Chapter - 1

INTRODUCTION
1.1 BACKGROUND TO THE STUDY

Environment is the sum total of living and non-living components: influences and events surrounding an organism. From ancient times, man has been serious about environment and its basic philosophy has been “one of harmony with nature. Apart from the Vedic and Upanishadic concepts of human dependence on nature, which are partly religious and spiritual, partly aesthetic and ethical, there was a more explicit effort to understand nature and relate it to human well being by Buddhists, Jains, Hindus and Moguls. Further, our ancient literature is full of prayers / worships addressed to nature. Gods have been identified with nature, wild animals, and men. Nature is an embodiment of Satyam, Shivam and Sundaram (Truth, Beauty, and Goodness).

The five elements- Fire, Water, Air, Earth, and Space have been considered to be the basic building blocks of this universe and there is a thread of unity running through the world (Dash and Satapathy, 2006). Deterioration in any one element inevitably affects the other four elements. If the deterioration is for short term, it repairs itself and reverts to the original state but if deterioration continues, the whole system including other life forms are thrown out of gear. It therefore goes without saying that the very existence, survival and progress of man on earth depends on the quality of environment.

Human beings interact with environment in three ways, as space for living, as a bank of resources such as food, water, materials and energy and as sink for waste disposal. As the most enlightened species, Homo sapiens, man has paramount responsibility to preserve the environment and improve it qualitatively not only for himself but also for the future generations. However, unfortunately with development in science and technology, man has been dominating nature, shaping the environment using everything around him/her with scant regard whatsoever for the natural scheme of interdependent ecological regimes. Consequently, human race has changed
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itself from a simple fruit gatherer who worshipped nature to a callous, self-centered destroyer of nature by adding stress and strain, unhealthy competition, intensive consumerism, dishonesty and unethical practices. In the name of development, man has been ruthlessly consuming natural resources and polluting the environment with scant regard for its assimilative power and carrying capacity (Dash and Satapathy, 2006).

**World Wide Environmental Issues**

The progress of man from the primitive stage to the technological stage has brought him face to face with the global environmental problems of:

(a) ecological decay,
(b) resources depletion, and
(c) environmental pollution.

A report of the United Nations Environment Programme (UNEP) - Global Environment Outlook 4 draws together assessments on climate change, biodiversity, land degradation, fresh water, oceans and fisheries. UN report has demanded that rich nations cut their greenhouse gas emissions by 60-80% by 2050 to ensure the World achieves an overall reduction of 50% (Press Release, 2007a). It also warns that we are living far beyond our means. The human population is now so large that "the amount of resources needed to sustain it exceeds what is available... humanity's footprint [its environmental demand] is 21.9 hectares per person while the Earth's biological capacity is, on average, only 15.7 ha/person... " This is clearly an unsustainable situation (Press Release, 2007b).

**The results of global environment outlook 4 are:**

- 45,000 square miles of forest is being lost across the world each year.
- 60% of the world's major rivers have been dammed or diverted,
- the fresh fish population has declined by 50% in the last 20 years,
the biodiversity register of the planet is becoming thinner day by day,
30% amphibians, 23% of mammals and 12% of birds are under threat of extinction due to human activity, and
one out of 10 of the world's large rivers is running dry every year before reaching its natural end- the sea.

Global Trends related to the present environmental threat:

- In the past 100 years, the world economy expanded sevenfold.
- Global population increased from 1.6 to 6.5 billion in 100 years.
- Carbon dioxide level rose to 380 parts per million from the pre-industrial era of 280 ppm.
- The best estimate of the Intergovernmental Panel on Climate Change (IPCC) for additional warming over the current century is projected to be from 1.8 to 4.0°C causing sea level to rise, melting of glaciers, destroying species and producing extreme weather.
- The sea level rose on an average by 10 to 20 cm during the 20th century and an additional increase of 9 to 88 cm is forecasted by the year 2100.
- The overuse of freshwater is estimated at 5-25 per cent.
- Water quality is declining too, polluted by microbial pathogens and excessive nutrients. Globally, contaminated water remains the greatest single cause of human disease and death.
- Growing ocean acidification and warmer temperatures will probably also affect global food security. Diarrhoea and malaria will become more widespread.
- Present trends do not favour greenhouse gas stabilisation. Aviation saw an 80 per cent increase in miles flown between 1990 and 2003, while shipping rose from 4 billion tones of goods loaded in 1990 to 7.1 billion tones in 2005; each sector makes huge and increasing energy demands.
Some greenhouse gases may persist in the atmosphere for up to 50,000 years.

