



## Environment Education of Teacher Educators and Teachers Through Technology

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### **Abstract**

*The earth's environment is in crisis mainly because it is being abused beyond its capacity by human beings. The present paper examines the need for environmental education and awareness in the present times. The paper focuses on the role of Teacher Educators and Teachers and educators to spread awareness about environmental issues and problems. The emphasis is on sensitizing the student community through their Teacher Educators and Teachers who can play a pivotal role in transmitting the requisite knowledge, skills, attitudes and values, essential to restore or at least arrest the irreversible damage being caused to the environment. The paper describes various technology mediated initiatives by the developed and developing world to spread environment awareness.*

**Key words:** Environment, education, community, ecosystem, collaboration

### **Introduction**

Environment is essential for all life forms on the planet earth. There is dependence of all living beings, including human beings, on the environment, with which they interact continuously. However human beings are solely responsible for changing the environment by indiscriminate use of the natural resources. Therefore the onus of protecting the environment for the present and

future generations also rests with human beings alone. So we need environmentally literate citizens. For this environment education is required, so that people become aware and take active part in protecting the earth's environment by making informed decisions and taking environmentally friendly actions.

**Environmental Education (EE)** refers to organized efforts to teach about how natural environments



function and, particularly, how human beings can manage their behavior and ecosystems in order to live sustainably. The term is often used to imply education within the school system, from primary to post-secondary. However, it is sometimes used more broadly to include all efforts to educate the public and other audiences, including print materials, websites, media campaigns, etc. Related disciplines include outdoor education and experiential education.

Environmental education is a learning process that increases people's knowledge and awareness about the environment and associated challenges, develops the necessary skills and expertise to address the challenges, and fosters attitudes, motivations, and commitments to make informed decisions and take responsible action (UNESCO, Tbilisi Declaration, 1978).

Singh, K in (UNESCO: 1996) outlines a holistic educational philosophy for the twenty first century, and states that, "the ecology of planet earth has to be

preserved from mindless destruction and ruthless exploitation, and enriched for the welfare of generations yet unborn, and that these should be a more equitable consumption pattern based on limits to growth, not unbridled consumerism". It is essential that people are made aware through education and training about protection and conservation of the environment. This will then inculcate in them sensitivity towards environmental issues and develop a responsible attitude towards the environment and protection. Environmental education has crossover with outdoor education and experiential education. Both fields of education complement environmental education yet have unique philosophies.

1. **Outdoor education** means learning "in" and "for" the outdoors. It is a means of curriculum extension and enrichment through outdoor experiences." (Hammerman, 1980, p. 33) Environmental education is often taught or



enhanced through outdoor experiences. The out of doors experience, while not strictly environmental in nature, often contain elements of teaching about the environment.

2. **Experiential education** is a process through which a learner constructs knowledge, skill, and value from direct experiences" (AEE, 2002, p. 5) experiential education can be viewed as both a process and method to deliver the ideas and skills associated with environmental education.

While each of these educational fields has their own objectives, there are points where they overlap with the intentions and philosophy of environmental education. The roots of environmental education can be traced back as early as the 18<sup>th</sup> century when Jean-Jacques Rousseau stressed the importance of an education that focuses on the environment. Several decades later, Louis Agassiz, a Swiss-born naturalist, echoed Rousseau's philosophy as he encouraged students to "Study nature, not books." These two influential scholars helped lay the foundation

for a concrete environmental education program, known as nature study, which took place in the late 19th century and early 20th century.

The nature study movement used fables and moral lessons to help students develop an appreciation of nature and embrace the natural world. Anna Botsford Comstock, the head of the Department of Nature Study at Cornell University, was a prominent figure in the nature study movement and wrote the Handbook for Nature Study in 1911, which used nature to educate children on cultural values. Comstock and the other leaders of the movement, such as Liberty Hyde Bailey, helped Nature Study garner tremendous amounts of support from community leaders, teachers, and scientists and change the science curriculum for children across the United States.

