CHAPTER III
METHODOLOGY

3.1.0 INTRODUCTION

Methodology decides the nature, plan and procedure of the study. As such it is regarded as the main body of the research. It is desirable to have proper methodologically designed research plan. An appropriate methodology can help in getting proper research outcomes. This chapter presents the methodology adopted by the investigator to realize the objectives of the present study. The present study is an experimental study. Methodology meant for quantitative research is followed for the present study being under the umbrella of experimental study. The present chapter includes research design of the study, population, sample, tools and techniques used for data collection, and procedure of data analysis. For better understanding of the methodology of the present study, the objectives and hypothesis of the present study are given as follow.

3.2.0 OBJECTIVES OF THE STUDY

Following objectives were formulated to complete the present study.

1. To develop the multimedia package to teach English Grammar to Standard VII English Medium CBSE students.

2. To study the effectiveness of the developed multimedia package in terms of achievement of standard VII English medium CBSE students in English grammar.

3. To study the effectiveness of the developed multimedia package in terms of the reactions of standard VII English medium CBSE students.
3.3.0 HYPOTHESIS OF THE STUDY

Following null hypothesis was formulated to achieve the objectives of the present study which was tested at 0.01 level of significance.

H0: There will be no significant difference between the mean achievement scores in English grammar of the standard VII English medium CBSE students of control group those studied through traditional way and that of experiment groups those studied through multimedia package.

3.4.0 METHODOLOGY

As the present study was experimental in nature, the methodology of experimental research was followed to achieve the objectives of the present study. Detailed methodological procedures including research design, population, sample, tools of data collection, development of multimedia package, procedure of data collection and procedure of data analysis are given as follow.

3.4.1 Design of the Study

The present study was experimental in nature. As the sample of the present study was taken purposively, quasi-experimental design was used. The Pretest-Posttest Equivalent-Controlled group design was followed in this research. Best and Kahn (1996) describes, ‘this design is often used in classroom experiments when experimental and control groups are such naturally assembled groups as intact classes, which may be similar’. The design of the study is presented as follow.

\[ O_1 \quad X \quad O_2 \]
\[ O_3 \quad C \quad O_4 \]

Where, \( O_1 \) and \( O_3 \) are pretest
\( O_2 \) and \( O_4 \) are posttest
X stands for Experimental Group and
C stands for Control Group
Following this design, the achievement of students in English grammar was measured before and after the experimentation. The similar procedure was followed for control group. The experimental and the control groups were made equivalent on the basis of their pre-test score in English grammar. Initially in the experimental and control group there were 35 and 37 students respectively. After making the groups equivalent on the basis of pre-test score, 25 students from each group were considered as the sample for the present study.

### 3.4.2 Population of the Study

All the students studying in Standard VII English Medium CBSE schools of Gujarat will constitute as the population for the present study.

### 3.4.3 Sample of the Study

As the present study was experimental in nature and considering the feasibility of data experimentation and data collection, the sample of the present study was selected purposively. For this purpose researcher selected Om International School, Mota Chiloda, Ahmedabad as the sample school. This school was selected with the purpose of getting all the required facilities necessary for the experimentation on multimedia package. Two sections of standard VII i.e. section A and Section B having 35 and 37 students respectively during the academic year 2010-2011 were selected for control group and experimental group respectively. Both the experimental and control groups were exposed to pre-testing on English grammar achievement test. On the basis of pre-test score in English grammar achievement test both the groups were made equivalent. Each pair of students one from control group and one from experimental group having same pre-test score in English achievement were considered for the sample and assigned for the respective group. In this process 25 pairs of students with equal marks in pair, 25 students from control group and 25 students from experimental group were found and assigned for the respective groups. In this process the experimental and control groups were made equivalent with 25 students in each group.
3.4.4 Tools for Data Collection

To achieve the objectives of the present study, an achievement test in English grammar and a reaction scale were constructed by the researcher. Detailed procedure followed for the construction of tools is given as follow.

**Achievement Test:** The Researcher constructed an achievement test in English grammar for the pre-testing and post-testing purposes. The English grammar topics viz. Types of Sentences, Tenses and Article of standard VII CBSE English Medium curriculum were selected for teaching with the help of multimedia package. Hence the achievement test in English grammar was prepared with these selected topics. A blue print was prepared for the construction of the achievement test in English grammar considering the type and level of questions. The blue print was of 50 marks with all objective type questions equally from all these four topics having knowledge, understanding and application levels. Following the prepared blue print, the achievement test in English grammar was constructed by the researcher. The prepared achievement test in English grammar was shown to ten subject experts in English language teaching for the purpose of validation. The suggestions of the experts were duly incorporated in the English grammar achievement test. After determining the content validity of the English grammar achievement test, the test was administered to 120 standard VII English medium CBSE students and the reliability of the achievement test was determined using split-half method. The reliability coefficient using split-half method was found to be \( r = 0.92 \). Following this procedure the English grammar achievement test was standardized. The English grammar achievement test is given in Appendix I.

