CHAPTER – I

THEORETICAL BACKGROUND

1.1 INTRODUCTION

Education is generally acknowledged as one of the crucial allies of the developmental process. ‘No nation can rise above the quality of its education system’. Education is a powerful tool to transfer and percolation of knowledge. The educators should meet the fast changing demands and expectations of the society from time to time. The expanding knowledge of science and technology which accompanied by fast growing environmental problems has set in motion, the updating of educational curricula to meet the new changes and preparing the environmental conscious citizen. Since no education system can rise above the quality of its teacher, the challenge of teacher education appears to be the most daunting challenge facing the education system in general. Educating the people, particularly the youth about the environment and its related aspects helps to link the learning process with daily life experiences, thus making it more meaningful.

One of the greatest problems facing the earth at present is the impact of humans on environment. Experts argue that the environmental problems caused by human development, such as global warming, the destruction of rainforests and threats to bio-diversity, have reached an unprecedented scale and complexity in world history. Since 1992 World Environmental Conference in Rio de Janeiro, a succession of international environmental conferences have acknowledged that the threat to the Earth’s ecosystems are global problems that need to be viewed and solved cooperatively by many people from a range of cultural backgrounds.
The Asian Environmental Outlook Report (ADB 2001) underscored that because of the environmental degradation, people’s health and livelihoods, the survival of species and ecosystem services that are the basis for long term economic development are at risk. It also mentions that Asia will find it difficult to achieve long term sustainable economic growth unless countries in the region play attentive to solving the enormous environmental problems. UNEP’s Global Environment Outlook Report (2000) blames the intense poverty of the marginalized group and excessive consumption by a few as two major causes of environmental degradation.

Recent international meetings emphasized the task of crucial importance, that of handling on to future generations, a world capable of promoting the natural life enhancing the beauty and life sustaining resources they will need. This calls for the environmental education and training of each successive generation in order to ensure widespread environmental literacy that includes the elementary knowledge related to environment and its conservation, skills and motivation essential for people to participate in the solution, anticipation of environmental problems and to make their own contribution to suitable development.

1.2 HISTORICAL PERSPECTIVES OF ENVIRONMENTAL EDUCATION

The evolution of environmental education has incorporated the significant influence of some of the ‘great’ eighteenth- and nineteenth-century thinkers, writers and educators, notably Goethe, Rousseau, Humboldt, Haeckel, Froebel, Dewey and Montessori. While such influential pioneers clearly contributed to environmental thought and practice, many writers (e.g. Sterling, 1992) attribute the ‘founding’ of environmental education in the UK to a Scottish Professor of
Botany and an originator of town and country planning—Sir Patrick Geddes (1854–1933). He is regarded by many as being the first to make that all important link between the quality of the environment and the quality of education. Geddes pioneered instructional methods which brought learners into direct contact with their environment.

It was from the rural studies movement that the term ‘environmental studies’ evolved. Indeed the present day National Association for Environmental Education in the UK (NAEE as from 1970) developed from a National Rural Environmental Studies Association formed in 1960, which became the National Rural and Environmental Studies Association, and then the NAEE (National Association for Environmental Education, UK). By the mid-1940s, the term ‘environmental studies’ was well in use, largely consisting of a mixture of teaching elements of geography, history and local nature study. The first recorded use of the term ‘environmental education’ in Britain may be traced to a conference held in 1965 at Keele University, Staffordshire, with the purpose of investigating conservation of the countryside and its implications for education.

In 1968, the United Nations Educational, Scientific and Cultural Organization (UNESCO) organized a Biosphere Conference in Paris, and in a later report on the event IUCN declared that ‘perhaps for the first time, world awareness of environmental education was fully evidenced’ (IUCN, 1971). The 1968 UNESCO Conference called for the development of curriculum materials relating to studying the environment for all levels of education, the promotion of technical training, and the stimulation of global awareness of environmental
problems. It also advocated the setting up of national coordinating bodies for environmental education around the globe.

The greatest landmark in the history of attempting to define the term ‘environmental education’ was an IUCN/UNESCO ‘International Working Meeting on Environmental Education in the School Curriculum’ held in 1970 at the Foresta Institute, Carson City, Nevada, USA. In this meeting the so called ‘classic’ definition of Environmental Education was formulated and adopted.

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

The support of key international institutions continued to raise the profile of environmental education during the 1970s, leading to a great deal of common understanding of the aims, objectives and approaches to the subject. The world’s first intergovernmental conference on environmental education was organized by the United Nations Education, Scientific, and Cultural Organization (UNESCO) in cooperation with the UN Environment Programme (UNEP) and was convened in Tbilisi, Georgia (USSR) from October 14-26, 1977.

The Tbilisi Declaration was adopted by acclamation at the close of the intergovernmental conference. The declaration noted the unanimous accord in the important role of environmental education in the preservation and improvement of the world’s environment, as well as in the sound and balanced development of the world’s communities. The Tbilisi Declaration together with two of the
recommendations of the Conference constitutes the framework, principles, and guidelines for environmental education at all levels—local, national, regional, and international—and for all age groups both inside and outside the formal school system. One of the important recommendations in this conference was:

“A basic aim of environmental education is to succeed in making individuals and communities understand the complex nature of the natural and the built environments resulting from the interaction of their biological, physical, social, economic, and cultural aspects, and acquire the knowledge, values, attitudes, and practical skills to participate in a responsible and effective way in anticipating and solving environmental problems, and in the management of the quality of the environment”.

Principle 19 of the United Nations Conference on the Human Environment held in Stockholm, Sweden, in 1972 declared that:

“Education in environmental matters for the younger generation as well as adults … giving due consideration for the underprivileged is essential”.

This Stockholm Conference reflected the rapidly growing global interest in and concern for the environment of the 1970s. It led to the establishment in 1975 of the United Nations Environment Programme (UNEP), which together with UNESCO founded the UNESCO/UNEP International Environmental Education Programme in 1975.

The International Environmental Education Programme (IEEP) was launched at an International Workshop on Environmental Education held in Belgrade by UNESCO/UNEP. IEEP produced the first intergovernmental statement on environmental education. It listed the aims, objectives, key concepts
and guiding principles of it in a document prepared at the meeting known as ‘The Belgrade Charter—A Global Framework for Environmental Education’. The brief but comprehensive set of objectives for environmental education prepared at Belgrade are summarized as follows:

1. To foster clear awareness of and concern about economic, social, political, and ecological inter-dependence in urban and rural areas;
2. To provide every person with opportunities to acquire the knowledge, values, attitudes, commitment and skills needed to protect and improve the environment;
3. To create new patterns of behaviour of individuals, groups and society as a whole towards the environment. (UNESCO, 1975)

In 1980 the World Conservation Strategy was launched; the next major international initiative, by IUCN, UNEP and (then) World Wildlife Fund (WWF). This key document stressed the importance of resource conservation through ‘sustainable development’, and the idea that conservation and development are mutually inter-dependent. The World Conservation Strategy included a chapter on environmental education, containing the message:

_Ultimately, the behaviour of entire societies towards the biosphere must be transformed if the achievement of conservation objectives is to be assured…the long term task of environmental education (is) to foster or reinforce attitudes and behaviour, compatible with a new ethic._ (IUCN, 1980)

1987 was another critical year on the international scene, marking the tenth anniversary of the first Tbilisi Conference with the holding of a ‘Tbilisi Plus Ten’ Conference, jointly organized by UNESCO and UNEP, and held in Moscow. A
number of major themes emerged from the deliberations of this event, including the vital importance of environmental education as summed up in its opening address.

In the long run, nothing significant will happen to reduce local and international threats to the environment unless widespread public awareness is aroused concerning the essential links between environmental quality and the continued satisfaction of human needs. 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 environmental education. (UNESCO, 1987)

1987/88 marked the European Year of the Environment within the European Community, and in May 1988 a resolution was passed within the European Community when the Council of Ministers agreed on ‘the need to take concrete steps for the promotion of environmental education so that this can be intensified in a comprehensive way throughout the community’. The adopted resolution concluded that ‘environmental education should be an integral and essential part of every European citizen’s upbringing’. It had the following objective and guiding principles:

The objective of environmental education is to increase the public awareness of the problem in this field, as well as possible solutions, and to lay the foundations for a fully informed and active participation of the individual in the protection of the environment and the prudent and rational use of natural resources. For the achievement of the objectives environmental education should take into account particularly the following guiding principles:
• the environment is a common heritage of mankind,
• the common duty of maintaining, protecting and improving the quality of the environment, as a contribution to the protection of human health and the safeguarding of the ecological balance,
• the need for a prudent and rational utilization of natural resources,
• the way in which each individual can, by his own behaviour, particularly as a consumer, contribute to the protection of the environment.


Several important documents were signed at the Summit, representing the beginning of a long process of interpreting, responding to and implementing recommendations and agreements designed to change the future of planet Earth. The centerpiece of the Rio agreements is Agenda 21, a major action programme setting out what nations should do to achieve sustainable development in the twenty-first century. There were implications for environmental education throughout this document, but of particular significance are Chapters 25, on Children and Youth in Sustainable Development, and Chapter 36, on Promoting Education, Public Awareness and Training. The Rio Declaration sets out a blueprint for a sustainable future, whilst Agenda 21 provides a guiding programme for its interpretation.
In 1996, the UK Government’s strategy for environmental education in England was published: *Taking Environmental Education into the 21st Century*. This strategy provides a general framework which encompasses the National Curriculum, the 16–19 sector, further and higher education, training and informal education. The strategy’s objective is to instill in people of all ages, through formal and informal education, and training, the concepts of sustainable development and responsible global citizenship; and to develop, renew and reinforce their capacity to address environment and development issues through their lives, both at home and at work (DfEE, 1996). On the international scene, probably the most significant publication of the early 1990s is *Caring for the Earth: A Strategy for Sustainable Living* (IUCN, UNEP, WWF, 1991). This was welcomed as a new and thoroughly revised version of the *World Conservation Strategy*.

The field of Environmental Education came to prominence in Australia with the organization in Melbourne of the 1975 UNESCO seminar *Education and the Human Environment*. While environmental education in Australia was arguably shaped by international developments during the 1970s, the field became more highly organized internally in 1980 with the formation of its own national professional association which has gone from strength to strength with a significant presence in each state and territory.

Historically, environmental education in Australia has been teacher-based and school-based. Interested teachers have had the opportunity to develop curricula based on investigation of environmental issues within the school’s own community. In the last three or four years, however, the development of national
curriculum statements and states’ and territories’ derivatives of these has resulted in a greater centralization of environmental education curriculum. The effect of this centralization of curriculum on the strongly contextual, community-based nature of environmental education is still being worked through (Robottom R Ian, 2010).

Environmental education is increasingly recognized by Canadian educators as an important emphasis within public education. Since the late 1960s, when environmental issues became a focus for public attention, educators, often with a background in areas such as nature study or natural history, conservation education and outdoor education, have worked to construct the emerging area of environmental education. The Environmental Citizenship programme (Government of Canada, 1993) and the Learning for a Sustainable Future programme for elementary and secondary schools are examples of federal/provincial government support for at least the concepts of environmental education and/or sustainable development (Hart Paul, 2010).

In China, environmental education in higher education could be divided into two main categories, one is professional environmental education for those who will go in for environmental work after graduation, and the other is general environmental education for those who will enter various fields of society. In recent years, several institutions have begun to set up a course of environmental education for those who are preparing for bachelor or master degrees of education. Such a course does not involve the gaining of specific environmental knowledge and concepts, but involves the pedagogic principles of environmental education, the aim of which is to equip those would-be educationists with some theoretical
knowledge of environmental education as a research field. In 1979, a conference on environmental education in the level of basic education was held by the Environmental Education Committees of the China Association for Environmental Science, which recommended that environmental education be undertaken at the primary and secondary stages of education. Many schools in China instruct students to examine specific environmental problems. The aim of the approach is to help students consolidate learned or study-associated knowledge and concepts. There are two forms of the approach: discovery learning and problem explanation. Also they follow experimental approach, field study approach and simulated approach (Huaixin Zhu, 2010).

From the above section, it is very clear that environmental education has got its strong roots in almost all countries across the globe, who are well informed about the urgency of the same. EE has got its important presence in all levels of education and focus on rigorous researches also.

1.3 THE RISE OF SUSTAINABILITY MOVEMENT

Around the turn of 1990s, another more encompassing theme emerged as marked by a number of events:

- In 1987, sustainable development was first defined as “development that meets the needs of the present without compromising the ability of further generations to meet their own needs” (The Bruntland Commission’s report: Our Common Future).

- In 1990, the U.N. Commission for Europe issued a Declaration on Sustainable Development.