A new type of environmental education, Conservation Education, emerged as a result of the Great Depression and Dust Bowl during the 1920s and 1930s. Conservation Education



dealt with the natural world in a drastically different way from Nature Study because it focused on rigorous scientific training rather than natural history. Conservation Education was a major scientific management and planning tool that helped solve social, economic, and environmental problems during this time period.

The modern environmental education movement, which gained significant momentum in the late 1960s and early 1970s, stems from Nature Study and Conservation Education. During this time period, many events – such as Civil Rights, the Vietnam War, and the Cold War – placed Americans at odds with one another and the U.S. government. However, as more people began to fear the fallout from radiation, the chemical pesticides mentioned in Rachel Carson's *Silent Spring*, and the significant amounts of air pollution and waste, the public's concern for their health and the health of their natural environment led to a unifying phenomenon known as environmentalism.

The first Earth Day on April 22, 1970 a national teach-in about environmental problems – paved the way for the modern environmental education movement. Later that same year, President Nixon passed the National Environmental Education Act, which was intended to incorporate environmental education into K-12 schools. Then, in 1971, the National Association for Environmental Education (now known as the North American Association for Environmental Education) was created to improve environmental literacy by providing resources to teachers and promoting environmental education programs. Internationally, environmental education gained recognition when the UN Conference on the Human Environment held in Stockholm, Sweden, in 1972, declared environmental education must be used as a tool to address global environmental problems. The United Nations Education Scientific and Cultural Organization (UNESCO) and United Nations Environment



Program (UNEP) created three major declarations that have guided the course of environmental education.

### **Environment Education and Technology**

Technology supports our multidisciplinary approach to Teaching and learning. Integrating different disciplines helps students combine their mathematical, logical, scientific, linguistic, artistic, and social knowledge to make their lives and interactions with the world clearer. The concept of environment education emerged only in the seventies which were called as the decade of environmental education. During that period the world realized that environmental concerns and awareness could be spread only through a mass environment education program. The concept of environment education emerged from the Stockholm Conference organized by the United Nation in 1972. Recommendations of the conference emphasized organization of 'formal' and 'mass' environmental education programs.

In response to this, UNESCO-UNEP launched the International Environmental Education Programme (IEEP) in 1975 whose objective was to promote exchange of information, experience, research, curricula and international cooperation in the area of environmental education. Following this an international workshop was held in Belgrade in 1975, which emphasized that environment education should be lifelong, interdisciplinary, involve active global participation and foster values of local national and international cooperation (UNESCO UNEP:1985).

An Inter governmental Conference to consider environment education was organized at Tbilisi, USSR in 1977, by UNESCO and UNEP which resulted in the famous Tbilisi Declaration. The Tbilisi Conference recommended development of necessary skills, knowledge, values, attitudes and understanding among individuals and social groups about the environmental problems. It also emphasized the pre-service and in-service training of Teacher



Educators and Teachers in environmental education. The basis of such a training program would be the preparation of teaching learning materials and adoption of interdisciplinary approach. Use of mass media to disseminate information was also emphasized (UNESO-UNEP: 1985). Environment education, which has evolved as a global concept, is an ongoing life long process. As emphasized by Tbilisi (UNESCO-UNEP: 1977), environment education is regarded as a permanent process in which the individuals and the community gain awareness of their environment and acquire the knowledge, values, skills experiences and also the determination to act individually and collectively to solve present and future environmental problems. Educating the people at large about environment and its components would develop critical thinking analytical and problem solving skills in them. It would develop knowledge and insights to improve quality of human life on earth.

