CHAPTER II

REVIEW OF RELATED LITERATURE

INTRODUCTION

Review of related literature is a pre-requisite to the actual planning and conducting a new study. It gives the researcher a deeper insight and understanding of his problem and enables him to enhance his knowledge by taking new strides and by examining what is already known about the problem. The investigator becomes familiar with various trends and phases in research, in his area and formulates a rationale for the development of the study to be undertaken by him.

PURPOSE OF LITERATURE REVIEW

Literature review is an integral part of entire research process and makes valuable contribution to every operational step.

Its functions are:

a) Bring clarity and focus to the research problem.
b) Improve methodology
c) Broaden knowledge
d) Contextualize the findings

a) Bring clarity and focus to the research problem

Reviewing the literature helps the researcher in understanding the subject better and conceptualizing the research problem precisely and clearly. It helps the researcher in finding the relationship between his research problem and the amount of knowledge existing in the area.

b) Improve Methodology
By reviewing the literature, a researcher is able to find out whether others have used same procedures and methods like the one which she is proposing and whether the procedure worked well for her or she had to face any problem. In this way the researcher will be able to select a proper methodology which is capable of answering all her research questions.

c) **Broadens knowledge base in the research area**

It encourages the researcher to read thoroughly the area in which he decides to conduct the study. It also helps him to understand whether the finding of his study matches with the existing body of knowledge.

d) **Contextualize the findings**

It is important to place the research findings in the context of what is already known in the field of enquiry. For this researcher has to always go back to the review of literature.

The researcher has grouped the studies under the heads of studies conducted in India and studies conducted abroad.

**SOURCES OF LITERATURE REVIEW**

The various sources of literature review are

a) **Primary sources** : are obtained from original sources on which research is based and not being filtered through evaluation or interpretation. Primary sources are in physical print or electronic form. They include reporting a discovery, sharing new information, etc. Some examples include:

- Artefacts (e.g. coins, plant specimens, fossils, furniture, tools, clothing, all from the time under study);
- Diaries;
- Literary creation: novels, short stories, poems, etc.
• Journal articles published in peer-reviewed publications;
• Interviews (e.g., oral histories, telephone, e-mail);
• Patents;
• Records of organizations, government agencies (e.g. annual report, treaty, constitution, government document);
• Works of art, architecture, literature, and music (e.g., paintings, sculptures, musical scores, buildings, novels, poems).
• Proceedings of Meetings, conferences and symposia;
• Speeches;
• Internet communications on email, listservs
• Letters;
• Video recordings (e.g. television programs);
• Audio recordings (e.g. radio programs)
• Newspaper articles written at the time;
• Original Documents (i.e. birth certificate, will, marriage license, trial transcript);
• Photographs
• Survey Research (e.g., market surveys, public opinion polls);

b) **Secondary sources**: are obtained by interpretation end evaluation of the primary sources. They do not present evidence but discussion or rather commentary of the evidence. Few examples are;

• Histories;
• Dictionaries, Encyclopaedias (also considered tertiary);
• Monographs, other than fiction and autobiography;
• Textbooks (also considered tertiary);
• Commentaries, criticisms;
• Bibliographies (also considered tertiary);
• Literary criticism such as Journal articles;
• Web site (also considered primary).
• Magazine and newspaper articles;
c) **Tertiary sources:** These are information which are distilled and collected from primary and secondary sources. Few examples are;

- Bibliographies (also considered secondary);
- (also considered secondary);
- Textbooks (also be secondary).
- Directories;
- Fact books;
- Almanacs;
- Guidebooks;
- Indexes, abstracts, bibliographies used to locate primary and secondary sources;
- Chronologies;
- Manuals;
- Dictionaries and Encyclopaedias

The researcher has collected the review of literature from primary, secondary and tertiary sources.

**STUDIES CONDUCTED IN INDIA**


**Objectives of the study**

1. To analyse the content of environmental education curricula of class I – IV in terms of stated curriculum.
2. To assess how further curricula were suited to the needs and interests of the learners.
3. To assess whether the curricula had any provisions for gifted learners, and
4. To investigate the reactions of science teachers to a need-based curriculum.

Sample
The data was collected using the survey method on a sample of 377 primary school teachers from three geo-politically distinct areas of Andhra Pradesh viz. Coastal Andhra, Rayalseema and Telengana, involving two representative districts from each (i.e.) East Godavari, Guntur, Prakasam, Nellore, Warangal and Medak.

Major findings
1. The environmental studies curricula did not cater to the essential needs of the learners for whom they were meant.
2. The EVS curricula did not introduce children to the desired scientific skills and attitudes.
3. The prescribed curricula did not adequately reflect the stated curriculum objectives. The investigator highlighted the EVS curricula in order to be more effective, should be comprehensive, sequential and full of experiences that link children’s school based learning with their environment and universe.


