CHAPTER IV

METHOD OF STUDY

“We never do anything well till we cease to think about the manner of doing it.”

- William Hazlitt

4.0 INTRODUCTION

Methodology is the science of orderliness. The success of any research depends largely on the suitability of the method by which the Research is conducted, including the tools and techniques used for the collection of data. Methodology is exactly the procedure adopted by the investigator in conducting the research. The researcher has used experimental method and conducted the present study. Experimental research is the description and analysis of what will be or what will occur under careful controlled condition. Experimental method was adopted in the present study to measure the effectiveness of Multimedia Learning Package in English, designed for the Unaccompanied Learners at the high school level.

4.1 PHASES OF THE STUDY

➢ The researcher has adopted the following phases in this research:

➢ Finalising the topic and conceptualising the variables.

➢ Reviewing pertinent literature related to Unaccompanied Learners and use of Multimedia resources in learning.

➢ Administering an initial standardised test named ‘Language Creativity Test’ (L.C.T.) to check the students’ level of knowledge of English.

➢ Conducting pilot study

➢ Construction of the achievement test in English for the Unaccompanied Learners of the X standard.
Validating the achievement test in English.

Selecting Lessons from X standard Karnataka State Board English text book to prepare the Multimedia Learning Package.

Developing Multimedia Learning Package in English.

Validating the Multimedia Learning Package in English.

Administering the pre-test to measure the entry behaviour of the learners in English to the control and experimental groups, before treatment.

Setting an appropriate experimental design.

Administering the developed Multimedia Learning Package in English to the experimental group.

Conventional method of teaching used for the control group.

Assessing the terminal behaviour of both the groups by administering the post-test in English.

Analysing and interpreting the data with the help of appropriate statistics.

Finding out the effectiveness of the newly developed Multimedia Learning Package in English.

Summarizing the study

Report writing with the recommendations and suggestions

4.2 RESEARCH METHOD

Methodology is the link in systematic research. Methodology is a science of orderliness. It is a technique adopted for an orderly arrangement of facts and principles. The success of any research depends largely on the suitability of the method, usage of the tools and techniques for the collection of data.

Experimental research provides systematic and logical method for answering the question, while the research is conducted under carefully controlled conditions.
Experimental method manipulates certain stimuli, experimental conditions and observes how the conditions or behaviour of the subject is affected. The manipulation is deliberate and systematic. Experimental research provides a method of hypotheses testing. After defining the problem, the experimenter shall propose tentative answers or hypotheses and confirm or disconfirm them, in the light of the controlled variable under significant relationship that is being observed. It is important to note that the confirmation or rejection of the hypotheses is stated in terms of probability rather than on certainty.

Experimentation is the classic method of the science laboratory, where elements manipulated and effects observed can be controlled. It is the most sophisticated and powerful method for discovering and developing the epistemology.

4.2.1 POPULATION

The researcher had Unaccompanied Learners of high school from Bangalore as the population to carry out the research and to find out the effectiveness of Multimedia Learning Package in English.

4.2.2 SAMPLING TECHNIQUE

Sampling is the process by which a relatively small number of individuals or measures of individuals, objects or events are selected and analysed in order to find out something about the entire population from which it is selected. It should be very carefully done to draw meaningful conclusion and generalisation. In the present study the investigator selected the X Standard Unaccompanied Learners from Bangalore for the investigation through Purposive Sampling Technique.
4.2.3 THE TARGET GROUP - SAMPLE

There were 60 Unaccompanied Learners. The Experimental groups consisted of 30 students. Among the 30 students there were females and males. In the Control group also there were 30 students with females and males.

4.3 PILOT STUDY

The pilot study was conducted for 30 Unaccompanied Learners from the target group, in order to establish the reliability and validity of the achievement test. The pilot study had 65 multiple choice questions. Each question carrying one mark. The time allotted was one and a half hours.

