INTRODUCTION

Environmental Studies (E.V.S) has been an integral component of school education in one form or the other for more than four decades at present the concept, issues, and problems related to environment are either integrated with different disciplines or introduced as a subject. For example at the primary stage, environmental education is introduced as environmental studies as a subject. At the upper primary and the secondary stages, it is incorporated into different subjects, mainly science and social sciences. In the present thesis, we will look at that what methods should be adopted for teaching E.V.S.at primary level because environmental education evolved many methods over the years and different approaches being followed in the country and elsewhere at school level.

Genesis of E.V.S. At primary level Indian Scenario

The importance for providing environmental orientation to education especially to school education, has been organized, recognized in India as early as 1970. The document titled “The curriculum for the ten year school-A framework. Developed by the national council of educational research and training (NCERT). New Delhi in 1975 identified environment education as one of the essential component of school education. Enumerating on the subject issue instructional objectives and content.

The National Policy on Education 1986 (as modified in 1992)

It stated that importance and need for inclusion of environmental Education as an integral component of education. The policy states that the protection of the environment is a value which, along with certain values, must form an integral part of the curriculum at all stages of education.

MEANING OF E.V.S.

Various combinations of words such as environmental literature in the content of environment and education although according to semesters of the words, Ed, ES (Which national curriculum frame has adopted as E.V.S.) and E. A. have different meaning in the strict sense of the terms
but one finds that these are being used a time synonym sly and interchangeably. We consider here the implications of EE,ES and EA and among them we see in which context it is relevant and important and how those are related to teacher training.

AIMS OF E.V.S.

The aim of E.V.S.(environmental studies) is to develop a world population that is aware of and concerned about the environment and its associated problems and which has the knowledge, Skills, attitudes, motivations and commitment to work individually and collectively towards solutions of current problems and prevention of new ones.

In view of this aim, environmental studies should form an integral part of the educational process, be centered in practical problems and be of an interdisciplinary/multidisciplinary character.

OBJECTIVES OF E.V.S.

The objectives of E.V.S. are categorized as under-

- **Awareness**: To help social groups and individuals acquire awareness of and sensitively to the total environment and it’s allied problems.

- **Knowledge**: To help social groups and individuals gain a variety of experiences and acquire a basic understanding of environment and it’s associated problems.

- **Attitudes**: To help social groups and individuals acquire a set of values and feelings of concern for environment.

- **Skills**: To help the individuals in acquiring skills for identifying and solving environmental problems.

- **Participation**: To provide social groups and individuals with an opportunity to be actively involved at all levels in working towards the resolution of environmental problems.
REVIEW OF RELATED LITERATURE

“Practically all human knowledge can be found in books and libraries. Unlike other animals that must start with each generation man builds upon the accumulated & recorded knowledge of the past.”

IMPORTANCE OF STUDY OF RELATED LITERATURE

About the importance of survey of related literature, Samuel has written the praiseworthy statement, with a correct sense of mind that the importance of related literature cannot be denied in any research.

“Though it is time consuming but it is fruitful phase of any scientific investigation. The main purpose is to systematically portray the relevant aspects of the study into a theoretical framework.”

STUDIES CONDUCTED IN INDIA

Pai, S.G. (1981), prepared and tried out a curriculum in environmental studies leading to life-long education for college students. The study showed that there was a significant difference in the performance of the experimental group compared with control group on knowledge score and attitude scores. Suggestions were made to pay attention to actual process of education in the classroom and bring about a conceptual change in its role.

Central Regional Centre, Jabalpur (1981), conducted a project on nutrition health education and environmental sanitation in primary schools. The main purpose of the project was to develop instructional material for the students and teachers relevant to local environment and to implement the programme in selected schools and evaluate the impact of programme.

Gupta, V. P. and others (1981), made a study on environmental awareness among children of rural and urban schools and non-formal education centers. Pratoomsindh, W. (1984), investigate the extent of difference in the course outcomes associated with two instructional strategies for teaching food and nutrition to adults.
Rao, Bhaskara (1986) through discussion with teachers in the mass orientation programmes organized by Government of India found that field trips, projects, demonstrations and use of audio-visual aids were effective teaching learning strategies for EE.

