



Environmental Education

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Environmental Education: According to Hague, 'environmental study is an approach through activities based on child's physical and social environment which leads to the progressive development of attitude and skills required for the observation, recording, interpretation and communication of scientific, historical and geographical data.'

Environmental Education in National Policy on Education (1986)

One of the common cores listed in the policy document is the protection of environment. Among other aspects the NCF also elaborates the need for developing environmental consciousness and preparing children for environmental protection through education. NCF recommended that at the lower primary level an integrated approach be followed.

Need for Environmental Education in the School Curriculum

- 1) To create awareness about various environmental issues among the school students.
- 2) To make them environmentally literate.
- 3) To provide necessary attitude for the conservation of environment among the school students.
- 4) To provide the knowledge about ecological systems and 'cause and effect' relationship.
- 5) To understand the ecological energy flow system and its influence on man.
- 6) To develop skill to solve the environmental problems among the school learners.

Providing Environmental Education at Different Levels of Education

- 1) **Primary Education Stage**, where the emphasis should be largely on building environmental awareness followed by real life situations and conservation.
- 2) Lower Secondary Stage, where the quantum of awareness decreases with increased knowledge of real life situations, conservation and sustainable development.
- 3) **Higher Secondary Stage**, where the emphasis must be an conservation, assimilation of knowledge, problem identification and action skills.
- 4) College Stage, where the emphasis must be on sustainable development, followed by conservation, real life situations and problem-solving.

Approaches in Providing Environmental Education

The approaches to Environmental Education can be categorized into two classes:

- 1) Interdisciplinary Approach: In this approach Environmental Education is given a separate identity. Topics are culled from various subjects like social studies, science. mathematics etc., and are made as an independent. subject of study.
- 2) Multidisciplinary Approach: In this approach Environmental Education is not given a separate identity. Issues relating to environment are included in the other conventional subjects. Among the two approaches, the latter is being preferred in schools as the teachers handling other subjects can teach components of Environmental Education too during their classes.

A few suggestions for integrating EE with the regular school subjects under Multi-Disciplinary approach are given below:

1) **Chemistry**: Water: Pollution sources of pollution – reasons population, explosion deforestation, etc.

Air: Air pollution sources effects- Importance of trees in the production of oxygen-ozone layer depletion, etc.

- 2) **Botany**: Importance of trees in preventing pollution ozone depletion noise control trees in preventing soil erosion.
- 3) **Zoology**: Protection and preservation of wildlife evolution extinction of species need for conservation food chain.

Approaches in Incorporating Environmental Education in the Curriculum

- a) Environmental Education as a separate subject.
- b) Infusing Environmental Education in the Existing Subjects.
- c) Occasional Programmes
- d) Environmental Education as Core Curriculum.

A) Environmental Education as a Separate Subject

In this approach, Environmental Education is related as a separate subject drawing the basic principles and skills from other conventional disciplines. While developing the curriculum in this approach, some of these assumptions are made:

- 1)All children in all schools need Environmental Education
- 2) Environmental Education curriculum in each grade
- 3) Environmental Education curriculum calls for first hand study of the environments in the community

B) Infusing Environmental Education in the Existing Subjects

In this approach, the concepts of Environmental Education are infused in the existing subject curriculum, by relating them with the concepts of physics, chemistry, biology etc. According to Saxena et al (1983), the following components in the curriculum have been infused according to the stage of mental development of the child:

- 1) Developing positive attitude towards environment
- 2) Relating the concepts with the local environment and resources
- 3) Attempting to develop empathetic relationship with different members of the community

C) Occasional Programmes

In this approach, some curricular or extracurricular activities are organized to take care of the Environmental Education components. The learning activities are designed with the following features.

- 1) While incorporating behavioural objectives, the danger of relying solely on the theme to the exclusion of overlooking unanticipated outcomes, must be recognized.
- 2) A rich learning environment characterized by a competent teacher, efficient humanistic classroom organization and readily available resources must be encouraged.
- 3) A teacher-guided format of presentation, which is attractive, clear and motivating to the teacher, must be included.

