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THE EFFECT OF ENVIRONMENT BASED EDUCATION ON ENVIRONMENTAL ATTITUDE OF CLASS IX STUDENTS

Prasad P. S.[1] and Dr. B. Krishna Prasad[2]
[1]Research Scholar (Reg. No. 8019), Department of Education
Manonmaniam Sundaranar University, Abishekapatti, Tirunelveli , Tamilnadu, India.
[2]Research Supervisor, M.S. University, Tirunelveli & Principal, S.T. Hindu College of Education, Nagercoil, Tamilnadu, India.

ABSTRACT :

The major purpose of this experimental study was to determine the effectiveness of Environment based education on developing environmental attitude of class IX students. The design of the study was a pre-test, post-test, non-equivalent group design. The sample consisted of class IX students studying in two schools in Kanniyakumari district of Tamil Nadu. Stratified random sampling technique was used to select the sample. Sample size consisted of ninety students, who were divided into the control group and the experimental group. Environment based education lesson transcripts were developed for learning science of class IX. Environmental attitude scale developed by the investigators (2010) was used as a pretest and a posttest to assess the environmental attitude of the IX standard students. The t- test was used to analyze the obtained data. The result showed that the Environment based education was more effective than formal classroom teaching for developing environmental attitude of class IX students. Hence the teachers could incorporate the Environment based education for teaching environment related lessons.

KEYWORDS : *Environment based education , of environmental resources and environmental degradation.*

INTRODUCTION

As a developing country, India is striving for stable economy focused on development. There are many obstacles on the way to development; one among them is overpopulation that results in overuse and scarcity of environmental resources and environmental degradation in India. Educating the people about the environmental degradation, pollution, overuse and consumption of natural resource is the need of the hour and it should focus on the cognitive, psychomotor and affective domains which include formal, non-formal and informal modes of education. Environmental education given in schools and colleges are in different forms, such as environmental studies, environmental education, environmental awareness courses and activities. Environmental education is given to students as a course at college level and in an interdisciplinary course at school level.

Environmental education is the process of recognizing values and clarifying concepts in order to develop skills and attitudes necessary to understand and appreciate the interrelatedness among man, his culture and his biophysical surroundings. Environmental education also entails practice in decision-making and self-formulating of a code of behaviour about issues concerning environmental quality. (IUCN, 1970)

Environmental education is the process of developing knowledge, skills and attitudes to understand and appreciate the interrelatedness and

interdependence of man with nature, by which exhibiting environmental concern and positive behaviour towards environment.

Environmental attitude is the attitude of the person towards natural environment that will form the base of his behaviour towards environment.

NCERT (2006) stressed that the focus of the environmental education to be on practical issues related to nature and society, that will help the learner to analyse and evaluate the problems and take positive environmental actions.

NCERT (2006) observed that one of the problems in science teaching at school level in India is "the imbalance in teaching methods used in the classroom - there is too much emphasis on drill and rote learning and too little emphasis on observation, design, analysis, argumentation and process skills in general"(NCERT 2006)

NCERT stressed the importance of incorporating the innovative methods of teaching to replace the traditional methods which stressed on the drill and rote learning to improve the science teaching in schools. Studies conducted by various researchers on the methods for teaching environmental education revealed that there is lot of innovative methods for environmental education practiced throughout the world. *Environment-based education* (EBE) is one of the important methods for environmental education.

ENVIRONMENT-BASED EDUCATION

Environment based education is a teaching approach in which students are taught by the teacher outside the classroom in the natural environment either in the campus or outside the campus in the formal teaching hours.

Environment-based education (EBE) emphasizes interdisciplinary integration of subject matter, problem and issue - based learning experiences, team teaching, learner centered instruction, constructivist approaches and self-directed learning. (NAAEE&NEETF, 2001)