- In 1991, sustainable development was defined as “improving the quality of human life while living within the carrying capacity of supporting ecosystems.”
(Caring for the Earth: A Strategy for Sustainable Living, by the World Conservation Union (IUCN), the United Nations Environment Programme (UNEP) and the World Wide Fund for Nature (WWF)).

- In 1992, U.N. Conference on Environment and Development in Rio Di Janeiro adopted Agenda 21, which gave high priority to the role of education in pursuing the kind of development that would respect and nurture the natural environment (United Nations, 1992)

- In 1993, President Clinton created the President’s Council on Sustainable Development (PCSD).

Ten years later, in 2002, the Johannesburg Summit broadened the concept to encompass social justice and the fight against poverty as key principles of sustainable development. The Summit proposed the Decade of Education for Sustainable Development for the period 2005 – 2014.

1.4 INDIAN PERSPECTIVES

The environmental education movement in India has started only in the later phase of the 20th century. EE is given as a fresh style of education which will seek to make pupils fully aware of the problems connected with their environmental and teach them new attitudes and behaviours, to enable them together with the other members of their community to contribute their solution.

Recently, in India, environmental issues attracted popular attention and it was felt that education had to respond appropriately to this crying need of the time. The National Policy on Education-1986 (renewed in 1992) stated: “There is a paramount need to create a consciousness of the environment. It must permeate all ages of 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 educational process”.

According to National Curriculum for Elementary and Secondary Education – A Framework 1988, “the school curriculum should highlight the measures for protection and core of the environment, prevention of pollution and conservation of energy”. The National Curriculum Framework for School Education (NCFSE, 2000) also highlights the need for including environmental concerns at the levels of schooling. It asserts the fundamental duties (Article 51A of part IVA of the Indian Constitution)... “Protect and improve the national environment including forests, lakes, rivers, wildlife and have comparison for the living creatures”. As one of the general objectives of education, it mentions, “understanding of the environment in its totality, both natural and social and their interactive processes, the environmental problems and the ways and means to pressure the environment”.

National Curriculum Framework (NCF 2005) has made two significant contributions to the curricular discourses in India viz. a) learning as a process of construction of knowledge b) critical pedagogy as means for reflecting “critically on issues in terms of their political, social, economic and moral aspects”. The constructivist perspectives allows engagement of the learner in “actively constructing their own knowledge by connecting new ideas to existing ideas on the basis of the materials or activities present to them (experiences). Almost complementing this approach, critical pedagogy entails the acceptance of multiple views on social issues and commitment to democratic forms of interaction, a critical frame work helps the children to see social issues from different
perspectives and understand how such issues are connected to their lives”. The pedagogic space created by constructivist approach combined with critical pedagogy is a mean of empowerment of the student teachers and the children.

The national perspective thus emphasizes, “The further course of study in EE should emphasize the emotional and attitudinal aspects of the learners’ personality along with the requisite cognitive component most of which is available in different subject textbooks. Thus it is argued a value based, action oriented course of EE would lead from knowledge to feeling and finally to appropriate action. This alone would bridge the wide gulf between the avowed intent and the actual implementation of a programme that concerns the present and the future of the entire humanity on earth”.

1.5 CONCEPTUAL TRANSITIONS FROM ENVIRONMENTAL EDUCATION (EE) TO EDUCATION FOR SUSTAINABLE DEVELOPMENT (ESD)

The main changes in the past three decades as the educational emphasis and concerns about environment and its relation to development are shifting from EE to ESD, could be discussed at the conceptual level as, there are at least three key differences that can be identified in comparison of EE in 1970s with ESD thirty years later (Chenrachasit Phanitda, 2006).

1. from spatial dimension to temporal dimension: The cognitive expansion of the EE effort was primarily on the spatial dimension. In contrast, the concept of sustainability, as aforementioned in its various definitions, is characterized by a more explicit expansion on the temporal dimension, calling public attention to longer-term consequences, to the condition of future generations, and
to identifying far-sighted plans and strategies for sustainable living and development.

2. *from resource crisis to ecological crisis:* In early 1970s, especially after the publication of “The Limits to Growth” (Meadows et al., 1973), the concern and debate over the capacity of the earth’s resources and environmental services to meet human demands further fumed the environmental educators’ enthusiasm. However, over the past two decades, with our deepened thinking on ecological systems, the initial alarming concerns of resource scarcity have given way over time to a broader view of growing insecurity, due to ecological damage and loss of biodiversity partially caused by human actions (Naess, 1973; Devall & Sessions, 1985; Wilson, 1992; Pirages & Cousins, 2005).

3. *from causality to complexity:* Most of the EE programs developed in the past three decades are based on a rather linear, causal assumption that citizens once equipped with right knowledge, attitudes, and skills will increase their chances of taking responsible and participatory action, which consequently will bring about positive changes to the environment. In comparison, the ESD movement has taken a much more complex view regarding how it can achieve the desired goals. First, it has been recognized that what lies in the centre of ESD seems to be the students’ motivational attributes, such as their respectful value system, their tendency to practice far-sighted vision—qualities that many of our educators still do not know how to improve with educational interventions (UNESCO, 2003, 2005). Second, one of the most profound contributions of the ESD thinking, as different from the EE concept, is that sustainable development cannot be achieved merely by the leadership of the intellectual or motivational
elite groups of a society. Third, the same as EE, the ESD efforts recognize the importance of multitudes--e.g., multi-discipline in decision making, multi-methods in problem solving, multi-levels in policy development and implementation. But ESD further emphasizes the necessity of continuing and life-long learning, ultimately because the quality of life at each stage of the life course, for each generation in its own region, has to be built and rebuilt upon the meaningful harmony between the developing individual and its dynamic environment, rather than the previous achievement or accumulation of a quantifiable growth (Daly & Cobb, 1989).

Many of the developmental and experimental researches concluded that, if one is to design and implement educational programmes aimed at producing an informed population of citizens who care about the future of the planet and engage in appropriate pro-environmental behaviours, then some subject knowledge of the issues concerned is essential.

The major environmental issues and concerns that could be included EE are listed below:

1. Population growth, poverty and inequality with the key issue global population explosion: The population increase together with the worlds’ sustainable consumption pattern is putting ever-changing stress on the land, water, air, energy and other essential resources of the planet. Rapid population growth is usually accompanied by serious environmental degradation, including soil erosion, deforestation and desertification.

2. Food and agriculture with the key issue of growing demand of food, limits to increasing supply: Serious decline in productivity of food producing areas is
one of the major negative environmental impact. As the availability of fertile crop land declines under pressure from increasing populations, nations depend more and more on genetic manipulations of plants and animals to provide enough food.

3. Tropical forest, with the key issue of tropical deforestation: A good half of the world’s original area of tropical forest land has now gone, and each year some further 11 million hectares are destroyed. Deforestation causes near or complete extinction of numerous plant and animal species, plus the loss of valuable forest products, including fuel wood, timber and other products available for human development.

4. Biological diversity, with the key issue of extinction of biological resources (genes, species, populations and ecosystems): The normal rate of extinction of many of the world’s biological resources have accelerated, and still are rapidly accelerating.

5. Desertification and drought with the key issue of human impact on the land, which causes serious degradation, and increasing poverty and starvation: Land degradation in the forms of soil erosion, desertification, and loss of soil fertility is having a most serious impact on food production, and on world levels of poverty and starvation. Desertification is caused almost entirely by human misuse and overuse of land. Major causes are overgrazing by livestock and deforestation for fuel wood.

6. Fresh water with the key issue of growing fresh water demand, declining water quality: The main causes of current and projected lack of availability of adequate amounts of fresh water include poor management, linked to lack of
adequate conservation, inadequately treated sewage and industrial waste, loss of natural water catchment areas, deforestation, dams, river diversions and irrigation schemes; pollution linked to the poor agricultural practices which release pesticides and other harmful chemicals into ground water and rapid local increase demands in some areas.

7. Oceans and coasts with the key issue of degradation of marine resources: There have been significant increases worldwide in overfishing, unauthorized fishing, ecosystem degradation and in the use of inappropriate equipment that catches too many fish. Furthermore, there has been too little cooperation among nations to prevent overfishing and related problems. Oceans and coastal zones are delicately balanced ecosystems. As well as overharvesting, they are threatened by construction and development; and by pollution from oil, municipal and industrial wastes, and other land- and sea-based sources.

8. Energy with the key issue of growing energy demand, unsustainable use of pollution of the environment: Air pollution from the increased use of fossil fuels is harming human health, causing acid rain, which in turn damages whole ecosystems, and increases the build-up of atmospheric carbon dioxide and the likelihood of global warming and climate instability. Accessing and developing adequate and affordable energy supplies in the long term presents serious economic and environmental problems for both developed and developing nations. Patterns in world energy use are characterized by sharp contrasts and inequalities. The increase of nuclear power as an energy source has highlighted its potential for nuclear accidents, its high costs, technical and
waste disposal problems. This trend has also expanded the world’s stock of nuclear weapons and potential for nuclear terrorism.

9. Atmosphere and climate with the key issues of air pollution, acid deposition, ozone layer depletion and climatic change. The Earth’s atmosphere is under increasing pressure from pollutants. These include the so-called ‘greenhouse gases’ that may change the climate of the planet, and also from chemicals that reduce the ozone layer. Numerous toxic gases and other pollutants entering the air have been shown to cause serious damage to human health.

10. Managing solid waste and sewage with the key issue that solid waste volume is exceeding disposal capacity: The rapidly expanding quantity of waste (solid and sewage), particularly from cities, poses serious threats to human health and the environment. In developing countries, less than 10 per cent of urban wastes are treated, and only a small proportion of that treatment meets acceptable standards. To manage this growing volume of solid waste, it will be necessary to rely on a combination of approaches to dealing with it, viz. waste reduction, recycling, composting, use of landfills, and incineration.

1.6 THE ROLE AND AIMS OF ENVIRONMENTAL EDUCATION

Most of the initiatives described above express support for the introduction of world-wide environmental education. However, considerable differences arise when the precise form of this education is considered, and debate continues on the most successful way to approach environmental education in practice. A key issue is the relative importance of three aspects of environmental education: knowledge, attitudes and behaviour, illustrated by the three aims for environmental education devised by the Tbilisi conference in 1977. The relationship between these three aspects is reflected in the traditional division of environmental education into
education about the environment; education from or in the environment and education for the environment (Huckle, 1991; Fien, 1993; Palmer & Neal, 1994; Tilbury, 1995). These three strands each emphasized different aims and teaching methods, which are briefly outlined below:

1. **Education about the environment** – Students develop knowledge and understanding about the content and processes of the environment (Centre for Environmental Education, 1995). Objectives are largely cognitive, the main aim being to a mass information. Education about the environment has been criticized for its failure to examine the social causes of environmental issues or look at sustainable alternatives. Pupils are not encouraged to understand the cultural, political and economic systems which inter-relate with environmental issues, and therefore lack the depth of understanding needed to enable them to take action with regard to environmental problems (Huckle, 1991). Education about the environment is seen as objective and value-free. The discussion of personal viewpoints is not encouraged.

2. **Education from (or in) the environment** – Students are taught by using the environment as a learning resource, either as a medium for discovery or as a source of teaching material. A wide variety of activities are encompassed, including outdoor education, field trips and use of the school grounds to teach about the environment. Objectives are equally varied, involving cognitive and affective aims such as learning important concepts, improving fieldwork skills, or nurturing a sense of involvement in the environment. It has also been criticized however, and has been described by John Huckle as “naive experimental encounters with nature” (Huckle, 1983).
3. Education for the environment (or for sustainable development) – Students are explicitly encouraged to develop and express their own attitudes towards environmental issues, and make informed decisions concerning the links between human activity and the environment. Objectives go beyond the acquisition of knowledge and skills: pupils are encouraged to develop an informed concern for the environment and to take action to improve or preserve some aspect of the local environment. Education for the environment aims to assist students in developing the skills which allow them to participate fully in a democratic society (Fien, 1993; Sterling, 1993; Tilbury, 1995).