Despite "impressive" success in phasing out ozone-depleting substances, the spring "hole" in the stratospheric ozone layer over the Antarctic is now larger than ever, allowing harmful ultraviolet solar radiation to reach the Earth.

Acid rain is now much less of a problem in Europe and North America ("one of the success stories of recent decades"), but more challenging in countries like Mexico, India and China.

More than 50,000 chemical compounds are used commercially, hundreds more are added annually, and global chemical production is projected to increase by 85 per cent over the next 20 years.

Environmental exposure causes almost a quarter of all diseases. More than two million people worldwide are estimated to die prematurely every year from indoor and outdoor air pollution.

Losses in total global farm production, due to insect pests, have been estimated at about 1 per cent.

Unsustainable land use and climate change are driving land degradation.

Aquatic ecosystems continue to be heavily exploited, putting at risk sustainability of food supplies and biodiversity.

The great majority of well-studied species are declining in distribution, abundance or both.

In the period between 1992 and 2001, floods were the most frequent natural disaster, killing nearly 100,000 people and affecting more than 1.2 billion people. More than 90 per cent of the people exposed to disasters live in the developing world (GEO 4, 2007b;c).
The environmental crisis, the world is facing today is due to the rapid growth of the population, the over exploitation of natural resources, hunger, poverty, people's unlimited desire, ignorance, materialistic approaches to life, urbanization, industrial expansion and advances in science and technology and a growing disregard for natural environmental laws. However, in the last two decades, millions of people 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 protects all life forms from the sun's more deadly rays.

Environmental education has a very strategic and important role in preparing people to solve global environmental problems. Certainly, a positive path to transformation in this modern period will depend upon education. People need continued education, especially in the environmental area, because the environment has been rapidly changing, and our understanding of the environment has been advancing rapidly. Environmental education has developed as pragmatic educational response to the problems and concerns of environment. The concept of environmental education is still evolving and awaiting institutionalisation in the educational systems. As such there is a dire need to understand the subject in proper perspective. Only through environmental education, people can develop a sense of concern for what is happening on a local and global scale and be encouraged to take appropriate action (Sudarmadi et al., 2001).

Environmental Conditions and Concerns-The Indian Perspective

India has not paid adequate attention to environment and climatic change. India loses 10% of GDP on account of environmental costs. These are due to the costs incurred due to land degradation, morbidity and mortality due to pollution, water scarcity, the inefficient use of energy resources and loss of
forest resources, etc. The per capita water availability in India has gone down. India is vulnerable to climatic change and sea level rise. Rural sanitation has not been given any importance and natural resources are overstressed, low efficiency in energy use and the average annual increase in waste generation is stupendous (Internet Resource\(^1\)).

The environmental scene in India is one of hope as well as concern. The positive aspect is that the country is still one of the richest in the world in biological diversity. The hope for the future lies in this fact and the nation is fully conscious of the need for environmental protection and its rich traditions. The concern arises from the environmental degradation in the country, which has taken place over the years (Internet Resource\(^2\)).

*Quite obviously the dangers of cataclysmic environmental despoliation and degradation in India which hosts 15 percent of the world's population on 2.5 percent of planet Earth's land area, is clear and present.*

*The response to this grave challenge is also patently obvious: environmental education, and more environmental education*

(Yasmeen, 2003)

India was the first country to insert an amendment into its Constitution allowing the State to protect and improve the environment for safeguarding public health, forests and wild life. The 42nd amendment was adopted in 1976 and went into effect on January 3, 1977 (Internet Resource\(^3\)). Thus the foundations of the present day organisational framework for environmental programmes in India, go back to the 1970s with the establishment of the National Committee of Environmental Planning and Coordination (NCEPC) in the Department of Science and Technology by Smt. Indira Gandhi, former Prime Minister almost immediately after the historic Stockholm Conference on Environment held in 1972. The Committee was gradually to evolve into a

Thus environment management is guided at the central level by MOEF and by the departments of environment at state level. Individual resources (like water, forests, oceans etc.) are managed by separate ministries and departments (IRADe, NATCOM).