**Reaction Scale:** A Likert type five point reaction scale was prepared by the researcher to measure the reaction of the students of the experiment groups about the developed Multimedia Package. 21 statements related to the development and implementation of the multimedia package were stated in the reaction scale where the students were asked to show their reaction in the form of putting a tick mark √ in the appropriate box for each statement where the range of reactions were Strongly Agree, Agree, Undecided, Disagree and Strongly Disagree. All the 21 statements were positive statements. The reaction scale was shown to ten teacher educators having
expertise in construction of educational tools and their suggestions were also duly incorporated in the reaction scale. The reaction scale is given in Appendix II.

3.4.5 Development of Multimedia Package

The researcher developed the Multimedia package to teach English grammar, after analyzing standard VII English text book of English medium school following the prescribed syllabus of CBSE. The Flash was prepared taking three topics like, Types of Sentences, Tenses and Article from the English Syllabus of standard VII of CBSE English medium. Presentation was also included giving explanation of each topic with enough examples so that the students will be clear about the concept of each topic. Graphics in the forms of animation and simulation were also added with the presentation. Branching style of programmed learning was followed while preparing the multimedia package. Provision of testing was there after each topics added with reinforcement and fun. The concept of play way method was also added in the prepared multimedia package. The developed Multimedia Package has scope for the teacher to be the facilitator and guide wherever one wants to get involved in the process of teaching. It included the examples related to each topic with theoretical and structural aspects during the explanation. The pictures used in the developed package were related to the life like situations that children come across in their life or they have the direct or indirect experiences of thereby. The developed package was shown to the experts in the field of education technology as well as the English language teaching. The suggestions from these subject experts were duly incorporated time to time by the researcher which resulted into present form of Multimedia package. The pilot study of the package was done with the standard VII CBSE English medium students of another school and on the basis of the reaction of the students, necessary modifications were done for the package.

3.4.6 Procedure of Data Collection

The required data were collected with the help of pre-test, post-test achievement test in English grammar and reaction scale which were constructed by the researcher. In the beginning the researcher administered the achievement test in English grammar as the pre-test on both the experimental group and control group students. Then the
researcher implemented the multimedia package for teaching English grammar for 30 days @ 1 hour per day on the experiment groups and control group was taught the same topics by their respected English Teacher using their traditional method for the same 30 days @ 1 hour per day. After the implementation of the multimedia package researcher administered the same achievement test in English grammar as the post-test on both the experimental group and control group students. During the same time the prepared reaction scale was administered on the experimental group students to know their reaction on the implementation of the multimedia package. The entire study was conducted in three phases and details of these phases are given as follow.

Phase-1 : Pre-Testing

In the beginning of the study, the researcher administered the achievement test in English grammar as the pre-test on both the experimental group and control group students which was constructed by her. The achievement test in English grammar was of 50 marks and included objective type questions of knowledge, understanding and application levels from four topics like, Types of Sentences, Tenses, Preposition, and Article. Both the control and experimental group students were informed before two days that they were having a test on English grammar. On the day of the pre-testing the researcher administered the English grammar achievement on control and experimental group separately. To complete the test the students were given one hour time limit.

Phase-II : Implementation of Multimedia Package

As the researcher herself was working as an English teacher in the sample school, the researcher taking permission from the school authority for the experimentation, arranged 30 classes of 1 hour duration for the experimental group in the time table for teaching English grammar. A similar arrangement was done for the control group in the time table i.e. 30 classes of 1 hour duration for teaching English grammar. The researcher implemented the multimedia package for teaching English grammar for 30 days @ 1 hour per day on the experiment groups. The researcher acted as a facilitator and guide and cleared the doubts of the students. The researcher took the help of communicative approach during the process of the implementation of the multimedia
package. During the same time the control group was taught the same topics by their respected English Teacher using their traditional method for the same 30 days @ 1 hour per day.

**Phase– III : Post Testing**

After the implementation of the multimedia package researcher administered the same achievement test in English grammar as the post-test on both the experimental group and control group students to study the effectiveness of the developed multimedia package on the basis of the students achievement. During the same time the prepared reaction scale was administered on the experimental group students to know their reaction on the implementation of the multimedia package.

**3.4.7 Procedure of Data Analysis**

The collected data obtained through pre-test and post-test were analyzed by employing quantitative data analysis techniques. Pre-test achievement data related to English grammar was used to make control and experimental groups equivalent. Mean, Standard Deviation, Standard Error of Mean and Mann-Whitney U-test were used to analyze the quantitative data collected through post-test. The non-parametric Mann Whitney U-test was used to analyze the data as the sample was taken purposively as it is considered as the most powerful non parametric equivalent of t-test of parametric family. Data collected through reaction scale was analysed quantitatively with the help of percentage and Intensity Index (II). The detailed analysis and interpretation of the data is given in chapter IV.