REVIEW STUDIES

American Institutes for Research (2005) evaluated the impacts of week-long residential outdoor education programmes which revealed that students concern towards environment was increased due to the participation of students in residential outdoor education programmes. Roy Ballantyne and Jan Packer (2010) investigated school students' expectations regarding environmental education experiences in natural areas and the attitudinal and behaviour changes. Study confirmed that learning in natural environments is attractive to students and had an important impact on their attitudes towards the environment. Alexandar and Poyyamoli (2014) studied the effectiveness of innovative curriculum on environmental education for sustainable development (EESD). Results revealed that the experimental group students had higher knowledge, attitudes, skills and behaviour on biodiversity conservation and solid waste management than their counterparts. Emel Okur Berberoglu(2015) analysed the efficiency of an eco pedagogy- based TUBITAK environmental education project. Results showed that eco pedagogy-based environmental education caused to change environmental attitude of in-service teachers favourably. Christina Turtle, Ian Convery, Katie Convery and Yvonne Xian-han Huang (2015) investigated the attitudes of children towards the natural environment. They found that children who had participated in a forest schools programme had more pro-environmental attitude than children who had not participated. Edmund Burnett, Erin Sills, M. Nils Peterson and Christopher DePerno (2015) assessed the changes in environmental knowledge, opinions, and behaviours among school children who visited Natural Park and a comparison group that did not visit the park. Participation in the park's conservation education program had a positive impact on environmental knowledge after the visit. Murat Genc, Tulin Genc and Pinar Goc Rasgele (2017) determined that nature based education had improved the students' attitudes towards the environment and living organisms .Christina Turtle, Ian Convery, Katie Convery and Yvonne Xian-han Huang (2015) that reported that children who had participated in a forest schools programme had more pro-environmental attitude than children who had not participated. Gabriela L. Schmitz and Joao B. T. da Rocha (2018) analyzed the effectiveness of

an environmental education program on students' environmental attitudes and knowledge. Results indicated that participants' environmental attitudes to a more pro-environmental way and an improvement in the students' environmental knowledge, compared to the non-participants.

NEED AND SIGNIFICANCE OF THE STUDY

Part IVA 51A (g) of the Indian constitution makes environmental conservation as one of the fundamental duties of all Indian citizens. It declares that " to protect and improve the natural environment including forests, lakes, rivers and wild life, and to have compassion for living creatures" Thus, it is the responsibility of all Indian citizens to take care of the natural environment. For this every citizens should have the sound environmental knowledge, positive attitude and behaviour towards environment. Therefore it is necessary to empower every citizens an environmentally literate and environmentally friendly person for a sustainable life. Environmental education plays a key role in empowering Indian society to attain the sustainable development goals.

NCERT (2005) in its National curriculum framework of school education observed that the best way of Environmental education is infusing the environmental issues and concerns into the different school subjects. Textbooks for schools in Tamil Nadu are published by the Tamil Nadu Textbook and Educational Services Corporation under the uniform system of school educationscheme for first standard to higher secondary classes. Text books for sixth standard to tenth standard contain one or two lessons related to environmental education and teachers teach those lessons in a formal way.

C.P.R. Environmental Education Centre observed that three preconditions for effective environmental education which are integrated approach, trained and motivated teachers and providing practical experience to the students related to the environment. Pandey, P. D. (2003) observed that "children have an innate desire to be near plants and animals…and their participation in conservation can help children grow into environmentally friendly adults" According to him participation and involvement of children in new strategies for the ecosystem conservation will make that effort successful. Environmental education provides knowledge about environment, and environmental degradation, develops favourable attitude towards natural environment and helps the learner to identify the problems and its sources which will leads to the initiation and effective participation of the learner in protecting the environment. Environmental education given in schools is focused on knowledge and least importance is given to environmental attitude. E Eilamand T Trop (2012) stressed that enhancing the emphasis of environmental education on attitudes rather than environmental behavior. Alan D. Bright & Michael A. Tarrant (2002) examined the effects of environment-based coursework on students' attitudes and thinking. In their studies, they found that students participated in environment based course work exhibited favourable attitude towards environment and endangered species act than their counterparts.

STATEMENT OF THE PROBLEM

The main purpose of the study is to investigate how far Environment Based Education develops environmental attitude among class IX students? What are the steps to be followed in the preparation of lesson transcripts of Environment based education? Hence the investigators entitled their study as The Effect of Environment Based Education on Environmental Attitude of Class IX Students.

OBJECTIVES OF THE STUDY

1. To test the effectiveness of Environment based education in developing environmental attitude among IX grade students.
2. To study if there is any significant differences in the pretest mean scores in environmental attitude of class IX students in the experimental group and the control group.
3. To study if there is any significant differences in the posttest mean scores in environmental attitude of class IX students in the experimental group and the control group

HYPOTHESES

1. There will be significant differences in the pretest mean scores in environmental attitude of class IX students in the experimental group and the control group.
2. There will be significant differences between the pretest and the post test mean scores in environmental attitude of class IX students in the experimental group
3. There will be significant differences in the posttest mean scores in environmental attitude of class IX students in the experimental group and the control group

Methodology

Method adopted

Experimental method

Design of the study

Pretest- Posttest, non-equivalent group design.

