CHAPTER – III

METHODOLOGY

This chapter deals with the methodological details of the study. It consists of the design of the study, sampling procedure, the tools developed and also the procedural details of the experimental intervention.

3.1 DESIGN OF THE STUDY

The present study was carried out to find out the effect of Semantic Mapping Strategy on Reading Comprehension and Written Expression in English among secondary school students. The design adopted in this study is Quasi Experimental, wherein a non-equivalent Pre-test, Post-test design was used. Quasi experimental designs are those that are “almost” true experimental designs, except that the participants are not randomly assigned to groups (Mertens, D.M., 2009). It is different from true experimental design in two ways. Firstly, the participants are not randomly selected from the specified population and secondly, the participants are not randomly assigned to experimental group and control group. Nevertheless quasi experimental designs provide a relative high degree of experimental control in natural settings and they clearly represent a step up from the true experimental designs as they enable the researcher to compare the performance of the experimental group with that of a control group.

The Non Equivalent- Groups Design is often used in classroom experiments when experimental and control groups are such naturally assembled groups as intact classes, which may be similar (Best & Kahn, 2006). To conduct the study, the researcher selected intact groups, rather than assigning students randomly to experimental group and control group as it was not possible since it affects the
schedule of routine activities at school. Quasi experimental design is commonly used in studies of this nature as it has a high internal validity. The experimental group and control group were selected from the same school.

The design of the study is represented by the following diagram.

\[
\begin{array}{ccc}
O_1 & X & O_2 \\
O_1 & C & O_2 \\
\end{array}
\]

Where

O₁ = Pretest  
O₂ = Post Test  
O₃ = Delayed Post Test  
X = Experimental Treatment  
C = Conventional Teaching

**Non-Equivalent Control Group Design**

Intact group of Participants

Measurement of Dependent Variable (Pretest)

Experimental Condition  
Control Condition

Measurement of Dependent Variable (Post test)

Measurement of Dependent Variable (Delayed Post test)
The primary threat to internal validity of this design is the possibility that differences on the post test scores of experimental group and control group are the result of initial differences rather than the effects of the independent variable. Analysis of Covariance (ANCOVA) is a method of analysis that enables researcher to equate the pre-experimental status of the groups in terms of relevant known variables. ANCOVA is particularly useful when treatments have been randomly assigned to intact groups, since it can adjust for small pre existing differences on key variable that may exist among intact groups prior to the research. The initial difference in the status of the groups can be removed statistically so that the groups can be compared as though their initial status were same. Therefore ANCOVA was selected for the analysis of data. ANCOVA was used to control the initial difference between the experimental group control group by adjusting the pre test means of the groups.

**Non-equivalent control group design showing the phases, tools, intervention and sample of the study**

<table>
<thead>
<tr>
<th>Phase</th>
<th>Experimental Group</th>
<th>Control Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>READING COMPREHENSION TEST</strong></td>
<td><strong>READING COMPREHENSION TEST</strong></td>
</tr>
<tr>
<td></td>
<td>(1) <strong>Reading Comprehension Test</strong> (Based on Argumentation &amp; Persuasive Text)</td>
<td>(1) <strong>Reading Comprehension Test</strong> (Based on Argumentation &amp; Persuasive Text)</td>
</tr>
<tr>
<td></td>
<td>(2) <strong>Reading Comprehension text</strong> (Based on Expository Text)</td>
<td>(2) <strong>Reading Comprehension text</strong> (Based on Expository Text)</td>
</tr>
<tr>
<td></td>
<td><strong>WRITTEN EXPRESSION TEST</strong></td>
<td><strong>WRITTEN EXPRESSION TEST</strong></td>
</tr>
<tr>
<td></td>
<td>(1) <strong>Written Expression Test</strong> (To Persuade)</td>
<td>(1) <strong>Written Expression Test</strong> (To Persuade)</td>
</tr>
<tr>
<td></td>
<td>(2) <strong>Written Expression Test</strong> (To Explain)</td>
<td>(2) <strong>Written Expression Test</strong> (To Explain)</td>
</tr>
<tr>
<td></td>
<td>(3) <strong>Written Expression Test</strong> (To Covey experience)</td>
<td>(3) <strong>Written Expression Test</strong> (To Covey experience)</td>
</tr>
</tbody>
</table>
**3.2 SAMPLING**

The researcher was interested in studying the effect of the Semantic Mapping Strategy on reading comprehension and written expression at the Secondary School Level. The secondary school students of Kerala were the population. Purposive sampling technique was employed in the selection of school. One of the co-education schools at Thrissur district in Kerala state was selected for this study. The school has got six sections at 9th standard level. Out of which two intact sections were randomly selected as experimental group and control group by using simple random procedure.
A brief description of the School selected as sample for the present study is given below

- It is a co-education school.
- The school follows the curriculum prescribed by State Council of Educational Research and Training (SCERT), Kerala.
- It is an aided school, under the administration of education department, government of Kerala.
- All the teachers who taught at IX have got a professional teaching degree in education.
- The students were mainly from semi-rural areas.
- The socio-economic backgrounds of the students were almost similar though they belong to different religious groups.
- The students of experimental group and control group were middle-income group of the age group 14 to 15 years.
- The classroom strength of both groups was almost equal, 35 in experimental group and 36 in control group.

3.3 TOOLS

The researcher intended to assess students’ Reading Comprehension and Written Expression in English. So the following tools were developed and used in this study.

I. READING COMPREHENSION TEST

a) Reading Comprehension text -1
   (Based on Argumentation and Persuasive Text)

b) Reading Comprehension text -2
   (Based on Expository Text)
II. WRITTEN EXPRESSION TEST

a) Written Expression Test – 1

(Communicative Purpose – ‘to persuade’)

b) Written Expression Test – 2

(Communicative Purpose – ‘to explain’)

c) Written Expression Test – 3

(Communicative Purpose – ‘to convey experience’)

3.3.1 Steps Followed in the Development of Reading Comprehension Test

1. Survey of the aims and objectives in the subject field.

2. Test Specification.

3. Preparation of test items.

4. Formulating precise instructions for administration and scoring.

5. Critical evaluation of the reading passage and test items by the experts.

6. Tryout of the trial form.

7. Statistical analysis of the items to know the difficulty level and discriminative index.

8. Selection of the best items for the final test.


3.3.2 Construction and Validation of Reading Comprehension Tests

In the present study, reading is viewed as an active and complex process and the reading comprehension involves understanding of written text, developing and interpreting meaning and using meaning as appropriate to type of text, purpose and situation.