Thus, there is a clear gradation from the largely knowledge-based “education about the environment”, through the knowledge and attitude development of “education from/ in the environment”, to “education for the environment” which involves knowledge, attitudes and behavioural outcomes. Although traditionally, education about the environment has been the most prominent in schools, education for the environment (or “education for sustainable development”, a closely-related alternative) has been gaining in popularity, and its influence can be seen even in mainstream curriculum documents (Naish et al., 1987; National Curriculum Council, 1990; Curriculum Council for Wales (CCW), 1992; CCW, 1993). This is especially clear with regard to the proliferation of documents which link environmental education with the idea of influencing attitudes and behaviour. Increasingly, the purpose of environmental education is being viewed as creating a new generation of concerned individuals with the skills and motivation to take action on environmental problems:
“Environmental education has the task of transforming the attitudes and behaviour of entire societies if a new conservation ethic embracing plants and animals as well as people is to become a reality.” (International Centre for Conservation Education, 1984)

This aspect has filtered down into all aspects of environmental education, and has become a key area for research and discussion in the literature. Advocacy of values education of one kind or another is widespread, and it is commonly argued that teaching about environmental issues without considering values is an impossibility:

“Environmental problems are not simply technical but imply a complex system of values.” (Elliott, 1991)

Similarly, in a review of the research findings, Iozzi argues that because environmental problems are social as well as scientific, “… environmental attitudes and values issues must be important and prominent aspects of education programs taught in our nation’s schools” (Iozzi, 1989, p. 6).

Frances Slater adds her support to the increasing concern with values in geography, and addresses some of the potential problems, such as the possibility of indoctrination; the question of whether controversial issues can be taught in a value-free way; and the problems of relativism. She concludes that:

“... An explicit knowledge of strategies for exploring and assessing values is a defense against indoctrination, that geography is not a value free subject, and that there are some ultimate values and moral principles that cannot be reduced to being relatively right or wrong, good or bad, desirable or undesirable, however problematic their implementation may be.” (Slater, 1993, p. 112)
This is indicative of the movement towards developing students “values or attitudes, rather than simply recognition” of different-value positions. Caduto extends this argument further by advocating specific values education strategies for environmental issues on the grounds that environmental concern is a universal moral value:

“The philosophical underpinning for this comprehensive environmental values education approach is the existence of objectively verifiable values. These values have as their source religious beliefs and secular philosophies spanning 25 centuries of human moral development.” (Caduto, 1983, p. 17)

Although this view of environmental values as in some way “objectively verifiable” is not widespread, many issues addressed in environmental values education do appear to reflect this perspective. Knapp suggests as a question for investigation, “What are the energy alternatives most compatible with environmental quality?” (Knapp, 1983, p.24). The assumption within this question is that environmental quality is the most important and desirable value rather than, for example, economic concerns. He states that students will be “exposed” to most-values, rather than have them “imposed” upon them but argues that the principle aim is to provide students with opportunities to, “... define, clarify and develop a personal value system leading to more moral environmental behaviour” (Knapp, 1983, p. 25). No explanation is offered as to why developing the students’ own personal value systems should lead them to ‘more moral’ environmental behaviour however.

The influence of the values education advocates, and the increasing move towards an approach in line with “education for the environment” can be seen in many of the curriculum documents produced in the UK. For example, the
NCC document, Curriculum Guidance 7: Environmental Education contains the following quote:

“(Teachers should be)... promoting positive attitudes towards the environment by encouraging: appreciation of and concern for the environment; independence of thought; respect for others’ beliefs...” (NCC, 1990)

Similarly, the Schools “Council Geography 16-19 syllabus” states that the course should:

“... Enable candidates to acquire... an attitude of concern for the quality of environments, for the condition of human life and for the biosphere as a life support system.” (University of London Examination and Assessment Committee, 1996)

These statements reflect the international mood, and the increasing emphasis on students attitudes and values.

Within schools, it has also been claimed that:

“... there are more and more teachers and students who are no longer satisfied with limiting EE to cognitive and affective dimensions and who seek to move beyond knowledge and attitudes to do something immediately to improve the environment” (Posch, 1993).

The National Foundation for Educational Research, UK (NFER), cited earlier, illustrated this increasing emphasis on students “attitudes and personal behaviour with respect to the environment”. The increasing emphasis on the promotion of positive environmental attitudes raises a number of questions both about the educational validity of developing students’ “attitudes”, and also about the precise meaning of the term, environmental attitude (Tomlins & Froud, 1994).

Influencing environmental attitudes and behaviour through teaching about environmental issues is widespread – expressed not only by environmental
educators, but also by government bodies, curricula, and many teachers who feel that this is an important part of their pedagogical role. However, encouraging students to become knowledgeable and responsible decision-makers is also an important pedagogical aim, and one which may be compromised by the advocacy of certain “desirable” attitudes or behaviours. This conflict arises because students are encouraged to make independent decisions about controversial environmental issues, and yet must develop the required “environmentally-sound” attitudes.

Other potential problems with teaching controversial environmental issues relate to the lack of agreement about what type of environmental attitudes and behaviours should be encouraged; concerns about inculcation of positive attitudes and behaviours at the expense of knowledge about environmental issues; and a belief that schools are not appropriate sites for the development of students’ attitudes and behaviours, especially where these attitudes are not universally held in the wider population.

1.7 MAJOR AREAS OF CONCERNS IN TEACHING CONTROVERSIAL ENVIRONMENTAL ISSUES

The concern about teaching controversial environmental issues encompasses four main areas, each of which will be addressed in turn:

1. Concern that teaching controversial environmental issues is too great a challenge for schools or for teachers.

2. Concern that environmentally-sound attitudes are not agreed upon.

3. Concern that developing attitudes might take place at the expense of knowledge.

4. Concern that developing attitudes might take precedence over independent thought.
1. Concern that teaching controversial environmental issues is too great a challenge for schools or for teachers: One limitation on the growth of teaching about controversial environmental issues is resistance from teachers or from the school. Despite the enthusiasm which some teachers show for environmental education, others are reportedly unconvinced that “... open exploration of a controversial issue such as (the greenhouse effect) is a welcome and desirable feature of education” (Wright, 1990, 1991). Gayford (1991) explains this reluctance to consider controversial issues by reference to concerns that “... environmental education may frequently be treated as a form of indoctrination” (Gayford, 1991). Moreover, Eijkelhof reports resistance from teachers to a suggested module concerning nuclear power, in part because the teachers felt that the issue was too political and they felt they were too involved in the issue to teach it in a balanced way (Eijkelhof, 1985). Similarly, Huckle suggests that teachers’ perceptions of environmental education as political and controversial act as a constraint on the teaching of environmental issues in schools (Huckle, 1991). However, it can also be argued that avoiding bias altogether is impossible in any area of the curriculum, and that the role of the teacher is to alert the students to the possibility of bias in any information source (Finn, 1990). It is widely stated that the school cannot help but inculcate some values in its students, and that the very choice of subject matter and teaching methods are based on assumptions about-value (Edynbry et al., 1977; Bridges, 1986).

However, other factors may also prevent teachers from introducing environmental issues into their teaching: they may feel that they have had insufficient training in teaching controversial issues, that they lack the relevant
pedagogical skills, or that their level of knowledge about complex environmental topics is inadequate. Much school teaching involves imparting “facts” to pupils, and questions are generally assumed to have only one correct answer, therefore the skills used are not ideally suited to teaching controversial issues (Geddis, 1991). Moreover, like other controversial issues, environmental issues are frequently highly complex, requiring knowledge of economic, sociological, political, historical and psychological factors for a full understanding (Stradling et al., 1984). Given that the teacher’s normal role is to simplify the complexities of subject knowledge to help pupils grasp the key facts required for the examination, they may be currently ill-equipped to teach controversial environmental issues (Rudduck, 1986; Geddis, 1991). Thus, both “subjective” and “objective” constraints may act to prevent teachers from addressing certain controversial issues (Carr & Kemmis, 1986). Whilst the teachers’ “subjective” understandings of issues as controversial or unduly complex may act as constraints, the reality of “objective” or structural constraints (such as a lack of time, or institutional norms), which prevent teachers from addressing such issues in schools, should not be ignored.

Moreover, the explicit focus of environmental education on attitudes and values may be threatening to schools, despite the wide acceptance that schools generally impart-values through the “hidden curriculum”:

“Schools have typically resisted attempts to deal systematically with values education... This does not mean that schools do not teach values - general values or moral values... Yet, when someone suggests that-values be taught systematically and deliberately in the classroom, the tensions build very rapidly.” (Iozzi, 1989, p. 9)
Moreover, the authoritarian nature of the traditional school does not provide an ideal setting for the more radical forms of environmental education. Since the authority of the teacher, and their need to exert control over the students, may make it difficult for students to develop intellectual independence. Students frequently accept what teachers say without requiring evidence or justification, purely because of the teachers’ authority position in the classroom (Geddis, 1991). Education “for” the environment has the aim of being “... a form of social education cast in... the laboratory mold. This seeks to empower pupils so that they can democratically transform society” (Huckle, 1991, p. 61). However, since the organization of most schools does not provide a model of participatory democracy, they appear unpromising sites for advocacy of this type of education. Moreover, the goals of environmental education place heavy demands upon teachers, and entail acceptance of a very different approach to pedagogy from that of traditional teaching.

Sterling also doubts the feasibility of such large-scale change within the school structure, suggesting that schools are likely, at most, to be able to consolidate values which are already changing (Sterling, 1990). In a later article, he also advises teachers not to move too far beyond dominant environmental values, due to the risk of a conservative backlash against all environmental education:

“Environmental education can encourage change where it extends existing social change, but it is doubtful that it can encourage change where green ideas are only weakly present in wider society... If environmental education pushes too far and too quickly... it will be accused of being “unbalanced.”” (Sterling, 1991, cited in Fien, 1992, p. 46)
Even the strongest advocates of education “for” the environment admit that implementing its aims will not be easy, and that teachers who attempt it may risk charges of indoctrination (Huckle, 1983; Fien, 1993). However, Fien suggests that a greater recognition of the political nature of all teaching would be beneficial, and claims that radical change is required if education is to have any impact on environmental problems (Fien, 1993).

2. Concern that environmentally-sound attitudes are not agreed upon: Another potential problem with environmental education is defining what is meant by a “positive environmental attitude”. Although it may be possible to reach general agreement on some issues, there are likely to be many specific situations in which disagreement will arise. In addition, the value given to pro-environmental behaviours, as opposed to behaviours which might emphasize economic development thereby improving social conditions, is likely to be even more controversial. When even the facts concerning an environmental issue are in some doubt, the potential for disagreement over appropriate action is even greater. This was illustrated by a report in the Times Educational Supplement about environmental education in the US, where complaints have been raised about biased and dogmatic teaching. Sanera, cited in the article, argues that students are being taught only one side of the controversies over issues such as acid rain, recycling, global warming, overpopulation and pesticide use:

“What is shocking is the degree of bias... They assume that global warming is occurring and that we’ve got to take action, when many scientists say the opposite. And the economics of recycling is rarely mentioned. It’s a mantra of mindless recycling. It’s not presented as an objective issue.” (Marcus, 1997)
Kwong (Aldrich-Moodie & Kwong, 1997, p. 106) asserts that there are some aspects of environmental awareness which are likely to be universally accepted, citing picking up litter, reducing energy use, properly disposing of toxic waste, and recycling materials which can be properly re-used as examples. However, she argues that some of the attitudes and behaviours advocated in schools are those of a group she terms “professional environmentalists”, consisting of campaigners for environmental non-government organizations. The specific actions they advocate are, she claims, not unbiased or uncontroversial, and therefore are unsuitable positions for teachers to take up (Aldrich-Moodie & Kwong, 1997). A further concern is that the attitudes and behaviour which are being taught by some forms of environmental education are those of apathy and inaction due to a feeling of powerlessness in the face of huge problems (Aldrich-Moodie & Kwong, 1997). It is asserted that environmentalists have often been overly pessimistic about future scenarios, and that students are not being given access to information about possible controversies, or alternative hypotheses. Citing examples from both the US and the UK, Aldrich-Moodie and Kwong argue that many text books underestimate scientific uncertainty, giving the misleading impression that the issues are clear-cut and the effects certain and predictable if changes in behaviour are not made:

“Typical lessons teach children that acid rain is destroying our forests; overpopulation will exhaust our resources; ozone layer is rapidly being destroyed; and global warming will lead to disastrous climatic change. Yet, each of these, and many other scare scenarios, have been widely debated or refuted by experts. Nonetheless, they are taught as facts, rather than hypotheses, to children.” (Aldrich-Moodie & Kwong, 1997, p. 96)
Given that the issues are surrounded by so much scientific controversy, these authors argue that teachers should not be taking an advocacy position on any environmental issue.