Rajput, J.S. (1988) conducted a research study for identification of teaching skills and training strategies for implementing the environmental approach at primary level.

Praharaj, B. (1991) studied the level of environmental attitude, and perception regarding EE among pre-service and in-service secondary school teachers. He found that both the group differed significantly in their level of environmental knowledge. Gopalkrishan, Sarojini (1992) studies the impact of E.V.S at primary school children.

Ayodeji, Ifegbeasan (1998) studied student perceptions of environmental education elements in Nigerian junior Secondary School Curricula. Prof. Sneha Joshi and Dr. Archana Tomar (2002) developed and implemented an instructional package for seven units of standard IV in the subject of environmental science. It was found that the difference between pretest and post-test scores for all the units and all types of test was significant.

Some studies related to method of teaching are reproduced here as under:

Dev (1979) made a critical study on the methods of teaching in the secondary schools of Nagaland and found that the teachers were more interested in the lecture method, than any other instructional procedure.

Kumar, Prasanna (1979) carried out a study if instruction and evaluation in post graduate courses and follow that teacher’s questioning was very limited and where it was used was confident to lower levels of student’s thinking and response.

Jangria and Dhoundyal 1981) found that over the course of an entire lesson teachers in primary classroom of Delhi didn’t ask a single question requiring students to use cognitive skills more complex than recall and recognition.

Rai in 1982 conducted a study named as ‘A study of objectives, courses, methods of teaching followed at the undergraduate level social science.’
Mohapatra (1993) and Lalitha and Sharda (1997) found that teachers lack proper understanding of many concepts in the subject areas of mathematics, science, social science and languages which they are supposed to teach their student.

Block and others (1993) conducted an observational study in eight schools in Mumbai and found that primary teachers devoted about two third of lesson time to having all pupils work on the same task and a large share to lecturing to the entire class.

Kasinath, H.M. (2000) conducted an experimental study to examine the relative effectiveness of the Inquiry Training Method (ITM) of teaching science and the Conventional Method (CM) in fostering science process skills, creativity and curiosity of the learners. He found that OTM of teaching was more effective than CM in fostering ‘fluency’. Similarly levels of intelligence contributed differentially to its development.


STUDIES CONDUCTED ABROAD

Chidress (1978) in a study found in U. S. that group projects, class discussion and field trips are the strategies used often in the largest percentage of programmes and projects.

Tewksbury and Harries (1982) found that the most popular method is discussion used by 91% of teachers, and this is followed by audio-visual aids (74%), outdoor studies (64%), and field trip and community resources (60%). Nearly 40% teachers use material guides and 29% guest lectures. Computer assisted instruction comes lowest with 2% teachers using it.
Jacobson and Beaver (1984), Jacobson and Palonsky (1976), conducted some other used methodologies such as camping, use of zoo.

(Marsh Doyle, 1982), excursion (Tripathi, 1983), Scwaab (1982-1983) to find our teacher (117 teachers) rating of the effectiveness of different methodologies and found that teacher led discussion (extent of use/mean) effectiveness on 2-6 scale (92%/4.4), lecture (92%/3.9). Individual projects (85%/4.3), group reports (74%/4.1), independent study (68%/4.2), and debates (50%/4.5) have their relative effectiveness.

Billups Samuel Robert (1991) conducted study named as the impact of essential school instructional methods on the academic performance and attendance rates of urban high school students. The study used a multiple regression technique to document the impact of the essential school vs traditional school instructional methods on the academic performance. The findings rates of completion of functional tests were sufficient to indicate the potential the positive effect of the essential school methodology at students learning.

Bill (1998), Carlsen (1991), Fennem and Franke (1992), Wilson (1998) found that teachers, like students, interpret experiences through the filter of their existing knowledge and beliefs. A teacher’s knowledge and beliefs about teaching learning, and subject matter, thus are important determinants of how a teacher teaches.

Dreze and Kingdon (1999) suggest that once we consider pupil characteristics, pupil performance appears to be independent of pupil-teacher ratio. Of course, it is not easy to establish links between instructional inputs and educational attainment of students, largely because pupil-teacher ratio is a crude measure, often unable to capture the advanced effects of teaching.

Abraham, M. and Arjuna, N.K., 2005 studied the environmental interest of secondary school students in relation to their environmental attitude.