Objectives of study
1. To find out the level of awareness about the environment among teachers and students.
2. To know the attitudes of students and teachers towards the environment and
3. To find out the differences between teachers and students, and male and female groups concerning the environment.

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

**Major findings**
1. A positive environmental attitude was observed in 95% teachers and 94% students.
2. The environmental trained teachers and untrained teachers did not differ in their attitude.
3. Teachers had more awareness of the environment than students.
4. Trained and untrained teachers did not differ on environmental awareness.
5. Girls possessed significantly more awareness of the environment than boys.

Objectives of the study
1. To evolve an integrated environmental education, and bring about an overall awareness among our younger generation about environmental education.
2. To develop active and well-informed individuals for protecting and conserving the environment.
3. To develop an understanding of the interactions and interdependence of the physical, biological, social, economical and cultural aspects of the environment, and
4. To develop in individuals and communities skills for identifying and solving environment problems.

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

Major findings
A framework for an environmentally oriented geography curriculum at secondary stage was presented.


Objective of the study
1. To determine the level of environmental knowledge and attitude of in-service and pre-service secondary school teachers, and
2. To study their perception regarding environmental education in the secondary schools.
Sample
The sample for the study consisted of 302 in-service teachers serving in 50 secondary schools and 416 pre-service teachers of three teachers’ training colleges in Puri District of Orissa.

Major findings
1. The level of environmental knowledge was found low among pre-service teachers, although conceptual knowledge was moderate.
2. Among the in-service teachers, environmental knowledge was moderate and factual knowledge about the environment was low.
3. Both the groups differed significantly in their level of environmental knowledge. They had a favourable attitude towards environmental education although the in-service group had a higher level of attitude than that of the pre-service group.
4. There was a moderate correlation between environmental knowledge and environmental attitude.
5. Teachers perceived that environmental education could be core part of ‘social science’ and ‘general science’ also and science subjects in secondary schools as well as mass media have a potential role to play in imparting environmental education.


Objectives of the study
1. To find out the important factors of the environment
2. To evaluate the impact of environmental education through an environmental education test (EET).
3. To find out through a small experimental study the impact of the participatory learning approach
4. To get feedback from the teachers handling the subject, through a constructed questionnaire.
Sample
1415 children studying in standard V, from 30 primary schools, 10 each from Madras, Coimbatore and the Nilgiris were given the EET constructed by the investigator.

Findings
1. The distribution of the total environmental education test scores of the entire sample approached the normal form which implied that studying environmental education had a very good impact on the children.
2. Analyzing the EET’s areawise, the children of Madras scored better (arithmetic mean : 41.85) when compared to that of Coimbatore and the Nilgiris, and this could be due to better exposure of the Madras children.
3. The study showed that the participatory learning approach could bring about a better impact.
4. Teachers, in general, felt that there was not sufficient time to give importance to learner-centred activities.


Objectives of the study
1. To know the constituents and the concept of the environment
2. To study the environment-man-relationship
3. To study the dynamics of the environment
4. To renovate the concept of environmental education.

Methodology
The philosophical method employing intuition, introspection, reflection and speculation were used with regard to available literature. Field visits and dialogues with select groups of authors were conducted to fulfil the objectives of the study.

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


Objectives of the study
1. To compare the attitudes towards environmental and population education of different types of teachers having different levels of population awareness
2. To compare the attitudes towards environmental education and population education of different types of male and female teachers having different levels of education.
Samples
Four hundred senior secondary school teachers, college and University teachers, Medical college teachers and Engineering College teachers from Punjab and Chandigarh were selected for the study.

Major findings
1. In the case of both males and females no differences existed in the population awareness of different categories of teachers.
2. Sex difference existed in the population awareness of different categories of teachers.
3. The level of population awareness was not related to the attitude towards environment education.


Objective of the study
1. To determine the effect of integrated environment education in technical and vocational education at the secondary education level.
2. To suggest specific actions for their improvement.

Methodology
This study was a joint study conducted between Punjab State Council for Science and Technology in India and a section of Technical and Vocational Education and a section of Science and Technology Education of UNESCO in Paris. The countries for study were chosen to make the content as representative as possible by mutual consultation. The countries chosen were Malaysia, Philippines, Indonesia, India & China.
Findings
The study states that EE (environment education) in TVE (technical vocational education) has not been given great importance. Some of the major problems are:

1. Only the technical aspects of EE is promoted in TVE. It does not develop understanding of natural systems and cycles and environmental awareness.
2. No efforts are taken to integrate EE concepts in TVE curriculum.
4. Very few trained staff and curriculum developers to frame curriculum.


Objectives of the Study
1. To develop instructional packages for Environmental Education.
2. To assess the level of Environmental awareness of pupils from different schools.
3. To find out influence of school types and pupil gender on the levels of Environmental awareness among the pupils.
4. To compare the achievement of pupils of control group and experimental group.

Methodology
A sample of 300 pupils from six schools in and around Coimbatore city was selected using random sampling technique and equally divided into experimental and control groups. The pre-test and post-test design was adopted in this study. The study was carried in three stages namely pre-test stage, experimental stage and post-test stage.