4.3.1 BLUE PRINT FOR ACHIEVEMENT TEST

Achievement test that was administered, measured the performance of the students before and after the treatment. The time allotted for the test was one and a half hours. It carried maximum weightage of 50 marks. The test consisted of multiple choice questions carrying one mark each. It has Knowledge, Understanding and Application level questions.

4.3.1.1 WEIGHTAGE TO CONTENT

The content selected was a prose and a poem and weightage was given to each. The details are given in the table given below.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Topics</th>
<th>Marks allotted</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Prose</td>
<td>30</td>
<td>60</td>
</tr>
<tr>
<td>2.</td>
<td>Poem</td>
<td>20</td>
<td>40</td>
</tr>
</tbody>
</table>

| Total   | 50      | 100          |
4.3.1.2 WEIGHTAGE TO OBJECTIVES

The categories of objectives selected for the preparation of achievement test are knowledge, understanding and application. The details of weightage to these objectives are given in the table.

Table 4.2 Weightage to Objectives on English Achievement Test

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Objectives</th>
<th>Marks allotted</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Knowledge</td>
<td>20</td>
<td>40</td>
</tr>
<tr>
<td>2.</td>
<td>Understanding</td>
<td>14</td>
<td>28</td>
</tr>
<tr>
<td>3.</td>
<td>Application</td>
<td>16</td>
<td>32</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>Total</strong></td>
<td><strong>50</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

4.3.1.3 WEIGHTAGE TO TYPE OF QUESTIONS

The achievement test was prepared by giving due weightage to type of questions, so that the actual capacity of learner could be objectively drawn out. The details are given in the table below.

Table 4.3 Weightage to Type of Questions of English Achievement Test

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Questions</th>
<th>Marks allotted</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Objective type</td>
<td>50</td>
<td>100</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>Total</strong></td>
<td><strong>50</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>
4.3.1.4 BLUE PRINT

Blue Print is a three dimensional chart that specifies the three major dimensions of learning objectives, content and form of questions. The question paper was prepared according to the blue print given below.

Table 4.4 Blue Print of the English Achievement Test

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Objectives</th>
<th>Knowledge</th>
<th>Understanding</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Prose</td>
<td>12</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>2</td>
<td>Poem</td>
<td>8</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>20</td>
<td>14</td>
<td>16</td>
</tr>
</tbody>
</table>

4.4 MAIN STUDY

The pre-test was conducted at the beginning of the main study. The experimental group was taught through MMLP, while the control group was taught through traditional method.

For two months the treatment was given, after which post-test was administered to both the groups and the data collected. Analysis of the data would reveal the effectiveness of MMLP on the achievement of the target group.
4.5 RESEARCH DESIGN

Figure 4.1 Research Design

Research design is the base on which the study was conducted. The researcher has chosen experimental design. Experimental design ensures internal validity. The pre-test-post-test equivalent group design was used in this study. The control group and the experimental group students were compared in all aspects. The control group was taken as the reference, which was used to compare the experimental group. All conditions are the same for both the experimental and control groups, with the exception that the experimental group is exposed to a treatment, whereas the control group is not.
4.6 VARIABLES OF THE STUDY

The present investigation is an attempt to measure the effectiveness MMLP on the achievement of the Unaccompanied Learners. The variables involved are independent variable and dependent variable.

4.6.1 INDEPENDENT VARIABLE

An independent variable depicts the conditions or characteristics that the experimenter manipulates or controls in an attempt to ascertain the relationship to observed phenomena. Independent variables are under the direct control of the experimenter who may vary it in any desired way. Independent variable in the present investigation was the learning through Multimedia Learning Package Constructed by the investigator.

4.6.2 DEPENDENT VARIABLES

Dependent variable deals with the conditions or characteristics that appear or disappear as the researcher removes or change the independent variable. In the present study English Achievement and English Language Creativity of the Unaccompanied Learners were considered as dependent variable.

4.7 RESEARCH TOOLS

In the present study the investigator used Standardized tool – Language Creativity Test and Achievement test in English constructed and validated by the researcher. The investigator also used the Multimedia Learning Package.
4.7.1 LANGUAGE CREATIVITY TEST

In the present study the investigator used Language Creativity Test. This tool was used to collect the data regarding the entry behaviour and attitude of the Unaccompanied Learners to English.