Teaching learning strategies or methods being adopted for teaching E.V.S at primary level-

Operational definitions of the study

Methods-The teaching methods implies the system that we adopt in gaining knowledge of truth.

“In scientific language the term method is used to designate the road that must be followed to lead the discovery of truth.”

According to Charles Guide

Teaching strategies are the instructional methods used by the early childhood professionals either alone or in combination to enhance children’s learning in variety of situations for their all round development.

Besides mastery of the subject matter teachers need to have a wide range of teaching skills to be effective, reflective practices and collaborations make teachers more responsive to student’s needs (Jangua 1995) while monitoring student progress boosts (Learnman, Saxena, Singh and Gupta 1995)

In recent years the emphasis on teaching has been shifted from formal recitation to social population of students in the educative process. Modern psychology has brought out the importance of the organism nature of the learning process and as such both learning and teaching is being recognized as social activities. New technique shave been evolved and are being produced in progressive schools and colleges. These techniques enable students to learn in a socialized atmosphere and give them opportunities to develop and practice the skills, abilities and attitudes necessary for social participation.

In order to meet the challenge of E.V.S and to accomplish its objectives the first think for the teachers will be to understand the teaching learning strategies very clearly.

TEACHING STRATEGIES
Teaching methodology’s or teaching learning strategies used in E.V.S. are as various objectives in various subjects are one of the major reasons for this seems to be the variation in environmental conditions, resources including material, and personnel available, variety of environment problems, and educational systems. The teaching learning strategies such as class discussions, outdoor studies such as class discussion, small group projects, field trips, outdoor studies use for exhibits simulation and graver material guides, debates, inquiry and guest lectures are useful in many occasions.

Class discussion-

Small group projects

Field trips

Outdoor Studies-

Exhibits

Simulation and Games

Debates

Readings

Inquiry

Guest lectures

Material guides

Community Resources

Other Strategies

Teacher can independently develop his or her own teaching learning strategies depending on the demand of each situation. They can also imbibe the concept of environmental education in their routine teaching
**Need And Significance of the study**

There is a strong need for more local specific teaching and learning material both for teachers and for students. A number of state education boards have also been not only developing educational materials but making them available in various local dialects. In some states, the state council for education research and training has also been active in developing E.V.S. material and programmes. A framework developed by national council of educational research and training has also perceived environmental studies as one of the essential component of school education.

**STATEMENT OF THE PROBLEM**

“A Study of Teaching Methods Being Adopted for Teaching of E.V.S. at Primary Level.”

**Operational Definitions of the term used**

- **Methods of teaching**

  Method of teaching is a systematic procedure or process by which a contact is developed between the students and subject matter for attaining the educational goals.

- **Environmental Studies (E.V.S.)**

  The Subject Environment Studies (E.V.S) which is introduced as a compulsory subject by NCERT at primary level.

- **Teaching of E.V.S. at primary level in urban and rural area**

- **Primary level**

  It includes classes I to V

**OBJECTIVES**

Following are the objective of the study-

1. To study the teaching methods being adopted for teaching of E.V.S. at primary level in Govt. school of Delhi.
2. To study the teaching methods adopted for teaching of E.V.S. at primary level in public schools of Delhi.

3. To study the difference between the teaching methods adopted for teaching of E.V.S. at primary level in govt. schools and public schools of Delhi.

4. To study the teaching methods adopted for teaching of E.V.S. at primary level in urban area schools of Delhi.

5. To study the teaching methods adopted for teaching of E.V.S. at primary level in rural area schools of Delhi.

6. To study the difference between the teaching methods adopted for teaching schools of Delhi.

**HYPOTHESIS**

1. There is a significant difference between the teaching methods being adopted for teaching of E.V.S. in govt. & public schools of Delhi.

2. There is a significant difference between the teaching methods being adopted for teaching of E.V.S. in urban and rural area schools of Delhi.

