

## Ecological and Environmental Studies in Education

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Ghose, Gauri Rani, 1988. **Know the plants around you.** Independent study. *National Council of Educational Research and Training*. [ERIC Funded]

*Problem:* It is an attempt to advocate not to stuff the mind of children with facts and information, but to sharpen their sense to enable them to observe their environment and to enrich their experience.

*Objective:* Development of a handbook of plants, containing stories and myths associated with the plants, information about the usefulness of the plants and the technical, taxonomical aspects of the plants.

*Methodology:* Seventy common plants associated with our everyday life were selected and listed, and a handy key to the families of these plants, with their floral diagrams, was developed. A description of each plant giving its name in different Indian languages, a short history of the plant and its origin, facts about the use of the plant as food, fodder, clothing, medicine, building material, essential oils and other commercial commodities, and some technical botanical information were given. Dried and preserved plant specimens or herbarium sheets as teaching aids were prepared.

*Major Findings:* (1) The report provided a list of 70 common plants with a standardised method of describing them in non-technical and semi-

technical language. As examples, descriptions of bel (*Aegle marmelos*), coconut (*Cocos nucifera*), *Victoria regia*, *Anthocephalus cadamba* (Kadam), *Ficus benghalensis* (banyan) and *Nymphaea* (water lily) were given; as a teaching aid, 50 herbarium sheets were prepared. [SRA 1118]

Gopalakrishnan, Sarojini. 1992. **Impact of environmental education on primary school children.** Ph.D., Edu. Avinashilingam Institute for Home Science and Higher Education for Women.

*Problem:* The study addresses the problems of environmental education and its impact on primary school children of Standard V selected at random from schools of the Nilgiris, Madras and Coimbatore.

*Objectives:* (i) To identify the important factors of the environment, (ii) to assess the impact of environmental education through an Environmental Education Test (EET), (iii) to find out through a small experimental study the impact of the participatory learning approach, and (iv) to get feedback from the teachers handling the subject, through a constructed questionnaire.

*Methodology:* One thousand four hundred and fifteen children studying in Standard V, selected randomly from 30 primary schools. 10 each from Madras, Coimbatore and the Nilgiris, were given the Environmental Education Test

(EET) constructed by the investigator. The scores were analysed under three heads, viz. correlational studies, differential studies and experimental studies.

*Major Findings:* (1) The distribution of the total Environmental Education Test scores of the entire sample approached the normal form which implied that studying Environmental Education had a very good impact on the children. (2) Analysing the EETS area-wise, the children of Madras scored better (arithmetic mean: 41.85) when compared to that of Coimbatore and the Nilgiris, and this could be due to better exposure of the Madras children. (3) The study showed that the participatory learning approach could bring about a better impact. (4) Teachers, in general, felt that there was not sufficient time to give importance to learner-centred activities. [MC 1551]

Khanna, Prem Krishna. 1988. **A study of the flora of Bhopal to produce resource material for the biology teachers of Madhya Pradesh.** Independent study. *Bhopal: Regional College of Education.*

*Problem:* This study addresses the problem of biology teachers lacking knowledge of the floristic composition of the area in which they worked. Such knowledge is an essential prerequisite for organising theory and practical classes. Due to the lack of knowledge and skills to identify plants, practicals are neglected in the schools. Keeping the above in view, and also the need to provide adequate information to the biology teachers, an illustrated flora of Bhopal was prepared after a careful study of textbooks and the floristic pattern of the area.

*Objectives:* (i) To prepare a list of plants cited as examples in the biology textbooks prescribed in the schools of Madhya Pradesh (Classes IX to XII), and (ii) to prepare a flora of Bhopal, describing with illustrations, important examples of plants to be used by the biology teachers as a reference book.

*Methodology:* A study of all biology textbooks prescribed in Madhya Pradesh for Classes IX to XII was undertaken to prepare a list of plants useful to biology teachers.

