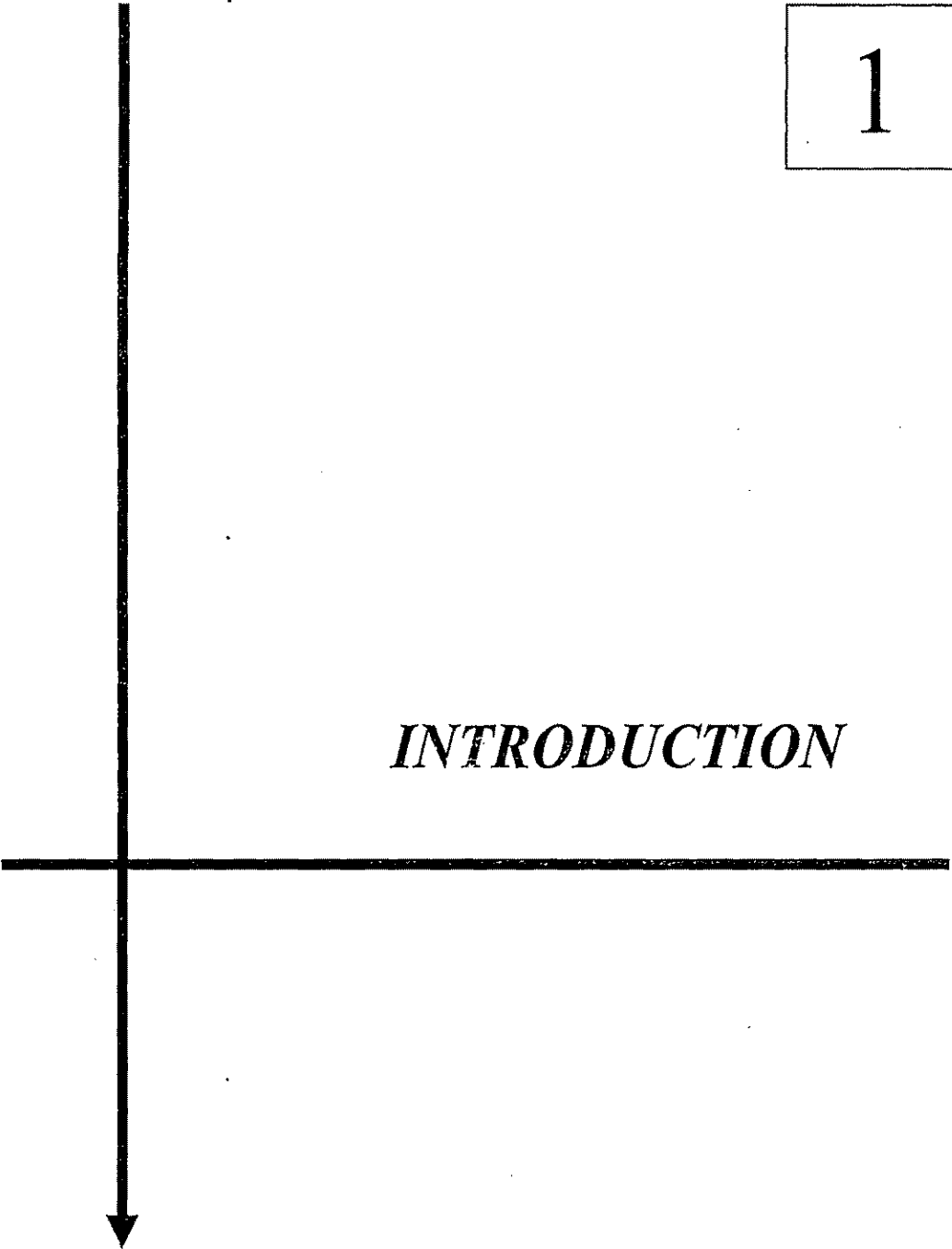


INTRODUCTION



CHAPTER-1

INTRODUCTION

1.1 INTRODUCTION

Human beings interact with environment in three ways, as space for living, as a bank of resources such as food, water, materials and energy as a sink for waste disposal. As the most enlightened species, **Homo sapiens**, human has paramount responsibilities to preserve the environment and improve it qualitatively not only for himself but also for the future generation. However unfortunately with development in science and technology ,man has been dominating nature ,shaping the environment to suit itself using everything around him without scant regard what so ever for the natural scheme of interdependent ecological regimes. In the name of development, man has been ruthlessly consuming natural resources and polluting the environment, without scant regard for its assimilative power and carrying capacity.