3. **Concern that developing attitudes might take place at the expense of knowledge:** A major concern about environmental education is that acquiring desirable attitudes is taking prominence over knowledge, and that children are therefore not receiving an adequate account of environmental issues. It is, argues Storm, “... easier to acquire approved sentiments than to build the necessary intellectual infrastructure ...” (Storm, 1990/1, p. 31). Richmond and Morgan stated as a result of survey of 11000 English teenagers, demonstrating that they readily agreed with positive environmental attitude statements but that their factual knowledge was shaky at best:

“*If a primary educational goal is to be development of positive environmental attitudes... then much effort and research must be directed toward establishing effective means for achieving this end. If attitudes of young people are to be translated into responsible social behaviour, it would appear that these attitudes should be deeply rooted and based upon knowledge, experience and conviction, rather than superficially ‘learned’ or instilled by indoctrination*”. (Richmond & Morgan, 1977)

There is clearly a risk that environmental attitudes which are based on such a fragile knowledge base will be tentative and easily discarded. Storm argues that: “In its cruder forms, the evangelical approach substitute’s slogans for analysis, and exhortations replace explorations ... and it doesn’t work!” (Storm, 1990/1991, p. 32).
However, schools may not be entirely responsible for the inadequate level of knowledge since less than 40% of the young people surveyed identified school as their main source of environmental information.

In contrast to most of the environmental education literature, Jo Kwong feels that the development of positive environmental attitudes is the wrong goal entirely, arguing against what she perceives as educational attempts to convert school children into environmentalists. She accuses teachers of “slogan-generated advocacy” and states that instead children should be taught “basic sciences, outdoor education, conservation, and in later years... problem solving skills.” (Aldrich-Moodie & Kwong, 1997, p. 87). Current teaching methods, she argues, are based on “repetitive slogans to save the world”, rather than aiming to increase comprehension, resulting in:

“... Children who can tell you what (they think) is right and wrong, but who are woefully ignorant of the reasons why these might be so. In essence, we are teaching children what to think, rather than how to think.” (Aldrich-Moodie & Kwong, 1997)

Recycling, one of the most commonly-taught issues, is cited as an example of how children are being taught appropriate pro-environmental behaviour from a very young age, with extremely limited understanding of the reasons behind the action. Teaching covers “what can be recycled?”, and “how to recycle”, but very rarely is “why recycle?” considered as a question. She concludes by arguing that:

“Our educational goal should not rest on lofty statements about behaviour modification. They should not foist a range of trendy slogans upon our kids... Our goals should be to open their eyes and impart knowledge.” (Aldrich-Moodie & Kwong, 1997, p. 122)
4. Concern that developing attitudes might take precedence over independent thought: The most widespread concerns about environmental education relate to its controversial nature and the potential for indoctrination of students. These concerns are amplified by the increasing advocacy of attitude or behaviour change. A common complaint about education for the environment is that the role of education should be to encourage independent thought, not to promote a specific world-view:

“... Education is concerned with enabling people to think for themselves... education for anything... is inconsistent with that criterion. In all cases, these phrases suggest a predetermined mode of thinking to which the pupil is expected to prescribe” (Jickling, 1992).

Education “for” the environment, Jickling suggests the advancement of a particular agenda: Students are persuaded to take appropriate actions deemed to be in the common interest. However, he questions whether it is the job of education to make people think and behave in a particular way, arguing that this is suggestive of training-type exercises, rather than understanding and critical thinking, both of which should be key educational aims. Education “for” sustainable development rests on two unchallenged assumptions, first that sustainable development is an uncontested concept, and second, that education is a tool to be used for its advancement. Both, he says, can be rejected (Jickling, 1992).

Geddis agrees that independent thought should take a higher priority than encouraging prescribed attitudes or behaviours, and expresses concern that rational thinking can be overlooked when controversial environmental issues are being
taught. He rejects attempts to “foist ethical positions on students” and emphasizes the need to subject differing viewpoints to rational criticism, arguing that the mere adoption of appropriate conduct is insufficient (Geddis, 1991, p. 170). Teaching which pays no attention to the need for evidence and rational argument, he argues, is teaching which makes no provision for the intellectual independence of students. This is a potential problem he identifies in some teaching about controversial environmental issues:

“When addressing issues such as acid rain, the extinction of species, the fuel crisis, teachers - who otherwise are quite conscientious in articulating the basis for their knowledge claims - sometimes teach in a manner which ignores the need for evidence and rational argument.” (Geddis, 1991, p. 171)

He cites evidence from a lesson about acid rain which suggested that the teacher had limited the students “opportunities for critical thought”, by presenting a potentially disputable claim as established fact. The impression gained from the lesson was that the teacher was attempting to persuade the students rather than instigating an inquiry into the claim (Geddis, 1991).

Aldrich-Moodie returns to the origins of environmental education, and suggests that the basis for concerns about persuasion and indoctrination lie with its roots in the environmental movement, whose aims are political advocacy and action:

“(Environmental issues) are born of the environmental movement’s desire to identify nature’s ills and their remedies in a straightforward and urgent way that is readily communicable and serves as a basis for political action. Environmental issues are the outcomes of a rhetorical history and they show it.” (Aldrich-Moodie & Kwong, 1997, p. 79)
This history, he argues, leads to simplification of issues in the pursuit of an ideological agenda, and brings the aims of environmental education into conflict with the traditional aims of education. Whilst accepting this as a potential problem, other authors consider school to provide an unrivalled opportunity to counter such bias from other sources such as the mass media (Stradling et al., 1984; Finn, 1990).

Nonetheless, it should not be assumed that teachers have substantial influence over their students. Students, especially at secondary school, may already hold strong opinions, since they cannot fail to be affected by the “curriculum” offered outside the school, and the teacher’s influence may be minimal compared to the media, family and friends (Stenhouse, 1967; Kelly, 1986; Haydon, 1997). Studies of environmental issues in the US (Hausbeck et al., 1992), and Australia (Connell et al., 1999) have indicated that television is the most frequently quoted source of information and there is no reason to suppose that the situation is any different in Britain. Even Aldrich-Moodie does not believe that pupils are “uniquely receptive targets of indoctrination”, or that they are likely to become “brainwashed environmental activists” as some fear. But, he says, they may miss opportunities to consider the full range of possible viewpoints, and develop deeper, more informed understandings (Aldrich-Moodie & Kwong, 1997).

The above section detailed the importance of environmental education at every levels, since environment is the pivotal element in a sustainable existence of an individual. The literature on environment, environmental concerns/issues helps the individual to clarify the contents or issues. In the present situation of
environmental degradation, the individual competencies or skills are very crucial in dealing with them. Experiencing the issues at the local dimensions is essential in order to equip individuals to act globally at each one’s personal level. The critical thinking and decision making calls for a revamping through experiences and the critical reflections. The alarming scenario of environmental degradation demands for the importance of transformation at the individual levels as reflective practitioners. With this backdrop, experiential education and experiential learning becomes the key to be integrated in the environmental education.

1.8 EXPERIENTIAL EDUCATION

The overview of experiential education provides the background to the review, definitions, explore the theoretical underpinnings and identify the limitations of experiential education. The process of experiential education highlights the importance of how humans learn and the links between prior knowledge and new experiences that help transform human thinking. The importance of learning experientially is reinforced by Cousins (1992) who argues that:

What is of greatest consequence in a person’s life is not just the nature and extent of his or her experiences but what has been learned from them? (Cited in Luckner & Nadler, 1992, pp. xv)

Hence, there is a need to distinguish between ‘experience’ and the process of learning through experiential education.

1.9 THE PHILOSOPHICAL PERSPECTIVES ON THE CONCEPT OF ‘EXPERIENCE’

Using experience in a teaching and learning setting is not new; in fact, almost everything we learn is based on some kind of experience. The key hallmark
of whether an experience is educational or not is based on how the experience is used to promote further development or learning.

The term ‘experience’ is associated with the raw knowledge or skills gained from life by personal (initial) contact with facts and events. Experience implies that there is recognition (at an affective level) that ‘something’ has been gained as a result of personal contact, and the subsequent reflection that moves experience to experiential learning forms the basis of developing a consciousness or understanding of ideas, neither of which may in turn be understood as a theory.

Socrates (470-399 BC) was one of the first writers in the western tradition to focus on the concept of learning in education. His ideas helped change the function of education from learning to recite information presented by others to the process of questioning the assumptions behind accepted wisdom. Two important aspects of Socrates’ theory of education are especially relevant to this thesis. Firstly, Socrates believed that students’ prior experience and learning contributed to further learning and the teacher’s role was to guide, prompt, question or otherwise elicit learning from a process of experience, reflection and analysis. Secondly, Socrates believed that the process of becoming educated in this manner was more important than the product of a ‘final static state’ of learning (Crosby, 1995, p.6). These two aspects indicate that Socrates saw both prior knowledge and new experiences as crucial to the learning process, i.e. the knowledge is acquired as a result of challenging and adapting previously held ideas.

Consequently, Socrates’ philosophy has been described as the ‘midwife theory’ of education because he “saw the role of the teacher as that of a midwife: helping to give birth to the knowledge which is already within the student. The
teacher simply assisted with the delivery” (Crosby, 1995, p.7). Nevertheless, Socrates’ approach was teacher-centred in that he saw teachers controlling what students learned through the art of questioning. This technique is grounded in teachers’ own values and does not necessarily challenge students to explore the nature and scope of their own questions. The idea of giving birth to knowledge that is already there does not challenge students to seek what they do not know.

Experience also featured in educational theory of Aristotle. In his concept of ‘theoretical wisdom’ and ‘practical wisdom’, Aristotle drew a distinction between cognition and experience. His view has greatly influenced western intellectual thought and has given rise to separation between the ‘knowing mind’ (subject) and ‘knowable mind’ (object). This separation underpins contemporary debates about rationalism and empiricism, respectively. Rationalism views knowledge as something that is acquired through reason not experience, whilst empiricism views knowledge as a product of the experience that results from interaction with a field of enquiry. Difference is between propositional knowledge, which is grounded in books, lecture and media presentation and experiential knowledge, which is grounded in our own practical experiences. Aristotle’s theory does not dismiss the idea of practical experience; rather it makes a distinction between this and theoretical wisdom and places a higher value on cognition than on experience. However, the influence of personal experience and how that could challenge rational thought is not given great status in his educational theory.

Crosby (1995, p.10) argues that Kant (1787) advanced the discussion of theory verses practice by arguing that it was impossible for the “mind to match the world” but more logical for us to order the world in the way we perceived it. Kant
supported the notion that theory should be generated from the interpretation of experience. Therefore, experience and theory are both critical aspects of Kant’s educational theory, a proposition that provided a way out of the endless debates and discussions over theory verses practice.

Kant elevated the status of practical experience as opposed to the cognitive worldview (theoretical knowledge) held by Plato and Aristotle. Kant also acknowledged the importance of reflecting on experience to develop a theoretical perspective. Practical knowledge was not reduced to implementing theory, but was viewed as a critical link in generating and establishing a theoretical position. The relationship between prior knowledge and current experience was, therefore, dependent on personal interpretation. Thus, the term ‘experience’ requires detailed analysis and the link between ‘experience’ and the contemporary view of experiential education needs to be explored.

The notion that knowledge is constructed from the interaction of prior and new experience is the basis of contemporary approaches to experiential education. John Dewey (1966, p.140) suggested that to “learn from experience” was to use prior knowledge and present experience to develop connections between things in order to move forward. Dewey (1966) stated that the “nature of experience can be understood only by noting that it includes an active and a passive element peculiarly combined. On the one hand, experience is trying” - a meaning which is made explicit in the connected term ‘experiment’. “On the passive, it is undergoing” – meaning that when we experience something, “we act upon it, we do something with it; and then we suffer or undergo the consequences” (p. 139).
Dewey made the point that if experience involved being affected by something (i.e. “Suffering or undergoing the consequences”) then it embraced the concept of thinking about our actions. If our actions shift and become a change in behaviour, then Dewey believed that true learning had occurred. However, it is the connection of what Dewey calls the passive and active elements of experience that determines the true value of an experience. Therefore, he argued that the activity by itself “does not constitute experience” (1966, p. 139).

Dewey’s philosophy of learning is similar to the ideas of Kant. His approach to learning is based on the idea that all learning is grounded in experience, which, for the purpose of this thesis, is interpreted as being ‘affected by an event’. Dewey (1966) believed that a small amount of experience was worth a huge amount of theory, “because it is only in experience that any theory has vital and verifiable significance” (p. 144).

Dewey further clarified the term ‘experience’ by describing two related aspects of all experience which he called primary and secondary experience. According to Dewey (1926, p.23), an initial, primary experience is essentially “non-cognitive”. Indeed Dewey saw it as “gross, macroscopic and crude” (p.7).

However, secondary or reflective experience involves an exploration of what happened during the primary experience. Therefore, the reflective experience transforms the basic and rough nature of primary experience into a more sophisticated form, one that is “precise, microscopic and refined” (p.7).

