CHAPTER 3

RESEARCH METHODOLOGY
<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1 INTRODUCTION</td>
<td></td>
</tr>
<tr>
<td>3.2 METHOD OF THE STUDY</td>
<td></td>
</tr>
<tr>
<td>3.3 EXPERIMENTAL DESIGN</td>
<td></td>
</tr>
<tr>
<td>3.4 VARIABLES</td>
<td></td>
</tr>
<tr>
<td>3.5 SAMPLING PROCEDURE</td>
<td></td>
</tr>
<tr>
<td>3.6 TOOLS USED IN THE PRESENT STUDY</td>
<td></td>
</tr>
<tr>
<td>3.7 AN OVERVIEW OF STEPS INVOLVED IN AN EXPERIMENTAL RESEARCH</td>
<td></td>
</tr>
<tr>
<td>3.8 RESEARCH PROCESS</td>
<td></td>
</tr>
</tbody>
</table>
3.1 INTRODUCTION

This chapter gives details about the methodology followed in the present research study. Methodology is an explanation of procedures and techniques followed in detail to perform a research study. Thus, it is a systematic procedure adopted to confirm a good research work.

“Research is an activity which focuses on discovering new things from the old and existing phenomena. Basically, it is a process that includes the components for collective enquiry, research design, methodology, data collection and analysis, concluding with the communication of the findings” (Sahu and Swain, 2013)

“Research methodology is the description, explanation and justification of various methods of conducting research.” (Saravanavel, 2013)

The researcher could not find any research done on the memory model in the study of the related researches and related literature. There is lots of work done on the memorization of spellings but each study focused on a particular method of memorizing. Some studies analyzed the formation of spellings while some worked to find out the other skills that improved with increase in spelling memorization.

Thus, the researcher confirmed that it is necessary to study the effectiveness of several memory techniques when put together in the memory based model to memorize spellings. The design of the program was finalized based on the topic of research.

3.2 METHOD OF THE STUDY:

Dictionaries describe research as a careful search or enquiry, endeavor to discover new ideas by scientific study. It is also described as a course of critical investigation. This
search for new knowledge has to be conducted in a method appropriate to the research problem. There are three distinct methods of Research Methodology.

Methods

<table>
<thead>
<tr>
<th>Historical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Survey</td>
</tr>
<tr>
<td>Experimental</td>
</tr>
</tbody>
</table>

**Historical Method:** “This method comprises of the techniques and guidelines by which historians use primary sources and other evidences to research and write histories in the form of accounts of the past.” (Sahu and Swain, 2013)

This type of research induces principles regarding the past and social forces which have led to the present time. Through reflective thinking about unsolved social problems, past trends of events, facts and attitudes are discovered, thus, tracing how the human thought and action has developed over the years.

**Survey Method:** “Survey research studies large and small populations by selecting and studying samples chosen from the populations to discover the relative incidence, distribution and inter relations of Sociological and Psychological variables. This research is mainly devoted to the study of characteristics of the population under investigation.” (Saravanavel, 2013)

**Experimental Method:** “It is defined as observation under controlled conditions. It studies observable changes that take place in order to establish a cause and effect relationship. It is the description and analysis of what will be, what will occur or what can be made to occur under carefully controlled conditions.” (Kulbirsingh Sidhu, 1985)

When the researcher has a stimulus in particular problem or a startling observation about a knowledge, information or experience, it leads to experimental study. The researcher has to study the stimulus and state a tentative answer to the problem which is called the Hypothesis. At times the researcher can predict the outcome of the experiment which is
confirmed or refused when the Hypothesis is tested under the controlled variables. Thus, experimentation is a classic method of the science laboratory where elements and effects can be observed and controlled. It becomes a sophisticated and accurate method for discovering or developing knowledge. Though, experimental method has greatest utility in the laboratories it has also been effectively used in the class rooms where important factors and variables can be controlled.

The researcher decided to use the experimental method so that the effectiveness of the Mnemonics and Memory model based program could be tested in the class room situation. “Experimentation” is the name given to the type of educational research in which the investigator controls the educative factors to which a child or group of children is subjected during the period of inquiry and observes the resulting achievement. In the simplest type of educational experiment the investigator seeks to evaluate the influence of some educative or ‘experimental’ factor on a single group of children. He must start the experiment with some measurement of the initial attainment of the children in the trait or ability to be influenced. He then subjects the group to the experimental factor, such as a particular type of drill material, for the duration of the experiment. At the end, the investigator applies a final test for the purpose of determining the gain in achievement that has resulted from the application of experimental factor.

Selection of a particular design is based upon the purpose of the experiment, the types of variables to be manipulated and the conditions and limiting factors under which it is conducted.