The environmental crisis the world is facing today is due to overpopulation ,hunger poverty ,people unlimited desire, ignorance and materialistic approaches to life in the world over have started realizing that much of what God created ,man is now destroying, not only earth's basic life supporting capital of forests, animal species and soils but also its fresh water and oceans and even the ozone shield which protect our life forms from the sun's more deadly rays. Now we are threatening ourselves with climate change – a rapid rise in global temperature and sea levels –greater perhaps –in the next 40-60 years than in the 10,000 years since the last ice age. These environmental threats that now facing us could have so much momentum that unless steps are taken to reverse them, they may soon overwhelm our ability to respond ever threatening all living beings including man himself with disaster or extinction

Education for human is a recent development in all parts of the world. The world education means-

- E - Economical development
- D - Development of ideas

- U - Utilities of local bodies
- C - Care of man and environment
- A - Awareness of the universe
- T - Training of teachers
- I - Imagination of environmental education
- O - Optimum percepts

N - Number of small family .The people become aware of the interrelationships of man and his world ; the scope of the environment has also widened. Human needs to understand better their inter relations, with various Components of the environment includes –

- E - Everybody needs to search for a solution
- N - Now that the earth is harmed by pollution
- V - Vegetation and habitats increasingly lost
- I - In the pursuit of progress without counting the cost
- R - Recycling not a choice, it is must if not, our planet turned into dust.
- O - Our fragile ozone layer is always destroyed.
- N - Now that CFC are widely employed.
- M - Mankind's habitat could really be fun.
- E - Energy saving resources could really be done.
- N - Now are great need is to select and protect.
- T - To balance and conserve our earth with respect.

Knowledge in the school curriculum is comprised of **language , mathematics , physical ,and natural sciences** as well as **social studies** apart from several co-curricular subjects and activities . The perspective of looking at this classification changed in the last two decades with the physical , natural and social sciences being treated as a whole and referred to as **Environmental science**.

1.2 ENVIRONMENTAL EDUCATION

Environmental education is the education about the environment, education for the environment and education in the environment while education about the environment includes concepts and skills that are necessary to understand it; education for environment covers those aspects of education that involves conversation, preservation and up gradation of the environment.

The definition of environmental education encompasses a variety of concepts and approaches. The most common definition given by the US office of education states:

“Environmental education is the process that fosters greater understanding of society’s environmental problem & also the process of environmental problem solving and decision making. It involves development of skills and insight needed to understand the structure requirement & impact of interaction within and among various environmental entities, subsystem & system.” (Kirk, 1992)

ENVIRONMENTAL EDUCATION -: NEED AND OBJECTIVES

The goal of environmental education is to mould a child into an adult citizen who has strong emotional ties with nature & transforms child to a responsible person who can help it in the maintenance of life and health in self preservation & also in the preservation of mankind. It helps to identify the environmental crisis that exist both in physical & social environment. The ultimate objective of environmental education is to formulate a responsible attitude in the young mind towards sustainable development.

Thus environmental education sharpens the thinking & reasoning ability of the children for the betterment of environment as well as their sake. It is highly essential for self- fulfillment and social development. The main objectives behind it are (UNESCO, 1985)

- ❖ To create and infuse awareness about the numerous elements that makes up the environment of the total environment and its allied problems.
- ❖ To help them to acquire the basic understanding of the total environment, its inter relationship with human including indigenous tradition and cultural practices related to the environment with a view to promote conservation and wise use of natural resources.
- ❖ To help learn a little more about the subject/topic in the lesson with specific reference to some environmental aspect
- ❖ To help students to view environment as an integral part of what they are learning and doing.
- ❖ To develop sensitivity to an appreciation of the tremendous diversity in the natural and human world as adding richness to every aspect of life and learning.
- ❖ To help them to acquire social values including strong feeling of concern for the environment and the motivation for actively participating in its protection and improvement.
- ❖ To help them to acquire the skills for solving environmental problems.