The concept of primary experience is grounded in an event that happens to a particular person. Thus, personal experiences are not someone else’s experience but something that an individual must “significantly identify with, seriously
interact with” or “form a personal relationship with” (Joplin, 1981, p. 15). The secondary experience is based on an individual’s interpretation of the primary experience. Therefore, the initial experience provides the context for learning, while the secondary experience provides the significance and meaning. Thus, it is the reflective process and quality feedback that turns experience into experiential learning. Consequently, experiential learning “includes both the act of experiencing and what has been experienced” (Bernstein, p.65). However, what has been experienced is limited to the specific context in which it occurs, to the particular people involved and to individual interpretation. According to Usher, Bryant and Johnson (1997) “experience can have many meanings some conflicting and contradictory” (p.105). Hence, no experience is the same for each individual and is open to different interpretations in different contexts and settings. Therefore, “the meaning of experience will vary according to different discursive practices, as will the particular significance given to learning derived from experience” (Usher, Bryant and Johnson, 1997, p.105).

Experience can be limited by how it is presented and then authenticated by the social structures in which it is conceived. Usher, Bryant and Johnston (1997) argue that this identifies a major weakness in considering “how experience itself represents (has meaning) and second, is itself represented (within theories and epistemologies)” (p.101). While ‘raw’ experience is authentic to the learner it is often presented within established social structures. Consequently, these social structures have the power to either limit and control the potential experience or liberate it by providing the freedom to challenge. Therefore, Usher, Bryant and Johnston (1997) suggest that experiential education that is “representing or
discursively producing experience in a very particular way and with a very particular set of significations” (p.102) is notably contestable, political and subject to question.

As a result, experiential learning should be considered not just as a student-centred approach or pedagogical technique. Instead, it needs to be viewed in terms of the socio-cultural and institutional context in which it operates (Usher, Bryant & Johnston 1997). Individual meaning of an experience will always be context specific and will produce different interpretations.

Bell (1993, p. 20) also argues that, “all experience does not relate to, or even clarify my experience”. She states that, “to me experiences ‘exist’ through interpretation. It is produced through the meanings given it. Interpretation of lived experiences are always contextual and specific” (Bell 1995, p.10, Bould, Cohen & Walker 1993, p.11). Thus, Bould, Cohen and Walker (1993, p. 6-7) assert that “experience is not an event which happens, it is an event with meaning” and experience becomes a critical aspect of learning through the “transaction between the learner and the milieu” in which individuals operate. They argue that, “every experience is potentially an opportunity for learning” (p.8). Consequently, experience may be viewed as a central foundation for learning but this does not mean that individuals necessarily make effective learning connections (Bould, Cohen & Walker, 1993; Bell, 1993; Chapman, McPhee & Proudman, 1992; Usher, Bryant & Johnson, 1997).

Educators must “move beyond practice based on over simplistic observations that ‘you can always learn from experience’ etc. and look more carefully at the necessary preconditions for experiential learning” (Usher, Bryant
& Johnson, 1997, p.118). The preconditions require educators to establish an appropriate “climate and infrastructure from which experience can both be explored and problematized” (p.118) to avoid learners becoming “reflexive practitioners of their experience or have their experiences colonized and reduced, on the one hand by oppressive educational institutions and, on the other by totalizing ‘radical’ discourses” (p.118).

Creating the climate and infrastructure involves acknowledging students’ emotional safety and self-confidence by establishing “the right emotional tone” (Brookfield, cited in Usher, Bryant & Johnson (1997, p.118) from which to examine student experience. A climate based on “explicitly, honesty and sensitivity”, according to Usher, Bryant and Johnson, 1997, p.119) will help limit oppressive experience. Carver (1996, p.10) asserts that three key components are required to establish an effective climate and infrastructure - programme characteristics, characteristics of the setting and student experience. These three components, according to Carver (1996, p.11), promote the development of student agency, belonging and competence by introducing resources and behaviours that allow for active learning, drawing on student experience, authenticity and connecting lessons to the future in a learning environment that usually values caring, compassion, responsibility, accountability, individuality, creativity and critical thinking.

Heron (1989) has developed a model of four types of learning to illustrate the importance of experience in learning. He argues that people encounter the world through personal experience (experiential learning) in order to “recognize specific patterns and processes” (imaginal learning), (1989, p. 13). These patterns
and processes provide the foundation on which theoretical knowledge, or what he calls “conceptual learning”, can be developed. Practical learning involves the application of conceptual learning through a broad range of essential skills. These forms of learning are described by Heron as “distinct; they cannot be reduced to each other. At the same time, however, they inform, support and enhance each other” Heron (1989, p.13).

As a result Heron (1989, p.13) argues that these four types of “learning rests epistemologically” on the others. Practical learning, conceptual learning and imaginal learning are all grounded in experiential learning. The notion that practical learning, conceptual learning and imaginal learning are grounded in experiential learning is a consequence of viewing learning as a series of connections. The teacher’s role is to assist the learners to make the connection between what they have experienced, what they think of this, how this links with other ideas and how they can apply it. This is a process of what Heron calls “manifold learning”.

Heron’s concept of ‘manifold learning’ promotes experience as the lens through which we generate, apply and evaluate theory in practice. He is arguing that learning by definition should be grounded in experiential learning. However, this thesis is exploring the notion that experiential education is a superior form of learning among many forms of learning. Therefore, the grounding of both theory and practice in a superior form of learning is considered to be in personal experience. This view creates interdependence between all areas of knowledge rather than creating oppositions. This view has led to the contemporary view of experiential education. Hence, Usher, Bryant and Johnson (1997, p.118) argue that
experiential learning should “attempt to triangulate experience through an
investigation of personal meaning alongside the meanings of engaged others and
the presence and influence of different contexts and different discourses”. This
leads to the “possibility of a variety of interpretations and assessments of
experience” and opens the possibility that “experiential learning might be both
‘liberating’ and ‘domesticating’, according to its contextual and discursive
location” (Usher, Bryant & Johnson, 1997, p.120).

1.10 EXPLORING UNDERSTANDINGS OF EXPERIENTIAL
EDUCATION

The concept of experiential education has been developed to provide a
philosophical basis to understand and make use of experience in the learning
process. However, there is still some confusion in relation to the term ‘experience’
within the concept of experiential education. Aldous Huxley states that
“experience is not what happened to you; it is what you do with what happens to
you” (cited in Luckner & Nadler, 1992, p. 176). This statement recognizes
secondary experience but neglects the personal connection, identity and
relationship that is grounded in ‘primary’ experience.

Dewey’s (1926) concept of primary and secondary experience echoes the
contemporary understanding of experiential education. Experiential education is
based on the process of learning from an experiential encounter in which learners
reflect upon the primary experience to discover new learning. The experiential
learning aspect is the combination of experience (object) and reflection (subject),
and not just the result of “learning by doing” (Proudman 1992, p. 20; Roberts
2002, p. 281). This recognizes the importance of viewing learning as both a
cognitive and affective encounter rather than distinguishing between the two (Crosby, 1995).

1.11 EXPERIENTIAL LEARNING AS EMOTIONALLY ENGAGED LEARNING

Heron (1989, p.92) described experiential education as ‘affective’ in nature because it involves a positive emotional process and he views this as an essential foundation for learning. Affective learning is one of the “most powerful determinants of learning” (Miller & Boud cited in Beard & Wilson, 2002, p.124) because our attention is often grounded in our emotional state. Experiential learning according to Proudman (1992, p.19-20) has students emotionally engaged in their learning because it allows for students to connect the body, head, spirit and soul through a process that “combines direct experience that is meaningful to the student with guided reflection and analysis. It is a challenging, active, student-centred process that impels students towards opportunities for taking initiative, responsibility and decision making”. Carver (1996, p.9) argues that this develops a holistic approach to learning because it addresses students as “thinking, feeling, physical, emotional, spiritual and social beings that can actively contribute to their own learning”. Miller and Boud assert that, “emotions and feelings are the key pointers both to possibilities for, and barriers to, learning” (cited in Beard & Wilson, 2002, p.118). Experiential education can elicit a range of key emotions (Beard & Wilson, 2002, pp. 121-122; Carver, 1996, p.9) and these can ebb and flow based on the emotional state of the learner and the nature and structure of the learning environment. Thus, an essential component of experiential learning environments is the consideration of learners’ physical and emotional safety
1.12 EXPERIENTIAL EDUCATION AS MEANINGFUL LEARNING

Experiential education is described as “an approach which has students actively engaged in exploring questions they find relevant and meaningful, and has them trusting and feeling, as well as thinking” (Chapman, 1992, p.18). Thus, experience is meaningful when new insights are drawn by reflecting on what happened (Beard & Wilson, 2002). It is not meaningful if the aim is to support the “existing status quo” (p.17). Learners must actively interact with a range of “external stimuli” (Beard & Wilson, 2002, p.18) and critically examine these in light of previous knowledge in order to develop new meanings. Student ownership and interest in the questions they ask is critical for the experience to be meaningful. In this context experiential education is better understood in terms of style (Chapman, 1992) rather than as a theory of learning thus, the techniques can be used in a range of subjects.

1.13 EXPERIENTIAL EDUCATION AS A PERSONAL LEARNING CYCLE THAT INVOLVES REFLECTION

Reflection is identified as a critical component of experiential education and is the technique used to develop meaning and understanding from experience that leads to new ideas, and new experiences (Heron, 1989, Chapman, McPhee &
Luckner and Nadler (1992, p.3) characterize experiential education as “learning that occurs when individuals engage in some activity, reflect upon the activity critically, derive some useful insights from the analysis, and incorporate the result through a change in understanding and/or behaviour” (see interactive models of experiential education 2.6 in this chapter). It is best described as ‘philosophical orientation’ (Luckner & Nadler), towards learning that is grounded in learner reflection and ownership of the learning process.

1.14 EXPERIENTIAL EDUCATION IS GROUNDED IN PERSONAL EXPERIENCE

Usher, Bryant and Johnson’s (1997) description of experiential learning is grounded in their understanding of experience. These researchers (1997 p.100) argue that experience is often viewed as “the secure originary point, with the clear implication that explanation must be focused on what is learnt from experience rather than experience itself” and suggest that this view of experience “is at the heart of pedagogies of experiential learning”. They argue that because the foundation experience which is expected to occur “presupposes a prior theory of knowledge” (p.100), many experiences are inescapably limited by hegemonic and preconceived ideas of worthwhile experiences. Therefore, learners’ experiences may only be able to be interpreted against the backdrop of current theories and epistemologies.

These four descriptions of experiential learning provide a broad conceptual overview of traditions of theorizing about experiential approaches. Overall, they have a common assumption that raw experience is what happens to you (the
personal encounter), and that experiential learning is the process of constructing meaning from what happens to you. However, Usher, Bryant and Johnson (1997, p.118) argue that to view experiential learning as a “direct encounter with experience” without a contextual and theoretical base is “unfruitful and even false” (p.118) and that “rational procedures such as reflection” (p.101) are used to help learners validate and transform experience into knowledge. Therefore, experiential education is a conscious intervention by a teacher into an otherwise natural state of the learner. It is the nature of this conscious intervention that is of interest in this thesis.

1.15 EXPERIENTIAL EDUCATION AS A CRITICAL APPROACH TO LEARNING

According to Bell (1993, p.14) “critical approaches uncover different and contextual knowledge” thus uncovering individual difference in experience and in the interpretation. Furthermore, Usher, Bryant and Johnson (1997, p.115) assert that critical practice gives more “recognition that meaning is discursively produced and that experience, therefore is never simply an innocent or basic given”. Thus, the essential element in critical practice is how the representations of experience are produced. Usher, Bryant and Johnson (1997, p.116) argue that this gains more importance when there are particular “power relations embedded in discourses” which remain unchallenged. Critical practice has the potential for liberation and transformation. However, according to Usher, Bryant and Johnson (1997) this is grounded in the contexts in which knowledge is “deployed” (p.116). Thus, the core aim of critical practice is to examine, uncover and challenge any potential limitations to self and social empowerment. In mainstream education this means
“critiquing realities” (Simon, 1987, p.372) such as the underlying objectives of education, the nature and structure of the learning environment (institutional practices), the teacher-student power relationships and the teaching and learning process. Thus, creating the possibility of empowerment. Furthermore, according to Robottom and Hart (1995) education must consider critical analysis as a key aspect of constructing knowledge if the aim is to free individuals from the social constraints that effect their lives. Experiential education is an approach to learning that sets out to engage learners in self-improvement, social empowerment and transformation through critical practice (Bell, Usher, Bryant & Johnson, 1997). Therefore, it has the potential to become what Simon (1987, p.372) calls a ‘pedagogy of empowerment’ because it is “aimed at enabling” through cooperation and collaboration.

From Tbilisi (1977) to Kiev (2003) education has been acknowledged worldwide as a fundamental tool for the environmental protection and sustainable development.