Findings
1. The heads of institutions should help the teachers to make use of innovative techniques in teaching, provide facilities such as tape recorder, radio and multimedia package to the teachers in rural area, encourage the pupils to listen to the radio programme and television programme related to environment and involve in quiz programme.
2. Special in-service training programmes on EE are to be organized for the teachers of all the grades.
3. Educational and software packages about EE are to be developed for lower to higher levels of school education.
4. Educational packages are required mainly for the concepts like (a) plants and animals (b) surrounding (c) influence of environmental factors and so on.
5. Self-learning packages are required for non-formal education since Environmental Studies have direct influence upon society. Since educational packages including pay-way techniques and use of visual aids are more effective, such materials are to be developed.


Objectives of the study
Finding out environmental awareness level among teacher educators and influence of factors (gender, place of living and subject) on their levels of awareness.

Methodology
Normative survey method was followed and a sample of 50 teacher educators of B.Edcollege was selected for the present study. Due importance was given to gender, place of living and subjects of teachers. A self-made questionnaire type of tool was employed and it consisted of 40 questions, which were based on
i. Environmental awareness
ii. Human health,
iii. Sociological bases of EE and
iv. Psychological bases of EE.
Mean, standard deviation and ‘t’ test were the statistical measures applied for the data analysis and interpretation.

**Findings**
1. The study revealed that majority of the teacher educators had limited awareness and importance of EE, quality of life and how to protect human health.
2. Keeping the findings of the present study, it is proposed that the entire education system in general and teacher education in particular needs an immediate reorientation in the curriculum towards EE.
3. Educational implication is that for the education programme (B.Ed) of secondary level pre-service teacher curriculum should be based on the following philosophy; “education for the environment which is concerned with attitude and values for the environment”.


**Objective of study**
To create awareness among students towards environmental concepts through co-curricular activities.

**Methodology**
The sample consists of 7th standard students of Z.P.H school, Gidijala, Andhra Pradesh, following random sampling procedure and divided into two control and environmental group.

**Findings**
The findings suggested that:
1. Good relations with the community make them aware of important values with regard to environmental aspects are to be maintained.
2. Strict formation of eco-clubs and endorsement of responsibility to perform the activities would yield proper results and give scope to the other students to follow the same through which they would find out the importance of environmental values.

3. Conducting co-curricular activities gives proper message to perform the activity and give scope to observe the principle involved.

4. Teacher should conduct as many co-curricular activities like drawings, posters, charts, cartons, maps and role plays to give maximum awareness and to develop competitive spirit among students on regional environmental problems.

5. The printed media and community are to be utilized for acquisition of knowledge and skills required for living eco-friendly.


Objective of study
1. To study the demographic profile of the respondents.
2. To find out the environmental awareness and responsibility among university students.

Methodology
Primary data using convenient sampling through questionnaire and interview method was used. The statistical technique of percentage analysis and Anova is used to determine the variables, which determine their behavior towards environmental awareness and responsibilities among university students.

Findings
1. It is observed that majority of the students and not all the students are having environmental awareness and responsibilities.
2. It is the duty of Central and State Governments, public and private companies and NGOs to take initiatives to create more awareness about global warming, natural disaster and environmental degradation.

3. State and Central Educational Departments should allocate more funds to organize conferences, seminars and workshops for creating awareness among students at school, college and university level and insist of all faculties to teach, motivate and inspire the student community.

4. Special attention must be given to train the non-science faculties with suitable curriculum so that they can initiate the field level studies.

5. Faculties have greater responsibility of raising the awareness not only among students but also understanding of environmental issues.


Objective of the study

1. To create knowledge, interest and necessary skills to solve various biodiversity problems with reference to the local context.
2. To investigate the changes before and after implementing the biodiversity education programme/curriculum implementation with middle school students.

Methodology

The study was conducted during July 2009 to April 2010 with Chevalier Sellane Government Higher Secondary School and JavagarNavodayaVidyalaya School, KalapetPuducherry. The participants in this study were chosen from age group between 13 to 15 middle school students. A total of 140 students were randomly selected based on their interest, motivation and commitment. A self-administrated questionnaire was used to determine students understanding.
**Findings**

1. The results obtained from this experiment reflect the students' experiences and actions in their homes, school, and community, as this will get them pondering about everyday habits and happenings in biodiversity dimension.

2. Biodiversity education programs help students to acquaint with the local biodiversity problems and create an interest, motivation, commitment, and action.

3. The study stresses the need to extend teaching and learning activities in the immediate environment of the students beyond the classroom for inculcating a culture of biodiversity conservation.


**Objectives of the study**

1. To compare 11th and 12th standard students with regards to their level of environmental awareness.

2. To compare art and science students with regards to their level environmental awareness.

3. To compare students belongs to CBSE and UP Board with regards to their level of environmental awareness.

4. To compare students belongs to different level of their parent’s education with regards to their level of environmental awareness.