1.3 ENVIRONMENTAL SCIENCE

Environmental science is the systematic study of our environment and our proper place in it. A relatively new environmental science is highly interdisciplinary integrating natural sciences, social sciences and humanities in a broad, holistic study of the world around us. In contrast to more theoretical disciplines. Environmental science is mission oriented. That is it seeks new valid contractual knowledge about the natural world & our impacts on it, but obtaining this information creates a responsibility to get involved in trying to do something about the problems we have created.

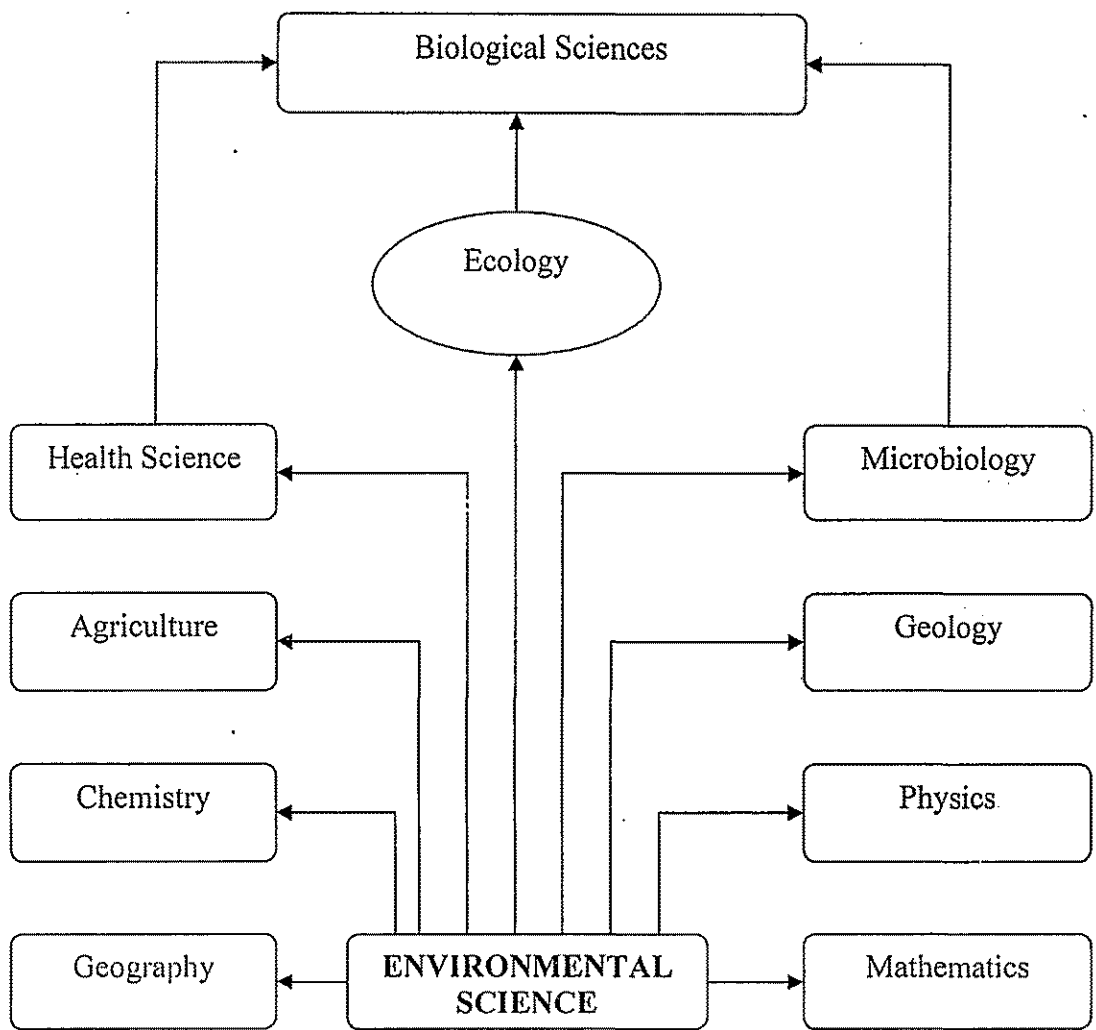
Importance of Environmental Science

The ecologist and environmentalist warn of a crisis of environment if human craze and race for material progress continues, this will result in indiscriminate sewage as built on the enrichment. The planet earth may be ruined as a home of human.

