

3.1 Introduction

The word research is considered to be more structured and systematic process of carrying on a scientific method of analysis that is directed towards discovery and development of an organised body of knowledge. It is a planned activity to obtain answers to meaningful questions about phenomena or events through the application of scientific approach. Research is an objective, impartial, empirical and logical analysis and recording of controlled observations that may lead to the development of generalizations, principles or theories, resulting to some extent in prediction and control of events that may be consequences or causes of specific phenomena.

This chapter presents the plans and methods which were selected for the present study. It deals with the design and types of study, population, sampling procedure, sample, construction of tools for data collection, administering of tools for data collection and tools for data analysis.

3.2 Research Design

The present study is experimental study and quantitative type. In the present study the researcher had used Two Groups Pre-test Post-test Design. Attempts were made by the researcher to study the effectiveness of a task based program to develop environmental awareness at secondary level.

3.3 Population of the Study

The population for the present study comprised of students of secondary level of English Medium Schools affiliated to CBSE and GSEB board for academic year 2016-2017 located in Anand district.

3.4 Sample and Sampling Technique

Sample is the working unit of the research. It is a group of subjects that the researcher works and interacts with.

In the present study the researcher had use convenient sampling technique for selecting the sample as it was easily accessible.

The sample for the present study comprised of 90 students of English Medium School (secondary Level). The sample for the present study was selected through convenient sampling method which is mentioned in the table no. 3.4.1

Table 3.4.1: Sample of the Study

Sr. No.	Name of the school	Board	Male	Female	Total
01	Shristi English Medium School	GSEB	20	20	40
02	Shri I. B. Patel Angel Secondary School	CBSE	22	18	40

The sample in the present study comprised of students of Shristi English Medium School affiliated to Gujarat State Education Board and Shri I. B. Patel Angel Secondary School affiliated to Central Board of Secondary Education, for academic year 2016-2017. The sample comprised 40 students from each school. The researcher had selected the convenient sampling technique to select the sample because students of both belong to different boards and area.

3.5 Tools and Techniques

Tools help the researcher to interact with the subjects and get their responses. In the present study, the researcher used two major tools. The tools were Achievement Tests (Pre-test and Post-test) and Reaction Scale.

3.5.1 Procedure for the Construction of Tools

Research tools help researchers to collect data. Researcher gave research tools to Science language teacher educators for validation. The descriptions of the research tools for the present study are mentioned below. After incorporating the suggestions and comments the researcher modified the tools. The descriptions of the research tools for the present study are mentioned below.

a) Achievement tests

The researcher constructed Achievement Tests (Pre-test and Post-test). The main aim was to know the awareness of students towards environment. The researcher constructed the Pre-test and parallel form of the Post-test based on environmental issues. The items were both objective and subjective in nature. The test was of 30 marks. The test items were multiple

choice questions, fill in the blanks, true or false and open ended questions. The test was given to the experts for their comments and suggestions. The researcher incorporated suggestions and comments of experts and the tests were modified. The final form of the Pre-test and Post-test was administered on the selected sample.

b) Task based Programme

To study the effectiveness of the Programme the researcher prepared tasks on selected environment related topics such as sustainable food, green plastic, water conservation, gardening, organic food, saving oil and gas energy conservation, wild life conservation and natural disaster. The Programme was given to the experts for their comments and suggestions. The researcher incorporated suggestions and comments of experts and Programme was modified. The final form of Programme was implemented during intervention Programme on the selected sample.

c) Reaction scale

To study the reaction of students towards the programme, a reaction scale was prepared by the researcher for students of experimental group. The reaction scale comprised the statements such as environmental responsibility, environmental awareness, thinking skills, creative skills, scientific attitude, helping the environment, reduce, recycle, reuse in your day-to-day life etc. In all there were 10 statements based on the above components. The scale was designed on 5 point scale such as never, rarely, sometimes, often and always. The tool was given to the experts for their comments and suggestions. After incorporating the suggestions and comments the tool was modified and administered on the sample after intervention programme.

3.6. Data Collection Procedure

Following procedure was carried out by the researcher for the data collection.

3.6.1 Tool Preparation

The researcher prepared Achievement tests (Pre-test and Post-test) based on selected Environment topics. The researcher prepared task based programme and reaction scale. These tools were given to the experts.

3.6.2 Tool Validation

The researcher gave the constructed tools to the experts for their valuable suggestions and comments. In all 10 experts were given the above mentioned tools for the validation.

3.6.3 Experts Comments and Suggestions

1. The task based programme designed was relevant to the topic.
2. There were few grammatical errors that need to be corrected.
3. Tasks were innovative but needs to think about its execution.
4. Appreciated the test items.
5. Appreciated hard work of researcher to design the tasks.

3.6.4 The Intervention Programme

The researcher administered Achievement tests (Pre-test). During the intervention the task based Programme was implemented on 40 students of Secondary Level of Shristi English Medium School, Lambhvel to develop Environmental Awareness. This was followed by the Achievement test (Post-test). The reaction scale was administered to know the reaction of students towards task based programme.

Table No. 3.6.1 Day wise execution of activities

Day	Topic	Activities	Time (in min.)
Day 1	-	Administered Pre-test	40
Day 2	Sustainable Food	Review Writing	20
Day 3	Green Plastic	Slogan Writing	20
Day 4	Water Conservation	Poster Making	20
Day 5	Gardening	Watering Plants and Tress of the school garden	30
Day 6	Organic Food	Debate	30
Day 7	Saving Fuel	Promote Fuel Conservation	30
Day 8	Go Green	Making Best out of waste	30
Day 9	Energy Conservation	Collage Making	30
Day 10	Wildlife Conservation	Essay writing	20

Day 11	Natural Disaster and its Management	Organisation of Campaign	30
Day 12	-	Administered Post-test	40
Day 13	-	Administered Reaction Scale	20

3.7 Data Analysis

The researcher analysed the collected data using t-test, Chi square (χ^2) and Percentage Analysis and interpreted the result.

3.8 Conclusion

The current chapter presents the design and methodology of the research, tools, employed for data collection, construction of tools and detailed description of conduction and execution of the program. The next chapter comprises analysis and interpretation of data.