Sample

The sample consisted of class IX Students from two government aided schools, namely Abraham Memorial Higher Secondary School, *Maruthancode and* Purushothaman Pillai Memorial Higher Secondary School, Anducode, in kanniyakumari district, Tamilnadu, India. Size of the sample is 90. Two groups were selected randomly, and the experimental group consisted of 45 students and the control group with 45 students.

Tools

1. Instructional materials based on environment based education for the unit on Improvement in food resources from IX standard Science textbook.
2. Environmental Attitude Scale developed by the investigators, 2010.

Statistical Techniques used

t test for independent large sample.

Experimental Procedure

The investigator selected two intact groups of class IX students from two schools and randomly selected one group as the experimental group and other one as control. As a first step, the investigator administered environmental attitude scale as a pre-test for both the groups. After the pretest, the experimental group was exposed to Environment based education and control group was exposed to formal teaching for four weeks. After the treatment, the same environmental attitude scale was administered to both the groups as the posttest. The data collected were processed by using t test.

RESULTS AND DISCUSSIONS

Comparison of pretest scores of the experimental group and the control group

H01 Null Hypothesis

There is no significant difference in the pretest mean scores in Environmental Attitude of class IX students in the experimental group and the control group

Table 1

Summary of Pretest mean scores in Environmental Attitude of class IX students in the experimental group and the control group

Variable	Group	N	M	SD	t	L S
	Experimental	45	54.2	8.68		
Environmental attitude	control	45	53.8	9.23	0.188	N S

It is revealed from the table 1, that the pretest mean scores in environmental attitude of class IX students in the experimental group and the control group are 54.2 and 53.8 and the corresponding standard deviation are 8.68 and 9.23 respectively. The t-ratio is 0.188, which is not significant at any level. Hence there is no significant difference between the experimental group and the control group with respect to their pre-test scores in environmental attitude. It means before the treatment, students in the two groups had same level of environmental attitude.

Comparison of pretest and posttest scores in environmental attitude of the Experimental group

H02 Null Hypothesis

There is no significant differences between the pretest and the post test mean scores in Environmental Attitude of class IX students in the experimental group

Table 2

Summary of pre-test and posttest mean scores in environmental attitude of the experimental group.

Variable	Category	N	M	S.D.	t	L S
	Pre-Test	45	54.2	8.68		
Environmental attitude	Post -Test	45	71.88	8.23	9.91	S

It is revealed from table 2, that the mean pre test and the posttest scores in environmental attitude are 54.2 and 71.88 and the standard deviations are 8.68 and 8.23 respectively. The t-ratio is 9.91, which is significant at 0.05 level of significance. Therefore significant difference exists between pre-test and posttest mean scores in environmental attitude of the experimental group. Hence it can be concluded that Environment based education is highly effective for developing environmental attitude among class IX students.

Comparison of post test scores of the Experimental group and the control group

H03 Null Hypothesis

There is no significant difference in the posttest mean scores in Environmental Attitude of class IX students in the experimental group and the control group

Table 4

Summary of Posttest mean scores in Environmental Attitude of class IX students in the experimental group and the control group

Group	N	M	S.D.	t	L S
experimental	45	71.88	8.23		
				4.49	S
control	45	65	6.16		

It is revealed from table 4, that that the posttest mean scores in environmental attitude of class IX students in the experimental group and the control group are 71.88 and 65 and the standard deviation are

8.23 and 6.16 respectively. The t-ratio is 4.49, which is significant at 0.05 level of significance. It means there is significant differences in the posttest mean scores in environmental attitude of class IX students in the experimental group and the control group. Hence, it can be concluded that the Environment based education is more effective than the formal teaching for developing environmental attitude among class IX students.

DISCUSSION

Results of the study showed that students who were exposed to Environment based education have positive attitude towards the environment than their counterparts. The findings of the present study were consistent with the findings of the study conducted by Murat Genc, Tulin Genc& Pinar Goc Rasgele (2017) and Gabriela L. Schmitz and Joao B. T. da Rocha (2018). It was found that the nature-based environmental education and environmental education program groups had more pro-environmental attitude than those who had not participated. Environment based Education is an effective method for developing environmental attitude in a positive way. In this method, students got first hand experiences related to the subject and the opportunity to explore the natural environment.

CONCLUSION

In India, environmental education is not included as a subject in the secondary school level. So, teachers could take necessary steps to integrate environmental education with other subjects. Teachers could use environment based education as part of their learning process to enrich the students' cognitive, affective and psychomotor domains with first hand experiences. Government and the policy makers could implement suitable programme of actions in order to reach the goal of making the students nature friendly.