5. To compare the level of environmental awareness among male and female students

**Method of the study**

The study uses descriptive survey method. Random sampling technique was used to collect the sample. The samplesize consist of total 608 students. The investigator developed his own tool for
the study known as ParyavaranJagrukataPrashnavali, which contains total 37 items, 13 positively & 24 negatively worded.

Findings of the study
1. Students of 11th and 12th standard were identical as for as their environmental awareness was concerned. Science students had more environmental awareness in comparison to arts students because of the giving more importance on their curriculum framing pattern and their way of social relationship between members of the family may give a lot of values to them.
2. CBSE students had more environmental awareness in comparison to UP Board students because of the rich educational climate of CBSE schools with compare to the UP board schools.
3. Students belonging to undergraduate, post graduate and research parent’s group had more environmental awareness in comparison to high school students and also Students belonging to literate parent’s group had more environmental awareness in comparison to high school and intermediate students.
4. The male students had more environmental awareness in comparison to female students because of the male students of higher secondary students are normally so much attached with the society so that they are having more environmental awareness.


Objectives of the study
1. To compare the students of different streams of Udaipur with regards to their opinion about Environmental studies, environmental awareness and environmental behaviour.
2. To compare the male and female students of Udaipur with regards to their opinion about Environmental studies, environmental awareness and environmental behaviour.
3. To compare the male and female students of Gautambuddh Nagar with regards to their opinion about Environmental studies, Environmental awareness and Environmental behaviour.

**Methodology**

The sample sizes were 40 students from each location. For the present study both primary and secondary data were collected. A structured questionnaire consisting of four parts was designed. A questionnaire was used to collect information about their opinion about Environmental studies, Environmental awareness and Environmental behavior. A pilot study was conducted with 100 respondents. Based on the information collected, necessary modifications were made. A total of 40 respondents from each location returned the questionnaire. The data gathered has been analyzed by t-test, using SPSS software, in order to find whether there is a relationship between students’ awareness levels and their grades.

**Findings**

1. The study concluded that sex and level of education would improve the level of awareness and attitude regarding to environmental issues.

2. Research findings show that even though students take many courses on the environmental issues, their environmental awareness and environmentally responsible behaviours are lower than the expected and students’ grades show no significance on the results.

3. It is concluded that since environmental knowledge do not always influence awareness and behavioural intentions, a strategy has to be chalked out on national level for environmental education in higher education, and current curricula should be reconsidered in terms of effectiveness.


**Objectives of the study**
To measure environmental awareness by a standard tool, in higher secondary students of Jabalpur, Madhya Pradesh, belonging to Madhya Pradesh board and central board.

**Methodology**

The present study was based on survey method and stratified sampling. The sample for the present study consisted of a total 1,385 higher secondary students, selected randomly from thirteen schools (six affiliated to Madhya Pradesh Board and seven to Central Board of Secondary Education) located in the city of Jabalpur, Madhya Pradesh, India. The questionnaire-based tool “Environment Awareness Ability Measure” (Jha, 1998) was used to measure environmental awareness among the students.

**Findings**

1. Environmental awareness of the boys ranged from 19 to 51 percent pursuing different disciplines in the schools affiliated to both the boards, while that of the girls varied from 21 to 51 percent and from 19 to 51 percent in the schools attaché to M.P. board and CBSE board, respectively.

2. The students affiliated to Central Board of Secondary Education recorded significantly higher environmental awareness than those affiliated to the M.P. Board across all the disciplines and both the genders.

3. The impact of quality of the syllabi imparting environmental education was found to be minimum for students studying in the discipline of humanities and the maximum for those studying in the discipline of mathematics or biology.


**Objective of the study**

To study the empirical pattern to observe the overall attitude of pre-service teachers’ of different training colleges.
Methodology and sample
The researcher used single tool developed by (Jena, 2011) which has a two point Yes/No scale. This scale has three areas; these are - awareness, openness and eco friendly practices. The sample size consist of 100 voluntarily participants from three pre-service teacher training institutes of India.

Findings
1. The main finding, of AOE model was effective for pre-service teachers, and it enhanced awareness to think for the environment.
2. The participants shared openly their ideas and information for the implementation of environmental education.
3. The AOE model has significant effect directly and indirectly on pre-service teachers various eco-friendly practices and healthy living habits.

Mr. D. Suresh Kumar, Dr. K. SekarBabu & Dr. P. Karthikeyan (2012), “A study of different Environmental Practices on volleyball playing ability among college men players”, Entire Research Vol No.4 issue II, p. 31-34, ISSN 0975-5020.

Objectives of the study
To analyse what will be the effect of different environmental practices namely indoor and outdoor practices on playing ability among college men volleyball players.

Sample
Forty five college men volleyball players studying at Sri Ragavendra College of Arts and Science, Keelamungiladi and Government Arts College, B. Mutlur. Their age ranged between 18 to 24 years.