"The state shall endeavor to protect and improve the environment and to safeguard the forests and wild life of the country".
Section 48 A (Directive Principles of State Policy)

"It shall be the duty of every citizen of India to protect and improve the natural environment including forests, lakes, rivers and wildlife, and to have compassion for living creatures."
Section 51-A (g) (Fundamental duties of citizens)

National Policy on Education and Environmental Concerns

The need to provide Environmental Education (EE) to all finds place in the policy documents of the Ministry of Human Resource Development (MHRD) as well as Ministry of Environment and Forests, Govt. of India. General awareness on Environmental concepts is seen as an essential component of general education (Internet Resource4). The need of local environmental conditions related education in schools dates back to the Basic Education Movement launched by Mahatma Gandhi in 1937. The Kothari commission (1964-66) also suggested that basic education had to offer EE and relate it to the life needs and aspirations of the people and the nation (Gopal and Anand, 2005). This thrust has been reflected in the various Education Policy documents developed subsequently.
"There is a paramount need to create a consciousness of the environment. It must permeate all ages and all sections of society, beginning with the child. Environmental consciousness should inform teaching in schools and colleges. This aspect will be integrated in the entire education process".


More recently, the National Curriculum for School Education, 2000, also recognizes the importance of EE. The National Council of Education, Research and Training (NCERT), has been working to incorporate environmentally relevant components in the curricula and textbooks. This provides a framework for Departments of Education in various states of India to in turn green their own curricula and textbooks. NCERT developed a prototype syllabi and instructional material in ten core curricular areas of which protection of environment is one of great importance. Simultaneously, NGOs all over the country have developed innovative programmes and materials to address local environmental concerns. Many of these ideas and activities are slowly becoming part of the formal education system (Internet Resource).

Some of the major schemes implemented by the Ministry of Environment and Forests for imparting EE and for creation of environmental awareness among the general public are as follows (Internet Resource):

- National Environment Awareness Campaign (NEAC).
- Establishment of Centres of Excellence,
- Establishment of National and Regional Museums of Natural History,
- Setting up of Eco-clubs (National Green Corps),
- Production and dissemination of films, audio visual and popular publications on environment,
- Seminars / Symposia / Workshops / Conferences,
- Grants-in-aid to Professional Societies and Institutions,
• Publications of resource material related to environment, and
• Establishment of ENVIS (Environmental Information System) Centres.

Compulsory Exposure of Students on Environment-Legislative Directions

The Hon'ble Supreme Court of India passed an order on 22nd November, 1991 on the writ petition (Civil) No.860/91 in case of Shri M.C. Mehta, vs. Union of India and others. Relevant extracts of the orders are as under: so far as education up to college level is concerned we would require every State Govt. and every Education Board concerned with education up to matriculation stage, even Intermediate Colleges to immediately take steps to enforce compulsory education on environment in a graded way. This should be so done that in the next academic year there would be compliance of this requirement. Financial assistance is given to the states and voluntary organizations on 100% basis for projects and activities related to promotion of environmental education under the scheme.

The Chronological Development and Emergence of Environmental Education

A very brief history of year wise development of environmental education globally has been discussed in the following paragraphs.

1970

Environmental education has its roots in the nature study movement of the early 1900s or the conservation education programs of the 1930s “Dust Bowl” era. Maybe, the public awakening to pollution and general environmental problems culminating in the first Earth Day on April 22, 1970 can be seen as the roots of modern environmental education (Internet Resource^6).

1971

The National Association for Environmental Education [now the North American Association for Environmental Education (NAAEE)] is founded. (Internet Resource^6).
1972

The United Nations Conference on the Human Environment in Stockholm, Sweden is held. Recommendation No. 96 calls for the provision of environmental education as a means to address environmental issues worldwide. EE gained international recognition in this conference.

1975


1977

The United Nations Educational, Scientific, and Cultural Organization (UNESCO) in cooperation with the United Nations Environment Programme (UNEP) holds the Intergovernmental Conference on Environmental Education in Tbilisi, Republic of Georgia. The conference lays out the goals, objectives, and guiding principles of environmental education that many environmental educators still use today.

1987

(a) Year 1987 marked the tenth anniversary of the first Tbilisi conference and the 'Tbilisi Plus Ten' conference, jointly organized by UNESCO and UNEP, was held in Moscow.

