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Training of Prospective Teachers for Environmental Education

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ABSTRACT

Teaching is a highly professional activity which demands specialized knowledge, skill and behavior. It has been observed that there is shortage of trained teachers in the field of environmental education. Therefore, training of prospective teachers in concerned field is the urgency of the nation. In India, environmental education has been introduced at school levels. But the teaching of this subject is not satisfactory due to lack of proper training of teachers in the field of environmental education. Bearing this fact in mind an attempt has been made through this paper to make training programmes of prospective teachers in effective manner. National Council for Teacher Education (NCTE) has organized national level workshops on environmental education for teacher educators in different states. Realizing the importance of education as a potential instrument of social change, the Government of India through its National Policy on Education (1986) has made environmental education a part of the general education at all levels, in particular at the school level. The significance and urgency of creating environmental awareness in school children has also been upheld by the Honorable Supreme Court of India through its directives to the central and state educational authorities to make environmental education compulsory at the school and college levels. It is, however, well realized that the key to successful implementation of environmental education is the teacher. Therefore, classroom teacher should be well equipped with all the skills that required for effective implementation of environmental education plans.It is true to say that teacher's training colleges are facing various challenges due to which several important aspects remain ignored. Lack of resources, funding and lack of coordination of efforts are the main challenges that teacher training institutions are facing. This article highlights the selected aims and suggestions for effective training of teachers so that they can produce environmentally literate school students.

KEYWORDS: Training, Prospective Teachers and Environmental Education

Environment is the sum total of all the physical, chemical, biological economic and social factors influencing and interacting with organisms. In short, it is our surrounding. Environmental education is the part of the process by which deterioration of the environment can be reduced. Ultimately, education related to environment always helps an individual to improve the quality of life. In other words, there is a positive correlation between environmental education and enhancement of the quality of life. Vaughan (1972) believes that the problem of environmental deterioration must be attacked on three fronts: (i) engineering, (ii) enforcement, and (iii) education. Referring to education, Budowski (1972) points out, "the result at this stage have been far from encouraging, when viewed on the world scale'. He attributes this lack of results to non-scientific approaches and lack of inter-disciplinary communication.

This article focuses on an attempt to outline the prospects for better training of teachers in environmental preservation, nature conservation and to face environmental oriented issues and challenges.

KEY CHARACTERISTICS OF ENVIRONMENTAL EDUCATION

Like any other subject, Environmental education is also characterized by its content, approach and methodology. Environmental education has a variety of emphases, opinions view points which need to be manifested in its teaching. To a teacher of environmental education, these form the guiding principles or key characteristics, as they help in planning and designing meaningful learning experiences.

Recognizing the importance of guiding principles for curriculum developers and teachers in environmental education, the Tbilisi Conference 1977 has listed several guiding principles. Based on these principles, Hart in 1981, through a study of several reports on environmental education, has enumerated 25 important characteristics of environmental education. These have been reproduced below:

1. Interdisciplinary and multidisciplinary : Environmental education should be a part of every subject taught.
2. Multilevel : Environmental education be taught at all grade levels from kindergarten to grade twelve and beyond.
3. Global views : Environmental education involves the development of an integrated environmental ethic.
4. Concepts : Environmental education entails awareness and understanding of basic ecological and environmental concepts (e.g. limiting factors, carrying capacity).
5. Process development : Environmental education involves development of cognitive, affective and skill behavior processes, especially for the development of attitudes and values which motivate people to become involved in environmental problem solving.
6. Problem solving : Environmental education involves helping students develop processes of thinking which are effective in resolving complex environmental problems.
7. Values clarifying : Environmental education involves exploring assumptions, values, and feelings toward self and society as well as relationships.
8. Systems thinking : Environmental education implies that one must learn to think in terms of systems interacting factors that is to think not only rationally about the parts of a complex system but to develop an intuitive feel for the dynamic behavior of such a system as a whole.
9. First hand experiences and activities : Environmental education teaching requires a commitment to the development and utilization of all situations where learning can be best nurtured through first-hand experiences and activities which foster a deep respect and love for the natural world.
10. Environmental issue oriented : Environmental education entails use of local environmental issues, as well as case studies, role playing, simulations and games which provide opportunities to examine and participate in the complexities of decision making, understanding of personal and alternative values and the actual operation of systems natural and manmade.
11. Present and future orientation : Environmental education does not exist in the reactive sense only but continually assesses the present and promotes an ideology which examines desirable images of the future.
12. Active participation : Environmental education emphasizes active participation in preventing and solving environmental problems.
13. Individual learning : The breadth of Environmental education and a variety among students implies that individual learning programmes involving certain degrees of independent study of a diverse number of interdisciplinary environmental problems will be appropriate.
14. Team approach to teaching/learning : Environmental education involves teacher participation in environmental problem solving learning situations as team members.
15. New productive student-teacher relationships : Personal responsibility and group interaction. Environmental education places an emphasis on problem solving which implies may things including recognition of the values and biases of oneself and others and re-

