Chapter IV

Methodology
CHAPTER IV

CONTENTS

<table>
<thead>
<tr>
<th>IV. METHODOLOGY</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>❖ INTRODUCTION</td>
<td>62</td>
</tr>
<tr>
<td>❖ EXPERIMENTAL DESIGN</td>
<td>62</td>
</tr>
<tr>
<td>❖ SAMPLE</td>
<td>64</td>
</tr>
<tr>
<td>❖ PRE-PILOT STAGE</td>
<td>64</td>
</tr>
<tr>
<td>❖ SETTING THE LEVEL OF THE STUDENTS</td>
<td>64</td>
</tr>
<tr>
<td>❖ PILOT STAGE</td>
<td>65</td>
</tr>
<tr>
<td>❖ PREPARATION OF CRITERION – REFERENCED TESTS</td>
<td>65</td>
</tr>
<tr>
<td>❖ TOOLS USED</td>
<td>69</td>
</tr>
<tr>
<td>❖ METHODOLOGY</td>
<td>69</td>
</tr>
<tr>
<td>❖ THE TREATMENT</td>
<td>69</td>
</tr>
<tr>
<td>❖ STATISTICAL TECHNIQUES USED IN THE STUDY</td>
<td>79</td>
</tr>
<tr>
<td>❖ CONCLUSION</td>
<td>79</td>
</tr>
</tbody>
</table>
CHAPTER IV
METHODOLOGY

INTRODUCTION

Elliot Eisner remarked years ago that the kinds of nets we cast determine the kinds of fish we get. Applying this to our context of needed research in the field of education, the kind of research we do reflects automatically the various types of benefits we seek.

Tony Blair in his address said, “Technology has revolutionized the way we work and is now set to transform education. Children cannot be effective in tomorrow’s world if they are trained in yesterday’s skills. Nor should teachers be denied the tools that other professionals are trained to take for granted.”

Any research activity turns out to be the most successful one only when the investigator goes for the apt choice of the research procedure. It is this part of the research that ensures the reliability of the data collected, whereby one would arrive at adopting a suitable design for the study.

In the present study the investigator has adopted the following Experimental Research Design. It is clear that there are two populations in the replication design. The sample was taken randomly from the population available for study and was randomly assigned to say, three experimental and three Control Groups (because of the six groups six such individuals were selected) and the six individuals so selected were randomly assigned to the six groups. Variables relating to both population characteristics were randomly distributed among the two groups. This Random Replication Design is an extension of the two group simple randomized design. A copy of the design is given in Figure 2.
FIGURE: 2

RANDOM REPLICATION DESIGN

Population (Available for study)
82 students of std IX

Random Selection

Sample (To be studied)

Random Assignment

Experimental Group I
Experimental Group II
Experimental Group III

Treatment A

Control Group I
Control Group II
Control Group III

Independent Variable or Casual Variable

Population (Available to conduct treatments)
6 students of std IX

Random Selection

Sample (To Conduct Treatments)

Random Assignment

Treatment B
SAMPLE

Through Random Sampling Method 82 students studying in the ninth standard of a Matriculation Higher Secondary School were selected as the sample population. At random 6 students were selected at first to form 3 Experimental Groups and 3 Control Groups. The remaining sample was randomly assigned to each of the 6 groups each comprising of 14, 14, 13 in the Experimental Groups and 14, 14, 13 students in the Control Groups. The sample includes both boys and girls. This school was selected based on the special innovative programme called LIFE ORIENTED INQUIRY CURRICULUM which encourages project works. Hence this study which is a project based - learning through integration of subjects, Language Skills and Computer Technology was attempted to bring about a holistic development in Language Skills and so was permitted to be taken as a research study during regular school hours within the timetable and also at week ends. A copy of the design is given in Figure 2.

PRE-PILOT STAGE

The major objective of the study is to develop the creative skills and communication skills among the high school students. To initiate the study, the content area, units and the components of skills were identified at this stage.