Language Creativity Test constructed by S.P. Malhotra and Sucheta Kumari was the Standardised tool used for the present study.

4.7.1.1 COMPONENTS OF LANGUAGE CREATIVITY TEST

Language Creativity Test has five other areas or sub-tests namely

1. Plot building
2. Dialogue writing
3. Poetic diction
4. Descriptive style
5. Vocabulary test

Each of these sub-tests has other items for the test. There are 7 under the category of Plot building, 3 under Dialogue writing, and 3 under Poetic diction, 4 under Descriptive style and 10 under Vocabulary style. Altogether there are 27 items. Further each of the 27 items was considered under 4 categories. Those categories are fluency, flexibilities, originalities, elaboration.

4.7.1.2 PROCEDURE OF ADMINISTERING AND SCORING

Initially orientation about the Language Creativity Test and its dimensions were instructed to the Unaccompanied Children. They were given 60 minutes to attempt the questions. They were told that these questions had no right and wrong answers. They were asked to answer these questions without any reservations. They were given enough
time to respond to these questions. After the stipulated time the test paper was collected and evaluated.

A score of ‘Five’ mark was given for each creative response which includes the dimensions like Fluency, Flexibility, Originality, Elaboration and Number of Responses. There was no Negative Scoring followed. Thus the total score ranged from 27 to 135. The obtained score was converted in to percentage score for analysis.

4.7.2 RESEARCHER MADE TOOL

To measure the achievement of Unaccompanied Learners in English the investigator constructed and validated the Achievement Test.

4.7.2.1 CONSTRUCTION OF ACHIEVEMENT TEST IN ENGLISH

Achievement test is used to measure the performance of the students. In order to construct the achievement test the investigator selected a prose and a poem from English text book prescribed for the X std. Karnataka State Board syllabus. The investigator developed sixty five multiple choice questions with three distracters.

4.7.2.2 VALIDATION OF ACHIEVEMENT TEST IN ENGLISH

Validation is defined as “The accuracy with which a test actually measures what it claims to measure”. The achievement test consisted of sixty five multiple choice questions. These items were given to three experts in English. The experts gave few suggestions for the items. On the basis of the suggestions given by them, few items were eliminated and some items were modified. Afterwards the achievement test had fifty items.
Table 4.5 Rejected Items of Pilot Study of Achievement Test in English

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Lesson</th>
<th>Rejected Item Numbers</th>
<th>Total Items Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>01.</td>
<td>Poem</td>
<td>21, 28, 29, 30, 32, 36, 57, 59, 61, 63</td>
<td>10</td>
</tr>
<tr>
<td>02.</td>
<td>Prose</td>
<td>10, 47, 48, 49, 50</td>
<td>05</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TOTAL</td>
<td>15</td>
</tr>
</tbody>
</table>

4.7.2.3 ESTABLISHING RELIABILITY OF ACHIEVEMENT TEST

As a measure of establishing the reliability of the test, the achievement test was administered to a group of 30 students. In the present study, the investigator has adopted the test-retest method for establishing reliability. After 1 week the same test was conducted to the same set of students. The two sets of scores were correlated to obtain the reliability of the test.

Table 4.6 Reliability of English Achievement Test

<table>
<thead>
<tr>
<th>Method</th>
<th>Number</th>
<th>Correlation Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEST-RETEST METHOD</td>
<td>N=30</td>
<td>0.763</td>
</tr>
</tbody>
</table>
4.7.2.4 ACHIEVEMENT TEST AFTER STANDARDISATION

Pilot study helped the investigator to modify the Achievement Test question paper. Based on the blueprint, the Achievement Test was prepared. The investigator prepared 50 multiple choice questions with three distracters. Reliability and validity of the Achievement test were established. One and half an hour time was given to the students to complete the test.

