

## **ENVIRONMENT EDUCATION OF TEACHERS THROUGH TECHNOLOGY MEDIATED OPEN AND DISTANCE LEARNING**

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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 teachers and educators to spread awareness about environmental issues and problems. The emphasis is on sensitizing the student community through their 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. It delves into the need for use of open and distance learning methods by institutions to train teachers in the area of environment education. Since environment education cuts across all disciplines and levels of study, it is time that education planners and policy framers incorporate the elements of environment education as a compulsory component at all levels. The teacher training curricula could be redesigned to include the environment education component in the theory and practical courses. Convergence of formal and non-formal systems can be heavily relied on for capacity building of teachers in the area of environment education.

### **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 (Tbilisi UNESCO-UNEP 1977:81). 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

### **Environment Education**

The concept of environment education emerged only in the seventies which was 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 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 (UNESCO-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 of Teachers**

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 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 teachers should be properly trained themselves on environment concepts and skills to impart training to learners. 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.

Distance 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 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 teachers have become equally enthused. In this context, open and distance learning can be used for promoting environmental education (Pant,H.,2005).

. It is pertinent to examine some technology mediated initiatives undertaken worldwide to spread environmental education.

1. The Green Communities program, through a 5 step planning process provides tool and information to help itself better. (<http://www.epa.gov/greenkit/inro1.htm>)
2. Centre for Environmental Conservation and Education online. The CE/CE was founded in 1988, with funding from Tennessee Valley Authority Environmental Energy Education Programme. In 2001 the CE/CE began the transition to an online curricular resource centre which came to fruition in 2003 with the addition of Mathematics Education (CESME). Two most significant activities of CE/CE online continue to be curricular materials prepared for teachers by either/both the CE/CE and CESME and virtual field trips for students and teachers featuring waterfowl. Waterfowl field trips are conducted by taking the students to the site and students can also view them online on the internet, which, contains photographs and links to reference material. (<http://www.utm.edu/departments/cece/index.php>)
3. Ontario schools is an environmental education program that addresses how the schools are run and what students learn. It has been designed collaboratively by school boards to incorporate environment education as environmentally responsible action into the school setting. Student success- in both academics and positive contribution to society is the focus of Ontario Eco Schools. The program aims to influence young people during the formative period of their lives, and affect an exponential impact as children take a culture of conservation home with them (<http://www.yorku.ca/ecoschl/>)
3. A study investigated how online communication among youth teams form two countries contributed to achievement of environment education. They learned about environment in another country and developed skills to present local environmental information. Results of this study indicated that computer mediated international exchanges when combined with local hands on investigation and other activities, may contribute to youth understanding of their own and foreign social and ecological communities. Many education programs connect youth from across the globe via the internet to help them explore and share knowledge about, science, environment, health and other issues. These programs are iEarn, young minds and Global virtual school for Sustainable Development. Some of these goals teach youth about science, develop their computer skills and engage them in cross-cultural collaborations and local actions. [Kudrajavtsev, A., Krasny, M, Jahi, S., Doroshenko, M, Usova, N.,2006)
4. A strategy has been proposed for Reorienting Higher Education for Sustainable Development, so that the gap between theory and practice, ideals and reality is closed. The

young people should be sensitized to the complexities and interrelated nature of environmental issues and the multifaceted relations between environment and sustainable human development. The above report recommended among other things creation of a "University Platform for a sustainable future" to enhance synergy in knowledge, thought and actions of all organizations of higher education, creation of an "Electronic Network" by establishing major websites including electronic discussion list to facilitate the active exchange of ideas and information with regard to sustainable human development (Ginkel, H.V., 1998).

5. Long worth, N (<http://www.stil.dost.gov.ph/astinfo/ASTWEB/3rd98/feature2.htm/>) has cited the importance of information technology for environment education by using open and distance learning methodology for mass environment education and other versatile uses of information and communication technology especially computers through Networking, Access to Database, and Hypermedia. Long worth has given the example of "water program" developed at Southampton's I.T.CERES Centre using hypermedia.
6. Youth Can Med is a youth communicating and networking project for introducing sustainable development into Lebanese schools. The project provides a platform for exchange of ideas between environmentally active youth, who can make an impact in their own communities. Youth can Med has developed learning methods for environment education. Youth can Med organized a conference using video conferencing technology, to discuss environmental issues with participants from other countries like Youth Can New York, Morocco and India. (Dot-Comments, 2007)
7. World School Network now called Eco plus considers recent advances in information and communication technology and their potential for environment education particularly for school children. It provides a platform to school children via the internet where they can exchange their views and gain environment related information from all over the world (Nomura, K., 2004)

### **Environment Education Initiatives in India: Role of Technology**

In India also environmental studies were introduced in the seventies. The National Council of Educational Research and Training 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 (or EVS) was introduced, by integrating the science and social science curricula. Environmental studies is 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 (Khoshoo, T.N:1991) 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 5 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 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 teachers launched by Centre for Environment Education, Ahmedabad, India in collaboration with the Commonwealth of Learning (COL), Canada in 2005. It is a one year diploma program for 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 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 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 (source: <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 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 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 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 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, Ahmedabad, India (<http://www.cceindia.org/cee/index.html/>).

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 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 (<http://www.cseindia.org/>).

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 teachers and through them to our future generations.

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