SETTING THE LEVEL OF THE STUDENTS

The main objective of this study is to develop creative and communication skills among the high school students. The level of the students plays an important role for this purpose. At the high school stage when the students are at their adolescence, they appear to be highly creative and full of energy to do something innovative. Hence the investigator has chosen this age group to bring out the creative talent in them through a project work in creative writing through integration of subjects and skills.

IDENTIFICATION OF COMPONENTS OF SKILLS

All types of skills are necessary at any stage for an individual in the name of creative, technical communication or writing skills. Hence the investigator has selected a
project work through creative writing to identify, develop and enhance the hidden potentials in the adolescent groups.

PILOT STAGE

The individual and group responses were tested at this stage. The programme was administered individually on six students of ninth standard of a Matriculation Higher Secondary School and was selected to carry out the Pilot study. It was revised according to the response of the students. The revised programmes were tried out in a group of six students and the group reactions were noted. A project work on islands and life on islands was given as both individual as well as group try out with the six children.

PREPARATION OF CRITERION – REFERENCED TESTS

Criterion tests were developed at this stage taking into consideration the specific objectives to be achieved. The preparation of criterion test consists of the following steps namely a) construction of test items b) selection of rubric for marking schemes.

FIGURE: 3

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Tests</th>
<th>Technology availed</th>
<th>Test a Experimental group</th>
<th>Test b Control group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GENERAL TESTS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Creating an Island</td>
<td>Paint Brush</td>
<td>I, II, III</td>
<td>I, II, III</td>
</tr>
<tr>
<td>2</td>
<td>Write-up about the Island</td>
<td>Microsoft Word</td>
<td>I, II, III</td>
<td>I, II, III</td>
</tr>
<tr>
<td></td>
<td>SPEAKING SKILLS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Group Discussion</td>
<td>Power Point / star impress</td>
<td>I, II, III</td>
<td>I, II, III</td>
</tr>
<tr>
<td>4</td>
<td>Role-play</td>
<td>Power Point / star impress</td>
<td>II, III, I</td>
<td>II, III, I</td>
</tr>
<tr>
<td>5</td>
<td>Debate</td>
<td>Power Point / star impress</td>
<td>III, I, II</td>
<td>III, I, II</td>
</tr>
<tr>
<td></td>
<td>WRITING SKILLS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>News – Reporting</td>
<td>Microsoft Publisher</td>
<td>I, II, III</td>
<td>I, II, III</td>
</tr>
<tr>
<td>7</td>
<td>Creating Advertisements</td>
<td>Paint Brush</td>
<td>I, II, III</td>
<td>I, II, III</td>
</tr>
<tr>
<td>8</td>
<td>Letter Writing</td>
<td>E-Mail</td>
<td>II, III, I</td>
<td>II, III, I</td>
</tr>
<tr>
<td>9</td>
<td>Short-Story Writing</td>
<td>Power Point / Word/star writer</td>
<td>III, I, II</td>
<td>III, I, II</td>
</tr>
</tbody>
</table>
INTEGRATION OF LANGUAGE SKILLS
FIGURE: 5

INTEGRATION OF LANGUAGE SKILLS
FIGURE 6

INTEGRATION OF SUBJECTS
TOOLS USED

The following tools were used in the study:

1. A project work in creative writing was taken up and validated by the investigator.
   - An Integrated Skills Activity on Creative Writing. A copy of the activity has been given in Figure 4 & 5

2. Rubric for Graphic Organizers - Inspiration Diagrams
   a. Criteria for Creative Island’s Write-up, Letter Writing and Advertising
      - Tools to Increase Study Skills and Comprehension, A copy of the tool has been given in Appendix 1
   b. Criteria for Debates, Group Discussions, Role-play
      - Powered by TeAch-nology.com - The Web Portal for Educators! (www.teach-nology.com) A copy of the tool has been given in Appendix 2
   c. Criteria for News Reporting
      - Powered by TeAch-nology.com - The Web Portal for Educators! (www.teach-nology.com) A copy of the tool has been given in Appendix 3
   d. Criteria for Story Writing
      - Powered by TeAch-nology.com - The Web Portal for Educators! (www.teach-nology.com). A copy of the tool has been given in Appendix 4