Findings
1. There was a significant difference among indoor practice group, outdoor practice group and control group on playing ability.
2. It was showed that there was a significant improvement on playing ability due to indoor practice and outdoor practice. Indoor practice group was better than outdoor practice group.

STUDIES CONDUCTED ABROAD


Objective of the study
1. To find out how people particularly women and minority group manage the local resources
2. To find out what factors prevent the contribution of those people who have daily contact with the environment.

Methodology
The two communities which are located in the dry zone of Sri Lankais covered in this study.

1. Kelegema (sample size 19 households) which is characterized of using tank-irrigated farming, and
2. Muriyakadawala (sample size 18 households) which mainly depend upon forest resources.

Findings
1. There is very limited opportunity for women and minority groups to decide how to manage the environment in which they reside.
2. The management technique used by women and indigenous minorities are adopted.
3. It is necessary to recognise the rights to resources, the role of women and indigenous group for proper environmental management.
4. When the external support dries up, the externally adopted measures tends to disappear.
5. To open up opportunities the contribution of women and minority groups should be accepted.
6. Women participation must be there from other minority groups also such as the indigenous group.

**Objective of study**

1. To find out the university students attitude towards environment and environmental issues.
2. To examine whether based on socio-economic status the attitude of the students towards environment differ significantly.

**Sample**

A sample size of 227 student teachers consisting of 145 girls and 82 boys were used. Participants are sophomore students of Faculty of Education of Pamukkale University, in Turkey.

**Design and Methods**

To undertake the study survey method was adopted which consist of 2 section, in the second section in order to measure the students attitude towards environment and environmental issues a scale was given. The reliability of the scale was found to be 0.81.

**Findings**

1. There is not very high attitude towards environment and environmental issues among the students.
2. The environmental attitude was found to be greater for girls than the boys.
3. The study shows that occupation of the mother affects the environmental attitude of the students.
4. The attitude towards environmental issues, differ based on age, and number of siblings, but it is found that the fathers occupation their house, parents education level, families economic status doesnot effect their attitude towards environmental issues.
Objectives of the study

To find out the effect of teacher workshop on R2R and how they infuse environmental topics into their curriculum.

Methodology

1. A 15 day residential program is conducted by the university of Georgia to study the effect of R2R program.
2. To accomplish the study interview is conducted of 8 past participants who were a part of R2R program and currently teaching now were selected.
3. Semi-structured interview format was used to conduct interview, and it was conducted in the schools of participating teachers.

Findings

After conducting the interview, it was found out that there were 3 barriers in the usefulness and implementation of environmental topics in the classroom.

1. The first barrier was the teachers strictly followed the content standards.
2. There was a lot of difficulty in translating the coastal experience into content so that it becomes meaningful to the students.
3. Finally, the last barrier was, the difficulties the teachers faced in teaching environmental education in old traditional school setting.

Findings

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3. Finally, the last barrier was, the difficulties the teachers faced in teaching environmental education in old traditional school setting.

Objective of the Study

1. To understand the effect of 2 models i.e. full and quasi participation on the secondary school students achievement on certain environmental issues and concepts.
2. To find out how the environmental concepts differs based on group size and academic ability.

Methodology

The sample size consists of 360 students from nine secondary schools from Kwara state. The schools were selected based on stratified random sampling. The study adopted a pretest, post test on control group using a 3 x 3 x 2 factorial matrix.

Findings

1. Students taught by participatory mode perform better than the students in the conventional lecture group.
2. Quasi participatory students performed better than the full participatory group as they had a better opportunity to work in a more flexible way.
Data was collected from 200 members of the civic club and 200 non-members of the club before and after the project activities. Analysis technique used was descriptive method.

Findings

1. Significant change was observed in the knowledge and attitude of the students after their exposure to the activities in the civic club.
2. Teaching environmental issues for children was found to be more effective through civic club rather than classroom teaching.
3. It was observed that civic club play an important role in promoting environmental issues in Botswana and other countries. Hence this method is promoted in these countries.


Objective of the study

To find out what is the role of science teacher trainee in improving problemsolving skills of the students.

Methodology

The study uses experimental method with pre-test, final test and control group. Sample size consists of 102 students of Ghazi University of the academic year 2003-04. Problem solving method was used on experimental group and traditional method was used on control group.

Findings

Scientific operation skills of the teacher trainees was found to improve the problem solving attitudes and this increased their grades in environment success test.

Objective of the study

By using Manoli et al’s NEP scale for children to investigate the world view of Belgian, Vietnamese and Zimbabwean children.

Methodology & sample

Manoli et al 15 item NEP scale consisting of 8 items were used. The scale was administered classwise in English to a sample size of 524 Zimbabwean students, age group between 13-15 years and 449 Vietnamese age group between 13 – 14 year old and 613 children in Belgium of 13 year old. Principle components factor analysis with VARIMA - Xrotation showing 3 dimension were used.