3.3.2.1 Survey of the Sub-Areas in the Subject Field

A comprehensive review of relevant literature was carried out to develop the reading comprehension test and to make it in tune with the current scientific research
in reading. The Reading Comprehension Test used in this study was developed mainly by following the guidelines given by NAEP Reading framework for the 2009 National Assessment of Educational Progress (NAEP, 2008). It has also looked into the Reading Comprehension Tests development procedures adopted by Reading for Understanding: Towards an R&D Programme in Reading Comprehension (RAND Reading Study Group, 2002) and Progress in International Reading Literacy Study (PIRLS) (Campbell, Kelly, Mullis, Martin & Sainsbury, 2001 March).

3.3.2.2 Test Specification

A test specification provides statement about what the test tests and how it tests it. The specifications are the blueprint to be followed by test item writers, and they are also essential in the establishment of the test’s construct validity (Alderson, Caroline & Dianne, 2005). The Reading Comprehension Tests used in this study are meant for students of IX standard (age group 14-15) to assess their reading comprehension at different levels – literal, inferential and critical. The nature of the passage selected for reading comprehension comes under the broad category “Informational Text”. Informational texts can be further divided into two categories – Expository Text and Argumentation and Persuasive Text. Each reading comprehension test used in this study consists of three sections. The first part consists of multiple-Choice items, the second part on very short constructed response items and the third on short constructed response items. The duration of the test was 50 minutes. All items were scored by using the scoring criteria unique to each item.

3.3.2.3 Preparation of Test Items

The items in the test were developed based on the reading passage. A lot of studies have proved that, the structure of text used for reading comprehension (reading passage) plays a significant role in students’ reading comprehension. The
investigator was also interested in finding the effect of Semantic mapping strategy on different type of texts. In this study, the focus was mainly on the two major text forms – Expository text and Narrative and Argumentation texts. So both types of texts were used while constructing the tool. The test items for the first test on reading comprehension was based on the text category ‘Argumentation and Persuasive Text’ and the test items for the second test on reading comprehension was based on the text category ‘Expository Text’.

Items were developed for two reading comprehension tests. In the first test on reading comprehension, that was based on Argumentation and Persuasive Text, 19 items were constructed in the initial stage that include six multiple choice items, six very short constructed response items and seven short constructed response items (6+6+7) and in the second test on reading comprehension that was based on the Expository Text, there were 20 items in the initial stage. That includes six multiple choice items, six very short constructed response items and eight short constructed response items (6+6+8).

Multiple-choice items have four options: the right response and three incorrect responses. The very constructed-response items can be answered by one or two phrases or by one sentence. Short constructed-response items elicited a little longer, more elaborated answers of four to six sentences.

The following guidelines given in The Reading Framework for the National Assessment of Educational Progress (NAEP, 2008) were taken into consideration while selecting the text for reading comprehension and also while preparing the test items. The guidelines given by NAEP for constructing the tool were taken with some modifications/adaptations depending upon the context of the present study and to make it more suitable to the subjects of the study.
The NAEP reading framework (adopted with modifications) (NAEP, 2008)

| Content | Informational Text  
| Exposition  
| Argumentative and Persuasive Text  
| Procedural text and documents |

<table>
<thead>
<tr>
<th>Cognitive Process</th>
<th>Cognitive targets distinguished by text type</th>
</tr>
</thead>
</table>
|                   | Locate/Recall  
|                   | Integrate/Interpret  
|                   | Critique/Evaluate |
| Passage Source    | Use of authentic stimulus material plus some flexibility in excerpting stimulus material. |
| Passage Length    | Class IX: 400–1,000 |
| Passage Selection | Expert judgment and use of at least two research based readability formula for passage selection. |
| Item Type         | Multiple-choice and constructed-response items. |

Parameters Followed in the Construction of Tools

The following parameters listed out in the NAEP Reading Framework for the National Assessment of Educational Progress (NAEP, 2008) were followed while preparing the tool for assessing reading comprehension in this study.

1. On the assessment, students will be asked to read passage written in English and to answer the questions about what they have read.

2. Passages will not be read aloud to students since this is an assessment of reading comprehension and not listening comprehension.

3. Students’ interest was considered as criteria for selecting the passage.

4. The passage represent high quality informational material, and to be free from bias.

5. Students respond to both multiple-choice and constructed response items.
Criteria followed in the Selection of Text (Reading Passage) for the Reading Comprehension

The following aspects were taken into consideration for the selection of reading text:

**Essential Characteristics**
- Ability to engage learners
- Well-written considerate text
- Coherence
- Thematic/topic appropriateness by grade level

**Grade appropriateness**
- Topic
- Vocabulary
- Concepts (number, familiarity, abstractness)
- Curricular appropriateness at grade level
- Integrity of Structure
- Explicitness of perspective
- Style

**Balance**
- Varied Content areas
- Style
- Genre
- Variety of sentence and vocabulary complexity
- Appropriateness of mode
Other Criteria

Passage Length

<table>
<thead>
<tr>
<th>Grade</th>
<th>Range of Passage Length (Number of Words)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade 9th Standard</td>
<td>400-1000</td>
</tr>
</tbody>
</table>

Application of Readability Formula

Two research-based readability formulas were also applied to the passages selected for the reading comprehension test used in the study to gather information about passage difficulty. The results of applying reading formula are given below:

1. **Automated Readability Index: 9.5**
   
   Grade level: 14-15 yrs. old (Ninth to Tenth graders)
   
   \[ f | a | r \]

2. **Linsear Write Formula: 9.2**
   
   Grade level: Ninth Grade.
   
   \[ f | a | r \]

Cognitive targets

The term cognitive target refers to the mental processes or kinds of thinking that underline reading comprehension. Text questions were aligned to cognitive dimensions specific to each text type. The inclusion of cognitive targets reflects the intent of the operational definition of reading that guides the assessment. There are three categories of Cognitive targets.