*Major Findings:* (1) The Latin, English and local names of each of the plants were searched out. (2) Classification of the plants according to the widely followed system of classification of Bentham and Hooker was done. This provided an exhaustive list of plants which are often quoted as examples in biology textbooks. (3) From the list, 123 most commonly used plants were described, with diagrams to help teachers in their identification. (4) The important characteristics of plants, their phenology, points of identification and common names were also given. (5) Further, a chapter on the ecological characteristics of Bhopal was written on the basis of a study of various ecological factors such as history, geography, vegetational features, climate and topography. This chapter is a very useful introduction for learners to the flora of Bhopal. [Author 1136]

Khattar, N. 1988. **Systematic studies of fauna in and around Bhubaneswar for development of a museum.** Independent study. *Bhubaneswar: Regional College of Education.* [ERIC Funded]

*Problem:* The study attempts to develop a systematic account, and a museum, of the fauna typical of the local area and surroundings.

*Objectives:* (i) To make the students and teachers curious to know and collect the fauna of their immediate environment, and (ii) to help them to find out what animals exist in their surroundings and how do these differ in different localities.

*Methodology:* A thorough survey was conducted to collect the fauna from the terrestrial, fresh-water, brackish-water and marine environs. Different types of sampling methods were employed in different environs. Dip-nets and dredges were used in collecting specimens from

fresh waters and shallow sea waters. The animal specimens from the shores and rocks were mainly picked by hand. The pelagic collection was done mainly with the help of aquatic dip-nets.

*Major Finding:* The identification and classification of different animals collected under the project was done and lists were prepared of identified specimens from different groups such as Porifera, Coelenterata, Helminthes, Annelida, Mollusca, Echinodermata, Arthropoda, (Arthropoda-Decapoda, Arthropoda-insects, butterflies and insects), and from the different families of fish, reptiles, birds, mammals, etc. [SRA 1115]

Kidwai, Zeenat. 1991. **Development of an environmentally-oriented curriculum in geography at secondary stage.** *Indian Educational Review*, Vol. 26 (3): 87-94.

*Problem:* This study addresses the problem of environmental education for protection and conservation of the environment.

*Objectives:* (i) To evolve an integrated environmental education, and bring about an overall awareness among our younger generation about environmental education, (ii) to develop active and well-informed individuals for protecting and conserving the environment, (iii) to develop an understanding of the interactions and interdependence of the physical, biological, social, economic and cultural aspects of the environment, and (iv) to develop in individuals and communities skills for identifying and solving environment problems.

*Methodology:* Development of the geography curriculum has been attempted on the ecosystem concept, dividing the environmental components into lithosphere, hydrosphere and biota (including the human population).

*Major Finding:* A framework for an environmentally oriented geography curriculum at secondary stage was presented. [MPR 1509]

Praharaj, B. 1991. **Environmental knowledge, environmental attitude, and perception regarding environmental education among pre-service and in-service secondary school teachers.** Ph.D., Edu. *The Maharaja Sayajirao Univ. of Baroda.*

*Problem:* This study attempts to explore the level of environmental knowledge, attitude and its perception among pre-service in-service secondary school teachers.

*Objectives:* (i) To find out the level of environmental knowledge and attitude of pre-service and in-service secondary school teachers, and (ii) to study their perception regarding environmental education in the secondary schools.

*Methodology:* The sample for the study consisted of 302 in-service teachers serving in 50 secondary schools and 416 pre-service teachers of three teachers' training colleges in Puri District of Orissa. The 50 schools were selected out of 483 schools in Puri District on a stratified random sampling basis. The Environmental Knowledge Inventory was used to collect the data regarding environmental knowledge; the Environmental Attitude Scale was used for environmental attitude, and a questionnaire was used to collect the data on perception of environmental education. A personal data sheet was also developed to collect data about sex, place of residence, socio-economic background and teaching experience. The data were analysed by applying percentages, 't' tests and one-way ANOVA.