"Human action depends upon motivation, which depends upon widespread understanding. This is why we feel it is so important that everyone becomes environmentally conscious through proper EE" (Mojadiji, 2001).

(b) In 1987 the World Commission on Environment and Development (Brundtland Commission) produced the report Our Common Future (Brundtland, 1987). Education was seen as a focal point in this agenda:
"The changes in human attitude that we call for depend on a vast campaign of education, debate and public participation" (Mojadji, 2001).

1990

In 1990, The World Conservation Strategy was launched (IUCN 1980), which was one of the most significant documents concerning conservation and EE at a global level ever to be published.

1992

In order to assess 20 years of work in the field of environment following the 1972 Stockholm conference, the UN organized a conference on Environment and Development (UNCED), also called the Earth Summit at Rio de Janeiro, Brazil 3-4 June 1992. The outcomes of this conference were crystallized in Agenda 21 in which Chapter 36, entitled ‘Promoting Education, Public Awareness and Training’, established the basis for action in EE for Sustainable Development for the years to come (Internet Resource⁷).

1997

A third conference held at Thessaloniki, Greece in 1997 which highlighted the role of education and public awareness for achieving sustainability.

2002

In September 2002, the UN organised the World Summit on Sustainable Development (WSSD) in Johannesburg, South Africa to assess progress made in this direction on a worldwide basis (Internet Resource⁷).

Goals of Environmental Education (Internet Resource⁸)

- to foster clear awareness of, and concern about, economic, social, political, and ecological interdependence in urban and rural areas;
to provide every person with opportunities to acquire the knowledge, values, attitudes, commitment, and skills needed to protect and improve the environment;

- to create new patterns of behaviour of individuals, groups, and society as a whole towards the environment.

The Objectives of Environmental Education (Internet Resource⁶)

1. **Awareness**: to help individuals and social groups acquire an awareness and sensitivity to the total environment and its associated problems.

2. **Knowledge**: to help individuals and social groups to gain a variety of experiences and acquire a basic understanding of the total environment and its associated problems.

3. **Attitude**: to help individuals and social groups, acquire social values, strong feelings of concern for the environment and motivation to actively participate in its protection and improvement.

4. **Skills**: to help individuals and social groups, acquire skills for identifying and solving environmental problems.

5. **Participation**: to provide social groups and individuals with an opportunity to be actively involved at all levels in working toward resolution of environmental problems.

Among the above mentioned objectives of Environmental Education, the present study focuses on the objectives "**Attitude**" & "**Awareness**".

Guiding Principles – Environmental Education should:

- consider the environment in its totality, that is, its natural, human-made, technological, socio-economic, cultural, moral, and aesthetic aspects;

- be conducted as a continuous, lifelong process, beginning at pre-school level and continuing through all the formal and informal phases of education;
be interdisciplinary in its approach, drawing on the specific content of each discipline, thus making a holistic and balanced perspective possible;

examine major environmental issues from local, regional, national, and international points of view so that students may gain insights into environmental conditions in other geographical areas;

focus on current and potentially problematical environmental conditions whilst taking into account the historical perspective;

promote the perception that local, national and international cooperation is valuable and necessary in preventing and solving environmental problems;

enable learners to play a role in the learning experience and provide them with opportunities for making decisions and accepting their consequences;

relate environmental sensitivity, knowledge, problem-solving skills and value clarification to every age category, but with special emphasis being placed on environmental sensitivity to the learners' own community in his/her early years;

emphasize the complexity of environmental problems and thus the need to develop critical thinking and problem-solving skills; and

utilise diverse learning environments and a broad array of educational approaches to learn and teach about all aspects of the environment. Practical activities and first-hand experience should form part of the learning and teaching process (Internet Resource8).

Major Concerns and Issues of EE

- Concept and meaning of environment,
- Components of environment,
• Natural resources,
• Pollution and related problems,
• Current environmental concerns and interdependence between man and nature,
• Energy management,
• Toxicology,
• Health hazards,
• Agriculture and environment,
• Ecology/ecosystem,
• Bio-technology and environment,
• Sustainable development,
• Population, development and the quality of life,
• Environmental policies and legal provisions (NCERT, 2007).