Because of the multi-disciplinary and inter-disciplinary nature of EE, it is often difficult to define. The North American Association for EE, describes EE as the following. “EE is a good education. It is learner centred, providing students with opportunities to construct their own understanding through hands on and minds own investigation. Learners are engaged in direct experiences and challenged to use higher order thinking skills. EE supports the development of an active learning community whose learners’ share ideas and expertise and prompt continued inquiry. EE provides a real world context and issues from which concepts and skills can be learned. It recognizes the importance of viewing the
environment within the context of human influences, incorporating an examination of economics, culture, political structures and social equity as well as natural systems and processes”.

Environmental Education is a sequential process, from primary to school age through adulthood could motivate students to take on personal responsibility towards the resolution of the environmental problems, empower them to use responsible environmental issues and positive actions for helping to resolve environmental issues and contributing to sustainable development. For achieving these goals, that are the basis of Tbilisi Doctrine, EE has to focus to its principles and promote:

a) Ecological concept and knowledge.
b) Knowledge of environmental issues and/ or problems.
c) Social knowledge.
d) Cognitive skills.
e) Responsible behaviours.

EE places a great deal of emphasis on problem solving, (empowering students to take actions), application of scientific knowledge to real life issues and problems, and awareness of careers. It also helps students to learn “how to learn”. According to the Delores Report (Delores 1996), learning how to learn is on the four pillars, “learning to know, learning to do, learning to be and learning to live together”.

It is generally accepted that children have their own understanding of how the world functions prior to receiving formal scientific knowledge. Much research has been done to determine pupils’ misconceptions relating the environmental
issues such as ozone layer and the greenhouse effect. (Osborne, R.J., Cosgrove, M. M., 1983; Philips, W.C., 1991; Boyes, et al., 1993; Brody, M.J., 1930; Ewing, M.S. & Mills, T.J., 1994; Hatzinikita, V., 1996; Koulaidis, V., et al., 1997; Christidon, V., 1997; Boyes, E., 1999; Koulaidis, et al., 1999). The findings of these researches suggest that there are misconceptions relating several environmental issues and/or problems.

Research has also been done to determine teachers or student teacher misconceptions relating to the environmental issues. The results of these researches show that there are also misconceptions among teachers as well. (Schymansky, T.A., et al., 1993; Boyes, E. et al., 1995; Dave, J., 1996). The results of these researches suggest the importance of EE in educational processes.

1.16 EXPERIENTIAL LEARNING AND EE

The goals described above all suggest that encouraging environmentally sound behaviour is a desired outcome of environmental education. Marcinkowski (1990) goes one step further and argues that not only has responsible environmental behaviour been considered a goal of EE, but that “involvement in such activities has often been identified as the terminal goal of EE.” In essence, the various goal statements establish a process through which knowledge, attitudes, skills, commitment, and motivation play integral roles in insuring that the terminal goal of environmentally sound behaviours can be met. To this end, environmental education as defined in a recent UNESCO document (1987, p. 2) describes a model of action “in which individuals and the community gain awareness of their environment and acquire the knowledge, values, skills, experiences and also the determination which will enable them to act –
individually and collectively – to solve present and future environmental problems.”

By the use of the phrase “enable them to act,” the UNESCO definition suggests a model in which there is a direct relationship between awareness, knowledge, values, skills, and determination and the ability of individuals to act on environmental problems. This defined relationship, outlining the role of specific precursors of environmentally responsible behaviour, is also supported by a broad range of environment-behaviour research. For example, Borden and Schettino (1979) found that environmental behaviours were linked to both a concern for the environment and a general knowledge of environmental issues. In a study of recyclers and non-recyclers, Arbuthnot (1977) found that knowledge of recycling, a sense of personal responsibility, and locus of control were predictors of recycling behaviour. Heberlein and Black (1976) found that those who use lead-free gasoline were more knowledgeable about the issue, expressed a greater concern, were more likely to feel that their personal action could make a difference, and felt a greater sense of personal responsibility than those who did not use lead-free gasoline. Finally, Simmons and Widmar (1989a) proposed that recycling behaviour depends upon an individual’s sense of responsibility, conservation ethic, knowledge of what to recycle, understanding of how to recycle, and sense of personal efficacy.

In the very least, the individual studies briefly mentioned seem to suggest a number of variables that maybe linked to responsible environmental behaviour. Going one step further, Hines (1984) synthesized a wide range of environment-behaviour research and proposed a model of environmental behaviour. Through a
meta-analysis of research, Hines suggests that environmental behaviour is associated with such components as personality factors (attitudes, locus of control, efficacy perception, personal responsibility); knowledge of issues; knowledge of action strategies and action skills; intention to act; and situational factors (constraints and opportunities). Building upon the Hines behaviour model and drawing upon additional research, Hungerford and Volk (1990) have proposed an expanded behaviour model. Hungerford and Volk believe that a set of major variables (environmental sensitivity, in-depth knowledge about issues, personal investment in issues, knowledge of and skill in using action strategies, locus of control, and intention to act) and minor variables (knowledge of ecology, androgyny, attitudes; knowledge of the consequences of behaviour; and a personal commitment to issue resolution) contribute to responsible environmental behaviour.

Drawing from this literature and especially the two models described above, one can suggest a simplified behaviour model that would also be compatible with the goals of environmental education. Consequently, one simplified behaviour model proposes that knowledge (knowledge of issues as well as knowledge of natural systems), problem-solving skills, and psychological factors (especially attitudes and the development of self-esteem) all contribute to the development of environmentally responsible behaviour. The relationship among the contributing variables and environmentally responsible behaviour is assumed to be synergistic. Furthermore, the model would suggest that for a program to be successful in encouraging environmentally sound behaviours, it must, to one degree or another, address each of the contributing variables. The
investigator arrived at a conclusion that, if a program hopes to encourage environmentally responsible behaviour, then knowledge of issues, knowledge of natural systems, problem-solving skills, attitudes, and the development of self-esteem should be included as program-level goals.

The Curriculum Frame Work for Teacher Education (NCERT, 2004) envisaged that, “If education has to be an effective tool to change in the general attitude towards the treatment of the environment, teacher education will have to respond to this need effectively at all levels. This content and processes of teacher education programme will have to equip teachers with a proper understanding of love for the nature around and the skill of inculcating these among their students. This may result not only in a healthier society, both physically and mentally but also the much needed replenishment and sustenance of natural resources not withstanding all the material and industrial development”. It had stated the objectives of teacher education of secondary state with reference to EE, as, “developing among student teachers awareness and sensitivity towards environment concern and promoting skills for meeting environmental challenges”.

Effective integration of EE into school programme is therefore, a dynamic step towards improving teaching and learning. While conventional methods are tried and tested, in achieving the objectives of implementing information and to some extent, ‘building skills’, they are not always designed for, or effective in meeting the other objectives of EE- going from awareness to action to any context. This is why teachers have to explore fresh ways of teaching methods to become successful environment educators.
1.17 EXPERIENTIAL EDUCATION AND TEACHER EDUCATION

The important role of teachers and, more specifically teacher education, in cultivating and developing environmental education in formal education has been well documented in the UNESCO-UNEP International Environmental Education programme (Fien & Tilbury 1996, p.33). Three core issues emerged from this programme: (i) the important role that teachers have in providing quality environmental education; (ii) the need for teachers to have the knowledge and skills to teach environmental education; and (iii) the importance of innovative teaching and learning materials and strategies to bring about curriculum change.

The Brundtland Report (1987) argued “that the world’s teachers have the crucial role to play in helping bring about the extensive social changes needed for sustainable development” (p.8). Fien and Tilbury (1996) also acknowledge that a similar message was included in the World Conservation Strategy for the 1990s by ICUN, UNEP and WWF (1991) and also in the Agenda 21 report from the Rio Earth Summit in 1992.


Consequently, teacher education has come to be seen as “potentially the greatest source of educational change” (UNESCO, 1976) for developing environmental literacy. Thus, the UNESCO-UNEP International Environmental Education Programme expressed a concern that “the priority of priorities” was the

Both pre-service and in-service teacher education has been identified as important in providing the skills, knowledge and practical expertise to help teachers meet the requirements of the environmentally educated teacher (Fien & Tilbury 1996). The competencies of the environmentally educated teacher were outlined by Stapp as early as 1975 (Fien & Tilbury 1996). These have been documented in a number of reports since then (UNESCO, 1976; UNESCO-UNEP, 1976; UNESCO, 1978; Stapp, et al., 1980; Halverson, 1982; Mishra, et al., 1985; Wilke, Petyon & Hungerford, 1987; Robottom, 1987c). Williams (1988); Chapter 36 of Agenda 21 The Rio Earth Summit 1992 entitled “Promoting Education, public awareness and training” addresses the importance of “pre-service and in-service programmes of teacher training” (UNESCO, p.39) provides a mandate for teacher education.

Warren (1988), Law (1993) and Finlay (1996) have modelled the process of experiential learning in classes that were either being exposed to the theory of experiential learning or the “enterprise skills” (Finlay, 1996) required for student-centred learning. Warren introduced her programme to students at Hampshire College “because many students expressed a desire to use experiential learning in their future teaching careers” (1988, p.4). Warren’s experience was based on using experiential learning techniques as ‘a model for teaching experiential education theory’, with the idea being to establish a student-directed classroom in which students were empowered to have ownership of their own learning. In this setting students determined “the syllabus, prioritized topic areas, regulated class
members’ commitment, facilitate actual class sessions undertake individual or group inspired projects and engage in on-going evaluation” (Warren, 1988, p. 4).

Finlay (1996) developed a programme for second year Bachelor of Education secondary students at Australian Catholic University (NSW) called ‘Community-based Experiential Learning for Student Teachers’ (CELP) in which he encouraged staff to adopt experiential education strategies and techniques to “inject the notion of enterprise” (p.1) into the pre-service programme. As a result students became more self-directed because they functioned as “co-learners” (p.5) alongside experienced facilitator-teachers. Finlay (1996, pp. 2-3) asserts that the CELP programme was developed to assist teacher-facilitators to re-examine tertiary programmes and include more cooperative human-centred approaches to teaching and learning to develop “enterprising teaching and learning skills” for pre-service teachers. He concludes that the Community-based Experiential Education Programme for teachers in training, as an alternative approach, has challenged the “mindsets” of students and staff as they embark working relationships.

Research conducted by Law (1993) also used the process of experiential learning to assist students in developing professional skills required for teaching in a secondary pre-service teacher education programme at the Christchurch College of Education. The research addressed student teachers’ understandings and feelings about using the experiential learning approach in their one year professional studies programme. The students involved in this research identified both positive aspects and limitations in using this approach within the context of a one-year teacher education programme. The students recognized the potential of
experiential learning as an enjoyable way to learn and they supported the student-centred approach and ownership of the learning process. They also described the process of critical reflective practice as having the most positive effect on their personal development during the year, which was the subject of Laws’ research.

1.18 REFLECTIVE PRACTICE IN TEACHER EDUCATION

Kettle and Sellars (1996, p.3) assert that there is an increasing interest in teacher reflective practice and specific “call for pre-service teachers to be engaged in reflection”. Current theory on reflection in teacher education is identified by Valli (1992, p.13) as a “renewed interest in Dewey’s notion of ‘reflective practice’ and the appeal of Schon’s concept of the reflective practitioner” to explore teachers thinking in context-specific settings to help them improve their own teaching and learning. Valli (1992) argues that the goals and purpose of education should be continually challenged in light of new issues and problems that face teachers in specific settings because there are no “readymade solutions” (p.13) to the issues and problems faced by teachers that relate to their own professional development. Thus, Valli (1992) claims reflective practice leads to personal empowerment and this should be a central goal of professional teacher education. Empowerment is viewed by Valli (1992) as “knowing with intent” and thus being able to act in accordance with what one knows and believes (p.196). A model of personal empowerment through reflective practice in teacher education requires the dual task of beginning teachers and tutors working collaboratively to ensure responsibility, self-direction and improvement and second that new ideas are contextually situated in the process of teaching and learning and the nature and structure of schooling.
Reflective practice in teacher education is also described by Valli (1992) as having a range of variations and types by definition. She claims that one perspective views “reflection and inquiry as a distinct model of teacher education” while other perspectives hold that reflection is a “generic professional disposition” (p.16) because the purpose and settings for reflective practice are different. Thus, Feiman-Nemser (cited in Valli 1992, p.17) argues that reflection is not so much an orientation as a disposition underlying other legitimate orientations to teaching and learning and experiential education is one such orientation.