Findings

1. The result of this study reveal clear difference between ecological conception of the responding children from these countries.
2. There is a clear and highly significant cultural influence on the environmental world view of children.
3. The results of this study strengthen the importance of analyzing the dimensionality of NEP scale when it is used to research and compare environmental world views.


Objective of the study

To examine the environmental science facultymembersattitude and classroom practice in Jordanian university.
Methodology

The sample size consists of 65 environmental science faculty members from 3 public University in Jordan which includes 32 males and 14 female. Data was collected by using quantitative and qualitative method.

Findings

1. The Environmental science faculty members supported for Sustainable Development (ESD) in university classrooms at Jordanian University.
2. There was a moderate level of attitude among environmental science faculty members towards ESD.
3. The study showed that to increase the pedagogical knowledge it is necessary to organise special training course and workshops by the University.
4. To increase the awareness attitude and pedagogical knowledge related to ESD the university should encourage building learning communities between faculty members.


Objective of the Study

To familiarize environmental education in Finland and to find out how it is taken into account on Finnish nature schools.

Methodology

The material was collected from 23 nature schools in the year 2006, by using a questionnaire sent to the leader of each school. The leader gave their filled in questionnaire to their teacher who was incharge in planning curriculum in their nature school. Then quantitatively and qualitatively the data was analysed using deductive and inductive classification methods.

Findings
1. Most of the nature school gave their service for children and young people and students of primary and lower secondary schools visited the nature school.
2. Educational method used were nature trips, enquiry learning method and learning by doing.
3. The impact of the NS was not very strong, as the students attended the nature school only once or twice in their entire compulsory education.
4. The teachers don’t take into account the meaning of evaluation.

“Leslie Pashby and Joanna Weis (2009), “Planting the seeds of Environmental Awareness: Evaluating An Environmental Education program for grade 5 students”, Master of Teaching Candidates, Ontario institute of studies in education at the University of Toronto.”

**Objective of the study**

To familiarize the effectiveness of environmental education program with grade five students of Toronto, Canada about environmental education based on urban classroom.

**Methodology**

Gracedale Public School in Toronto, Canada was taken as a centre for conducting research. The school serves an ethnically diverse population with students falling in socio-economic group ranging from lower to middle class. The program consists of a series of activities like storytelling, reflections etc. to make the participant understand the role of consumption waste connection.

**Quantitative Data**

To analyse the participants environmental awareness, questionnaire were completed before and after the program.

**Qualitative data**
Qualitative data was gathered from three sources, they are pre and post program questionnaire reflective journals and research observations. Initial and final questionnaires both contain three open ended questions.

Findings

Quantitative Analysis

1. The environmental awareness increased from 5.63 to 6.32 from the initial to final questionnaire which shows that the program was effective.
2. No correlation was found between dwelling and environmental awareness.

Qualitative Analysis

Qualitative analysis gave rise to 3 themes they are concrete, local vs. abstract, global awareness. Anthropocentrism and a utilitarian view and fairness of resource used towards human and environment. These themes highlights the participants experience in understanding and assessing the efficiency of environmental education programs.


Objectives of the study

To examine the effects of an applied environmental education project carried out on students environmental knowledge and its retention by using the green class model.

Methodology

The sample consists of 101 students of low socio-economic status attending Nazim Akan primary school in Ankara. Pre-test, post test, monitoring test model was used on control and experimental group throughout the year.
Findings

1. Pre-test scores was found to be close for both control and experimental groups.
2. There is a significant difference in the environmental knowledge scores of the experimental group those who were trained according to the green class model than the control group.
3. The model had significant effect.
4. To enhance the environmental knowledge and its retention, environmental education given through green class model was found to be very effective.


Objective of the study

To identify the effects of multiple intelligences strategy and traditional methods of instruction on elementary students environmental awareness knowledge levels and their attitudes towards the environment.

Methodology

The study used pre-post-test on control group research model. Sample size consists of 60 students of two different class of 7th grade. The data obtained was analysed by using SPSS package 15.0. arithmetic mean and standard deviation were calculated for each group. T-test was used to test the significance between the groups.

Findings

1. There is a significant difference between environmental awareness and attitude of the experimental group and the control group.
2. The study showed that the multiple intelligence instructional strategy activities helped in the positive development of the students attitude and the environmental awareness knowledge levels.

3. The study revealed that the students who are educated by multiple intelligence instructional strategy have more environmental awareness knowledge levels and have a higher motivation level than the students who are educated by the traditional method of instruction.

4. The students who participated in the experimental process in which multiple intelligence strategy was applied enjoyed the activities, had great fun and they became more aware of the environmental issues.


Objective of the study

To identify level of environmental literacy and perceptions on environmental education of pre-service chemistry teachers.

Methodology

The study was conducted during the year 2006-07 with 60 pre-service students of chemistry department of Middle East Technical University. Two tests were administered i.e. EE perception surveys (EEPS) and the Environmental Literacy Test (ELT).