### **Technology Mediated Environment Education in the global level**

In any society teacher's can play a pivotal role in transmitting knowledge and creating awareness about the environment and help to tackle the local and global environmental issues. The teacher's community should be motivated and committed to the cause of realizing the goals of environment education and should take initiatives in designing the program of environment education. However for Teacher Educators and Teachers to succeed in their enterprise and endeavor for spreading environmental awareness, it is important that the educational institutions should provide conditions conducive for it. It is essential that Teacher Educators and Teachers should be properly trained themselves on environment concepts and skills to impart training to learners. Teacher Educators and Teachers should be well equipped with the knowledge method and teaching learning, material to inculcate the right understanding of and attitude



towards environment in the learners. To create a workforce and community of environmentally aware and concerned citizens, technology can play a vital role. Education has emerged as a non-formal, learner-centric, cost effective, alternative method of teaching-learning, across the world. The instructional gap is bridged between the teacher and learner who are removed from direct, immediate, face to face contact. Distance education employs a multimedia approach to instruction which involves a judicious blend of print, e-content, m-content and non-print media. Research studies reveal that technology has a positive impact on the teaching learning system and this has brought about a more positive attitudinal change among learners. Teaching has become more dynamic and both students and Teacher Educators and Teachers have become equally enthused. In this context, open and distance learning can be used for promoting environmental education (Pant,H.,2005).

## **Role of Technology on Environment Education India**

In India also environmental studies were introduced in the seventies. The National Council of Educational Research and Training (NCERT) outlined the concept of environment education in different publications in 1975, example, "Curricula for the Ten Year School: A Framework". These documents emphasized that child's learning experiences should be derived from the disciplines of sciences in general and biology in particular. As a result of these recommendations, Environmental studies (EVS) was introduced, by integrating the science and social science curricula. Environmental studies are used as an interdisciplinary subject in the initial years of schooling. At later levels, it narrows down to the conventional disciplines. (Kumar, A, 1986). University Grants Commission, India organized a National Seminar on 'Environmental Education through Universities" in 1984. The outcome of the seminar was that in spite of all members recognizing the



importance of Environment Education, only few were clear on measures to be adopted for the same. Few have any idea or experience as to how environment education can be successfully taught. However courses on environmental sciences have been developed at the under graduate and post graduate levels in many universities across the country like Jawahar Lal Nehru University, University of Pune etc.(Kumar,A.,1986). UGC has developed a six months compulsory core module course in Environmental Studies, which is integrated into the teaching programs of all undergraduate courses. The course comprises 50 lectures, of which 45 lectures are done in the class room and lectures are covered through field activities. The course material is provided by UGC for both classroom and field activities. Evaluation is through exams conducted at the end of the semester and is worth 100 marks, of which 25 marks are for field work (UGC, 2003).The Indira Gandhi National Open University has also launched awareness level

courses of study in environment and also a Post Graduate Diploma in Environment and Sustainable Development. However since Environment Education cuts across all disciplines of study, Malebye (2005) states that," a program for Environment Education which draws on the curriculum will give learners the opportunity to consider environmental issues from the physical, geographical, biological, sociological, economical, political, technological, aesthetical, ethical and spiritual perspective".

Hence all subjects can help to develop insights for understanding the human behavior and its impact on the environment. In a developing country like India, there is need for capacity building of Teacher Educators and Teachers, in environment education, both through pre-service and in-service teacher training programs. However the in-service teacher training program has to face the challenges of lack of time, resources and relevance of training programs to the needs and work situations. One such initiative is 'Green Teacher' a distance



education course in Environment Education, for practicing Teacher Educators and Teachers launched by Centre for Environment Education, Ahmadabad, India in collaboration with the Commonwealth of Learning (COL), Canada in 2005. It is a one year diploma program for Teacher Educators and Teachers and educators. Initially the course was offered through the print medium compiled in four modules, supported by field assignments and contact classes, Now the program is also being offered both on-line and off-line with a suitable Learning Management System (Jain,S.,Gaonkar,M.,2007). The Green Teacher program was an outcome of India's National Policy of Education (1986) and the Supreme Court ruling of 2003 that environment education should be a compulsory curricular component at all levels of education, starting 2004-2005. The Green teacher program develops the necessary knowledge, skills and ideas pertaining to environment in the practicing Teacher Educators and Teachers which is novel initiative

taking into consideration their constraints at the workplace (Daniel, J. 2007).