Although the experimental method finds it’s greatest utility in the laboratory, it has been effectively applied in the classrooms, where significant factors or variables can be controlled to some degree.
3.3 EXPERIMENTAL DESIGN

Experimental design method is a blueprint of procedures that enables a researcher to test hypothesis by reaching valid conclusions about relationships between independent and dependent variables. For the present research the researcher decided to choose the Single group Pre-Test, Post-Test design.

The characteristics of such a design are-

- The single group pre test, post test design. Also referred to as the “Successional Experimental Design”

- The effects of the treatment are judged by studying the difference between the pre test and post test scores.

- As there is no controlled group in this design, all the work concerns the experimental group only

This design can be shown as

![Diagram of experimental design]

DESIGN OF THE STUDY:

<table>
<thead>
<tr>
<th>PRETEST</th>
<th>INDEPENDENT VARIABLE</th>
<th>POST-TEST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y 1</td>
<td>X</td>
<td>Y 2</td>
</tr>
</tbody>
</table>

This single group design usually involves three steps-
• Administering a pretest measuring the dependent variable.

• Applying the experimental treatment “X” to the students.

• Administering a post-test again measuring the dependent variable.

Differences attributed to application of the experimental treatment are then determined by comparing the pretest and post-test scores.

The researcher was aware of the limitations inherent in the pretest post-test design but chose the design for the following reasons-

There was limited period of time.

The main objective of the researcher was to prepare a program based on the memory techniques and Memory Model.

The purpose of the study was to find the effectiveness of Mnemonics and Memory Model in retaining the English language Spellings.

3.4 VARIABLES:

Variables are the characters in the research study which the experimenter manipulates, controls and observes. Variables are of different types-

Independent, Dependent, and Controlled variables.

Independent Variable:

Independent variables are those characters which the researcher manipulates or controls in his or her attempt to ascertain their relationship to the observed phenomena.
In the present study, the Memory based model and Mnemonics were independent variables.

**Dependent Variable:**

Dependent Variables are those characters that appear, disappear or change as the experimenter introduces or changes the independent variables.

In the present study the achievement of the students in the Pre-Test and Post-Test were the dependent variables.

**Controlled Variable:**

Variables such as Spellings to be taught, medium of instructions, grade level and age of the students are the controlled variables in this study.

Although the experimenter did not have complete control over all the variables it was possible to control the following variables-

- All the students selected as samples belonged to an English Medium High School.
- All students belonged to Std VI.
- The students belonged to the same age group, of 11 to 13 years.
- The spellings taught.

**Intervening Variables:**

“These are variables that cannot be controlled or measured directly but may have an important effect on the outcome. These modifying variables intervene between the cause and effect.” (Best and Kahn, 2009)

In the present study, interest, span of attention and fatigue on the part of the student were the intervening variables. These variables were directly related to the students’
Psychological built up and intervened throughout the program. Thus, these variables could not be controlled or manipulated.

**Extraneous Variables:**

These are uncontrolled variables which are not manipulated by the researcher but may have significant effect on the result of the study.

In the present study, Socio-economic level, academic ability were the extraneous variables.

### 3.5 SAMPLING PROCEDURE

#### 3.5.1 Population:

“A population is any group of individuals that has one or more characteristics in common and that are of interest to the researcher.” (Best and Kahn, 2009) For the present study, all the students studying in Std VI in English medium schools were the population.

#### 3.5.2 Sample:

A sample is a small proportion of the population selected for observation and analysis. By observing the characteristics of the sample, the researcher can make certain inferences about the population from which it is drawn.(Methodology of research in Education, Kulbir Singh Sidhu, 1985)

There are various methods of sampling out of which the researcher chose the sample through the Incidental sampling method.
3.5.3 Method of Sampling:

There are ways or methods used to choose the relevant sample for any study. The methods of sampling are basically of two types.

Probability Sampling

Non Probability Sampling

In the present study, the researcher has opted for convenience method of sampling. This method of sampling involves a convenient method of choosing sample without going through the vigor of sampling methodology. In this method, the researcher chooses the sample which is easily available and where the subjects are willing to co-operate.

For the present study, the sample chosen was 53 students studying in Std VI of Jnana Prabodhini English Medium High School, Nigdi, Pune.

Rationale for selecting Std VI students for the program:

The language acquisition skills are strong till the age of 12 to 14.