**DELIMITATIONS**

1. The study will be confined to E.V.S only.

2. The study will be delimited to Delhi.

3. The study will be delimited to primary class only.

4. The study will be delimited to teachers of V class only.

5. The study will be delimited to 160 teachers.
Teaching is to research what is to teaching or in a sense, what logic is to thinking”

-RUSK

In a research study, the investigator has to describe the technique he used for collection of data for his investigation. He has to describe the Reliability and Validity of the tools used and the method he adopted in drawing out the sample of the study. He is required to discuss and explain the procedure of administering the tools and its scoring technique. The chapter is confined to the discussion of these points under the following steps:

- Population
- Sample
- Methodology
- Tools Used
- Collection of data
- Statistical techniques
For the present study the sample design and tools used are as follows:-

SAMPLE DESIGN

```
   Teachers
     /   \
  160   
 /     \
Urban area teachers    Rural area teachers
 /     \
80         
 /  \
Govt Public  Govt Public
40     40    40     40
```

TOOLS USED

Having selected the sample the next step is to select the suitable techniques or tools for the collection of data. For collecting of data for collecting new and unknown data one may use
various devices for each and every type of research. We need certain instrument to gather new facts or to explore new fields. The tools thus employed for data collection or the selection of tools for a particular study depends upon various considerations such as the objectives of the study, availability of suitable tests, and personal competence of investigator to administer score and interpret the results and reliability and validity of the scale.

One may use one or more of the tools according to the purpose of study. For the present investigation, SELF PREPAIRED QUESTIONNAIRE was used to know the methods of teaching being adopted for teaching of E.V.S.

**DESCRIPTION OF THE SELF PREPAIRED QUESTIONNAIRE**

The questionnaire for studying the methods being adopted for teaching of (environmental studies) E.V.S at primary level will be prepared by investigator herself. The questionnaire will consist of three parts viz. Part-A, Part-B, Part-C. On the first page general instructions and information will be given:

- This questionnaire is prepared to study the teaching methods being adopted for teaching of EVS in different schools.
- Kindly give your answer by putting tick on the option of your choice.
- Your answer will be kept completely confidential.
- Kindly provide your trustworthy answers with the best of your knowledge and belief.
- Your cooperation is solicited.
- Thanks for your honest cooperation.

**PART – A**

The first part of the questionnaire will include general information about the teachers, viz. Name, School, Type of school, Area and Qualification.

1. Name of the teacher:-
PART-B

The second part of the questionnaire will consist of 20 questions based on classroom teaching and general behaviour of the teacher in the class. The teacher will give his/her answer by putting tick on any one of the option amongst the five options viz.- very often; often; sometimes; very few; never.

PART-C

The third part of the questionnaire consisted of 14 items in it covering the syllabus of E.V.S. of standard V. Each item consisted of one unit and eleven options of teaching methods. Here they were asked to tick the methods they adopted for the teaching of that particular unit. There was a last option of “Any other”. In this option teachers were supposed to write the method they used and were not mentioned in the former options.

METHODOLOGY

There could be a number of methods to proceed the study such as-

- Experimental Method
- Historical Method
- Survey Method
- Descriptive Method
- Case Study Method

For the “Study of Teaching Methods being Adopted for Teaching of E.V.S. at Primary Level”, the investigator will use Survey Method. She would collect data by meeting personally with the teachers of private and public schools in rural and urban areas.

COLLECTION OF DATA

16
In the present study the investigator collected the data personally. For data collection the investigator first took the permission from the head of the institute of the sample concerned. The investigator distributed the questionnaire to the teachers and assured all the teachers that their responses would be kept strictly confidential and would be utilized for research purpose only. The purpose of the questionnaire was also explained to motivate them. Though there was no time limit for questionnaire yet the respondents took 20-25 minutes in completing the questionnaire.

**PREDICTION ABOUT TIME AND COST OF THE STUDY**

**Time Required**

First of all researcher will seek permission from the head of the schools through which the sample and data would be collected. After getting the approval, the researcher will start her job. The interview & the job of getting the questionnaire filled up will be done by meeting personally with the teachers. This will be done in the month of November as this is the time when teachers are through with the terminal exams in Delhi. The examination, checking work and making the results of the Ist terminal is over by now. The teachers would be bit free from these responsibilities thus would be mentally free to do the extra job given by the researcher. However if this job is still left incomplete as the sample taken is quite large the rest of the work will be done in the month of April. Reasons for choosing the April month for the data collection are-

1. The teachers would have taught all the units of their prescribed EVS book recently in the present session.
2. They would be through with the final exams.
3. They would be mentally free, thus would be more energetic.