4.8 MULTIMEDIA LEARNING PACKAGE

“E-Learning is the fastest growing and most promising technique in the educational industry” reported by Hall B. (2001). Waller and Wilson (2001) stated that “Multimedia Learning Package is the effective teaching and learning package created by combining e-digital content with local community and tutor support along with global community engagement. Multimedia Learning Package is a capsule where the learner can access through internet and choose the content from the menu according to their interest and learn according to their pace.

The investigator constructed and designed the Multi-Media Learning Package for English. It consisted of a Poem and a Prose from the X Standard Syllabus of Karnataka State Board. The Multi-Media Learning Package was interactive in nature. The Multi-Media Learning Package was given to a group of Unaccompanied Learners from Bangalore.

4.8.1 INSTRUCTIONAL DESIGN FOR MULTIMEDIA LEARNING

Instructional design is “the distinct systematic process through which evolves superior instructional product… as delineated through an instructional design model”, (Crawford, 2004). Instructional design guides the designers to work more efficiently
while performing effective and interesting instruction suitable for a wide range of learners.

“Instructional design models give a systematic approach of implementing the instructional design process for a definite educational plan” (Morrison, Ross, and Demp, 2004). Instructional design represents the planning process for designing instructional events. It is the systematic approach to the module development and involves an interactive process which requires ongoing evaluation and feedback.

Consideration of learning theories can be embedded in each step of the instructional design process and of the existing instructional design models ADDIE model suits well for the e-learners. ADDIE model developed by Royce in 1970 (as cited in Sommerville, 1989) was considered to design the E-learning modules. The acronym ADDIE stands for Analysis, Design, Develop, Implement and Evaluate.

4.8.2 DESCRIPTION OF THE ‘ADDIE’ MODEL

The Model has five major steps, beginning with

(a) **Analysis**, in which the designer ascertains the materials to be learned, analyze environment and the learner characteristics; (b) **Design**, in which the designer determines learning objectives and chooses an instructional approach; then (c) **Development**, in which the designer creates the actual learning materials. The final two steps of the ADDIE process are (d) **Implementation**, in which the developer uses the materials to a class of students; and finally, (e) **Evaluation**, in which the developer assesses the efficacy of the created materials and makes sure that the materials achieve the desired goals.
The output of each step becomes the input for the next step. There are formative evaluations that are embedded in each of the five steps for judging the value of that subprocess while the activities are happening; as a result, revisions are carried out as and when needed.

4.9 COLLECTION OF DATA

The Investigator conducted the Experimental Study for the Unaccompanied Learners by using the Multi Media Learning Package. In order to test the effectiveness of MMLP, the investigator administered a pre-test and post test on English Achievement and Language Creativity Test for Control and Experimental Groups. The obtained scores formed the data for analysis.

4.10 ANALYSIS OF DATA

The following statistical techniques were used for the analysis.

   i. Descriptive analysis  
   ii. Differential analysis  
   iii. Correlation analysis  
   iv. Effect Size  
   v. Gain Ratio

Descriptive analysis involves the measures of central tendency and measures of variability. These two are useful to study the nature of the distribution of any variable. The computed values of mean and standard derivation are used to describe the properties of the particular sample and the descriptive statistics is used to reduce the bulk of data to manageable size.
Differential analysis involves the most important analysis by which the investigator is able to make inferences involving the determination of the statistical significance of difference between groups in the reference to selected variable.

‘t’- test is a numerical procedure that takes into account the difference between mean of two tests (pre-test and post-test). Thus the ‘t’ – test is used to determine whether the achievement of the two groups differ significantly or not. Correlation analysis is used to find out the relationship between two variables. Gain Ratio and Effect Size were found to check the effectiveness of the Multi Media Learning Package based on the obtained scores of English Achievement and Language Creativity.

4.11 CONCLUSION

In the current chapter, the investigator explained the method of investigation followed for the present study under various heading like Research method, Experimental Design, Development of Multi Media Learning Package and Tools used. Even though methodology occupies a central place in research endeavour, its efficacy could be approved only through data analysis. Therefore data analysis is described in the coming chapter.