

Environmental education in teacher education and challenges

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Abstract

India is a country that is to a great extent diversified geologically, edaphically, economically, climatically, geographically, ethnically, economically and socially. The environmental variations and the measures to be taken for conservations of the environment in India can vary too. The Indian education system gives much importance to Environmental Education and it is that in India, the Environmental Education is imparted in most of schools and colleges. The present paper deals with the issue of Environment Education in Teacher Education. Studies reveal that the quality of the current Environmental Education system in India is reasonably good, while in some areas the system needs improvement. Some suggestions have also been provided in the paper to improve the status of Environmental Education in Teacher Education Institutions and how teachers can achieve the objectives of Environmental Education.

Keywords: environmental education, teacher education, teachers, environment

Introduction

As obvious to everybody living on Earth, the vital resources of the planet are declining virtually everywhere. The major reasons are population growth, industrial discharges, consumption patterns, solid wastes disposal, domestic wastewater discharges, etc. As was stated during Tbilisi International Conference on Environmental Education (UNESCO UNEP, 1977) the growing recognition of the consequences and implications of environmental problems must be coupled with an increasing awareness of solidarity among nations. Environmental degradation is today one of the main issues in the world. Many countries spend a lot of time & resources to deal with environmental problems.

Environmental Education is suggested as one of the most effective ways to respond to the environmental threats. From early years, the awareness and importance of Environmental Education (EE) gained significance. Recent educational studies drew attention on EE from preschool period. As it is commonly known, Environmental Education was officially established in the 70's by the significant International Conferences held in different countries and in one of them it was stated that the Environmental Education should start from preschool age and have to continue throughout the school years (Tsekos, Christoforidou, Tsekos, 2012).

There is a paramount need to create consciousness of the environment. It must permeate all ages and sections of the society beginning with the childhood. The Supreme Court of India (1991) directed all education departments in the country to make EE compulsory at all levels of education, including higher education. The effects of these curricular revisions will not be sustained unless they are coupled with appropriate changes in teacher education curricula. Therefore, in 2005 the National Council for Teacher Education (NCTE), a statutory Government appointed body recommended that EE should

become a compulsory course for all the levels and stages of teacher education, including vocational and physical education programmes.

Efforts have been made to develop curriculum and other support materials for introducing EE at all levels of teacher education in the country. Incorporating EE in Teacher Education involves deliberating several issues relating to content, learning and teaching methodologies, materials development and capacity building requirements for its effective implementation.

Environmental Education in Teacher Education

Teachers are considered as a key factor in influencing and encouraging the interest of students on environmental issues. Environmental Education (EE) in Teacher Education has become a priority since the end of the twentieth century (UNESCO-UNEP, 1990). Educators have to become more aware of the vital role they have to play in conceptualizing environmental issues and developing cognitive frameworks concerning the environment. New theories and teaching techniques have emerged for applying skills and strategies that translate EE to practical contexts.

Teksoz *et al.* (2010) ^[10] found that majority of the pre-service teachers agreed on making Environmental Education compulsory. They believed that every teacher should be environmentally-literate in order to make EE a part of his / her own lessons. In addition, more than half of the participants added that environment-related courses should be compulsory for not only pre-service teachers but also for university students from different academic fields.

Ghosh, K. (2014) ^[2] observed that to protect and conserve the environment, emphasis should be placed on Environmental Education in both formal and non-formal system of education. In formal system of education, teachers play a very significant

role in developing a greater awareness about environment among students. This may bring radical change among the students in the way of thinking, living and working. Required amendments should be made in the curriculum of teacher education to stay updated with the changes in environment. For example, teacher education programs in Turkey comprise Chemistry education as well as others subjects like, Science, Physics, Mathematics, etc.