*Major findings:* (1) The level of environmental knowledge was found low among pre-service teachers, although conceptual knowledge was moderate. (2) Among the in-service teachers, environmental knowledge was moderate and factual knowledge about the environment was low. (3) Both the groups differed significantly in their level of environmental knowledge. They had a favourable attitude towards environmental

education although the in-service group had a higher level of attitude than that of the pre-service group. (4) There was moderate correlation between environmental knowledge and environmental attitude. (4) Teachers perceived that environmental education could be a core part of social science and 'general science' also and science subjects in secondary school as well mass media have a potential role to play in imparting environmental education. [MSY 0929]

Rajput, J.S. 1988. **A research study for identification of teaching skills and training strategies for implementing the environmental approach at primary level.** Independent study. *Bhopal: Regional College of Education.* [ERIC Funded]

*Problem:* The study is a sequel to 'Project Environment', encompassing Environmental Studies I and II for identifying the concepts, teaching skills and strategies for their inclusion in the teacher-training programme at the primary level.

*Objectives:* (i) To produce integrated material for Environmental Studies I (social studies) and Environmental Studies II (science) for Classes III to V, (ii) to develop a strategy for teaching Environmental Studies I and II in Classes III and IV through the environmental approach and to test the relative efficacy of the developed strategies in relation to the methods being used for realisation of the objectives of primary education, and (iii) to identify teaching skills for the teaching through the environmental approach.

*Methodology:* Children of Standards III and IV of 10 Hindi medium schools of Bhopal City were put to a test, developed and standardised to gauge the environmental awareness of the children at pre- and post-test stages of the experiment. The control group and the experimental group were compared on their environmental awareness. For the purpose of scores in science and social studies the traditional

examination papers were used. To find out significant difference 't' values, and F-ratio were calculated to conclude the significance of difference due to the treatment.

*Major Findings:* (1) The mean scores of environmental awareness for the experimental and the control groups at pre-test and post-test level indicated that out of 14 comparison groups in seven schools, nine groups had no significant difference, and the remaining five groups had a significant difference as a result of the treatment. (2) The results of comparison between the groups and within the groups indicated that out of 14 groups, five groups had no significant differences in both cases. (3) The significant differences obtained in some groups did not follow any uniform pattern. [SRA 1104]

Rane, A.J. 1989. **Evaluation of the environmental studies approach of Parisar Asha in municipal schools in Greater Bombay.** Independent study. *Bombay: Tata Institute of Social Sciences.* [UNICEF Funded]

*Problem:* It attempts to evaluate the functioning of *Parisar Asha's* Environmental Studies (EVS) Approach to primary education in Standards I and II in 29 municipal schools in Greater Bombay.

*Objectives:* (i) To study the organisational structure of *Parisar Asha* and the mechanism for the implementation of the EVS approach in BMC schools, (ii) to know the perceptions of the officials of the Education Department of BMC, of the EVS approach to primary education and the experiences and opinions of Standard I and Standard II teachers regarding the implementation of the EVS approach in BMC schools, and (iii) to know achievements of Standard II students in language, arithmetic and general science.

*Methodology:* The sampling technique was used for students of Standard I and Standard II to assess their learning achievements. The

sampling was done in 29 BMC schools. A multi-stage procedure was followed to select the sample of students. In the first stage, one-third of the total divisions of Standard I and Standard II were randomly selected. In the next stage, 10 per cent of children from each division of Standard I and Standard II were selected for the study. In all, 429 students from 30 divisions of Standard I and 292 students from 27 divisions of Standard II were selected. An interview guide, special achievement tests in Marathi for Standard I and Standard II students, teaching aids and observation sheets for Standards I and II were used.

*Major Findings:* (1) *Parisar Asha* has gained momentum within a short period by way of organising various programmes for implementing the EVS approach to learning in a large number of schools of varied kinds. (2) There is a need to have departmental heads for the three units of training. (3) The training personnel in charge of training programmes for teaching in the BMC schools were aware of their role and functions. (4) The major difficulty experienced by trainers was the teachers' irregular attendance in the training sessions. (5) The monitoring system, which was introduced by *Parisar Asha*, helped to get feedback on the functioning of the EVS project. (6) The officials in the BMC Education Department played a significant role and had a good understanding of the EVS approach. (7) The headmasters' involvement in the implementation of the EVS project in BMC schools was appreciable. (8) The teachers of Standard I played a satisfactory role in implementing the EVS approach. (9) The teachers of Standard II had a favourable opinion about the EVS approach and they made efforts to use this new approach in their classrooms along with the traditional method of teaching. [RJ 0223]

Sahoo, K.C. 1992. **A critical study of the conception and perception of environmental education.** Ph.D., Edu. *Devi Ahilya Vishwavidyalaya*.