- Locate and recall information from text.
- Integrate and interpret information and ideas presented in text.
- Critique and evaluate information and ideas in text and the ways in which authors present text.
Distribution of marks to different cognitive targets for the reading comprehension tests used in this study

1. Reading Comprehension Test – 1

<table>
<thead>
<tr>
<th>Grade</th>
<th>Locate/Recall (Literal Level)</th>
<th>Integrate/Interpret (Inferential Level)</th>
<th>Critique/ Evaluate (Critical Level)</th>
</tr>
</thead>
<tbody>
<tr>
<td>9th Standard</td>
<td>47%</td>
<td>40%</td>
<td>13%</td>
</tr>
</tbody>
</table>

2. Reading Comprehension Test – 2

<table>
<thead>
<tr>
<th>Grade</th>
<th>Locate/Recall (Literal Level)</th>
<th>Integrate/Interpret (Inferential Level)</th>
<th>Critique/ Evaluate (Critical Level)</th>
</tr>
</thead>
<tbody>
<tr>
<td>9th Standard</td>
<td>43%</td>
<td>43%</td>
<td>14%</td>
</tr>
</tbody>
</table>

Item Types

- Multiple Choice Items and
- Constructed Response Items

Distribution of Marks to Different Test Items

1. Reading Comprehension Test - 1

<table>
<thead>
<tr>
<th>Multiple Choice Items</th>
<th>Very Short Constructed Response Items</th>
<th>Short Constructed Response items</th>
</tr>
</thead>
<tbody>
<tr>
<td>27%</td>
<td>20%</td>
<td>53%</td>
</tr>
</tbody>
</table>

2. Reading Comprehension Test - 2

<table>
<thead>
<tr>
<th>Multiple Choice Items</th>
<th>Very Short Constructed Response Items</th>
<th>Short Constructed Response items</th>
</tr>
</thead>
<tbody>
<tr>
<td>21.5%</td>
<td>21.5%</td>
<td>57%</td>
</tr>
</tbody>
</table>
3.3.2.4 Formulating Precise Instructions for Administering and Scoring

The instruction for the reading comprehensions were written in simple language. It is clearly written in the instruction, the sort of answer that is expected from the students.

The scoring criteria used to evaluate students’ response were given in the Annexure 6.

3.3.2.5 Critical Evaluation of Reading Passage and Test Items by Experts

Content validity is defined as the extent to which a set of items is relevant and representative of the concerned domain content (Anastasi, 1968; Cronbach, 1984). Expert judgment was the primary method for selection and evaluation of the reading passages and test items constructed based on the passages. For that, the two reading comprehension tests - Reading Comprehension Test – 1 (Based on Argumentation & Persuasive Text) with 19 items (6+6+7) and the Reading Comprehension Test – 2 (Based on Expository Text) with 20 items (6+6+8) were given to 16 experts including teacher educators, teachers, and research scholars.

a. Passage (reading passage used in the test) review by experts

The experts from different disciplines were requested to review the reading passages used in the test thoroughly to ensure that the passages are suitable to the 9th grade level of the students and will also serve the purpose of the test. They were further requested to ensure that the passage is free from any potential bias or sensitive issues. The 16 experts’ panel raised no objection regarding the passage selected and they opined it is suitable to the grade level.

b. Review of the test items by experts

It was followed by the review of test items and instruction by the experts. One widely used method of finding the content validity is developed by Lawshe (1975). It
is essentially a method of for gauging agreement among raters of judges regarding how essential a particular item is. Lawshe (1975) proposed that each of the subject matter expert raters (SMEs) on the judging panel respond to the following questions for each item: “Is the skill or knowledge measured by this item ‘essential’, ‘useful, but not essential’, or ‘not necessary’ to the performance of the construct?” According to Lawshe (1975) if more than half the panelists indicate that an item is essential, that item has at least some content validity. Greater level of content validity exists as larger numbers of panelists agree that an item is essential. Using these assumptions, Lawshe developed a formula termed the content validity ratio (CVR)

Content Validity Ratio is calculated using the following formula (Lawshe, 1975):

$$\frac{(N_e - \frac{N}{2})}{\frac{N}{2}}$$

Where

$N_e =$ the number of experts saying the item is essential.

$N =$ the number of experts to whom the items were given.

We can infer from the CVR equation that it takes on values between -1.00 to +1.00, where a CVR = 0.00 means that 50% of the SMEs in the panel of size N believe that a measurement item is “essential”. A CVR > 0.00 would, therefore, indicate that more than half of the SMEs believe that a particular measurement item “essential”, and, thereby, face valid.

The two reading comprehension tests with 19 items and 20 items respectively on both text categories were presented to the 16 expert that consists of 6 Teacher Educators, 1 English Language Teaching Expert from SCERT, I from DIET, 2 Research Scholars, and 6 English teachers from various schools. The list of experts
is given in Annexure 1. The experts were requested to rate the items of both tests in a three point scale (1 = not necessary, 2 = useful, but not essential, and 3 = essential). They were also asked to check whether the items constructed to measure different levels of reading comprehension like – literal, inferential and critical are appropriate and to give their comments on each item. The CVR was calculated using the formula given. Fifteen items having CVR greater than 0.63 from the first test on reading comprehension and 15 items having CVR greater than 0.75 from the second test on reading comprehension were included in the test for preliminary administration.

3.3.2.6 Tryout of the Trial Form

a. Pilot Test

Reading Comprehension Test – 1 (Based on Argumentation & Persuasive Text) with 15 items and the Reading Comprehension Test – 2 (Based on Expository Text) with 15 items were administered to a sample of 42 students studying in the 9th standard, to iron out the main problems before the major trial. It provided valuable information regarding the ease of administering the test, the time students need for completing the test, the clarity of the test, the kind of language being elicited in the open-ended questions, the accuracy and comprehensiveness of any answer keys, the usability of the marking scales/rubrics and so. The researcher observed the students very closely while administering the test and once the test was over, the investigator interacted with the students regarding the passage given for reading and also about test items and instructions. Necessary modifications were made in the light of the Pilot testing and also based on feedbacks received from students during interaction.

b. The Main Trials

After Pilot testing, the reading comprehension tests with necessary modifications (test-1 and test-2) were given to a sample of 96 students studying in 9th
standard of Little Flower High School and Holy Family Higher Secondary School in Thrissur District of Kerala. Tinsley and Tinsley (1987) suggest a ratio of 5 to 10 subjects per item. Thus, administration of reading comprehension test of 19 and 20 items to a sample size of 96 was considered satisfactory.

3.3.2.7 Statistical Analysis of the Items to Know the Difficulty Level and Discriminative Index

The scoring of the administered tool was carried out and the total score of each student in each item was calculated. The data were arranged in the descending order of their total score. Top 27% of the students were identified as the upper group and the bottom 27% were identified as lower group. The data obtained from this exercise was used to analyze the difficulty value and discriminate index of the items. Difficulty value (D.V.) refers to proportion of the total group who got the item right. Thus, a high value indicates an easy item and a low value indicates a difficult item. The difficulty value of an item is calculated using the formula,

\[ D.V. = \frac{U+L}{2N} \times 100 \]

Where

U = Number of right responses in the upper group
L = Number of right responses in the lower group
N = Number of students in either upper or lower group

Ebel (1965) has suggested that a test item which has difficulty index value ranging from 20 to 80 was acceptable for a test.