Findings

1. The finding of the study was very interesting as 90% of students felt that environment is the 2nd or 3rd important problem, 70 percent felt that they have a fair knowledge about environment, 15 percent felt that they know a lot about environment and another 15 percent felt that they know only a little about environmental issues and problems.

2. Pre-service chemistry teachers felt that University students must have environmental knowledge to grow the environmental awareness in the society.
3. They strongly felt that there is an urgent need for every individual to have a total knowledge about environment so as to protect the natural resources and this can be achieved through teaching on environmental issues.

4. Teacher education program should compulsorily have environmental education in their education curriculum so that teachers can integrate environmental issues into their lesson.

5. Those pre-service chemistry teachers enrolled in environment related courses were strongly encouraged to include in their teaching practice environmental related issues.


Objective of the study

To understand the contribution of environmental audit experience which can achieve the objectives of environmental education. In order to understand what is included in the curriculum and how.

Methodology

1. The “Ecocentrics” project is carried out in collaboration with the teachers of the school their advisers and university teachers.

2. The methodology used consist of 3 models such as technical, practical and critical.

3. It determines how the curriculum is integrated with environmental education and how it is put into practice in the classroom level.

4. Data collection techniques were questionnaires, participant observation, group discussion, document analysis, field notes, minutes, interviews, reports and audio/video recordings. Participants were Thirteen primary and pre-primary schools in Spain.

Findings

The results are described according to the following sub-variables:
1. Organization of content:
The content has been revised in such a way that more environmental related activities have been included in the curriculum and also the quality of activity have been increased in a more committed way.

2. Preparation and use of teaching materials:
The quality of activities have been improved due to support provided by the organising community in the form of teaching aids on each topic.

3. Motivating pupils and improving attitudes and habits:
There was a quality improvement in the activities due to the global approach and motivation not only of pupils but also educational community as a whole.

4. Evaluation of the process:
The project should be framed in such a way that it provides solution to environmental problems otherwise it will be just a mere activity with no content.


Objective of the study
To examine environmental risk perception and their preference in educational strategies and risk communication in China and United States.

Methodology
In order to achieve the 2 research question such as:

• How do American and Chinese college students perceive environmental risks? And evaluate educational strategies and environmental risk communication, a printed survey was conducted which consist of 34 environmental risk issues and also a second study which
consists of 4 scenarios and 7 strategies were used to find out the educational strategies and risk communication.

**Major findings**

1. The researcher found that there were similarities and differences among the American and the Chinese college in the top ranked risk factors.
2. The study also found out that the salience of issues changes overtime and more changes are found in informed audience.
3. The Chinese students felt that the environmental risk is more harmful to human health, economic development and environment than the American students.
4. Female students of America and china felt that the risk is more to human health and environment rather than the male students.
5. The findings also found that the public in both the countries wanted to know more about environmental risk and wanted a transparent and democratic risk communication strategy.
6. The Chinese and American students felt that coverage in mass media would increase the understanding of environmental issues.
7. Chinese students felt that teaching decision making to be less important than their American counterpart as Chinese people think that decision making is the responsibility of the authorities rather than the public.


**Objective of the Study**

To examine the green house effect in term of some common physical aspect of Greek Secondary School students.

**Methodology**

A quantitative methodology was used. A closed end question was used which consist of 22 questions based on causes, impacts and action to mitigate the climatic change and greenhouse
effect. The questionnaire was administered to 626 secondary school students between the age group 13 to 14 year old of grade 8 studying in the second year of Gymnasio and 16 to 17 year old students of second of Lykeio of grade 11 of the southern Dodecansisland.

**Findings**

1. Environmental education provides the teacher and students with appropriate educational tools to investigate the various parameters to tackle climatic changes.
2. There was a marked difference in the awareness between students of grade 8 and grade 11.
3. The 11th grade students had greater awareness of the facts like causes impacts and possible solution to the green house effect.
4. It was observed that television played an important role in Greece as they focused more on green house effect.
5. Regarding information sources it was observed that, new curriculum in Greece have incorporated the green house effect. The contemporary school should also provide attractive materials in their textbook so that they can learn about greenhouse effect in a more attractive way.
6. All the above findings should be taken seriously by the education community so that green house effect can be taught more effectively.


**Objective of the study**

1. To understand the metacognition of Finnish Sixth graders in learning environment which is virtual i.e. ENO – Environmental online.
2. To describe what and how pupil analyse their learning process.

**Methodology**

The sample consists of 19 primary school students age group 12-13 out of which 10 were boys and 9 girls. The sample was chosen from a class of students who took part in ENO activities.
**Data collection and analysis**

Data was collected using questionnaire, interviews, teaching and by using pupils learning diaries. The questionnaire consists of 5 themes based on metacognition and these themes were investigated in 10 open ended questions. These questions enabled the students to describe in their own words what they felt was more essential.