REFERENCES

American Institutes for Research. (2005). Effects of outdoor education programs for children in California.PaloAlto,CA. Retrieved from http://www.sierraclub.org/youth/california/outdoorschool_finalreport.pdf

Ballantyne, Roy & Jan Packer. (2002). Nature-based Excursions: School Students' Perceptions of Learning in Natural Environments. *International Research in Geographical and Environmental Education, 11*(3), 218-236, DOI: 10.1080/10382040208667488

Berberoglu, Emel Okur. (2015). The Effect of Ecopodagogy-Based Environmental Education on Environmental Attitude of In-service Teachers. *International Electronic Journal of Environmental Education*, 5(2),86-110. Retrieved from http://dergipark.gov.tr/download/article-file/89034

Bright, Alan D. & Michael A. Tarrant. (2002). Effect of Environment-Based Coursework on the Nature of Attitudes towards the Endangered Species Act. *The Journal of Environmental Education*, *33*(4), 10-19, DOI: 10.1080/00958960209599149.

Burnett, Erin Sills, M. Nils Peterson and Christopher DePerno. (2015). Impacts of the conservation education program in Serra Malagueta Natural Park, Cape Verde Edmund. *Environmental Education Research*, Retrieved from http://dx.doi.org/10.1080/13504622.2015.1015497Constitution of India. Retrieved from https://www.india.gov.in/sites/upload_files/npi/files/coi_part_full.pdf

IUCN. (1970). Final report : International Working Meeting on Environmental Education in the School Curriculum 1970 Retrieved from https://portals.iucn.org/library/sites/library/files/documents/Rep-1970-001.pdf

Murat Genc, Tulin Genc & Pinar Goc Rasgele. (2017). Effects of nature-based environmental education on the attitudes of 7th grade students towards the environment and living organisms and affective tendency, International Research in Geographical and Environmental Education, DOI: 10.1080/10382046.2017.1382211.

NAAEE and NEETF. (2001). Using environment- based education to advance learning skills and Character Development. The North American Association for Environmental Education. *The National Environmental Education& Training Foundation* Washington, D.C. Retrieved from https://promiseofplace.org/sites/default/files/2018-05/EnviroEdReport.pdf

National Wildlife Federation. (2015). Greenstem/final-inter-grstem-guidebook-online. Retrieved from https://www.nwf.org/Eco-Schools-USA/About-Eco-Schools-USA/~/media/PDFs/Eco-schools/GreenSTEM/FINAL-INTER-GRSTEM-GUIDEBOOK-ONLINEV-10-02-2015.pdf

NCERT. (2006). National focus group on Teaching of science, NCERT. Retrieved from

NCERT (2006) Environmental Education as infused in NCERT Syllabus for Classes I to XII As Per NCF Retrieved from NCERT http://ncert.nic.in/book_publishing/environ_edu/eei.pdf

NCERT. (2006). Environmental Education as infused in NCERT Syllabus For Classes I to XII As Per NCF. Retrieved from http://ncert.nic.in/book_publishing/environ_edu/eei.pdf

NCERT. (2005). *National curriculum framework 2005.* New Delhi: National Council of Educational Research and Training (NCERT). Retrieved from http://www.ncert.nic.in/rightside/links/pdf/framework/english/nf2005.pdf

Pandey, P.D. (2003). Child participation for conservation of species and ecosystems.

Conservation Ecology 7(1) 2. Retrieved from: http://www.consecol.org/vol7/iss1/resp2/Poyyamoli, Alexandar R. G. (2014). The effectiveness of environmental education for sustainable development based on active teaching and learning at high school level-a case study from Puducherry and Cuddalore regions, India. *Journal of Sustainability Education,*7, Retrieved from http://www.jsedimensions.org/wordpress/wp-content/uploads/2014/12/Alexandar-Poyyamoli-JSE-Vol-7-Dec2014.pdf

Schmitz,Gabriela L., & Joao B. T. da Rocha. (2018). Environmental Education Program as a Tool to Improve Children's Environmental Attitudes and Knowledge. *Education Scientific & Academic Publishing* DOI: 10.5923/j.edu.20180802.01

Trop, Eilam, T. E. (2012). Environmental attitudes and environmental behaviour—which is the horse and which is the cart? *Sustainability*, 4, 2210-2246; doi:10.3390/su4092210

Turtle, Christina, Ian Convery, Katie Convery & Yvonne Xian-han Huang. (2015). Forest Schools and environmental attitudes: A case study of children aged 8–11 years.*Cogent Education*, 2:1, DOI: 10.1080/2331186X.2015.1100103

Prasad P. S.
Research Scholar (Reg. No. 8019), Department of Education Manonmaniam Sundaranar University, Abishekapatti, Tirunelveli , Tamilnadu, India.