According to good (1973) – “Environment is a general term designating all the through such stimuli as he is able to receive.”

To realize the relationship of human beings to the environment and to make academic education more meaningful and lasting one. The central aim of environmental education is to incorporate throughout the total curriculum. Moreover such an approach also recognize that environmental issue cut a cross traditional disciplinary lines that develops an environmentally responsible citizen that involves acquiring knowledge, awareness, attitude and skill beyond that of simple understanding of scientific or ecological principles.

Today the environment is suffering irreparable damage and that our present way life is not sustainable, so the kind of questions that arise in the minds of educationist one, what kind of step would be effective and what type of programmes should be conducted to enhance the environmental awareness of the School? What should be the basis for their formulation and how should they be executed.



Multi- Disciplinary Model to teach environmental science

1.4 ACCORDING TO NCF-2005

A National curriculum Committee gave recommendation and guidelines for the new pattern through a policy document titled “**The curriculum for the ten years School**”- **A Framework**. Some of the main recommendation contained in the framework are-

- All the primary stage, science & Social sciences were to be taught as a single subject: ‘Environmental Studies’.
- An integrated Approach was to be followed for teaching science at upper primary step as opposed to disciplinary approach.
- Science was to be considered as one composite subject at upper primary and secondary styles.

INNOVATIVE Approaches in Institutional material preparation

No meaningful improvement in curriculum transaction is possible without a major change in the strategy for the production, distribution & education of not only the instructional material for the student but also the material designed for the professional needs of the teachers & others resources persons. At present curriculum transaction at school level is almost dominated by single textbook in each subject area. Attempts should be made to develop different textbook which can fulfill the same curriculum. Objectives for a particular age group in a given subject area. The multiplicity of approaches in preparing instructional materials based on the same syllabi & curricular guidelines will generate innovative ideas & practices for curricular development. This may also encourage innovations on the part of the teacher to develop a variety of learning resources.

1.5 USE OF INSTRUCTIONAL MATERIAL IN ENHANCING ENVIRONMENTAL AWARENESS

The role teacher is very crucial particularly when teaching science because he/she has to create environment for learning which would assist in the learner to acquire environmental awareness in a natural way. The conducive environment for learning can be created using various instructional materials, use of this material result in effective learning.

Science learning should be imparted through activities from the very beginning of the school education .This activities may involved the use of concrete materials, models, patterns, charts, pictures and experiments. These materials that developed for basis curriculum instruction are necessary as supplemental and motivational learning devices for students. Teachers must recognize that utilization of material assist the student to visualize the relationship involved in a particular problem situation and thus enhance their environmental awareness. Their specific purpose is not only to make science more interesting but to allow students to engage in experiences which enhance their awareness towards the environment. Instructional material may be in the form of -

- i. Activities
- ii. Experiment
- iii. Charts
- iv. Field trip

In this study activities, experiment and charts are used as instructional material by the researcher for enhancing the environmental awareness of the student based on science content.

ACTIVITIES

Activity 1: (i) Take four identical cardboard boxes of approximately of same size. Cut a hole of same size on one side of each box. Place

a transparent plastic sheet on the hole of one box, paper cover on the hole of another box & the third remain uncovered and open.

(ii) Punch a hole in one end of each box & insert a thermometer.

(iii) Measure the initial temperature of all the four boxes, in sunlight for about 30 minutes and record the temperature .

Activity 2 : Lit the candle with matchstick , it will burn with blue flame. Put the glass over the flame, the candle stop burning.

Activity 3 : Acid rain formation

Take a beaker filled with small quantity of water. Put a small disc in the beaker and cover it. Boil the beaker , which evaporates the water then it rises and condenses on the cover and fall into the small disc.