D) Environmental Education as Core Curriculum

In the normal practice of curriculum planning. each subject is Independent of the other subjects. with each subject having its own textbook and curriculum. This approach may be regarded as 'atomistic' as disciplines form discrete and separate parts. Taking guidelines from the Tbilisi Conference, the following characteristics emerge:

- 1) Environmental Education is oriented towards a problem.
- 2) Environmental Education is concerned with realistic situations.
- 3) Environmental Education aims at elaborating the alternatives that exist for situations and skills of choosing between them.
- 4) Environmental Education includes action as an integral component.

Guidelines to Include Environmental Education at School Level

- 1. Environmental education at school level should aim at creating environmental awareness.
- 2. Environment concepts should be integrated in the existing courses in physical, natural and social sciences.
- 3. Students should be exposed to the concept of, nature education and the experience of participating in nature conservation programmes.
- 4. Various educational bodies should reorient early education curricula to include environmental issues.
- 5. Extra Curricular environmental programmes for school children are a powerful tool for imparting environmental education to children and should be increasingly encouraged
- 6. At the higher secondary school level, it would be more purposeful to involve youth in seeking and finding solutions to environmental problems and thus inculcate a positive environmental attitude.
- 7. Distance education programme in environmental education for elementary and secondary school teachers should be Initiated.
- 8. Periodical workshops and seminars on environmental topics should be arranged for teachers.

Current Status of Environmental Education in School Curriculum

Environmental education has been introduced in school curriculum at pre-school level, elementary level and higher secondary level.

- A) Pre-school Level: At pre-school level, a general awareness about the personal hygiene and environmental cleanliness are introduced in a simplified version through a number of colorful diagrammatic illustrations.
- B) Elementary Level: At elementary level, the focus is stressed towards the environmental cleanliness. The concept of 'environment' is introduced. The relationship between the child and environment is emphasized.
- C) Secondary Level: At secondary level, both in CBSE pattern and in State board School (Tamil Nadu) pattern the course materials are built on fundamental understanding of ecological and biogeographical principles.
- D) Higher Secondary Level: In general, at higher secondary level, only those students selecting science subjects like mathematics, physics, chemistry, and biology are exposed to environmental education. They are all more concerned with pollution ecology, population ecology and the role of science and technology in eliminating or minimizing the various environmental problems.

Problems Faced in Imparting Environmental Education

Some of the major problems facing Environmental Education in the country can be described as follows:

- (1) **Resource Constraints:** Lack of resources is one of the major problems that is being encountered in the promotion of Environmental Education in the country.
- (2) **High Dropout Rate:** Because of the high dropout rate in our education system, teachers are left with no option but to begin the Environmental Education component from the primary classes to ensure that the students, even if they drop out later, are sensitized to the environmental problems.
- (3) Social Constraints: Sometimes conclusions drawn from the study of Environmental Education may clash with the prevailing social, o and political thinking. This clash in thinking lead to undesirable confrontation.
- (4) Difficulty in Assessment: In effect, formal environmental education faces following difficulties:
- •A shortage of trained education officers in environmental education in the government to plan, organize, implement and monitor environmental education programmes in schools.
- •A shortage of supporting staff and office equipment at the National Environmental Education Centre.
- •Shortage of environmental education materials for teachers and students.
- Weak monitoring system
- •Government control of mass media.

Important Methods of Instruction in Environmental Education (1) <u>Discussion Method</u>

A discussion is an open forum in which learners can express their opinions as well as review factual materials. In the discussion method the teacher gives a brief introduction of the topic for discussion. The students may study in the class or may be allowed to go to the library for reference. The students can get their difficulties removed from the teacher. After the scheduled time the teacher initiates discussion by posting some questions or problems.

Whenever, the discussion method is followed the teacher should keep in view the following points which are highlighted by Sharma (1996):

- i) The topic for discussion should be chosen with due care and thought.
- ii) It should be made very clear to the students that they have not only to study the whole topic but have to read more, even from other sources about the part they have been assigned.
- iii) In order to involve maximum participation the teacher should see the discussion is not dominated by one or two students.
- iv) Teacher has to be very careful that discussion is not stretched away from the topic but is relevant.
- v) Time should not be wasted for relevant discussion.