The tentative time by which the investigator would complete her research would be October 2011. By then she would be able to submit the summary of her findings.

**Cost of the Study**
This is a quantitative research although all quantitative researches need to be qualitative too, but as the primary data would be collected in this research, it would require field work, thus lot of energy is required. It would be more time consuming and cost effecting. It would require more paper work as each teacher during the sample collection will fill four page questionnaire.

**STATISTICAL TECHNIQUE:**

SANDLER’S ‘A’ test technique is used for analyzing the data. SANDLER’S ‘A’ test technique same as ‘T’ test technique which is used for measuring the validity of analysis of the difference between mid values of two matched groups. In the same way SANDLER’S ‘A’ test is also utilized to show the difference between the two matched groups.

The formula is as follows:

\[ A = \frac{\sum D^2}{(\sum D)^2} \]

Here D is done through gathering obtained marks of two situations separately. After this, value of every obtained mark is squared. In the end \( \sum D^2 \), \( (\sum D)^2 \) is divided. Thus obtained answer is the value of ‘A’. Now we will see its degree of freedom whose formula is as follows:

\[ \text{D.F} = \text{number of pairs} - 1 \]

= n-1

Then we find its degree of significance level at 5% through ‘A’ test.

Note: usually more the value of ‘T test shows that more will be the level of significance. In contrast to this, lesser the value of ‘A’ test more will be the level of significance.

Use of ‘A’ test is comparatively easier and comfortable.

**ANALYSIS AND INTERPRETATION OF DATA**
MEANING AND IMPORTANCE

“When the data has been obtained, it is necessary to organize that for interpretation and presentation. Qualitative data may have to be summarized and qualitative data may have to be treated statistically to make their significance clear.”
- OLIVER R.A.C.

THE RESEARCH QUESTION

The purpose of analysis is to reduce the data into intelligible into interpretable form, so that the relations of research problems can be studied and tested. Analysis of data can be done on the basis of hypothesis set.

For the present study results will be interpreted in 2 sections. Section-1 deals with analysis and interpretation of result through percentile technique. The comparison of difference between the teaching methods used locality and type of school will be done with the help of ‘A’ test.

SECTION-I

ANALYSIS AND INTERPRETATION OF DATA THROUGH PERCENTAGE

Percentages of different methods being adopted by the teachers teaching environmental studies in public and govt. schools of urban and rural area at primary level will be done.

First individual analysis will be done for govt. and public schools of Delhi.

Then comparison between these two schools govt. and public will be done.

Vice-versa will be done in urban and rural area schools respectively. It's interpretation will be done with reference to the fourteen units which the selected teachers of the sample taken from the above area usually teach in their classrooms, which will be tabulated in tables and will also be represented through 3D column graphs.

Section-II

Analysis and interpretation of data through ”Sandler’s ‘A’ Test”
For analysis and interpretation of data and hypothesis statistical technique which is being adopted is sandler’s ‘A’ test.

**Description of the statistical technique:**

Sandler’s ‘A’ test technique is same as ‘T’ test technique which is used for measuring the validity of analysis of the difference between mid values of two matched groups. In the same way Sandler’s ‘A’ test is also utilized to show the difference between the two matched groups.

The formula is as follows:

\[ \frac{\sum D^2}{(\sum D)^2} \]

Here D is time through gathering obtained marks of two situations separately. After this, value of every obtained mark is squared. In the end \( \sum D^2, (\sum D)^2 \) is divided. Thus obtained answer is the value of ‘A’. Now we will see its degree of freedom whose formula is as follows:

\[ \text{D.F} = \text{number of pairs} - 1 \]

\[ = n-1 \]

Then we find its degree of significance level at 5% through ‘A’ test.

Note: usually more the value of ‘T test shows that more will be the level of significance.

Use of ‘A’ test is comparatively easier and comfortable.

After the collection and interpretation of data the level of significance of hypothesis (H1) will be done.

**DISCUSSION OF RESULTS**

Finally the main findings and suggestions will be drawn on the basis of analysis and interpretation. Suggestions and its educational implications will be given and the conclusion will be given.