Status of EE

EE has the target population of students, doctors, engineers, administrators, housewives, farmers, educationists, industrialists, politicians, bureaucrats and the common people. Efforts have been made for including EE through legislation, involving community at large, using both formal and informal system of education, as a disciplinary, multi disciplinary and interdisciplinary subject area, and so on. It has to have special emphasis on Teacher’s Education so that the quality of EE improves the formal system of education.

Teacher’s Education and EE

The ultimate goal of EE is to develop informed and skilled citizens who are willing and able to keep action to enforce environmental issues. In other words-promoting responsible environmental behaviour is the terminal aim of EE. Active participation, along with the other aspects of EE, leads to
responsible environmental behaviour. As a result, there is a great need of competent EE educators to help learners acquire knowledge, attitudes, skills, and behaviour associated with environmental literacy. These teachers must be familiar with teaching strategies that will help meet cognitive, affective, and behavioral goals (Mojadji, 2001). Teachers well trained in the contents, methods and process of EE development can also play a crucial role in spreading the impact of EE at the national level. Teacher's training is considered to be the key factor in the development of EE. More than just training, the teachers will be able to effectively transfer the attitude and awareness towards environmental concerns to their students only when they themselves practice these principles in their own life.

1.2 ORIGIN OF THE PROBLEM

Humans continue to engage environmental unfriendly behaviors at the individual, corporate, governmental, and societal levels. These behaviors contributed, and continue to contribute, to the creation and exacerbation of several environmental problems that might pose serious threats to the well being of humans and all living species (Gore, 1993). Environmental education is crucially needed to prepare environmentally literate students who, as future citizens, would play an active role in protecting the environment through making informed decisions and taking environmental friendly actions (UNESCO-UNEP, 1991). Thus the purpose of environmental education is not just to make students aware of the natural world and the environmental issues that will later be a part of their life, but it is to encourage a particular sensitivity and attitude towards the issues.

The process of environmental education, however, is complex and aims to attain several goals at the affective, cognitive, metacognitive, and behavioral levels (Sanera, 1998). For sure, an ultimate goal of this process remains to
influence students' decisions and behaviors. It follows that environmental
decisions and behaviors are influenced by environmental awareness and
attitudes. As such, from a theoretical standpoint, assessing students' 
environmental awareness and attitudes, and understanding the relationship
between these aspects are first necessary steps in realizing the goals of viable
environmental education.

There is a need for a new personal and individualized behaviour based
on global ethics, which can be realized only through the enlightenment and
training of educational professionals. Thus there is a need for interested
teachers and teacher educators. Instilling environmental literacy in future
generations requires educators who are equipped with knowledge, skills, and
commitment (Peer et al., 2007). As leaders of environmental change in schools,
teachers need to believe in their ability to promote environmental change so
they can nurture that belief in their students.

By and large, research in this area indicates that although environmental
education is taken up as a subject in the curriculum however the subject has
certain limitations in regard to its proper implementation. The teacher should
be aware of the environmental education aspects only then he can make the
future generation aware of the environmental problems and their solutions
(Shobeiri et al., 2006). The researcher has studied the environmental awareness
and attitude of the pedagogical students belonging to Bundelkhand region of
M.P. as this region is the most backward as compared to the other regions of
the state. The environmental status of this area is unsatisfactory. This study
would enable the researcher to track how much awareness and attitude these
future teachers possess about environment and whether they will be able to
shape future generations to address the environmental problems and to
conserve and qualitatively improve the environment of the world in general
and their region in particular.
1.3 NEED OF THE STUDY

In India, as a consequence of exploding human population, the quality of the environment has been deteriorating, despite many focused efforts. Degradation of environment results in many problems. Human beings must take individual and social responsibility for the same (Internet Resource\textsuperscript{9}). There is a great need for inculcating environmental awareness and fostering environmental attitudes in our children through education. International bodies such as UNESCO and UNEP feel that environmental education (EE) of teachers should be given high priority. The 99.54 lakh students and the 4.57 lakh teachers in India comprise the reservoir of knowledge. They are believed to be the most sensitive and responsible part of our society having a close contact and impact both direct and indirect over the large section of people of the country (Deb and Bhattacharya, 2006).