The Centre for Science and Environment, New Delhi, India has launched a Green Schools Programme in which 'survey' of the school done by a school on its environmental practices called as environmental auditing. The students form teams and explore the status of water, energy, land, air and waste in the school. The teacher is a facilitator and organizes activities on the basis of a handbook called the Green Schools Programme Manual. The Environment Education Unit (EEU) of the centre conducts a two-day training program for Teacher Educators and Teachers, educators, development workers and people interested in environment education. The training includes interactive sessions, film presentations and several modules on how they can implement the environment programs in their schools. A Green Educators Network has been launched which has the vision of bringing together environment educators across the



world to create a forum to share and discuss various aspects of environment education. It also releases 'Down to Earth' a weekly dispatch of feature articles in English and Hindi languages (<http://www.cseindia.org/>)

### Conclusion

From the above discussion the following suggestions emerge

- a) The problem of environment abuse is a serious one and needs to be addressed at the local ,national and international levels .To achieve a good quality of life on earth for all living beings ,it is essential to spread awareness about and educate humankind in sustainable development and environmental problems.
- b) It is agreed, that Teacher Educators and Teachers are potential change agents and are capable of generating a workforce of enlightened, skilled and motivated learners. They can empower the citizens with the ability attitude and values to protect the environment using formal and

non formal channels of education. It is essential that Teacher Educators and Teachers themselves need to be trained and equipped with the requisite knowledge skills and values to effect such a change.

- c) Universities and schools have to play an important role to translate the objectives and recommendations of the various commissions and committees into practice for achieving environmental literacy and awareness among learners (Kumar,A.,1986).
- d) Technological interventions and mass media should be employed to create environmental awareness among the teaching community. A convergence of the conventional and open and distance learning systems should be employed to meet this challenge.
- e) There is a need to train Teacher Educators and Teachers in additional competencies regarding environment education(UNESCO-1985).The teacher training curricula



should integrate environment education with the methodology component of all disciplines, since environment is a part of all areas of study. Instead of burdening the existing teacher training curriculum with an extra subject on Environment Education, some weightage could be assigned in the practical component of the content cum methodology courses of all disciplines, for environment education. Appropriate training strategies need to be devised considering the constraints in which the teacher training system operates especially in developing countries.

- f) Non formal channels of education like T. V., radio, press and satellite technology can be effectively utilized for capacity building of environment educators.
- g) Online courses on environment education with a thrust on the practical, skill and value development aspect could be developed for the Teacher Educators and Teachers,

educators administrators, development workers or any person interested to become knowledgeable and aware of environmental issues, on the lines of Green Teacher Programme of the Centre for Environment Education, Ahmadabad, India

- h) User friendly, multi-media courseware on environment problems and awareness can be prepared, particularly for the rural -agro based communities in India. For example L 3 module for farmers developed by COL, Canada (Daniel,J.,2007). Similar programs for the rural folk related to their occupation like, forest, fisheries, plantation workers etc. could be developed.
- i) Collaborative ventures could be created between the Teacher Educators and Teachers and community through the agencies of schools, colleges, universities and other institutions. Such collaborations could include campaigns on environment awareness, tree plantations,



waste management or also in developing instructional materials. An example is the "Green School" campaign of Centre for Science and Environment, India

- j) Electronic and computer networks could be employed to connect globally and acquire information and expertise on latest developments in the area of environment education and training. Hence technology mediated learning can play a major role in dissemination of knowledge, skills and values regarding environment, among Teacher Educators and Teachers and through them to our future generations.

I hope this gives you some ideas about the appropriate uses of technology in Environmental Education. Think about the needs of the learners, and the educational values the applications provide. Consider technology as a way to amplify and extend the essential skills and knowledge you want your students to acquire. If it's also fun, great!

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