sponsibility for working individually and collectively in a process of informed environmental decision making.

16. Community oriented : Environmental education involves the entire community as a learning environment in the achievement of environmental education objectives.
17. Field studies (urban and natural environments) : Environmental education includes provision of field experiences – that group of first hand experiences which are best suited to areas outside the classroom and school.
18. Communications networking : Environmental education entails communication skills as a process which can provide more complete and accurate images about environmental problems. It is important to understand how information flows through networks linking the members of a system together.
19. Coordination and cooperation: International, national, regional and local: Environmental education promotes the value of and necessity for local to international cooperation in the solution of environmental problems.
20. Flexible administrative organizational patterns: Institutional flexibility is required to cope with evaluation and provide adequate instruction, given the interdisciplinary problem – solving nature of environmental education.
21. Reform of educational processes and systems : Environmental educational implies modification of existing educational structures.
22. Curriculum development base : Environmental education, because of its programme component and support elements and strategies, implies active involvement in the development of the new curricula.
23. Curriculum evaluation base : Evaluation is required for effective program development in environmental education so as to guide selection of adequate environmental education programmes, examine all processes that lead toward achievement of intended outcomes, and judge its appropriateness for support or adoption.
24. Research base : Environmental education involves continued improvement in professional development through in-service and pre-service channels to assist in the development of an environmental ethic.

Importance of Environmental Education in Teacher's Training Programme

Although we have studied about the 'environment' since long yet it is only in the past decade that the scientists and educationists have started to pay keen interest and attention to the subject of environmental education. Over millions of years, all forms of life in our biosphere have undergone evolutionary changes consistent with the changing environment. The environmental change caused by the unchecked growth of industries in the west and by the unchecked growth of human population in the East has already reached such proportions that it can be literally seen, tasted and smelled. We are also realizing that air, water and land grow more polluted due to technological advancement. Man started to play with natural environment to make the life qualitative. Though efforts have been made to introduce environmental sciences at school level. Mass media has also played a great role in development of environmental awareness to our population. Education has a major role in implementing environmental protection and conservation. Nature conservation and environmental protection are of paramount importance for primary healthcare of the individual. To overcome environmental problems, the environmental education should get due recognition. Environmental education programme should be introduced at every level of schooling. Neither people nor their surroundings can be treated separately for educational purposes. There must be a unified and integrated approach to environmental education as a whole. When we talk about environmental education we cannot ignore the position of teacher and teacher training programme in environmental perspectives. If we want to implement the programme of environmental education successfully in secondary schools, it is essential that teacher must be trained with all required skills, attitudes and values essential to teach environmental concepts. Therefore, introduction of environmental education programme in teacher training colleges should get due importance to trained the teacher educators. National level workshops were also organized by National Council for Teacher Education (NCTE) in different states of India. Thus, we can say that continuous efforts are being made by NCTE to make the prospective teachers environmentally literate.

