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*RESEARCH  
METHODOLOGY*

## CHAPTER – III

### RESEARCH METHODOLOGY

#### 3.1 Introduction

This chapter deals with the methodology employed to achieve the objectives of the study mentioned in chapter one. Keeping in view the nature and objectives of the study appropriate sample was selected and tool was developed. This chapter deals with the research design, sample tool used, data collected and statistics used.

#### 3.2 Research Design

According to Borg and Gall (1983), research design refers to procedure used by the researchers to explore relationship between variables to form subjects into groups, administer the measure apply treatment conditions and analyze the data. This study has used experimental research design, here the two groups i.e. controlled and experimental are treated by post test only to find out the effect of instructional material on environmental awareness.

**Table 3.1 Characteristic of research design**

Characteristics	Experimental group	Controlled group
Treatment	Instructional material	Traditional method
Terminal status	Post test	Post test

## 1.2 Variables

The essential feature of experimental research is that the researcher deliberately manipulates, or observes the conditions or characteristics which determines the events in which researchers is interested. These conditions or characteristics are called “Variables”. According to Borg and Gall (1983), “A variable can be thought of a qualitative expression of a construct variables usually lack for scores on a measuring instrument”.

- **Independent variables-** The independent variables are the conditions or characteristics that the researches deliberately manipulate and control to determine the events in which researcher is interested and its relationship to an observed phenomenon.
- **Dependent variable-** The dependent variable is that the factor which is observed and measured to determine the effect of independent variable i.e. the factor that appears, disappear or varies or the experiments remains or varies the independent variable.

**In this study,**

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

## 3.4 Sample

The technique of selection of a sample and its size is an important aspect of any research study. For the present study keeping the factor in view sample is selected purposely and taken schools, near by the place of researches. For the present study five private English medium schools were chosen by researchers and out of theses five schools, one school was selected by lottery method.

**Table 3.2 –List of private English medium School**

<b>S.No.</b>	<b>Name of the Student</b>
1.	All Saint's School, Idgah Hills, Bhopal.
2.	T.M Convent School, State Bank, Bhopal.
3.	Little Angel's School, Koh-e- Fiza, Bhopal.
4.	N.C Joys School, Koh-e-fiza, Bhopal.
5.	Falcon high Secondary School, Koh-e-fiza, Bhopal

In this study for sampling students of class eight of Little Angel's High Secondary School, Koh-e-Fiza, Bhopal, has been selected. The school has two section of class eight of strength 35 students. The researchers has taken 30 students from each section so school sample consisted of 60 students. Since the present study use experimental two group design, thus total sample 60 students are divided in to two groups on the basis of their science academics achievements by adopting random sampling technique. The detail of sample of the study drawn from the school is given in the table-

**Table 3.3 Distribution of sample**

<b>Serial No.</b>	<b>Name of School</b>	<b>Experimental group</b>	<b>Control group</b>	<b>Total</b>
1.	Little Angel's High Secondary School Koh-e-Fiza, Bhopal	30	30	60

### 3.5 Tool

A researcher requires many data gathering tools or techniques. Each tool is suitable for the collection of certain type of information. One has to select from the available tools those which will provide data he seeks for testing hypothesis. For study of the effectiveness of instructional material on environmental awareness, self made environmental awareness test is used.

- **Construction of tool**

For constructing test, the items were framed on the basis of selected content of class 8<sup>th</sup>. The sub-topics included in the test are given below –

- 1) Air pollution
- 2) Water pollution
- 3) Sound pollution
- 4) Components of air
- 5) Acid rain
- 6) Green house effect and global warming
- 7) Ozone layer depletion
- 8) Disaster management
- 9) Renewable and non-renewable sources of energy
- 10) Nitrogen cycle

The test consisted of various form of questions such as **multiple choice questions and true/false**. These test items covered the above contents of test items are shown in the table below.

The test paper was also discussed with teachers teaching the students of class 8<sup>th</sup> and subjects experts of the college and according to their suggestions the necessary changes were made in the questions.

**Table: 3.4 List of Test Items and their weightage**

<b>S. No.</b>	<b>Types of Questions</b>	<b>No of Questions</b>	<b>Total Marks</b>
1.	Multiple Choice	17	17
2.	True / False	13	13
	<b>Total</b>	<b>30</b>	<b>30</b>

### **3.6 DATA COLLECTION**

The data collected through environmental awareness test. After treating the experimental group through instructional material and control group through traditional method . The environmental awareness test was administered on both group for finding the effectiveness of instructional material on environmental awareness of students.

### **3.7 TABULATION**

With the completion of field work , the task was to score the test sheets and tabulate the obtained data for statistical processing and analysis .Obtained marks in environmental awareness test were tabulated.

### **3.8 STATISTICS USED**

For analysis and interpretation of data , raw scores were tabulated into two groups. In this study descriptive statistics like mean and standard deviation were used and the significant differences among the groups were determined by calculating ' value.