METHODOLOGY

THE TREATMENT

The Random Replication Design has been adopted by the investigator to highlight the effectiveness of integration of subjects, Language Skills and Computer Technology to develop Creativity in students of the adolescent age group in the experimentation. Adopting Simulation Method, an Integrated Skills Activity on creative writing was given to both the Experimental groups I, II, III and the Control Groups I, II, III which involved Creativity and development of an Imaginary Island. The 3 Control Groups were allowed to do the activity with paper-based materials whereas the 3 Experimental Groups did the same project work with the help of simple basic knowledge of Computer Technology. With the help of the already acquired knowledge the students were able to create a new land of their own with necessary ideas obtained from integrating all the subjects like
History, Geography, Science, Trade & Commerce, Economics and Language which they have already learnt in separate compartments. The project work was carried out for a duration of 7 weeks at the rate of 3 hours per week. The treatment was given the normal school timing within their timetable along with 2 hours on Saturdays totally 32 hours. The investigator who is an English teacher along with another English teacher concerned with regular stream taught the Experimental & Control group how to go about the same project work on paper-based materials. Two Computer Labs adjacent to each other were utilized to carry out the project with the Experimental Groups in order to pay individual attention and class control. At the same time the Control Groups were allotted the neighbouring classrooms so that in was convenient for investigator to supervise the project work for authenticity. A copy of the criterion – reference test has been given in Figure:3.

**ORIENTATION AND PRE – TEACHING**

Pupils of both Experimental Groups and the Control Groups were given an orientation before the project work based on what the students had already in various subjects like Science, History, Geography, Economics and Trade & Commerce, the investigator motivated the students to the project by discussing in general about all islands across the world. Students were asked to name some of the islands and their features. There was also a discussion on life on islands and how it was different from those of the main lands, their trade, transport and communication, food and culture. It was amazing that students wished to create their own paradise through their acquired knowledge

A Pre-teaching was done on Geographical features and other aspects of the island to enable students to choose the location of their island - its climatic conditions, flora, fauna, people, types of land and transport and communication.

After the orientation session, the pupils were divided into Experimental Groups I, II, III and Control Groups I, II, III.
CREATION OF THE ISLAND - CONTROL GROUP

The pupils of the three Control Groups were asked to draw a map of their imaginary island on a sheet of paper and place it in the map of the world. They were then asked to give suitable labels and drawings to represent the various geographical features of their island. Later they were asked to cut pictures of landscapes, mountains, forests with trees and rivers, cities and buildings from old magazines and newspaper or to draw the physical features to replace labels of their island on the map. This part of the project needed only a minimum of artistic skills and it formed an interesting context for motivation and generation of language. The pupils based on any special feature of their island decided the names of the islands. This took 3 classes a week and 2 hours on Saturdays to finish their work.

WRITE-UP ABOUT THE ISLAND

After getting a clear idea of their imaginary island, the students of the 3 Control Groups settled down to prepare a write-up about their island. They quickly recalled the orientation given by the teacher and then started writing in detail about their island using paper and pen. Refer to Appendix 13.

The written work was further sub-divided into:

1. Overall size of the island, its area and its place in the map of the world. (Brief)
2. Climate was such that it resembled the neighbouring country (Brief)
3. Geography of the island not with too many physical features – Vegetation, its flora and fauna.
4. Population’s main source of work, including farming areas and farm products. Man – made items like the main roads, railways (if any) towns and villages with basic details of the towns – names.
5. A basic outline of the island’s system of government was decided based on their previous knowledge through History.
6. A language script was coined by them and a tune for the National Anthem was also composed with a translation in English.