In the current context the purpose of studying the attitudes and awareness of pedagogical students' (pre-service teacher trainees/B.Ed. trainees/ student teachers) is a must as these students represent future teachers who will affect the success of EE in schools. Only graduates and postgraduates in any stream are eligible for admission in B.Ed. course. They are introduced to the natural and human aspects of the environment either under a separate area of study/subject called Environmental studies or in a graded way i.e. through different subjects right from primary classes up to college level. The students learn about the environment not only under formal education system but also from his/her home, neighbourhood, state, country and the world. The school is the major venue for developing environmental awareness and fostering right attitude in the students. Students receive various kinds of knowledge from classroom learning.

These future teachers will shape the future generations as teachers, guide and philosophers. The role of teacher is to help the children to know, to protect and to enrich their environment. They have a crucial role in advancing
environmentally literate citizens. They serve as the agent to sow the seeds of environmental education. Children emulate their teachers and draw inspiration from them. Teachers would find it as an urgent need to educate about the environment and be able to convince the students and society about the urgency of environmental protection, only if they themselves are adequately aware of it and have a positive attitude towards environment.

The study will also help to know whether pedagogical students have realized the importance of environmental education and have also been sensitized to the environment and the issues involved in this. As a highly integrated subject, the nature of environmental education is quality education aimed mainly at developing environmental awareness and fostering environmental attitudes of the educated (Wang et al., 2004). Their views and awareness should be understood as they will be responsible for demands on the remaining natural resources (Korhonen and Lappalainen, 2004).

From the objectives of environmental education as stated in Tbilisi declaration, 1977, the researcher selected to study the two of the objectives of EE i.e. Attitude & Awareness using standardized environmental attitude scale and environmental awareness test in relation to type of management, gender and subject stream.

This study will help us to know how much attitude and awareness these student teachers possess towards environment and environmental issues such as air and water quality, wild life, forests, energy, human health, population explosion etc. On the basis of results that will be achieved, we may come to know in which areas of environment, they show a favourable attitude and more awareness & vice versa.

To bring about a thorough change in the outlook of our pedagogical students, it is necessary to examine first what their current stance is. These pre-service teacher trainees may bring about a change in the approach and outlook of the students and society as such.
1.4 STATEMENT OF THE PROBLEM

The problem of the study has been stated as follows:

"A STUDY OF ATTITUDES AND AWARENESS OF
PEDAGOGICAL STUDENTS TOWARDS ENVIRONMENTAL EDUCATION
IN BUNDELKHAND REGION OF M.P."

1.5 OBJECTIVES OF THE STUDY

➢ To study attitudes of pedagogical students towards Environmental Education in Bundelkhand region of M.P.
➢ To compare the attitude of pedagogical students of government and private colleges towards Environmental Education.
➢ To compare the attitude of male & female pedagogical students towards Environmental Education.
➢ To compare attitude of arts & science group pedagogical students towards Environmental Education.
➢ To study awareness of pedagogical students towards Environmental Education in Bundelkhand region of M.P.
➢ To compare awareness of pedagogical students of government and private colleges towards Environmental Education.
➢ To compare awareness of male & female pedagogical students towards Environmental Education.
➢ To compare awareness of arts & science group pedagogical students towards Environmental Education.
➢ To study the relationship between attitudes & awareness of pedagogical students towards environmental education.
1.6 HYPOTHESES OF THE STUDY

Based on the above objectives the following null hypotheses were framed:

**H₀₁** There is no significant difference in attitude between pedagogical students of government and private colleges towards Environmental Education.

**H₀₂** There is no significant difference in attitude between male & female pedagogical students towards Environmental Education.

**H₀₃** There is no significant difference in attitude between pedagogical students of arts & science group towards Environmental Education.

**H₀₄** There is no significant difference in awareness between pedagogical students of government and private colleges towards Environmental Education.

**H₀₅** There is no significant difference in awareness between male & female pedagogical students towards Environmental Education.

**H₀₆** There is no significant difference in awareness between pedagogical students of arts & science group towards Environmental Education.

**H₀₇** There is no significant relationship between attitudes and awareness of pedagogical students towards environmental education.

1.7 CONCEPTUAL FRAMEWORK

(i) Attitudes towards EE

✧ Newhouse (1990) suggests that attitude is a very important factor in influencing human behavior. Attitude is defined in his study as positive or negative feelings about some person, object, or issue. Having these feelings is affected by personal opinion, and these personal opinions can be gained by personal life experiences and education.