According to Valli (1992) and Brookfield (1995) reflective practice in teacher education is a transformative practice that challenges the reproductive models of teaching and learning. The transformative process is one where beginning teachers use prior knowledge and present experience to consider new ways of operating and thus embrace the process of change as a condition of their own professional development and this encourages a “self-help” and “self-management” process (McWilliams 2000, p.80). The transformative approach is in contrast to reproductive models of teacher education that see current realities as truths about teaching and learning, they remain unchallenged and produce teachers who are highly resistant to change (Valli, 1992, p.90).

1.19 TEACHER TRAINING IN EE: NEED AND PRIORITIES

The academic and professional training of teachers has a direct and positive bearing on the quality of their performance and consequently on the achievement of students. Specific factors such as the years of teacher training, the teachers’ verbal fluency, subject matter knowledge, having books and materials of knowledge and knowing how to use them, teacher expectations of pupil
performance, time spent in classroom preparation and frequent monitoring of student progress are known to effect student achievement. Teacher education can make a difference to student achievement, depending on the type of programme and support that put in place.

A teacher willing to develop a real EE, building knowledge and environment friendly habits in his/her students need:

1) Theoretical and Methodological Frame
2) Awareness/Sensitivity towards environmental related social issues.
3) Reflective Practices
4) Science based Knowledge
5) Commitment.

Through EE students should perceive environment as a very complex system, inside which biological, physical, chemical, human events occur. EE should stimulate sensitivity, develop awareness and build suitable attitudes towards environment. Students should be guided in acquiring and re-organizing information should be solicited to form and freely express their own opinion as well as they should have some chances to observe and/or consider and reflect about consequences of the human impact on nature.

At the secondary level, students learn the links between their life styles and components of the environment, they are more capable of explaining the cause and effect relationships, learn to function as a member of a group and begin to understand social responsibility and thus desirous of becoming involve in decision making. The emphasis of EE therefore, is to develop environment friendly persons at an early age so that they bring these habits and model the positive values as they
mature and become environment citizens. When they become adult and/or professionals, they can practice and/or influence decision making in their area of work towards sustainable production and environmental protection.

In the proceedings of the Thassaloniki International Conference, UNESCO and Government of Greece (1998, Athens), it highlighted that, “only an appropriate, lifelong education can teach respect for the environment and at the same time guide the students in how to survive and develop without jeopardizing the future of their own”.

The goal of any teacher education programme or effort thus, should be to develop competencies in environmental education. These competencies take from knowledge, responsible behaviours, sensitivity towards environment and environmental issues and skills, commitment, which are necessary to effectively incorporate the environmental dimensions in educational programme.

A key function of EE in the attainment of sustainability is to develop responsible citizens who have appropriate knowledge and skills. To this end, the challenge for education in general and teacher education in particular is to translate such EE objectives into instruction reality. They include instruction in terms of issue bases and or problem based experiential oriented learning strategies. It is obvious that the objectives focus on environmental behaviour. Most environmental psychologists and educators have identified in their studies that EE is closely linked to environmental responsible behaviour.

Responsible behaviours include entry-level variable, ownership variable and empowerment variable. A model for the prediction of environmental responsible behaviour, from Hungerford (1997) is given in Figure 1.1.
1.20 EVOLUTION OF ENVIRONMENTAL RESPONSIBLE BEHAVIOUR MODEL

Harold R. Hungerford and Trudi L. Volk tried to operationalize environmental responsible behaviour by highlighting the objectives of environmental education as defined by 1977 Tbilisi Intergovernmental Conference on Environmental Education. These objectives were reflected in Tbilisi conference declaration (1978), as follows:

- Awareness- to help social group and individuals acquire an awareness and sensitivity to the total environment and its allied problems (and/or issues).
- Sensitivity- to help social groups and individuals gain a variety of experiences in, and acquire a basic understanding of the environment and its associated problems (and/or issues).
• Attitudes- to help social groups and individuals acquire a set of values and feeling of concern for the environment and motivation for actively participating in environmental improvement and protection.

• Skills- to help social groups and individuals acquire skills for identifying and solving environmental problems (and/or issues).

• Participation- to provide social groups and individuals with an opportunity to be actively involved at all levels in working towards resolution of environmental problems (and/or issues).

By using these objectives, Hungerford and Volk defined environmental responsible citizen as one who has:

1. An awareness and sensitivity to the total environment and its allied problems (and/or issues).

2. A basic understanding of the environment and its allied problems (and/or issues).

3. Feeling of concern for the environment and motivation for actively participating in environmental improvement and protection.

4. Skills for identifying and solving environmental problems (and/or issues), and

5. Active involvement at all levels in working towards resolution of environmental problems (and/or issues).

Hungerford and Volk made enough comparison between the traditional thinking about behaviour and the then recent research into environmental behaviour. The traditional thinking in the field of environmental education existed long back was that the change in behaviour could be done by making human being more knowledgeable about environment and its associated issues. It was based on
the basic assumption that, if we make human beings more knowledgeable, they will in turn, become more aware of the environment and its problems, and, thus, be more motivated to act towards the environment in more responsible ways. Also, there was a linear model towards knowledge to attitude and attitude to behaviour. Ramsey and Rickson (1977) stated that increased knowledge leads to favorable attitudes … which in turn lead to action promoting better environmental quality. But research into environmental education did not bear out the validity of these linear models for changing behaviour. Numerous researches tried with variety of variables hypothesized to be associated with responsible behaviour. May of the studies were looking into the cause-effect relationships and failed in establishing the same.

In 1986-87, Hines et al. published an important meta-analysis of the behaviour research literature in EE. They had followed a scientific analysis, from which a model of environmental responsible behaviour emerged.

**Figure 1.2: The Hines Model of Responsible Behaviour**  
*Adapted from Hines et al. 1986/87*
In the discussion of the model, Hines et al. made the following inference:

An individual who expresses an intention to take action will be more likely to engage in the action than will an individual who expresses no such intention…However…it appears that intention to act is merely an artefact of a number of other variables action in the combination, e.g., cognitive knowledge, cognitive skills and personality factors. Before an individual can intentionally act on a particular environmental problems, that individual must be cognizant of the existence of the (issue). Thus, knowledge of the (issue) appears to be prerequisite to action.

• (An) individual must also possess knowledge of those courses of action which are available and which will be most effective in given situation.

• Another critical component …is skill in appropriately applying this knowledge (i.e., knowledge of action strategies) to a given (issue).

• In addition, an individual must possess a desire to act. One’s desire to act appears to be affected by a host of personality factors…locus of control, attitudes (toward the environment and toward taking action), and personal responsibility (toward the environment).

• Situational factors, such as economic, constraints, social pressure and opportunities to choose different actions may….serve to either counteract or to strengthen the variables in the model.”

A number of other researchers had made substantial contributions to the literature of behaviour to evolve a model of environmental responsible behaviour to Hungerford and Volk; such as (Borden, 1984-85; Borden & Powell, 1983; Holt, 1988; Koslosky, et al., 1988; Marcinkowsku, 1989; Sivek, 1989). Some of the
research focused on the precursors (predictors) of behaviour and some on the outcomes observed from instructional strategies which incorporated a number of variables in from Hines et al., model. These studies, coupled with Hine et al., model, revealed that there are probably three categories of variables that contribute behaviour. The variable categories (entry-level variables, ownership variables and empowerment variables) were hypothesizes to act in more or less of a linear fashion, although a complex one.

**Figure 1.3: Environmental Behaviour Model: Major and Minor variables involved in Environmentally Responsible Behaviour**

The variables in the above behaviour flow chart were described in detail by Hungerford and Volk as follows.

**Entry-Level Variables:** Entry-level variables are good predictors of behaviour or ones that appear to be related to responsible citizenship behaviour. These appear to be prerequisite variables or, at the very least variables that would enhance a
person’s decision making, once an action is undertaken. These variables will briefly explained as:

*Environmental sensitivity* is defined as an empathetic perspective towards the environment.

*Androgyny* (in a psychological sense) is a variable that is often associated with individuals who are active in helping resolve environmental issues. Androgyny refers to those human beings who tend to reflect non-traditional sex-role characteristics. For example, an androgyny male may be very sympathetic individual and able to cry in sad situations (a traditional female characteristic). An androgynous female, for example, may exhibit certain male characteristics such as assertive behaviour. Androgyny is not as strong a predictor as environmental sensitivity.

*Knowledge of ecology* is listed here because it is almost always prerequisite to sound decision regarding solutions to issues. “Knowledge of ecology” refers to an ecological conceptual basis for decision making, e.g., concepts associated with population dynamics, nutrient cycling, succession homeostasis etc. The research would indicate that knowledge of ecology does not in itself produce environmental behaviour. Still, it is an important variable when one considers the importance of ecological concepts in decision making.

*Attitude towards pollution technology economics* are variables that have shown themselves to be significant in some of the research. Although these attitudes appear to be involved with behaviour, the extent of their involvement is still unknown and thus they are shown here as minor variables.
Ownership Variables: These variables are those that make environmental issues very personal. The individual “owns” issues, i.e., the issues are extremely important, at a personal level, to him/her. Much of what we know about “ownership” is inferred from a variety of studies. Ownership variables appear to be critical to responsible behaviour.

In-depth knowledge (understanding) of issues appears crucial to ownership. A number of important studies have addressed these variables. It appears that, before individuals can engage in responsible citizenship behaviour, they must understand the nature of the issues and its ecological and human implications. When individuals have an in-depth understanding of issues, they appear more inclined to take on citizenship responsibility towards those issues.

Personal investment in an issue or an action is another variable that had been hypothesized to be a major factor in this category. Personal investment is much like “ownership” itself. Here the individual identifies strongly with the issue because he/she has what might be called a proprietary interest in it. For example, an individual who thoroughly understands the economics of recycling and who uses a substantial amount of recyclable material might feel a substantial personal economics investment in recycling. However, the motivation might not necessarily have to be economic. It could be environmental in nature if the person has good ecological concepts about waste disposal, biodegradability and nutrient cycles and understands the broad human involvement in these things. Recycling might, then, becomes a strong personal need which could be translated as “personal investment”.
Empowerment Variables: These variables are crucial in the training of environment responsible citizenship in the environmental dimension. These variables give human beings a sense that they can make changes and help resolve important environment issues. “Empowerment” seems to be cornerstone of training in environmental education. Unfortunately, it is a step that is often neglected in educational practices.

Perceived skill in using environmental action strategies is one of the very best predictor of behaviour. Perceived skills in using action strategies can be translated as human beings believing that they have the “power” to use citizenship strategies to help resolve issues. Further, these skills are fairly easy to teach to learners. Training in action skills results in improved students’ self-concepts and a belief that they have been more fully incorporated into society. These are very powerful considerations when making students more responsible citizen in their own communities.

Knowledge of environmental action strategies is a variable that sometimes shows a relationship to behaviour in the research. The extent to which this variable is separate and apart from “perceived skills in using action strategies” is unknown. It is probable that the skill component is dependent on the knowledge variable to a greater extent. Knowledge about action strategies per se in not as powerful a predictor as the skill variable. This explains why these two variables are listed together in the behaviour flow chart. The importance of a word of caution highlighted here by Hungerford and Volk. In the studies that examined behaviour, learners gained an in-depth knowledge of issues as well as learning about action strategies. It is suspected that these two major variables operates synergistically,
not separately. Thus, it would appear unlikely that citizenship action skills taught without issue related knowledge would prompt responsible behaviour in individuals.

*Locus of control*, although not as good a predictor as perceived skill in using action strategies, is important also, and, likely many of the other variables discussed here, this one is probably interconnected with others. It refers to an individual’s belief in being reinforced for certain behaviour. A person with an “internal locus of control” expects that he/she will experience success or somehow be reinforced for doing something. Success in turn appears to strengthen his/her internal locus of control. On the other hand, a person with an “external locus of control” does not believe that he/she will be reinforced for doing something and, therefore, probably will not do it.

*Intention to act* seems also related to the “empowerment” variable. If a person intends to take some sort of action, the chances of that action occurring are increased. It is likely that this variable is closely related to both perceived skill in taking action and locus of control. “Intention to act” may also share a synergistic relationship with “personal investment”.

### 1.21 NEED AND SIGNIFICANCE OF THE STUDY

It is hoped that the learners’ interest in EE topics would be encouraged through learning that involves hands-on and minds-on activities. As learners belong to communities, it is assumed that the larger community would eventually benefit from learners – knowledge, attitude and awareness.

According to Curriculum Framework for Teacher Education (NCERT and NCTE, 2006), teachers would have to play the pivotal role in the total transaction
of the EE curriculum. Consciousness about environment, conceptual capacity about environmental issues attitudinal transformation and the practical ability to guide students would be principal requirement of EE teachers at all levels of schooling. They are already familiar with certain routine transactional strategies in a formal, year-end examination set up.