This took 3 classes a week and 2 hours on Saturdays to finish their work.
CREATION OF THE ISLAND - EXPERIMENTAL GROUP

The three Experimental Groups I, II, III began their project with the help of Computer Technology. Each student was allotted a computer each which was loaded with clipart pictures.

The three Experimental Groups I, II, III were at first asked to draw an irregular shape of their island using Paint Brush filling almost the entire monitor screen. On this map suitable representational drawings or labels were used to highlight the physical features of their island. Then the island was given a place on the map of the world having in mind the basic influence of Climate, Flora, Fauna, Trade & Commerce and People & Culture.

Later students were asked to view all the pictures available from the Clip Art collection from which suitable pictures were selected to depict the physical features of their map. The selected pictures were then cut and pasted on another suitable background according to their island. This part of the project needed only a minimum of artistic skills and some visual materials where merging techniques were employed with utmost clarity. Moreover it formed an interesting context for motivation and generation of language. The students based on any special feature of their island decided the names of the islands. Refer to Appendix 7.

WRITE-UP ABOUT THE ISLAND

The three experimental groups I, II, III using Microsoft Word, began their write-up of the island. Refer to Appendix 8.

The written work was sub-divided into:
1. Overall size of the island, its area and its place in the map of the world. (Brief)
2. Climate was such that it resembled the neighbouring country (Brief)
3. Geography of the island not with two many physical features – Vegetation, its flora and fauna.
4. Population's main source of work, including farming areas and farm products. Man-made items like the main roads, railways (if any) towns and villages with basic details of the towns – names.

5. A basic outline of the island's system of Government was decided based on their previous knowledge through History.

6. A language script was coined on their own through Webdings and a tune for the National Anthem was also composed with a translation in English.

REPLICATION OF TASKS (TREATMENTS)

From this point onwards the students of the 3 Experimental Groups were given three different tasks where, one task at a time was administered to each of the groups replicating the treatments till all the three groups took turns to complete. A copy of the design is given in Figure: 3.

SPEAKING SKILLS: EXPERIMENTAL AND CONTROL GROUPS

The Speaking Skills were developed through Group Discussion, Debate and Role-play given as a replication treatment. Having completed the tasks on Creating the Island and doing a write-up of the island, the project turned its discussion on certain important issues of the island - Establishing an Air Port. Refer Figure: 7

FIGURE: 7

<table>
<thead>
<tr>
<th>Experimental &amp; Control Groups</th>
<th>Test No. 3-5 Speaking Skills</th>
<th>Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>I, II, III</td>
<td>Group Discussion</td>
<td>AirPort</td>
</tr>
<tr>
<td>II, III, I</td>
<td>Role-play</td>
<td>AirPort</td>
</tr>
<tr>
<td>III, I, II</td>
<td>Debate</td>
<td>AirPort-for/Against</td>
</tr>
</tbody>
</table>

GROUP DISCUSSION

A Group Discussion was arranged on the issue of the airport for the Experimental Group I. The Experimental Group I was divided based on the interests on the island and then the pros and the cons of airport in general and of possible airport sites on the island
were discussed. The major interest groups on the island were elicited and then the groups were divided equally between them. There were two possibilities here. The groups were allowed to decide or their own attitude towards the airport scheme, preparing their arguments in groups before the actual meeting. This had the advantage of allowing students to express their own feelings more freely, but sometimes lead to session’s imbalance of opinion for or against the airport. Alternatively, role cards were handed over prepared in such a way as to represent a broad spectrum of opinion. This ensured that there were conflicting opinions at the meeting, leading to argument and maximizing discussion. The Experiment Group I was allowed to use PowerPoint/ Star Impress to support their ideas by presenting a slide show about their islands. Each pupil was able to bring out the advantages and disadvantages of the airport whereas the Control Group I also had a Group Discussion but the speakers were conscious and had some inhibitions while speaking unlike the confident Experimental Group I who were highly expressive.