The data was also used to find the discriminative index of the items. The discrimination index of an item was calculated using the formula

\[ D.I. = \frac{U - L}{N} \]
Ebel (1965) has suggested a reasonable criterion to use this index of discrimination.

<table>
<thead>
<tr>
<th>Index of discrimination</th>
<th>Item evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.40 and above</td>
<td>Very good items</td>
</tr>
<tr>
<td>0.30 to 0.39</td>
<td>Reasonably good but possibly subject to improvement</td>
</tr>
<tr>
<td>0.20 to 0.29</td>
<td>Marginal items usually needing and being subjected to improvement</td>
</tr>
<tr>
<td>Below 0.19</td>
<td>Poor item to be rejected or improved by revision</td>
</tr>
</tbody>
</table>

From the first test on reading comprehension, 11 items (6 multiple choice items + 5 very short constructed response items) out of total 15 items were analyzed to find out the difficulty value and discrimination index. The rest were short constructed response items, so those items were not analyzed to find out the difficulty level and discriminative index. Among the 11 items given for analysis, 8 items (5 multiple choice items and 3 very short constructed response items) were found to be having acceptable values of difficulty value and discrimination index.

The 11 items (6 multiple choice items and 5 very short constructed response items) out of total 15 items in the first test on reading comprehension were analyzed to find out the difficulty value and discrimination index. The rest of the questions were short constructed response items, so that were not analyzed. Among the 11 items given for analysis, 7 items (4 multiple choice items + 3 very short constructed response items) were found to be having acceptable values of difficulty value and discrimination index. The result of this exercise is given in Annexures 2 and 3.

**Distracter Analysis**

The data obtained from 96 students were used for the distracter analysis from which 27% students of upper group and 27% students of lower group were selected. The frequency of the student selecting various distracters and key were determined. The result of this exercise is given in the Annexures 4 and 5.
Based on the results of the distracter analysis, the item no 5 in the Reading Comprehension test - 1 was eliminated. The options of the item no. 2 were modified. From the Reading Comprehension Test – 2, the item no 2 was eliminated and the options of the item no. 4 were modified.

3.3.2.8 Selection of the Best Items for the Final Test on the Basis of Item Analysis

In the final draft of the Reading Comprehension Test- 1, 11 items were retained. From the second test on Reading Comprehension 10 items were selected.

3.3.2.9 Establishing the Reliability of the Tool

The reliability of the tool was found out by using test retest method. The reliability found on administering the tools- reading comprehension test 1 and reading comprehension test 2 to 92 and 94 students respectively, with a gap of two weeks. The reliability coefficient was found out to be .78 for the first test on reading comprehension and .68 for the second test on reading comprehension.

The two Reading Comprehension Test used in this study are presented in Annexures 12 and 13.

WRITTEN EXPRESSION TEST

The following steps were used to develop the written expression test used in this study.

1. Survey of the aims and objectives in the subject field.
2. Test Specification.
3. Preparation of test items.
4. Formulating precise instructions for administration and scoring.
5. Critical evaluation of the reading passage and test items by the experts.
6. Tryout of the trial form.
7. Statistical analysis of the items to know the difficulty level and discriminative index.

8. Selection of the best items for the final test.


**Construction and validation of Written Expression Tests**

In the present study, written expression is viewed as the ability to express ones thoughts, ideas and feelings, correctly and meaningfully in a systematically organized manner through writing. It is a complex, multifaceted and purposeful act of communication.

**Survey of the sub-areas in the subject field**

A comprehensive review of relevant literature was carried out to develop the written expression test and to make it in tune with the current scientific research in the area of writing. The Written Expression used in this study was developed mainly by following the guidelines given by NAEP Reading framework for the 2009 National Assessment of Educational Progress (NAEP, 2008).

**Test Specification**

The Written Expression tests used in this study are meant for students of IX standard (age group 14-15) to assess their written expression. Writing is viewed as a meaningful and purposeful act of communication in this study. So the three Written Expression tests used in the study individually measures one of the three widely used communicative purposes – to persuade, to explain and to convey experience. Writing is also viewed as a social act so students’ awareness of the audience (to whom the communication is addressed in their writing) is also considered while developing the test items. Each test clearly specified the audience to be addressed while writing. Each test used in this study contains a writing task which the students are supposed to
complete within 30 minutes. Students were given opportunity to prior writing activities too. All items were scored by using rubrics unique to each item.

**Preparation of Test Items**

Three written expression tests were used in this study. The writing task given in each test was all open-ended, as it allows students to use the supporting ide and details that will best suit to the purpose and audience for the writing task. The items were drawn from common topics which are familiar to the students. In this study, the investigator was interested in finding the effect of Semantic mapping strategy on students’ ability to use writing for various communicative purposes like – to persuade, to explain and to convey experience. So each written expression test measured one of the communicative purposes.

In the initial stage, 5 tasks for each written expression tests were constructed. The five items in the first test on written expression was to assess the communicative purpose – to persuade. The writing prompts included both verbal and visual cues. Special attention was given to choose familiar topics to the subjects of the study. The second test on written expression was intended to assess the communicative purpose – to explain. The third test on written expression was intended to assess the communicative purpose – to convey experience. As mentioned earlier, in each writing task, the audience (whom the writing has to be addressed) was stated very clearly.

The following aspects given in The Writing Framework for the National Assessment of Educational Progress (NAEP, 2010) were taken into consideration while constructing the written expression test used in this study.
TASK CONSIDERATION AND DEVELOPMENTAL PROCEDURES

Principle of Task Development

Clear Measurement Intent

Good task writing ensures that tasks are constructed to evaluate what the assessment is designed to measure – in other words, the tasks developed for the assessment must be consistent with the purpose for administering the assessment (NAEP, 2010). Clear measurement involves thinking about and designing assessment that are appropriate for the wide range of students; further it involves very precise and explicit description of what the assessment intends to measure, so that it is possible to avoid measuring unintended factors (NCEO, 2003)

Plain Language

To ensure comprehension of any writing task by all student populations, careful attention must be paid to the level of vocabulary used in the task (Carlson & Bridgeman, 1986). Tasks should be developed with straightforward, concise language; common words should be used to convey meaning. Using plain language reduces the linguistic demands placed on students and minimizes the effect of reading proficiency on students’ writing performance and assessment scores. It helps ensure that the assessment fairly and appropriately assesses writing, not reading performance (Writing Specification, 2007)

Contextual Information

Contextual information is text and/or graphics provided in a task that gives the writer an understanding of the situation or topic he or she is asked to address in the response. The NAEP provides following guidelines to be followed while incorporating contexts.