Objectives of Discussion Method:

- To share information
- To clarify ideas
- To inspire interest
- To promote co-operative learning.
- To identify the different views on a problem.
- To get conceptual clarity
- To develop the skill of expression

Types of Discussion

There are two types of discussion which are as follows:

- 1) Open Discussion: Open discussion is one in which the learner determines the topic and the role of the teacher is to ask questions that will lead the learner to consider various ideas. There can be no planning because the open discussion is spontaneous by definition.
- 2) Planned Discussion: In a planned discussion, the teacher determines the content of the discussion, plans the questions, and guides the learners toward some predetermined goal.

(2) Seminar

The term 'seminar' is generally used to refer to a structured group discussion, that may proceed or follow a formal lecture, often in the form of extempore speeches or paper presentations.

Preparation for Seminar

Seminar requires much planning in terms of referring to literature on related, aspects of the seminar topic, organizing the collected, data in a sequential manner and presenting the paper through effective reporting. Duration of the presentation of papers at seminars varies from topic to topic and discipline-to discipline. Generally 30-45 minutes are permitted for presentation followed by discussion for 10-15 minutes. Adequate time should be given to students or other participants to clear their doubts and probe the major aspects of the topic. Observations by individual students appointed by the teacher, along with the teacher can be carried out in order to give a feed back to the presenter on his presentation.

Advantages of Seminar

- i) The major advantage of the seminar is its stimulation and testing of students' power of comprehension and evaluation.
- ii) The ability to detect and derive the principle from the context is developed.
- iii) Understanding power and questioning ability in a relevant situation are strengthened.
- iv) Self-reliance, self-confidence, sense of cooperation and responsibility are developed.

(3) Workshop

Workshop is a get-together for some creative educational activity. While discussion demands on talk, workshop is a 'shop for work, it is an activity-oriented technique. Preparing reports, syllabi, manuals and critical reviews, visiting places, and planning instructional designs, etc are examples activities of a workshop session.

Advantages of Workshop

- The workshop is based on the principles of learning by doing.
- It is co-operative work which promotes the 'work culture.
- Teachers, students and administrators work together which ensure the sharing of ideas and views
- It involves the skill of cognitive, affective and psychomotor domains

(4) Field Trips

Field trips are very much educative and they create great curiosity in students and also bring out their creativity. Keown (1984) states that

- 1) those concepts that are integral part of the students' environment are best learned in the outdoor environment
- 2) the concepts have a better chance of being understood and retained, if parts of the concept can be related to students' environment.
- 3) critical thinking is enhanced in the outdoor environment.

(5) Field Surveys

Field survey is an analysis of the present status about a particular area. Through the field survey, one can get a correct picture of the status of a particular event. It is a natural observation. Students may study different aspects and objects of environment. The study team has to plan the objectives of the study plan, execute and submit a report to take necessary action and for the benefit of other students.

Types of Field Survey

Based on the objectives, the field survey can be classified into many types. Some of these are listed below:

- Local field survey
- Regional field survey
- Geographical field survey
- Historical field survey
- Industrial field survey
- Field survey of natural vegetation
- Field survey of animals
- Survey of soil and fauna
- Field survey of community

Objectives of Field Survey In Environmental Education

- To promote awareness about learner's environment
- To develop the tendency to survey it and utilise for understanding.
- To develop the ability for interpreting the warmers' own experiences and observations
- To promote the skill of observation, and interpretation.

Steps Involved in Field Survey

Step (i) Writing objectives Step (iv) Execution (Collecting information or data)

Step (ii) Planning Step (v) Evaluation

Step (iii) Identification of tools & techniques Step (vi) Follow-up activities

Enhancing the Effectiveness of Field Studies

Buy Backman and Crompton (1984-85) feel that the effectiveness may be greatest if the outdoor experience is proceeded by an indoor experience which provides a cognitive framework. Kirk (1980-81) felt that

- (i) the activities which focus the attention on the use of nature study and field activities help the students to learn about the countryside and conservation;
- (ii) the activities which develop skills and interest in rigorous physical activities help in outdoor education

(6) Projects

A Project is a problematic act carried to completion in its natural setting. The project method consists of building a comprehensive unit around an, activity which may be carried on in the school or outside. Learning by doing', and 'Learning by living are the two cardinal principles of this method.