ROLE-PLAY

The Experimental Group II was divided into six Categories as follows:

1. The Holiday trade – In favour of the airport
2. The unemployed – In favour of the airport
3. The urban residents – undecided
4. The Government – undecided
5. The conservationists – opposing to the airport idea
6. The farmers – opposing to the airport idea

The airport was accepted by the meeting, the group then decided where it should be built, and on this subject the role cards divided the interest groups into different factions as those mentioned above.

1. The Group was divided into six sub-groups each representing a different interest where extra 2 members were allotted to the government group as the government representative chaired the meetings.
2. Each interest group met to read its role card to develop further arguments to support its opinion. The group then met for the main meetings so that there were 2 persons representing each interest group at each meeting. The government representative was the chairperson at each meeting, called other representatives to speak in turn.

3. All representatives at each simultaneous meeting presented their arguments, which were given the opportunity to criticize other representative’s opinions.

4. Each group then voted whether to accept the airport plans or not. Votes were counted for the entire group and a final decision was taken in this research.

5. The groups then met to discuss and decide where the airport should be located; a decision again was made on voting basis. Throughout this procedure the investigator acted as an organizer and provider of language when needed.

The Experiment Group II was allowed to use PowerPoint/Star Impress to support their ideas by presenting a slide show about their islands. Each pupil was able to bring out the advantages and disadvantages of the airport whereas the Control Group II also had a Role-play but the speakers were conscious and had some inhibitions while speaking unlike the confident Experimental Group II who were highly expressive.

DEBATE

The Experiment Group III was assigned a debate. An important foreign power had offered to provide financial aid to build an airport on the island, provided that it would use the airport for refueling its military aircraft. The Experimental Group III was called for a meeting of representatives of the island’s various interests to Debate on the matter and decided whether or not to accept the offer.

On prior intimation about the topic the group divided into for and against. They had prepared a slide-show gathering information and pictures to substantiate their views for and against the topic and spoke confidently. The Experiment Group III was allowed to use PowerPoint/Star Impress to support their ideas by presenting a slide show about their islands. Each pupil was able to bring out the advantages and disadvantages of the
airport whereas the Control Group III also had a Debate but the speakers were conscious and had some inhibitions while speaking unlike the confident Experimental Group III who were highly expressive.

The replication of the treatment was given as in the table that all the three groups covered the entire treatments one each at a time. This took 3 hours to be completed within a week. The data for the writing skills were collected for evaluation.

WRITING SKILLS - EXPERIMENTAL GROUPS

FIGURE:8

<table>
<thead>
<tr>
<th>EXPERIMENTAL GROUP</th>
<th>Test No. 6-9 Writing Skills</th>
<th>Technology Availed</th>
</tr>
</thead>
<tbody>
<tr>
<td>I, II, III</td>
<td>Short-Story Writing</td>
<td>Word/PowerPoint</td>
</tr>
<tr>
<td>II, III, I</td>
<td>News Reporting &amp; Advertising</td>
<td>Publisher/ Paint</td>
</tr>
<tr>
<td>III, I, II</td>
<td>Letters to Pen friends</td>
<td>E-Mails</td>
</tr>
</tbody>
</table>

After the Speaking Skills, the writing skills were tested through Short Story Writing, News Reporting/ Advertising and Letter Writing. These tasks were administered to each group one at a time as mentioned in the above Figure :8

SHORT-STORY WRITING

The Experimental Group I was given a system each to work on Short Story Writing. All the students were first allowed to review the pictures from the Clip Art and they selected those pictures which were relevant for their story to create their characters for the story and using Microsoft Word or PowerPoint. The group then wrote stories based on fairy tales and cartoon characters. Some of them wrote stories based on their island characters. Refer to Appendix 9.

NEWS REPORTING & ADVERTISING

The Experimental Group II gathered information from the Group Discussion, Role-play and Debate. A written follow-up of the Role-play was written to form the front
pages of island newspapers, having a report on the airport meeting as a central feature, with the help of Microsoft Publisher the three groups according to their attitude to the airport (for undecided and against) presented the news, so that when completed, the front pages were exchanged within the group members to be read with a critical eye for an unbiased reporting.