✧ According to Bogardus, 1931 "An attitude is a tendency to act toward or against something in the environment, which becomes thereby a positive or
negative value”. Attitude is one of Jung’s 57 definitions in Chapter XI of *Psychological Types*. Jung’s definition of attitude is a "readiness of the psyche to act or react in a certain way" (Wikipedia, 2006a).

- An attitude is a mental or neural state of readiness, organized through experience, exerting a directive or dynamic influence on the individual’s response to all objects and situations to which it is related (Internet Resource\(^\text{10}\)).

(ii) **Awareness towards EE**

- ‘Awareness’ means having or showing an understanding of oneself, one’s surroundings, and other people (Longman Dictionary of Contemporary English, 1994).

- Kollmuss and Agyeman (2002) define environmental awareness as knowing about the impact of human behaviour on the environment.

- The growth and development of awareness, understanding and consciousness towards the biophysical environment and its problems, including human interactions and effects. Thinking "ecologically" or in terms of an ecological consciousness. (Internet Resource\(^\text{11}\)).

(iii) **Pedagogical students**

Pedagogy is defined as "the art or science of being a teacher. The term generally refers to strategies of instruction, or a style of instruction. Pedagogy is also sometimes referred to as the correct use of teaching strategies" (Wikipedia, 2006b). An appropriate definition of pedagogy is systematized instruction or principles that promote student learning (Internet Resource\(^\text{12}\)). According to word web thesaurus/dictionary pedagogy means the profession of a teacher; activities that impart knowledge. Therefore the pedagogical students are the students who are taking training to become teachers. The present study also refers to this particular definition.
In order to define the concept “Environmental Education” one needs to focus on the meaning of “education” and “environment”.

(iv) Education

Education was described in the Oxford Dictionary (Fowler & Fowler, eds., 1990) as “education” embracing both teaching and learning, embracing all learners irrespective of the type of learner. The learning process should produce an output while the total development of the individual is the focus of education. The systematic instruction, schooling or training given to people in preparation for adult life is Education (Simson and Weiner, 1989).

(v) Environment

According to Section 2(a) of the Environmental Protection Act, 1986, Environment includes:

(i) Water, air and land

(ii) The inter-relationship which exists among and between

(a) water, air and land and

(b) human beings, other living creatures, plants, micro-organisms & property.

<table>
<thead>
<tr>
<th>ENVIRONMENT</th>
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</thead>
<tbody>
<tr>
<td>NATURAL (BIO-PHYSICAL)</td>
</tr>
<tr>
<td>Physical (Inorganic)</td>
</tr>
<tr>
<td>Air</td>
</tr>
<tr>
<td>Water</td>
</tr>
<tr>
<td>Land</td>
</tr>
<tr>
<td>Energy</td>
</tr>
</tbody>
</table>

Fig. 1.1: Chart depicting scope of environment
(vi) Environmental education

1. *UNESCO, Working Committee, 1970*

"Environmental education is the process of recognising values and clarifying concepts in order to develop skills and attitudes necessary to understand and appreciate the inter-relationship among man, his culture and his bio-physical surroundings. Environmental education also entails practice in decision making and self formulation of a code of behaviour about issues concerning environmental quality (Chhatwal, 1998)."

2. *UNESCO, Tbilisi Declaration, 1978:*

Environmental education is a learning process that increases people's knowledge and awareness about the environment and associated challenges, develops the necessary skills and expertise to address the challenges, and fosters attitudes, motivations, and commitments to make informed decisions and take responsible action (Njdep, 2008).


"For the purposes of this Act, the term Environmental Education means the educational process dealing with man's relationship with his natural and man-made surroundings, and includes the relation of population, pollution, resource allocation and depletion, conservation, transportation, technology, and urban and rural planning to the total human environment (Chhatwal, 1998)."


"Environmental Education appears to be a process that equips human beings with awareness, knowledge, skills, attitudes and commitment to improve environment (Sharma, 2007)."


"Environmental Education is a way of implementing the goals of environmental protection. It is not a separate branch of science or subject of
study. It should be carried out according to the principle of lifelong integral education (Krishnamacharyulu, 2004).”

6. According to Allers, 1997

Education ABOUT the environment has the purpose of developing knowledge and understanding about values and attitudes related to environment. Education FOR the environment by developing a genuine concern for and sensitivity towards its protection and preservation. Education IN or THROUGH the environment uses the environment as a resource for learning (Fig. 1.1).