**Findings**

1. The findings of the study showed that the students showed declarative and procedural metacognition.
2. Teachers played an important role in enhancing the metacognition of the students.
3. The students who showed high level knowledge could also regulate their performance.
4. The study showed descriptive knowledge of metacognition in relation to environmental education or sustainable development.


**Objective of the study**

To investigate how the significant tradition of secondary science and environmental education was merged by the six science teachers in their high school classroom in North Ontario.

**Methodology**

Action research method was used in the study which consist of both ethnographic and narrative nature. The research project was carried out in Timmins, a town in North Eastern Ontario, Canada between September 2008 to January 2009. The participants were interviewed individually for 20-30 minutes to explore their personal relation to science education and environmental education.

**Findings**
1. The study proved that teachers play an important role in embedding environmental education to secondary science program.

2. Only if a powerful structure for professional development is provided to the secondary teachers then only they will be able to integrate EE and science for the students.

3. Teachers must have a source of support to increase their confidence to resist the convention of history and peers.

4. There is a need for measure of leadership among the secondary science teachers to focus on professional development.


Objectives of the study

To design and information communication technology courses for Junior college students age group 16 to 18 related to experimental chemistry and to analyse their learning performance after completing the course.

Methodology

49 selected participants is divided into 17 groups with 2 to 3 students per group from the same class. Group 1 to group 9 were taught using ICT-integrated teaching tactics and group was known as experimental group. Group 10 to group 19 who were taught by using traditional teaching methods formed the control group. Quasi experimental approach was undertaken by the study.

Findings

1. It was found that ICTintegrated environmental learning process has more effect on the students learning performance.

2. The study observed that for upgrading student’s cognizance and learning attitudes it is necessary to design an effective approach.
Objectives of the study

To assess the attitude towards environment of under graduate students at the end of the course “Environment, Human and Society”.

Methodology

The study employs a casual comparative method to measure students’ environmental attitudes. The target population of this study is preparatory class students in school of foreign languages. Data of this study were collected from a total number of 379 students consisting of 203 female and 176 male from Engineering faculty, medicine faculty and economics and administrative science faculty.

Findings

1. The under graduate students had positive attitude towards the environment as regard to their gender and faculty types.
2. Male students were less sensitive towards environment than the female students.
3. In our education system from pre-school to secondary school, curriculums cover environmental science education as main subject or integrated. In higher education only few departments include environmental science course such as biology, science education, environmental engineering etc. On the other hand many departments of social science, medicine and economics do not include environment issues in any way.
4. Now-a-days, environmental problems have increased rapidly, hence educating people is the main way to reduce environmental problems by creating consciousness and sensibility towards environment.

Objectives of the study

To examine if there a exists relationship between environmental attitude and environmental moral reasoning pattern of 120 pre-service science teachers.

Methodology

The sample of the study constituted 120 pre-service science teachers. For data collection, four cases about four environmental problems and environmental attitude scale were distributed to the participants where the study was conducted at. Constant analysis was carried out on the written statements of the participants and each statement was coded as eco-centric, anthro-centric or non-environmental.

Findings

1. The results revealed a significant positive correlation between ecocentric moral reasoning and environmental attitudes, whereas there was no statistically significant relationship between anthropocentric or non-environmental moral reasoning and environmental attitudes.
2. Finding of the study supported the argument that an environmental ethic, which extends moral consideration beyond human beings to the nature as a whole is necessary to overcome many of the environmental problems.


Objectives of the study

To investigate the urban middle school student’s moral reasoning about environmental situation.
Methodology

Sample size consist of 81 7th grade students from two public middle schools of United States out of which 49 students were African American students and 32 students were white students. The data was collected using semi structured interview focussing on environmental situation. The students were selected randomly. The results were analysed by using "Kohlberg and Gilligan" in terms of justice and care moral orientation.

Findings

1. The findings suggested that care orientation had a stronger influence than gender and race in case of environmental dilemmas on moral reasoning.
2. Values and ethics should be included in the environmental education as they play a central role in the consideration of environmental problems.
3. The study provides information that gender and race have influence on the reasoning power about moral prospective on environmental issues.
4. The study is of great influence to the middle school educators as they can design and implement environmental curricula in such a way that it help students to understand and evaluate environmental issues in a better way.

CONCLUSION

Review of the studies done in India and abroad reveals that many studies have been done on the women and minority groups in environmental management, effect of green class model on environmental knowledge, school curriculum and environmental education, school teachers attitude towards environment and environmental problems, investigation of undergraduate students environmental attitude, environmental knowledge, environmental attitude and perception among pre-service and in-service secondary school teachers, etc. There are no studies done in India and abroad to understand the level of environmental awareness and environmental ethics among secondary and higher secondary school students. Since students are the enlightened group of energetic youngsters, who can play a major role in bringing about awareness in the society, the researcher has emphasized on environmental ethics, which is an
integral part of human ethics. Therefore the present study is different in terms of technique, methodology and other components.