- **Environmental Education in Pre-Service Teacher Training at Primary Level-** In India, Pre-service teacher education for primary school teachers is a two-year course. It covers foundation subjects as well as methodology subjects including educational philosophy and psychology, educational administration, methods of teaching etc. The detailed guidelines and syllabus for the course has been developed by the National Council for Educational Research and Training (NCERT). The teaching of Environmental Studies (EVS) is placed under both Science and Social Studies syllabi recommended by the NCERT.
- **Environmental Education in Pre-Service Teacher Training at Secondary Level-** Teacher Training for secondary level is offered by B. Ed. Colleges affiliated to universities. Several universities have introduced Environmental Education as one of the optional or elective papers at the B. Ed. Level. The course content includes basic concepts and processes of environment and ecology, as well as teaching-learning methodologies in EE, evaluation techniques etc. practical and assignments are also part of the course.
- **Environmental Education at the Post-Graduate Level (M.Ed.)** - Some universities have introduced EE as a special paper, while a few have given it the status of a full-fledged course of two semesters. The NCERT, State Councils of Educational Research and Training (SCERT) and the District Institute of Educational Technology (DIET) are largely involved in in-service training in India. The in-service training /orientation programmes range from one week to one month.

Challenges Faced by Teachers in Teaching Environmental Education

The increased environmental problems have arisen many unanswered questions about environmental education (EE) program including EE through school's curriculum. The EE in most schools is still dissatisfied and practiced only through cross curriculum (Scoffham, 2000). In addition, many teachers received inadequate skills in infusing EE to their students. Miles *et al.* (2006) found that teachers' belief and degree to infuse EE in schools were still low besides having limited knowledge in the field. It was believed that the infusion of EE be improved to produce environmental friendly society.

1) **Qualification of Teachers:-** Turner *et al.* (2009) argued that teachers create students who are environmentally literate but, at first they should be environmentally knowledgeable as well as they should have positive attitudes towards the environment and show concern for environmental problems. In schools, appointment of a post-graduate science or social science teacher is commonly seen. If a teacher is not a master of his /her own subject then how can he / she cover the objectives of

environmental education?

- 2) **Locality of Teachers:** - Oncu & Unluer (2015) ^[7] observed that the teacher candidates from different settlement showed different characteristics in terms of environmental problems. Teacher candidates who lived in urban area had more positive attitude towards environmental problems than the ones who lived in rural area.
- 3) **Environmental Literacy:** - Michail and Stamou (2007) ^[4] explored the environmental knowledge of 155 primary school teachers in the urban area of Thessaloniki (Greece). Their study was in line with other studies that the teachers had several environmental knowledge gaps and misconceptions about acid rain, ozone layer depletion, and the greenhouse effect. Hasasn & Ismail (2011) ^[3] in their study observed that teachers infused EE in their teaching but there were gaps in the knowledge of teachers. This shows that there is a need to train teachers how to infuse EE in their subjects in pre-service training.
- 4) **Teaching Methods-** Several studies show that teachers do not practice innovative methods to teach EE. Most commonly used method is lecture method which they think is the only suitable method for teaching Environmental Education to a large audience. Hasasn & Ismail (2011) ^[3] investigated teachers and found that they did not practice outdoor learning which is the most suitable method for teaching EE.
- 5) **Lack of Training-** While 'Environment' as subject has been incorporated in one way or another in most school curricula, training in EE has not yet got proper place in the curricula of teacher training courses. Thus teachers are not well equipped to deal with the new subject area. Molosiva, A. (2010) ^[5] observed that the teachers feel badly prepared for infusing emerging issues in their course content, although they claim to be infusing such material in their courses. Additionally, there is a need for both pre-service and in-service training for teachers to infuse emerging issues in course content. Such training should equip teachers for collecting and using relevant teaching materials or designing their own which infuses emerging issues in their course content.
- 6) **Lack of Scope-** EE has been introduced as an optional or elective subject into teacher training courses, it is not perceived by students to be as useful as other subjects such as Educational Technology, Multimedia Education, Computer Education, etc. So it should be made a compulsory subject.
- 7) **Lack of Resources-** Lack of resources and support from institutional management and other crucial agencies may also restrict the access of teachers to training opportunities, resource and reference material and ongoing support in implementing EE methodologies and activities in their course of work. Siddqui & Khan (2015) ^[9] found that in the Indian educational institutions teachers/lecturers are not at all offered with adequate resources by the management to impart sustainable environmental education.
- 8) **Pressure of Providing Good Results in Examination-** Molosiwa, A. (2010) ^[5] explained in his study that examinations are part of the political and cultural