- Use context that are meaningful for the communicative purpose being assessed.
Use contexts that are appropriate for the grade level assessed; if necessary, provide brief background information to help student connect to the topic or situation.

Use familiar contexts; avoid contexts that may be confusing or unfamiliar to students.

Use clear and concise language.

Use graphics to increase clarity, when appropriate.

Avoid contextual information that could interfere with construct validity.

All the above mentioned guidelines have been strictly followed while incorporating context in the Written Expression Tests used in this study.

**General Task Specifications**

The following general guidelines were also taken care during the construction of tools.

- Tasks were designed for 25 minutes.
- Tasks were appropriate to the age-and-grade appropriate.
- Tasks were not controversial.
- Tasks directed students to make key rhetorical choices in response to the contextual information and directions provided by writing tasks.
- Tasks were draw upon from students; experience and observations.
- The language used in the tasks were clear and free from specialized or technical language and from complex sentence structures.

**Developmental Procedure**

Once the tasks were developed, it was given to a group of experts to review and judge the tasks for congruence with all task specifications. The tasks were judged on the following criteria.
- Grade-level appropriateness.
- Technical accuracy.
- Clear and relevant communicative purpose and audience.
- In congruence with task specifications.
- Free from bias (e.g., cultural, gender, regional, etc.)

**CONTENT OF THE WRITING ASSESSMENT**

**Communicative Purposes for Writing**

Any piece of writing is constructed with a goal or objective in mind – “a communicative purpose” (NAEP, 2010). Communicative purpose refers to the objective or aim of a piece of writing, what the writer hopes to accomplish. Purpose shapes the composing process (Claggett, 2005). The 2011 NAEP Writing proposes to assess students’ response to three communicative purposes: To Persuade, To Explain, and To Convey experience, real or imagines. The same Communicative Purposes have been followed in the development of tools used in this study. The figure 3 shows the distribution of communicative purposes. The percentages represent the proportion of tasks for a particular purpose.

**Percentage of Writing Tasks for Each Writing Purpose**

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>To Persuade</td>
<td>33</td>
</tr>
<tr>
<td>To Explain</td>
<td>33</td>
</tr>
<tr>
<td>To Convey Experience</td>
<td>33</td>
</tr>
</tbody>
</table>
In all the Written Expression Tests used in this study, the Communicative Purpose has been clearly stated. The task and the instructions were clearly focused on eliciting writing for one purpose. It might be one among the three communicative purpose, i.e., to persuade, to explain or to convey experience, real or imagined.

**Audience**

Audience, the intended reader(s) of a piece of writing, is an essential component of communication, and the relationship between a writer and his or her audience is an important feature of the writing assessment (NAEP, 2007). An appropriate and genuine audience is a hallmark of an effective task (NWP and Nagin, 2003). NAEP Writing Framework strongly recommends specifying the audience clearly in the writing task.

So efforts have been made to specify the audience in all the writing tasks given in the Written Expression Test used in this study. It was also taken care to select audience who were familiar and age-and grade-appropriate to students. The audiences selected were in consistent with the purpose identified for writing.

**Form**

Form refers to the organizational features customarily required by a particular kind of writing, such as a story, letter, essay, and so on (NAEP, Writing Framework).
### The Key Guidelines for Writing Tasks

<table>
<thead>
<tr>
<th>Guidelines for Development of Writing Task</th>
<th>Key Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Topic</strong></td>
<td><strong>Topic will:</strong></td>
</tr>
<tr>
<td></td>
<td>Address real-world, age-appropriate, and grade-appropriate issues.</td>
</tr>
<tr>
<td></td>
<td>Be familiar and accessible to students, and not controversial in nature.</td>
</tr>
<tr>
<td></td>
<td>Encourage the use of effective approaches to thinking and writing.</td>
</tr>
<tr>
<td><strong>Purpose</strong></td>
<td><strong>Purpose will be:</strong></td>
</tr>
<tr>
<td></td>
<td>Clearly stated in writing task.</td>
</tr>
<tr>
<td></td>
<td>Age-appropriate and grade appropriate.</td>
</tr>
<tr>
<td></td>
<td>Consistent with the audience identified in the writing task.</td>
</tr>
<tr>
<td></td>
<td>Distributed appropriately at all three grades.</td>
</tr>
<tr>
<td><strong>Audience</strong></td>
<td><strong>Audience will be:</strong></td>
</tr>
<tr>
<td></td>
<td>Specified or clearly implied by the context of the writing task.</td>
</tr>
<tr>
<td></td>
<td>Age-appropriate and grade appropriate.</td>
</tr>
<tr>
<td></td>
<td>Familiar to students.</td>
</tr>
<tr>
<td></td>
<td>Consistent with the purpose identified in the writing task.</td>
</tr>
<tr>
<td><strong>Content</strong></td>
<td><strong>Students will:</strong></td>
</tr>
<tr>
<td></td>
<td>Make choices within parameters provided by the writing task (e.g., “persuade a classmate to read your favourite book” – writer would choose the book to write about).</td>
</tr>
<tr>
<td></td>
<td>Draw upon their experience and observations.</td>
</tr>
<tr>
<td></td>
<td>Occasionally respond to an external stimulus, such as a brief reading passage or an illustration, photograph, table, chart, or other visual presentation.</td>
</tr>
<tr>
<td><strong>Approaches to Thinking and Writing</strong></td>
<td><strong>Student will:</strong></td>
</tr>
<tr>
<td></td>
<td>Consider the purpose and audience of their writing task when determining how to develop and organize ideas and how to craft language.</td>
</tr>
<tr>
<td></td>
<td>Decide for themselves which thinking/writing approaches to use in developing and organizing ideas.</td>
</tr>
<tr>
<td><strong>Form</strong></td>
<td><strong>Students may:</strong></td>
</tr>
<tr>
<td></td>
<td>Choose the form most suitable to their purpose and audience at grade 8 and 12 (to be filed tested prior to the 2011 assessment).</td>
</tr>
<tr>
<td></td>
<td>Grade 4 students will be asked to respond by using a specific form.</td>
</tr>
</tbody>
</table>
EVALUATION OF RESPONSES

The Written Expression Test used in this study will be evaluated by following the criteria given below.