Effective integration of EE into school programme is therefore a dynamic step towards improving teaching learning. To make the integration of EE effective, teachers of different subject areas must be conscious of the emphasis of their own disciplines and the knowledge and the skills they want students to acquire at different grades to reduce overlapping or over repeating concepts to the point of being redundant.

“Instructional materials on different environment problems/issues are available, but in limited circulation. Oftentimes, critics question the accuracy and bias of information received by the young people about environmental issues. Given the scarcity of EE related textbooks and support materials, children and the community get information (often sensationalized) from inaccurate sources” (Merle Tan, 2004).

Young learners should learn in depth exercise skills related to inquiry, decision making and problem solving. The learning process must provide them with the experiences that are real and meaningful to them.

Without understanding how knowledge is generated and developed by learners, educators cannot adequately deliberate with them on complex issues, such as the socio-cultural and economic dimensions of environmental issues. During the learning process, mental processes take place on both the part of the
deliverer and the receiver. These processes constitute the framework of constructivist theory of learning (Constructivism) that has its main principles that building of knowledge by the learners and thus, their active involvement in the teaching and learning process. Constructivism is a theory that interprets learning processes that are based on the “construction of knowledge” by the learners themselves.

Research has revealed that students following an environmental course or programme based on the principles of Constructivism had the better understanding of the concepts covered by the topics of the course or programme than did students in the traditional teacher centered group. Students’ involvement in their-own cognitive procedure and critical thinking are crucial elements for both EE and Constructivism. Meaningful EE is envisioned as a teaching and learning approach with interdisciplinary, critical thinking, problem solving and decision makes orientations leading to the capacity to transfer beyond the specificity of each and every subject discipline.

Constructivism provides the context for the interpretation of the ways by which students learn and perceive the “new messages and ideas” thus being an essential means for the educators and not an end in itself. Therefore it is important for educators to be aware of and practice such methods, as they would be very useful and effective in-order to achieve the educational objectives of the lesson, activity etc.

Seeking to educate for environment and sustainable development requires educators to inspire and encourage a commitment to the values of social justice and equity, peace and ecological integrity, democracy and respect to nature,
promoting the adoption of new lifestyles and living patterns. Educators should create a realistic hope in which the probability of change and the real desire for change are accompanied by concrete and active participation. In order to attain this, experiential based learning strategies will be the comprehensive tool. Experiential Education is that education which is structured in a way that allows the learner to explore the phenomenon under study – to form a direct relationship with the subject matter. With reference to Kolb’s model, it requires that the learners play an active role in the experience and that experience is followed by reflection as the method for processing, understanding and making sense of it. Experiential education, most generally occurs in different kind of programmes that have as their goals the construction of knowledge, skills and disposition from direct experience.

In India, environmental issues attracted popular attention and it was felt that education has to respond appropriately to this crying need of the hour. It has been felt that, although a fair amount of information about environment is being given through the textbooks, it has not reached to generate a concern that may lead to effective action for conserving and further improving the environment. In such a field of global concern, it may not be half so important to know as to feel and be motivated to act. Therefore, the further course of study in EE should emphasize the emotional and attitudinal aspects to the learners’ personality along with the cognitive component most of, which is available in different subject textbooks, anyway. Thus it is argued that a value based action oriented course of EE would lead from knowledge to feeling and finally to appropriate action. This alone would bridge the wide gulf between the avowed intent and the actual implementation of
the programme that concerns the present and the future of the entire humanity on
the earth. This observation gives a strong input to the researcher to undertake this
particular study. The process and strategies suggested would help to develop
positive attitudes, responsible behaviours, sensitivity, knowledge and performance
competencies, social values, and strong concerns for sustainable development and
further improvement of the environment among student teachers.

Teaching is not a technical business in general and teaching environmental
education in particular. The personal and professional commitment makes any
teaching endeavour more meaningful and productive. The nature of the
environmental education itself stresses the importance of commitment from the
side of the teacher in order to involve him/her self and make students to involve in
the environmental related actions.

Teacher education would urgently need an overall review for all strategies
of schooling with a sharper focus on the sensitization and awareness building
about the environment and the issues related to it and on the acquisition of
competencies for organizing the transaction of EE in consonance with the
learners’ requirement. Any environmental education work aiming to stimulate
sensitiveness, consciousness and appropriate action or activities requires
cooperation of students and development of their criticism.

EE is meaningful if it takes place in real life and is geared towards
understanding and solving real life problems. Practical activities and first hand
experiences are essential for creating their understandings. But most of the schools
neither geared towards this or the teachers. So the teachers have to find out
innovative ways to create such opportunities through experiential learning. Thus
the present study focuses on the student teachers to equip them with the experiential based training package in EE. In order to confirm the meaningfulness of the package, its effect over the environmental knowledge, responsible behaviour and commitment of the student teachers is being studied after the implementation of the package.

EE as a tool for empowerment, changes the mindset and attitudes and lead towards sustainable development, the researcher do strongly feels that the critical pedagogy and experiential learning strategies in EE which are issue oriented will be a gentle leap towards strengthening the EE initiatives in teacher education.

1.22 STATEMENT OF THE PROBLEM

Educators need to be capacitated to implement active learning with the “environment as a topic”. There are, however, a number of questions in terms of educators’ preparedness to integrate EE into all of the Learning Areas, including the question: Are all educators aware that EE should be integrated into all learning areas? Palmer and Neal (1995) have argued that the successful implementation of EE programmes relates to the educators’ subject knowledge, enthusiasm, awareness and dedication to their tasks. A crucial question is whether educators teach EE in an integrated approach. For instance, can educators identify environmental topics and relate these to their teaching? One wonders if all educators are aware that they need to design learning programmes that address local environmental issues so that the learners can be in a position to solve global environmental issues. One has to act locally, but think globally because the world has shrunk to such an extent that there are missing bits due to development in technology, that unsuitable activities in one part of the world eventually impacts
negatively on other parts of the world. With this background the investigator had decided to conduct a study on the effectiveness of an experience based approach to environmental education on environmental knowledge and environmental responsible behaviour of student teachers at secondary teacher education. Thus the present study entitled as, “A Study on the Effectiveness of an Experience Based Approach to Environmental Education for Secondary Teacher Education”. It was intended to study the effectiveness on the basis of environmental responsible behaviour and the environmental knowledge of the student teachers at the secondary level. The environmental responsible behaviour model suggested by Hungerford and Volk has been adapted with the three level variables was adopted as well as the student teachers’ Environmental Knowledge

1.23 OPERATIONAL DEFINITIONS

Experience: The term ‘experience’ is associated with the raw knowledge or skills gained from life by personal (initial) contact with facts and events. Experience implies that there is recognition (at an affective level) that ‘something’ has been gained as a result of personal contact which forms the basis of developing a consciousness or understanding of ideas, neither of which may in turn be understood as a theory.

In this study it is conceived as the process by which a learner creates meaning from direct experience. It refers to the processes that a learner undergoes. It gives a personal framework for developing and understanding proportional knowledge and practical knowledge.

Experience Based Approach: In the present study, it is conceived as the teaching learning experiences realigning to provide experiences to the learners to reflect, brain storm and generalize/conclude.
**Environmental Education:** It is the process aimed at developing a world population that is aware of and concerned about the total environment and its associated problems and it aims at the knowledge, attitudes, commitment and skills to work individually and collectively towards the current problems and preventing the new ones.

**Environmental Knowledge:** Present study considers the environmental knowledge as the knowledge of basic ecology, knowledge about the environment, environmental issues.

**Environmental Responsible behaviours:** The present study adopted the model proposed by Hungerford and Volk (1990) for environmental responsible behaviour. The model consists of three different level variables such as entry level, ownership level and empowerment level. The investigator considered environmental responsible behaviour including the knowledge of ecology, environment and environmental issues, knowledge of consequences of behaviours, both positive and negative and knowledge of and skills in using environmental action strategies.

### 1.24 OBJECTIVES OF THE STUDY

The following objectives were formulated for the present study.

1) To analyze the existing B.Ed. curriculum in Environmental Education prescribed by Calicut University in order to select key contents. To develop an issue based teaching learning strategies by reframing the key content in order to transact through an experience based approach.

2) To develop an experience based approach to Environmental Education to transact with the student teachers at secondary level.
3) To study the effectiveness of experience based approach in EE for the secondary teacher education level on certain student teacher related variables namely:

3.1 The environmental knowledge

3.2 The environmental responsible behaviour

1.25 HYPOTHESES OF THE STUDY

Based on the above objectives, the following hypotheses were formulated.

1) There is a significant difference between post-test performance of student teachers belonging to experimental and control groups on environmental knowledge.

2) There is a significant difference in the gain scores of student teachers belonging to experimental and control groups on environmental knowledge.

3) There is a significant difference in the pre-test and post-test performance of student teachers belonging to experimental group on environmental knowledge.

4) There is a significant difference in the post-test performance of student teachers belonging to experimental and control groups in the environmental knowledge when the pre-test performance was taken as covariate.

5) There is a significant difference between post-test performance of student teachers belonging to experimental and control groups on environmental responsible behaviour.

6) There is a significant difference in the gain scores of student teachers belonging to experimental and control groups on environmental responsible behaviour.
7) There is a significant difference in the pre-test and post-test performance of student teachers belonging to experimental group on environmental responsible behaviour.

8) There is a significant difference between post-test performance of student teachers belonging to experimental and control groups on environmental responsible behaviour when the pre-test score was taken as covariate.

9) There is a significant difference between the pre-test and post-test performance of student teachers belonging to experimental and control groups in the environmental responsible behaviour componentwise.

1.26 VARIABLES USED IN THE STUDY

**Independent Variable:** Experience based approach to Environmental Education

**Dependent Variables:** Student teachers’

1. Environmental Knowledge
2. Environmental Responsible Behaviour

1.26.1 Independent Variable

An independent variable is the variable that has been manipulated. In this experimental study the approach to teaching has been considered as manipulated to find out what kind of effect it can produce on the dependent variables. Unlike a true experiment which is done on inanimate objects (the independent variable is under the control of the investigator) where it is able to measure, but in subjects of Education, the measuring of independent variables becomes less accurate. In this study the *experience based approach to environmental education* was taken as independent variable.
1.26.2 Dependent Variables

A dependent variable is the measured or observed variable. By observing the dependent variable the effect of the independent variable can be seen. It is to be tested whether the independent variable critical pedagogical approach in teaching social studies would have an effect on *environmental knowledge and environmental responsible behaviour* of student teachers. These dependent variables were observed and measured to determine whether the independent variables had any effect.

1.26.3 Intervening Controlled Variables

Control variable is a variable that has the potential to impact the dependent variable as well as the independent variable but its effects are removed or controlled by research design or statistical manipulation. The variables that were controlled for the experiment to get homogeneous groups were: classes chosen for the experimental treatment, contents selected, and features of the training college and size of the sample. For the statistical analysis the pre-test scores were used as covariance to control their effects on the outcome.

1.26.4 Intervening Uncontrolled Variables

Variables that have an unpredictable or unexpected impact on the dependent variable were unable to control. Some of these variables are fatigue, absence of some student teachers during experiment, motivation, anxiety, interest of the students, socio-economic status, family environment, previous exposure to teaching strategies, present teaching in other subjects, physical resources of the students, education of parents, study habits, academic ability in the subjects,
teacher competence in a particular treatment, enthusiasm and others. These
variables remained uncontrolled during the experiment

1.26.5 Situational variables

Situational variables like time, duration of treatment, type of management,
subjects to be taught etc, were controlled administratively and through selection of
sample and equating the time interval.

1.27 ORGANIZATION OF THE REPORT

The thesis has been organized into five chapters. The details are given
below.

Chapter I: Theoretical Background: First chapter presents with the back ground
of the problem, need and significance of the study, Statement of the problem,
definition of key terms, objective, hypotheses variable statistical techniques, scope
and limitations of the study.

Chapter II: Review of Related Literature: Second Chapter describe review of
related literature includes theoretical and review of research studies related to the
topic.

Chapter III: Methodology: Third chapter describes the methodology adopted for
the study. It includes samples, sample of the study, data collection procedure and
statistical techniques employed for analyzing the data.

Chapter IV: Analysis and Interpretation: This chapter gives the details of
analysis and interpretations of the data collected and sample used for the study are
described in detail and the tables are also included in this chapter.
Chapter V: Summary, Findings, Conclusion and Suggestions for Further Research: The last chapter deals with brief summary of the study and conclusion arrived at on the basis of findings recommendation and procedure followed in carrying out the investigation.

1.28 CONCLUSION

The theoretical backdrop demands to justify the selection the variables for the present study. It could be done only through the review of existing literature. The coming chapter details the review of related literature which helps the investigator to justify the selection of the variables and thus proceeding further with the present study.