environment of the school system and thus put a lot of pressure on teachers' decisions regarding instructional choices. In order to be labelled as "good teachers" or have their schools considered "good schools", teachers modify instruction and concentrate on activities that would better prepare their students for examinations. Teaching becomes transfer of content knowledge in the different subject areas, rather than the promotion of reasoning, problem-solving ability, information finding and lifelong readiness to learn.

Suggestions for a Better Teaching Learning Environment

In order to help students grow in knowledge, skill and value, attitudes and awareness relevant to environment teacher is expected to be not only dispenser of information and knowledge but also managers to teaching learning situations. The ways of classroom organization have also to be drastically changed.

- 1) **Shifting Focus from Teachers to Students-** Teksoz *et al.* (2010) ^[10] in their study of pre-service chemistry teachers observed that four teaching strategies such as field trip, case study, learning cycle, and inquiry oriented instruction can be used to attain the objectives in Environmental Education. The participants believed that student-centred classroom activities rather than teacher-centred ones should be used in an environment-related course.
- 2) **Organization of Seminars and Workshops for Pre & In-Service Teachers-** In some studies, it was suggested that seminars provided by experts on environmental problems could be organized in order to overcome misconceptions on environmental issues (Teksoz *et al.*, 2010) ^[10]. Thathong (2010) ^[11] studied the outcomes of a training workshop to develop participants' capability in integration of teaching and learning activities on Environmental Education in the subjects. It was found that participants gained a lot about working as a group. The participants were able to acquire the skills in conducting classroom research about learner centred approach.
- 3) **Technology Mediated Environment Education for Teachers and Students-** 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 for instruction which involves a 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 more positive attitudinal changes 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).
- 4) **Campaigns on Environment Awareness-** 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, and waste management or also in developing

instructional materials on EE (Muppudathi. G, 2012) ^[6].

- 5) **Follow up on Teacher's Pedagogical Content Knowledge (PCK) -** PCK is one of the important knowledge field needed by teachers for teaching any disciplines to their students. Under PCK itself, teachers need to be acquainted with particular knowledge. Abdullah & Halim (2010) ^[1] constructed an instrument to measure the PCK level of teacher's teaching Environmental Education. This instrument can be used to identify what teachers know and what teachers do not know and to identify teachers' misconception especially regarding their subject matter knowledge and knowledge about the context. Gaps in teachers' knowledge can be identified and guidelines for more effective Environmental Education programs for teachers can be planned. A follow-up on teacher's knowledge can also help in their professional growth.
- 6) **Collaboration with NGO's-** Oncu & Unluer (2015) ^[7] suggested that education faculties should collaborate with NGOs working on environment so that teacher candidates can understand their aims, ambitions and work plans. This kind of information could be more effective for teacher candidates. Further, teacher candidates could have a chance to be active participants in environmental solutions. For example, they can learn about recycling of waste material and use it in classroom to enhance the interest of students.

Conclusion

Environmental Education has direct contribution in creating a better and healthy environment. Studies show that Environmental Education could increase individual's feelings towards environmental problems. However the desired outcome depends on the way Environmental Education is provided. Teachers play a major role in achieving the objectives of Environmental Education at school level. Although there are no fixed methods to teach Environmental Education it was found that student-centred approach should be used. Instead of using conventional techniques new methods should be used. Also, teachers should be trained well enough so that they teach their subject effectively. Any teacher who does not have the desired awareness toward the environment and the literacy about it could not make Environmental Education a part of his / her lessons. But teachers cannot meet the challenge of engaging students in Environmental Education alone. They need network assistance and support from government, management, statutory bodies, policymakers and the public at schools.

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