Three broad features of writing will be evaluated in students’ response (NAEP, 2010)

- Development of Ideas
- Organization of Ideas
- Language Facility and Conventions

Criteria for Evaluating Response

<table>
<thead>
<tr>
<th>Development of ideas is effective in relation to the writer’s purpose and audience</th>
</tr>
</thead>
<tbody>
<tr>
<td>The depth and complexity of ideas are in relation to the writer’s purpose and audiences.</td>
</tr>
<tr>
<td>Approaches to thinking and writing (e.g., analyzing, synthesizing) are used effectively in relation to the writer’s purpose and audience.</td>
</tr>
<tr>
<td>The details and examples used to develop ideas are specific and effective in relation to the writer’s purpose and audience.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Organization is logical in relation to the writer’s purpose and audience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text structure is logical and effective in relation to the writer’s purpose and to the approaches to thinking and writing that the writer has used.</td>
</tr>
<tr>
<td>Coherence is maintained within and between paragraphs.</td>
</tr>
<tr>
<td>Focus is maintained throughout the response.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Language facility and conventions support clarity of expression and the effectiveness of the writing in relation to the writer’s purpose and audience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sentence structure is well controlled and sentence variety is appropriate for the writer’s purpose and audience.</td>
</tr>
<tr>
<td>Precise and appropriate word choice supports clarity of expression and enhances the presentation of the writer’s ideas.</td>
</tr>
<tr>
<td>Voice and tone are effective in relation to the writer’s purpose and audience.</td>
</tr>
<tr>
<td>Grammar, usage, and mechanics (Capitalization, punctuation, and spelling) support clarity of expression and enhance the presentation of the writer’s ideas.</td>
</tr>
</tbody>
</table>
Evaluation of Responses

The response to the writing task was assessed by using a holistic rubric unique to each communicative purpose. The holistic approach to scoring focuses on evaluation of the whole response rather than on its individual parts (Myers, 1980). The response was scored by assessing performance across multiple criteria – development of ideas, organization of ideas, language facility and conventions-to evaluate overall performance (NAEP, Writing Framework, 2011).

The writing assessment was scored on a six-point scale, with 1 being low and 6 being high. A five-point scale is the more common and logical approach when finer distinctions are sought and a continuum or range of performance needs to be imparted (Wolcott, 1998).

Three rubrics were used, one for each of the communicative purposes assessed: To Explain, To Persuade, and To Convey Experience, real or imagined. Each scoring rubric contains all the features to be evaluated and descriptions of performance expected at each of the six score points.

Critical evaluation of test items by experts

Content validity of the tasks in the three written expression tests were found by using the method developed by Lawshe (1975). Expert judgment was the primary method for selection and evaluation of the written expression test used in this study. 15 tasks (5x3), with each 5 task catering one communicative dimension was given to 16 experts that consists of 6 Teacher Educators, 1 English Language Teaching Expert from SCERT, 1 from DIET, 2 Research Scholars, and 6 English teachers from various schools. The experts were requested to rate the tasks in a three point scale (1 = not necessary, 2 = useful, but not essential, and 3 = essential). They were also asked to check whether the task constructed to measure different communicative purpose –
to persuade, to explain and to convey experience are appropriate and to give their comments on each item. The experts were also presented with a holistic scoring rubric. The response for each writing task was intended to be assessed by the rubrics specifically designed for each communicative purpose. It had score ranging from one to six. A scoring rubrics developed by NAEP were used in this study with necessary modifications to suit the subjects of the study. The experts were requested to given their observations and suggestions for modifying the scoring rubrics.

The Content Validity Ratio (CVR) for each task was calculated using the formula developed by Lawshe (1975). Actually the purpose was to select the most appropriate one task for each communicative purpose. So from the five tasks given, one of the tasks with highest CVR was selected under each category. In the case of first test on written expression to assess the communicative purpose ‘to persuade’ the third task (from among the five tasks given) with a CVR 0.59 was selected. For the second test on written expression for the communicative purpose ‘to explain’, the first task with a CVR .62 was selected. The third test on written expression for the communicative purpose ‘to convey experience, the first task on written expression with a CVR .64 was selected. The rubrics used were modified based on the valid suggestions given by the experts.

Tryout of the trial form

a. Pilot Test

The three written expression tests were administered to a sample of 32 students studying in the 9th standard, to iron out the main problems before the major trial. The pilot test provided valuable information regarding the ease of administering the test, the time students need for completing the test, the clarity of the task etc. It also helped to see whether the tasks elicit the intended sample of language and also the usability
of the marking rubrics. The students were very closely monitored, while administering the test and once the test was over, the investigator interacted with the students regarding the writing tasks, instructions given for completing the task and also about the space given for pre-writing activities. Necessary modifications were made in the light of the Pilot testing and also based on the feedbacks received from students during interaction.

b. The Main Trials

After Pilot testing, the reading comprehension tests with necessary modifications were given to a sample of 63 students studying in 9th standard of Holy Family Higher Secondary School in Thrissur District of Kerala. Students took almost 30 minutes to finish one task. The investigator interacted with the students after the main trial to have an idea about the problems faced by the students while answering the task. It also provided some insight regarding the task. Some modifications in the instruction were made in the light of discussion. Later, a trial marking of the items were carried out. It helped to understand the nature of language elicited by each item and to understand the usability of the scoring rubrics. Necessary modifications were made in the rubrics based on the insights gained for the main trial.

3.3.2.10 Establishing the Reliability of the Tool

The reliability of the tool was found out by using test retest method. The tool was administered twice to 66 students, with a gap of two weeks. The reliability coefficient for three written tests was found to be .64, .69 and .72 respectively for the first, second and third test on written expression.

The three written expression tests used in the study were given in Annexures 14, 15 and 16.

The written expression tests were assessed using the holistic scoring rubrics for each test. It is presented in Annexures 9, 10 and 11.
PROCEDURAL DETAILS OF THE STUDY

In the present study, the following procedure was adopted. At first pre tests were conducted on the month of October, 2010 for both experimental group and control group to assess their reading comprehension and written expression in English. Later, the experimental students were taught 5 selected units in English by using Semantic Mapping Strategy by the researcher where as the control group was taught by the regular teacher by using conventional method. The intervention extended over a period of 13 weeks, Once the intervention was over, post tests were conducted for both experimental group and control group and a delayed post was also conducted for both groups in reading comprehension after a gap of 8 months after intervention.