The role of teacher is not of a dictator but a friend, guide and a working partner. The teacher should investigate along with the learner and should not claim to everything. In the project method, students have to take up certain projects. The total class is either divided into small groups or work at a total unit depending on the nature of the project to be worked out. At the end of the project, the activities of all the students or groups are presented to the total class in the form of reports and displays.

Steps in Project Method

Step (1) Sensing a problem

Step (ii) Defining the problem.

Step (iii) Selection of appropriate methodology

Step (iv) Data Collection

Step (v) Process of analysis

Step (vi) Drawing Conclusion

Step (vii) Evaluation

Step (viii) Recording

Characteristics of a Good Project

- Project should allow the active participation of both learners and teacher
- It should be useful and purposeful
- It should have definite educational value
- It should be practicable

Merits of Project Method

- 1) This method is based upon the laws of learning(Law of readiness, Law of exercise, Law of effect
- 2) It promotes co-operative activity and group interaction
- 3) It is a democratic way of learning. The children choose, plan and execute the project themselves.
- 4) It affords opportunity to develop keenness and accuracy of observation.

Demerits of Project Method

- 1) It absorbs a lot of time
- 2) It involves much more work on the part of the teacher.
- 3) Text books and materials written on these lines are not available.
- 4) It is expensive in the sense that a well-equipped library and a laboratory are required.

(7) Exhibition

Exhibition in environmental education means presentation to view a display or showing off the materials relevant to environmental studies. Exhibits or exhibitions can be arranged to show the project work of the students or to highlight the environmental problems in order to get suitable remedies. It is essential to form a committee to organize the exhibition. Work should be distributed among the various committees drawn for the purpose. The execution of the plans should be quick and systematic.

Advantages of Exhibition

- Exhibition is based on the principle of learning by doing
- The learners can observe, analyse, criticize and apply the scientific laws.
- They get chances of picking up skills by means of participation in the exhibition
- They can learn how to co-operate and show leadership qualities while working in the exhibition.
- Exhibition promotes scientific attitude among the learners.

(8) Videos

Videos form a valuable medium which helps learners to understand the abstract concepts. By means of video-show it is possible to bring the reality into the class room as it provides for visual stimulation through color and motion. Many complex ideas can be explained by means. Of videos and films. It provides clarity and concreteness. Moreover it stimulates interest of the learners and retain their attention in learning.

(9) Television

Television is a powerful medium which educate the learners and can develop a sense of participation. The T.V. has influence on the young generation and has access to all people. The Educational Television (ETV) is a system that present learning content in various subject areas through programmes prepared by a central agency. Gyan Darshan, DD Kisan and Kalvi TV are telecasting the educational programmes.

Advantages of Television Pro- grammes

- The Television Programme provides high quality of instruction.
- It promotes social equality for education.
- The learners learn from T.V. with their own efforts. Hence it reduces the dependency on teacher.
- It provides education throughout the country at minimum cost and hence it is highly economical.

Limitations of Television Programmes

- Teaching and learning through T.V. is an Individualized method and thus co-operation, adjustment, cordial relationship etc. are not developed in viewers.
- The learners can only see the demonstration in the T.V. screen and thus they have no chance to handle it.
- The learners are the passive observers and are not active participants.
- The screen is small and the focused screens are not clear enough for large size class rooms.

10) Other Methods

- A) Simulation and Games: Simulation and games can be used to focus attention on both attitudes and content. The advantage of games and simulations, according to Troost and Altman (1972) is that they have intrinsic potential for motivation.
- B) Debates: By arranging debates the teacher can make dents aware of environment, its problems and the necessary feasible solutions.
- C) Loadings: A teacher can ask the students to get further information through additional readings. This will help to grow individually.
- **D)** Inquiry: On finding a problem or else by a student of any occasion a student can take up an inquiry to probe to it. Or a teacher can also assign inquiries into various aspects of environmental education. The teacher should develop Inquiry Guides for the benefit of the students.
- E) Quest Lectures: Guest lectures given by eminent personalities motivate the students in many ways and help the students to participate in environmental activities