*Problem:* There is a lack of understanding about the constituents of the environment and their relationship with man. The present study attempts to renovate the concept of environmental education.

*Objectives:* (i) To study the concept and constituents of the environment, (ii) to study the environment-man relationship, (iii) to study the dynamics of the environment, and (iv) to renovate the concept of environmental education.

*Methodology:* The philosophical method employing intuition, introspection, reflection and speculation were used in this study. Meta-analysis was used with regard to available literature. Field visits and dialogues with select groups of authors were conducted to fulfil the objectives of the study.

*Major Findings:* (1) The concept of the environment is broadly divided as natural and man-made types. (2) Flora and fauna constitute the biotic environment. (3) The atmosphere, hydrosphere and lithosphere constitute the abiotic environment. (4) Man-made environments are of different types, such as social, economic, political, cultural, aesthetic, historical, geographical, psychological, religious and academic. (5) The fusion of different types of environment forms the holistic concept of environment. The relationship between man and environment is symbiotic in nature. (6) The different stages of evaluation — the hunting-gathering stage, the agricultural stage and the industrial stage — reflect such a relationship. (7) Gradually, man's domination over the environment has created complexities in the man-environment relationship. (8) Efforts are continuing with regard to environment management, with focus on unity of life, sustainable development, human welfare, futuristic and cultural progress. (9) Self-management is perceived as the best formula for good environmental management. (10) Several workshops, committees and bodies at national and international levels have thrown light on the

conceptual analysis of environmental education. Environmental education is a broad concept and is perceived as lifelong experiences for all. [PKS 0645]

Shahmawaj. 1990. **Environmental awareness and environmental attitude of secondary and higher secondary school teachers and students.** Ph.D., Edu. *Univ. of Rajasthan.*

*Problem:* This study addresses issues related to the awareness and attitudes of teachers and students towards the environment.

*Objectives:* (i) To determine the extent of awareness about the environment among students and teachers, (ii) to find out the attitudes of teachers and students towards the

environment, and (iii) to find out the differences between teachers and students and male and female groups concerning the environment.

*Methodology:* The study was conducted mainly through a survey and the application of a tool developed by the investigator to test attitudes and awareness.

*Major Findings:* (1) It was found that 95% teachers and 94% students possessed positive environmental attitudes. (2) The environmental trained teachers and untrained teachers did not differ in their attitudes. (3) Teachers had more awareness of the environment than students. (4) Trained and untrained teachers did not differ on environmental awareness. (5) Girls possessed significantly more awareness of the environment than boys. [JKS 0698]

## Also See

Antonysamy, L. 1989. **Teaching environmental concepts to school drop-outs through video and charts.** M.Phil., Edu. *Madurai Kamaraj Univ.* [MKU 1058] (See in Chapter 23.)

Devi, Susila A. 1990. **A critical study of environmental curriculum in Andhra Pradesh.** Ph.D., Edu. *Osmania Univ.* [SSS 0851] See in Chapter 13.)

Kaur, Harjit Pal. 1992. **A study of population awareness in relation to attitudes towards environmental education and population education of professional teachers.** Ph.D., Edu. *Punjabi Univ.* [AK 1711] (See in Chapter 32.)

Singh, Gulzar. 1991. **A comparative study of attitudes towards population education, environmental education and family planning of different levels of workers in specific occupations.** Ph.D., Edu. *Punjabi Univ.* [AK 1855] (See in Chapter 32.)

Singh, Pritam. 1988. **Development of criterion referenced tests in environmental studies (science) for the primary stage.** Independent study, *National Council of Educational Research and Training.* (ERIC Funded). [SRA 1130] (See in Chapter 35.)