Activity 4 : Test to see how acid rain affects building materials

Put a small lump of dried cement into a glass and pour in enough vinegar to cover it . Leave the experiment for 2-3 days. Ethnoic acid in the vinegar react with the cement, which is gradually dissolved by acid

Activity 5 : Soil erosion

Take two pot , one is having only soil and another pot with vegetation . Then pour the water on both pot with pressure , soil of pot without vegetation drain easily in compare to pot having vegetation.

Activity 6 : Water pollution

Bring the water from the nearby water bodies and observe under microscope. You will observe different micro-organism and pollutant in the water.

Activity 7 : Presence of CO₂ in air

Pour lime water in a bowl and let it stand open for 4-5 hours . We observe the white scales on the surface layer. The lime water reacts with CO₂ present in the air and forms a layer of CaCO₃ , which is insoluble in water and therefore floats over it. On stirring it turns the water milky.

1.6 NEED OF THE STUDY

Environmental deterioration can be attributed to industrialization and urbanization. The depletion of traditional resources of energy and raw material, constant population growth, the disruption of natural ecological balance, the destruction for economic ends of various animals and plants species and negative generic consequences of industries include the danger of human genetic degeneration. Science should be treated as one of the curricular area that play a decisive role in equipping the learner for understanding interpreting and dealing with a ,ore scientific way ,various things and phenomena around him/her . Programme in science education should designed so as to enable the learner to acquire problem solving and decision making skills and to discover the relationship of science with health ,agriculture ,environment and other aspects of daily life.

In the recent past, term environment has gain enormous importance .Now a days almost everyone is aware of the term environmental pollution and it is topic of global concern. Ozone depletion, green house effect, acid rain etc are the hot topic of discussion among the educated, social advanced people, learning about them doesn't have to be useful and important but teaching

science through environmental approach by using instructional material (classroom activities, experiment and charts) can take a positive approach and focus on what an individual can do to save the earth. Teacher can provide students with enjoyable and satisfying learning experiences thus can enhance their awareness level.

1.7 STATEMENT OF THE PROBLEM

This study deals with “**Study of the effectiveness of instructional material on the environmental awareness of VIII standard students**”.

1.8 OBJECTIVES OF STUDY

- To develop instructional material in enhancing environmental awareness of class eight student.
- To study the effectiveness of instructional material in enhancing the environmental awareness of class eight students in classroom teaching.
- To study the effectiveness of teaching through instructional material over traditional method in enhancing environmental awareness in classroom teaching.
- To study the effectiveness of instructional material on environmental awareness in context of variable gender.

1.9 HYPOTHESIS

- There is no significant difference between environmental awareness of class eight students taught by traditional method and through instructional material.
- There is no significant difference between environmental awareness of girls taught by traditional method and through instructional material.
- There is no significant difference between environmental awareness of boys taught by traditional method and through instructional material.
- There is no significant difference between environmental awareness of girls and boys taught through instructional material.

1.10 OPERATIONAL DEFINITION OF TERMS AND VARIABLES

There are three types of variable involved in the present study.

1. Independent variable : Instructional material
Traditional method
2. Dependent variable : Environmental awareness
3. Background variable : Gender

Instructional material - Any device , method or classroom activities used for teaching purpose including text-books , supplementary reading material , audio- visual , field -trip and sensory material.

Environmental awareness - Environmental awareness is categorized as almost cognitive and a first step to receive. Hence the learner is sensitized to the existence of certain phenomena. Unlike knowledge, it is not so much concerned with recall of an item or fact. A high achievement on the environment awareness test will indicate a high degree of student consciousness.

Effectiveness of instructional material - Effectiveness is the degree to which an agent produces effect. The question immediately arises 'what effects and on whom?', Here the researcher see the extent to which the instructional material effected students awareness about environment.

1.11 DELIMITATIONS OF THE STUDY

- ❖ The study was delimited to the private English medium schools of Bhopal.
- ❖ It was further restricted to students studying in class 8th.
- ❖ The study was delimited to schools affiliated to State Board of Secondary education.
- ❖ This study was completed in the duration of 15 days.
- ❖ This study was delimited to science content (Biology and Chemistry).