Environmental Education Programmes to be Undertaken in Educational Institutions

- 1) Arranging for Video-Clips: Video-clips on lustrous water falls, and mountains, dense forests and deep seas and majestic rivers of India, could be caught in digital cameras and the video-albums so prepared could be made available in the school for the students to enjoy and love their mother land and its vast natural resources.
- 2) Establishing Environmental Club: As we have 'Science Club', 'Maths Club etc. in schools, we could also form an 'Environmental Club in which those interested in protection and conservation of environment are to be admitted as active members. Its functions are:
 - (i) Taking of Oath
 - (ii) (ii) Field Trips
 - (iii) (iii) Celebrating the World Environmental Day
 - (iv) (iv) Creating an Environmental Corner
 - (v) Tree Planting
 - (vi) Conducting Environmental Festival
- 3) Celebrating the World Environ- mental Day: 5th June of every year should be celebrated in schools as the 'World Environmental Day'.

Programmes on Hygiene and Sanitation

1) Personal Hygiene

- Keeping the teeth, mouth, nails, limbs, ears, hair and the body clean and neat, by daily washing and brushing
- Keeping all the food stuffs and eatables well covered.
- Not allowing water to stagnate near our house.

2) Public Hygiene

- Solid wastes such as garbage, waste food. Building scraps etc. should not be heaped on the roadsides; Instead they are to be removed by using the garbage cleaning facilities provided by the civic authorities like the Municipality / City Corporation.
- Refraining from urinating and defecating in public places.
- Avoiding sneezing or spitting in public places.

3) Sanitation

- Not sounding the horns of vehicles loudly, particularly near hospitals and schools.
- Avoiding loud speakers as far as possible, particularly in the night during festivals and celebrations.
- Not throwing plastic wastes in the drains.
- Not throwing litters on the roads.

<u>×United Nations Environment Programme (UNEP)</u>

United Nations Environment Programme (UNEP) is an international environmental agency operating the world with the support of United Nations.

Functions of UNEP: Its activities cover a wide range of issues regarding the atmosphere, marine and terrestrial systems, environmental governance and green economy. It has played a significant role in eloping International environmental conventions, promoting environmental science and information illustrating the way those can be implemented with the help of policies of governments and Non- environmental organisations.

×Centre for Environmental Education (CEE)

The Centre for Environmental Education (CEE) was established in August 1984 with its headquarters in Ahmedabad as a Centre of Excellence supported by the Ministry of Environment and Forests. The organisation works towards developing programmes and materials to increase awareness about the environment and sustainable development.

Functions of CEE: It mainly aimed at creating environmental awareness in the communities, conducting widespread environmental education and training programmes through a very vast network. It has a vast range of Publications, books, posters, etc. Today CEE is the nodal agency for the Implementation of UN Decade of Education for Sustainable Development (DESD) in India under the Ministry of Human Resource Development,

Thrust Areas of CEE's Work

- 1. Education for Children
- 2. Environmental Education at the Higher Education Level
- 3. Examination systems in Environmental Education.
- 4. Education for Youth
- 5. Experiencing Nature.
- 6. EE through interpretation
- 7. Knowledge Management for Sustainable Development

Role of N.C.E.R.T in Environmental Education

For the promotion of Environmental Education at school level NCERT undertakes the following activities:

- 1. Extension activities such as publication of quarterly journal 'School Science' and organizing a National Science Exhibition every year. The Themes of the exhibition are generally environment based.
- 2. Training Programme for teachers and teacher educators.
- 3. Development of films/ video programmes on Indian environment. There is a film library in NCERT that loans films to schools

Role of Teachers in Environmental Education

- a) to arouse the children's interest in the environment and to raise challenging problems:
- b) to discuss the approach to problems or topics:
- c) to organize working groups and to provide with the help of work cards for the lines of enquiry;
- d) to arrange visits or expeditions;
- e) to provide reference materials for children's use;
- i) to provide materials needed for practical work;
- g) to arrange for visiting speakers.

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