, or at least those portions of the land area that can be covered by the participating nations...As the schools gain experience and confidence", they can take on more complicated projects.

The next step in Gore's plan would be to have those involved in the monitoring take steps in their local communities to deal with specific problems. He enumerates three virtues to this method of global planet-tending:

1. The information is needed.
2. The goals of environmental education could hardly be better served than by actually involving students in the process of collecting the data.
3. The program could build a commitment to environmental stewardship among the students involved (p.356-357).

The United States is at a critical juncture in its history. An effective environmental education program requires radical changes in the nature of teacher education and the nature of classroom instruction. With the office of the President and Vice President committed to environmental issues, perhaps their moral leadership can set the tone. Surely there can be no higher priority than producing students who care and are knowledgeable about the environment, and who are willing to do the patient work of tending the planet.

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