The study was carried out in the following stages

Stage I – Preparatory Stage

Stage II – Implementation Stage

Stage I: Preparatory Stage

Following steps were carried out in the Preparatory stage

I. Development of Semantic Mapping Strategy used in this study

II. Content Analysis

III. Development of Unit Plan for Standard IX

IV. Development of Lesson Plans

Stage II: Implementation

The study was carried out in the following phases

Phase I: Pilot Study

Phase II: Administration of Pretests

Phase III: Experimental Intervention

a. Modeling of Semantic Mapping Strategy

b. Intervention
Phase IV: Administration of Post tests

Phase V: Administration of Delayed Post tests

Stage I: Preparatory Stage

I. Development of Semantic Mapping Strategy used in this study

1. Survey of the subject filed

An extensive and comprehensive review was carried out to understand the theory underlying semantic mapping strategy and also to understand the different types of semantic mapping strategy used by various researchers (Johnson & Pearson, 1978; Sinatra, Stahl-Gemake & Berg, 1984). A review of current Constructivist and Social Constructivist Approaches were also carried out in order to design the semantic mapping strategy used in this study.

2. Formulation of steps followed in the construction of Semantic Maps

Steps followed in the construction of Semantic Map

A Semantic map can be used at three stages of a reading lesson. As a pre-reading strategy to activate students’ prior knowledge; as a while-reading strategy to allow students to record what they are learning as they are reading the text; and as a post-reading strategy to allow students to integrate or synthesis what they have read.

The following steps are followed in Semantic Mapping Strategy used in this study for fostering reading comprehension and written expression among students.

PRE-READING PHASE

1. Introducing the topic

2. Individual Construction of Semantic Maps

3. Brainstorming in groups

4. Construction of Semantic Map in groups based on discussion

5. Presentation of the Map by group members and refinement
WHILE READING PHASE

6. Additions are made to the Semantic Map while reading

AFTER READING PHASE

7. Revision of Map after reading

WRITING ACTIVITY

8. Individual writing task based on the Semantic Map
9. Discussion in groups and modification of the writing task
10. Presentation by a few students
11. Modification of the written work

Expert validation

The strategy developed was given to a team of 10 experts working in the field of English language teaching. The panel of experts was requested to give their specific comments on each steps developed and suggestions for further modification. The panel suggested mainly two modifications in the steps followed. The first one was related to the second step, i.e., brainstorming. Earlier it was planned to conduct the brainstorming in groups alone. A suggestion was put forward, that sometime it could be even done by the class as a whole group and teacher can play the role of a scoffolder or a motivator. Another suggestion was to include an editing session, once the students finish their writing in groups. Both suggestions were incorporated. Some panelists expressed their concern over the timing of the activity. It was checked further during pilot testing. Since the steps listed above were followed in an integrated lesson of reading and writing, the timing aspect got justified. So based on the comments and suggestions from experts, the necessary modifications were made in the strategy.
3. Initial Tryout

The semantic mapping strategy developed for this study was tried out among 38 students in 9th standard from Little Flower HS for four days, to understand, how the strategy works in an actual classroom set up. On the first day, the investigator modeled the strategy for the students followed by practice in constructing semantic maps. In the initial phase, students had some difficulty in categorization of words, brainstorming etc., as they were not familiar with those things. Later they were able to cope up. The familiarization of semantic map on first day gave a lot of insights regarding the implementation. On the second day of tryout, the investigator chose a topic and carried out the semantic mapping strategy. It was followed the in the third day also. On the fourth day, the investigator carried out a discussion with the students to have their opinion and suggestions on the strategy. All these activities helped the investigator to understand the practical difficulties and feasibility aspect of the strategy and necessary modifications were made. One of the major observation was students require a slightly lengthy modeling session, to help them familiar with the strategy.

4. Final Tryout

The strategies with necessary modifications were presented to another set of 9th standard students studying in Little Flower High School. This time, it was for a period of one week. The first two classes were used for modeling the strategy and to make the students familiar with the strategy. They were given practice in the use of Semantic Mapping Strategy. Later the semantic mapping strategy was carried out by selecting a lesson in the text book. The investigator while implementing the strategy, closely monitored the students and once the tryout was over, an interactive session with students were also carried out to get their reaction toward the strategy. Based on
classroom experience and in the light of interactions, necessary modifications were
brought out in the strategy.

II. Content Analysis

The topics for experimental treatment were selected from the IXth standard
course book of English prepared by the State Council of Educational Research and
Technology (SCERT). For the experimental treatment two Units were selected. The
details of units are given below

<table>
<thead>
<tr>
<th>Units</th>
<th>Lesson</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit IV</td>
<td>(1) Make the Right Choice</td>
<td>Editorial</td>
</tr>
<tr>
<td></td>
<td>(2) Memories of a Dying River</td>
<td>Article</td>
</tr>
<tr>
<td>Unit VI</td>
<td>(3) The Mass Media</td>
<td>Article</td>
</tr>
<tr>
<td></td>
<td>(4) Television</td>
<td>Poem</td>
</tr>
<tr>
<td></td>
<td>(5) The Initial Days of</td>
<td>Article</td>
</tr>
<tr>
<td></td>
<td>Doordarshan</td>
<td></td>
</tr>
</tbody>
</table>

III. Development of Unit Plans

A unit plan was prepared by the investigator before carrying out the
intervention. It gave the researcher an idea regarding how to go about with the
implementation of semantic mapping strategy.

Development of Lesson Plans

Lesson plans based on semantic mapping strategy were prepared and used for
the transaction of lessons. A model lesson plan is presented in the Annexure 17.

Stage II: Implementation

The study was carried out in the following phases.

Phase I: Pilot Study
Phase II: Administration of Pretests
Phase III: Experimental Intervention
  a. Modeling of Semantic Mapping Strategy
  b. Intervention
Phase IV: Administration of Post tests

Phase V: Administration of Delayed Post tests

Phase VI: Scoring of the tests

**Phase I: Pilot Study**

Some of the lessons were tried out on 42 students of Little Flower Girls High School, Olari. It was pilot studied to see how the strategy works in actual classroom set up. It provided insights into the feasibility, time taken and other constraints faced while implementing. Based on the Pilot study, necessary modifications were made in the lesson plan. There was some confusion during brainstorming, pair work. That were modified in the light of the actual experience and the insights gained while pilot testing.

**Phase II: Administration of Pretests**

The Reading Comprehension tests and Written Expression Tests were administered on both control and experimental group to assess their Reading Comprehension and Written Expression in English. Both tests on Reading Comprehension were of 50 minutes duration. The Written Expression Test was of 40 minutes duration. One test was conducted per day and there was a minimum gap of one day between each test. The students were given clear instructions before administering the tests. All the tests were administered and scored and the obtained scores were considered as the pretest scores of the sample of students.