![Fig 1.2: Inter-related components of EE (Palmer, 1998)](image)

(vii) Bundelkhand Region of M.P.

Bundelkhand in Madhya Pradesh is one of the underdeveloped regions which requires attention and efforts of development. Here local dialect ‘Bundeli’ is spoken by inhabitants of the area. It is rocky and has a high percentage of barren and uncultivable land. The soil form is the mixture of black and red-yellow which is not considered very fertile (Internet Resource). The environmental status of this area is unsatisfactory. In this region five districts are included e.g. Sagar, Damoh, Chattarpur, Panna & Tikamgarh.
Environmental conditions of this region

Bundelkhand is seen as a region suffering from acute ecological degradation. Logging and mining activities over the past several centuries have denuded the landscape and facilitated the erosion of the fragile soils. Additional population and livestock pressures, which are already high, have only served to aggravate the problem.

Irregular rainfall has often led to either drought or flood conditions with consequent effects on the natural and human environment.

In recent years water quality has also emerged as a principal environmental concern. Erosion from marginal lands and agricultural fields has increased the sediment load in the rivers and has already shortened the lifespan of many check dams and water harvesting structures. The growing use of pesticides and chemical fertilizers, which until now has remained quite low, will also affect water quality in the future.

All the concerned districts of Bundelkhand have their economy predominantly based on agriculture. But the infertility of land, low productivity, improper land distribution, lack of irrigation facilities and unscientific cultivation in terms of non-use of modern methods in agriculture have kept the agriculture-based economy on the verge of subsistence only.

Though, MP is rich in forest, Bundelkhand has lost its forest cover to a large extent. So, the forest as a means of livelihood is becoming extinct day by day.

What is worth observing is that Bundelkhand is rich in some important minerals and stones but mining and quarrying involves exploitation of wage labour and the issue of health hazard is also involved in it. A large number of TB cases and other such respiratory diseases can be noticed among the workers involved in this business.
 Poverty level is significantly high.

 Non availability of potable drinking water is a major problem in the villages of Bundelkhand. With no proper transportation and links within the districts and outside, internal mobility is very slow. As Bundelkhand receives average rainfall once in 5 or 7 years, economic backwardness and low industrial growth rate leaves the labourers without work for most of the period in a year. In order to earn their livelihood, they are always to be on the move.

1.8 DELIMITATIONS OF THE STUDY

 Delimitation of the study means what this study is only going to tackle. It tells the range of the study. Following are the delimitations of this study:

1. Geographically, the researcher has selected Bundelkhand Region of M.P. as the area of investigation.

2. The study was confined to pedagogical students of only B.Ed. (Bachelor of Education) degree.

3. Only graduation degree of the students has been taken into consideration for forming subject wise groups.

4. Students pursuing graduation degree in History, Geography, Civics, Economics, Social Studies, Commerce, Hindi and English subjects were included in arts group whereas students pursuing graduation degree in Life Science, General Science, Chemistry, Physics, Maths were included in science group.

5. The study was confined to only those B.Ed. colleges which were approved by NCTE in Bundelkhand region of M.P.

6. The research was confined solely on male and female students of arts and science group belonging to government and private colleges.
7. The study was confined to only two objectives of EE i.e. attitude and awareness due to constraint of time and resources.

8. The attitudes and awareness of pedagogical students have been measured through available tools.

1.9 ORGANIZATION OF THE THESIS

Chapter One: Introduction
This chapter gives an overview of what this study consists of. This includes background to the study, origin of the problem, need of the study, statement of the problem, objectives and hypotheses of the study, conceptual framework, delimitations and organization of the study.

Chapter Two: Review of the Related Literature
This chapter covers a brief review of the work already conducted in abroad and in India and evaluation of the studies.

Chapter Three: Research Methodology
This chapter focuses on the outline of the research methodology adopted in the present study. It describes the following: method, population, sample of the study, tools used, application of tools, statistical techniques and problems faced during study.

Chapter Four: Analysis and Interpretation
The present chapter provides an analysis and interpretation of the data.

Chapter Five: Findings, Implications and Suggestions
This chapter consists of the following: findings of the study, hypotheses verification, results, discussion of the results, conclusions, educational implications of the study and suggestions for further studies.