CHALLENGES OF TEACHER EDUCATION

Some of the prevalent challenges for reorienting teacher education institutions are:

1. Lack of institutions awareness, support and resources.
2. Lack of funding and material resources.
3. Lack of inadequate national and regional policy to support teacher education for the study of environmental education.
4. Inadequate institutional climate that supports the creativity, innovation and risk taking necessary to support transformative efforts to reorient teacher education institutions for the study of environmental education.
5. Lack of awareness regarding importance of environmental education for national development.
6. Lack of support to teacher education institutions from ministry of environment and lack of coordination of efforts between ministry of environment and Human Resource Development.
7. Teacher educators are not having specialized environmental skills to teach prospective teachers.
8. Another divisive and counterproductive element in teacher preparation is what can be labeled a 'value discontinuity' between the way a prospective teacher is educated and the content of the education itself. For example, if a training teacher is being taught different methods to help students make good use of time but he himself is being taught with dull lectures meaningless assignments, then there exists a destructive double message in values which is a value discontinuity. Therefore, training programme of teachers needs improvement as to make prospective teachers more able to implement environmental teaching strategy in effective way.
9. Methodological ambiguity, emotionalism and a uni-disciplinary approach are indeed factors which impede the development of competent environmental education teachers both intra and internationally. This in turn contributes to an ineffective environmental preservation effort. To the extent that these problems exist in other countries, then to that extent there is an international environmental teacher training problem.

AIMS OF TEACHING ENVIORNMENTAL EDUCATION IN TEACHER'S TRAINING PROGRAMME

The environmental education course should aim at :

1. To provide knowledge of environmental facts, concepts and terminology to prospective teachers.

2. To develop an understanding of environmental terms, methods and techniques.

3. To equip prospective teachers to apply and use the environmental knowledge, methods and techniques which characterize environment and its related concepts.

4. To develop the ability to analyse, construct and evaluate environmental phenomenon related to nature.

5. To develop positive attitude towards environment which includes :

(1) Logical and rational thinking
(2) Systematic knowledge
(3) Open mindedness
(4) Respecting other person's viewpoint
(5) Inquisitiveness and curiosity
(6) Creativity and innovativeness
(7) Critical and original thinking
(8) Empathy
(9) Honesty and perseverance
(10) Understanding cause and effect relationship
(11) Thinking possible solutions for a problem
(12) Drawing conclusions

6. To develop environmental skills required to study the physical and natural environment such as :

- Observational skills
- Recording skills
- Illustration skills
- Investigative skills
- Experimental skills
- Drawing skills
- Problem-solving skills

7. To trained the prospective teachers in scientific process so that they can study the environment in better way.

8. To foster the personal skills of cooperation, perseverance and responsibility appropriate for effective environmental investigation and problem-solving.
9. To inculcate an awareness of, the need for, and the value of, effective collaboration and communication during environmental activities.
10. To trained the prospective teachers in applying the technological knowledge essential to study the environment and its allied problems.
11. To inculcate moral, ethical, social and economic values in prospective teachers as to develop environmental ethics.
12. To encourage the prospective teachers for an understanding of the relationships between various academic disciplines with that of environment.

Methodologies of Teaching Environmental Education (EE)
The methodologies of teaching environmental education have centred around three major approaches.

Education in the environment : provides experiences in the environment. Huckle (1993) summarizes the focus of education in the environment as "education for environmental awareness and interpretation".

Education about the environment : includes learning about ecological, political, philosophical, economic and socio-cultural factors that influence decisions. Huckle (1993) describes the central focus of education about the environment as "education for environmental management".

Education for the environment : aims to promote a willingness and ability to adopt life styles that are compatible with the wise use of environmental resources. Huckle (1993) describes education for the environment as "education for sustainability".

Teaching Competencies Needed to Study Environment : Teacher has two major roles in the class-room :
(1) Task oriented side and social side of the classroom teaching : To create social environment in the class-room teacher has to manage the class according to number of students and resources available. Another aspect of teaching is instructional aspect where teacher has to impart the content according to nature of it. Both the sides of teaching are interrelated. In practice it is not possible to separate both the aspects.
(2) As a Manager of the class : While working on environmental learning activities it is essential that teacher is often required to play a managerial role which includes motivating the learner, organizing the learning groups, and to control and maintain discipline in the classroom alongwith the evaluation of environmental activities done.
(3) Implementing instructional strategy : While interacting with learner teacher should act as an effective leader. Teacher should know the effective way of presentation and communication like lecturing, questioning, explaining, dramatizing. A teacher should be trained for proper use of audio-visual aids.