Once again this activity needed a certain amount of pre-task teaching on headline writing and organizational skills applicable to writing newspaper articles. The students wrote other articles and even advertisements. Pictures were also used to create their advertisements for their Newspaper with the help of Microsoft Paint and the tasks were shared. Some wrote the main article, while other wrote further on local news and matters happening around the world and the remaining students created advertisements. Each group used the publisher to layout the complete front pages. This task needed a considerable amount of time to complete. Reports on the meetings or letters to “The Editor’s Column” of the island newspaper expressing opinions about the airport were also written. Refer to Appendix 10 & 11.

**LETTER WRITING**

As the next replication Experimental Group III set out on an individual task. Letter to a pen friend from an inhabitant of the island was also attempted. A parallel text in a fairly simple language, describing another island was used as a reading comprehension. The groups then write a letter with their own description of their island, simply substituting different facts and figures for those in the original text and writing it out in the format of a letter through an E-Mail. Students were not only asked to simply write a description of the island or of their life there but also encouraged to write letters to pen friends and also “Letters to the Editor’s Column” discussing the various issues of the island.

These tasks were replicated with the other two groups as well. This task required 3+2 hours in a week to finish one full replication treatment.
After the Speaking Skills, the writing skills were tested through Short Story Writing, News Reporting/Advertisement and Letter Writing. These tasks were administered to each group one at a time as mentioned in the above Figure :9

**SHORT- STORY WRITING**

The Control Group I selected pictures from old magazines and newspapers to create their characters of their own stories. The groups then wrote stories based on fairy tales and cartoon characters. Some of them wrote stories based on their island characters. These stories were being written on paper. Refer to Appendix 13.

**NEWS REPORTING & ADVERTISING**

The Control Group II gathered information from the Group Discussion, Role-play and Debate. A written follow-up of the Role-play was written to form the front pages of island newspapers, having a report on the airport meeting as a central feature, the three groups according to their attitude to the airport (for undecided and against) presented the news, so that when completed, the front pages was exchanged within the group to be read with a critical eye for an unbiased reporting.

Once again this activity needed a certain amount of pre-task teaching on headline writing and organizational skills applicable to writing newspaper articles. The students wrote other articles and even advertisements. Pictures from the old magazines and News Papers were used to create their advertisements for their own Newspaper and the tasks were shared. Some wrote the main article, while other wrote further on local news and
matters happening around the world and the remaining students created advertisements. The group used old newspapers and magazines to complete the front pages.

This task needed a considerable amount of time to complete. Reports on the meetings or letter to “The Editor’s Column” of the island newspaper expressing opinions about the airport were also hand written.

LETTER WRITING

Letter to a pen friend from an inhabitant of the island was also attempted. A parallel text in a fairly simple language, describing another island was used as a reading comprehension. The group then wrote a letter with their own description of their island, simply substituting different facts and figures for those in the original text and writing it out in the format of a letter. Students were not only asked to simply write a description of the island or of their life there but also encouraged to write letters to pen friends and also “Letters to the Editor’s Column” discussing the various issues of the island.

These tasks were replicated with the other two groups as well. This task required 3+2 hours in a week to finish one full replication treatment.

STATISTICAL TECHNIQUES USED IN THE STUDY

The data obtained were grouped and tabulated. They were analyzed using appropriate statistical techniques. Primary techniques like mean and standard deviation were computed initially. To find out the significant difference between the mean scores of the two independent groups t-test was used. To find out the significant differences among the mean scores of more than two independent groups one-way analysis of variance (ANOVA) was used.

CONCLUSION

The design of the study, various stages involved, the experimentation and the data collection procedures were explained in this chapter. The analyses and interpretation of data along with a description of testing of the hypotheses are given in the next chapter.