**Phase III: Experimentation Phase**

The experimental and control group were selected from the Higher Secondary School, Arimpur in Thrissur District of Kerala. The school has got six sections at 9th standard level. Out of which two intact sections were randomly selected as experimental group and control group by using simple random procedure. The
9th standard F sections students were got selected as the experimental group and 9th standard G section students were got selected as the control group. The experimental group was taught by the investigator by using Semantic Mapping Strategy while the control group was taught by the regular teacher using conventional method. Both groups were taught by using the same course book of English for IX standard developed by State Council of Educational Research and Training (SCERT), department of education, government of Kerala. The intervention was carried over a period of 13 weeks, excluding holidays. The classes were taken in the regular English period of the school. The duration of the period was 45 minutes.

(a) Modelling of the Strategy and Practice in Construction of Semantic Maps

The students of the experimental group were not familiar with the Semantic Mapping Strategy. So the investigator modeled the semantic mapping strategy to the students in the experimental group. It was followed by the practice in construction of semantic mapping based on three topics that were selected for this purpose. It was done over a period of one week before the experimental intervention. During this one week of modeling and practice, the control group worked on the material suggested by the teacher who taught the group. The following activities were carried out with the experimental group at this phase.

1. General overview of Semantic Mapping Strategy
2. Modeling of the strategy by the investigator
3. Practice in Brainstorming
4. Discussion and practice in classification of Words
5. Practice in semantic mapping with the selected three topics
6. Writing activities based on the semantic map
(b) Intervention/Teaching of Lessons using Semantic Mapping Strategy

Once the modeling and practice session was over, both the control group and experimental group were taught by using the selected lessons from two units. The experimental group was taught by using the semantic mapping strategy while the control group was taught by the regular teacher following the conventional method. The time allocation of each lesson is given below.

**Time Allocation for Lessons in IX Standard**

<table>
<thead>
<tr>
<th>Units</th>
<th>Lesson</th>
<th>Category</th>
<th>Number of periods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit IV Glimpses of a Green Planet</td>
<td>(1) Make the Right Choice Editorial</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(2) Memories of a Dying River Article</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Unit VI Mirroring the Times</td>
<td>(3) The Mass Media Article</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(4) Television Poem</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(5) The Initial Days of Doordarshan Article</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>54</strong></td>
</tr>
</tbody>
</table>

**Steps followed in the construction of Semantic Map**

The steps followed by the investigator while teaching the English lesson by using semantic mapping strategy is presented in this section. The Semantic mapping strategy was used at three stages of a reading lesson. As a pre-reading strategy to activate students' prior knowledge; as a while-reading strategy to allow students to record what they are learning as they are reading the text; and as a post-reading strategy to allow students to integrate or synthesis what they have read. It was followed by the writing activities.

The following steps are followed in Semantic Mapping Strategy used in this study for fostering reading comprehension and written expression among students.
PRE-READING PHASE

1. **Introducing the topic**

   In this phase teacher presents the topic through some activities like – showing pictures, using pre-narratives, arranging a discussion etc., to generate a need in the mind of student to explore further and to make the topic a construct of the student.

2. **Individual Construction of Semantic Maps**

   Students’ by making use of their prior knowledge identifies and lists out words related to the topic. Then the words will be classified into different categories and category words are named based on their understanding and draws a graphical representation of it in the form of a Semantic Map.

3. **Brainstorming in groups / Class as a whole group**

   In this phase students discusses and share their map with other members. It is followed by a brainstorming session in groups where list out all the words/ideas that come to their mind related to the topic.

   OR

   The teacher as a facilitator carries out a brainstorming session where students come out with new words/ ideas that might be related to this topic. Teacher assigns students to list out the words suggested by the students on chalk board.

4. **Construction of Semantic Map in groups based on discussion**

   After the brain storming session, the students in groups will discuss and try to analyze and to categorize the words/ideas presented. They label categories and draw Semantic maps by incorporating ideas and suggestion from all the group members.

5. **Presentation of the Map by group members and refinement**

   One member from each group was given a chance to presents the map before the whole group and is followed by a whole class discussion. Necessary modifications and additions were made at this stage.
WHILE READING PHASE

6. Additions are made to the Semantic Map while reading

The students add further more and more details to the map and enrich the map while they read the passage given for reading.

AFTER READING PHASE

7. Revision of Map after reading

Once the students finish reading the passage they add further categories or modify the existing map based on their new understanding.

WRITING ACTIVITY

8. Individual Writing task based on the Semantic Map

Students will be given various types of writing activities related to the topic. They were encouraged to use the ideas listed out in the map in the pre writing, while writing and revision stages of their writing.

9. Discussion in groups and modification of the writing task

Once they complete the writing task individually, students were given a chance to share their writing with peers, based on the discussion in the group they make necessary changes in the written product.

10. Presentation by a few students and Editing of the written work

Teacher allows a few students to present their writing before the whole class, followed by a discussion. Teacher as a scaffolder helps the students to edit their work. One or two editing will be done before the whole group. Then the students do the editing in groups.

11. Modification of the written work

In the light of editing and discussion, they make modifications and finalize the work.
Normally in a regular class both reading and writing activities are integrated. So the same steps mentioned above will be followed. If it is an exclusive lesson on reading instruction, the steps 1 to 7 are followed and if the class is exclusively for writing instruction, the steps mentioned above with the exception of the sixth and seventh steps are followed. Sample semantic maps are given in Annexure 18.

**Phase V: Administration of Post test**

Once the intervention was over, the post tests on Reading Comprehension and Written Expression were administered to the experimental group and control group. The post tests were conducted in the same manner as pretests were conducted.

**Phase VI: Administration of Delayed Post test**

The Delayed Post tests on Reading Comprehension were administered on both experimental group and control group after a period of eight months, to see the sustained effect of intervention on reading comprehension of students in English.

**Phase VI: Scoring**

The Reading Comprehension tests was scored using the scoring criteria developed and Written Expression test were scored using the holistic rubric unique to each communicative tasks. The scoring key for reading comprehension test and the holistic rubric for the written expression tests were given in the Annexures 7 and 8.

### 3.4 STATISTICAL TECHNIQUES USED

The data was analyzed by using by both descriptive and inferential statistics. ANCOVA was used for inferential analysis.

### 3.5 CONCLUSION

The present chapter dealt with the details pertaining to methodological followed in the study. The next chapter presents the analysis of the data collected and its interpretation of data.