A model for studying the characteristics of Environmetal Education teacher. Training Programme
Cleary, J.W. (1976) in his article 'Teacher Education' explained a model for studying the characteristics of environmental education teacher training programmers. This model is useful if it enables the prospective teacher to perceive, examine, analyze and synthesize teacher training programmer in environmental education on the international level. Following are the main points to describe this model in systematic manner :

1. Identify a wide range of the variables which affect teacher education in the area of environmental education.
2. Focus on the process by which teacher competencies in the area of environmental education are developed in different nations at the pre-service and in-service levels.
3. Assess the environmental education teacher's training programme both in terms of teacher competence and in terms of pupil competencies.
4. Relate the teacher-training for competency variables to the isomorphic competencies required by supervisors, administrators, teacher-trainers and guardians. This will help to recognize the role interdependency of the total teacher's training programme.
5. Describe and differentiate the pre-service and in-service aspects of teacher training, also show how those levels are articulated into a logical sequence of competencies of ever-increasing complexity.
6. Integrate and differentiate the environmental concepts utilized in environmental education.

The table given below shows how this model can be used as a macro-level and micro-level structure for studying teacher-training programmes. Descriptors which can be used to treat a main heading such as 'context' are included. Thus, characteristics of each teacher education programme can be identified and then compared to other programmes.

Expansion of the model for studying the characteristics of international teacher-training programme

Main descriptors	Sub-category descriptors
Needs	Needs assessment of teachers, administrators, etc. (for training)
Standards	Statements of values – what is most valuable in terms of how training should be carried out, or what should be the criteria for acceptability of behavior.
Context	Political system/stage of development of educational technology/Goals/Incentives/Curric. Model (content)/ General assumpt. (Assumpt. About the learners)/Image of future/Interface with other training programmes concept (administration, supervision, etc./ Problems of the country.
Processes (training activities)	Courses, conferences, institutes, field experiences, media, models, methods etc.
Products (output)	I. Teacher competencies (skills) II. Pupil competencies (skills) III. Positive changes in environment

Source : Cleary, J.W., Teacher Education, 1976

Suggestions :
The implementation of environmental education as a course subject in teacher's training institutions requires efforts in many arenas and from local to national scales. Following are the main suggestions to reorient teacher training institutions for the same –

1. Community resources (NGOs, clubs, religious organizations) etc. should be a part of teacher education programmes within and outside their classroom, to teach about environment.
2. Prospective teachers and teacher educators should work on projects related to environment concerning skill, cross-curricular approaches and action based learning models relevant to local community.
3. It is necessary to introduce environment related course work for prospective teachers and make resource material for prospective teachers on local and global environmental issues.
4. Short-term courses on environment education may be introduced for in-service teachers.
5. Activities like speech competition, writing in newspapers, lecture of eminent environmentalists, conferences and seminars on environmental education may also be organized.
6. Teacher training institutions can organize workshops for prospective teachers to have an environmental education experience regardless of their discipline.
7. Practices related to environmental education may be given to prospective teachers. Main focus should be given to environmental practicals like raising paper conserving energy and conserving water which will help prospective teachers think about environmental activities that will contribute to more interactive classrooms.
8. Behavioural scientists predicts that the effect of involvement in decision making and feelings of job-satisfaction are the major factors responsible for carryout the environmental course in better way. Therefore, the involvement of teacher educators in planning environmental course, and activities will have great implications for their willingness to carryout the environmental education activities in better way.
9. There should be encouragement and deep commitment by involving prospective teachers in all aspects of teacher training course and programme. They should be guided by teacher educators specifically for environmental oriented activities.
10. Prospective teachers should be given an opportunity to carry on project work alongwith case studies of their interests. They should properly be guided by teacher educators.

11. Teacher's training institutions should produce teachers having positive environmental oriented attitude. Teachers are model for school students. They must be willing to produce creative environment in the schools.
12. Mini-courses on environmental education should be developed that can be transmitted to other countries via satellite.
13. With the help of instructional technology 'environment learning activity package' in the form of 'module' can be developed. These modules should have behavioural objectives alongwith content and activities to achieve these objectives. Environmental games, songs, stories and drama can also be developed with the help of various technological resources.

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