Std VI onwards passive vocabulary starts becoming a part of active vocabulary. Till Std V, the vocabulary is quite limited. Std VI onwards it starts becoming more inclusive of different subject vocabulary. Learning theories, if implemented at this age, can be easily acquired and used lifelong. From this stage, the children start getting ready for new theories and knowledge. Anything taught at this level will be retained and can be used lifelong. Till Std IV and V, most of the spellings are learnt through rote memorization. In the Std VI, if we can teach them learning techniques, the memorization process will become more meaningful for the years to come.
3.6 TOOLS USED IN THE PRESENT STUDY

In the present study, following are the tools used for data collection
1) PRE-TEST
2) POST-TEST

An achievement test was prepared by the researcher to test the student’s knowledge about the English spellings. Another test was prepared as the post-test to judge the students on the program on memory techniques and memory model which was implemented.

3.6.1 Statistical Tools:

In the present research study, the researcher intended to test the effectiveness of Mnemonics and Memory based model and thus for the purpose, statistical tool “t” test was used.

3.6.2 “t” Test:

This is the test of the significance of the difference between two means. It involves the computation of the ratio between experimental variance (Observed difference between two sample means) and error variance (Sampling error factor). (Best and Kahn, 2009). The program on ‘Mnemonics and Memory model’ in the achievement of English spellings was to be tested by using the test for significance.
3.7 AN OVERVIEW OF STEPS INVOLVED IN AN EXPERIMENTAL RESEARCH

Identify and define Problem

Formulate Hypothesis and deduce the Consequences

Construct an Experimental Design

Conduct the experiment

Reduce the raw data useful into statistical data

Apply an appropriate test of significance to determine the results of the study

Fig 3.1 Steps involved in experimental research
3.8 RESEARCH PROCESS

Fig 3.2 Flow chart
3.8.1 The research process in detail:

The researcher studied articles, papers, theses and books related to the hypothesis. This activity involved web browsing, visits to renowned libraries and reading books as explained in the Chapter 2 of this thesis. The researcher also referred to experiences of own and peers in the teaching field. The related research not only gave the foundation to design the program but also gave the insight for it's implementation.

Objectives

The process started with formulation of the objectives for the research. Following objectives were formulated.

- To identify common errors done in writing spellings
- To implement the memory model.
- To teach certain memory techniques through the Memory model to Std VI students.
- To study the effectiveness of this program on the memorization skills of the students.

The reason for the research was to teach the students to learn to memorize spellings. The probability of the effectiveness of the program was felt to be high based on the related research.

Study of text books till Std VI

The researcher studied English language text books from Std I to Std VI of SSC board to understand the vocabulary that has been completed till that level. The researcher read every text book and made a list of spellings having more than three letters. The words having three or less alphabets were avoided as they follow the phonetic rule by and large
and because they are already and drilled studied in the initial two years of pre primary school.

**Preparation of vocabulary list**

The researcher formed a list of all the words from the text books of Std I to std VI. Also Jones list of ‘the one hundred spelling Demons’ (Crow and Crow, 1973, pg426) was referred to prepare the vocabulary list. Words that were found to be repeated every year were later deleted as due to repetitive learning the students become familiar with them. Words that appeared occasionally in these text books were chosen to form the list. In this manner a list of 300 words was prepared.

**The Pre-test**

The researcher found that there was no standardized test of spellings for Standard VI students. The researcher referred to various books like “100 Tests in Spelling”, “Games for language learning”, Andrew Wright, David Betteridge & Michael Buckby (III Edition) on spellings and spelling tests to prepare the Pre test. Based on the vocabulary list prepared, a draft of Pre test of 100 marks, comprising of 100 spellings was prepared. This Pre Test had 10 Questions having 10 marks each. These questions were categorized in the following manner.

- Full word questions where the entire spelling was required to be memorized
- 1 alphabet of the spelling was either missing or was repeated.
- Partial word type questions were those where vowels were missing

There were some questions about words that are not spelled logically. These were given as jumbled words. These were memory type questions

The Pre test was designed completely to evaluate the memorization ability of the students.
This draft was reviewed by the following teachers-

**Prof. Benazeer Tamboli** - English language teacher educator, Tilak Maharashtra Vidyapeeth, Department of Education, Pune

English language teacher - **Mrs. Shruti Kale**, teaching English language to Standard V, Muktangan English Medium School, Pune

English language teacher **Miss Kaumudi Modak**, teaching English language to Standard VI, Abhinav English Medium School, Ambegaon.

English language teacher - **Mrs. Anuja Bhandari**, Jnana Prabodhini English medium school, Nigdi, Pune.

After the suggested modifications, the Pre test was finalized.

**The memory model**

The memory model has been described in detail in the first chapter. The entire program of learning to memorize spellings was implemented through the memory model which comprises of the following syntax.

STEP 1- Focus on the learning material

STEP 2- Create associations

STEP 3- Extensive use of teaching aids

STEP 4- Revision

The researcher followed this syntax to teach the various spellings during the program.

Following are the details of various heads and Mnemonics which were used during the program. The STEP 2 of the syntax was the use of Mnemonics that the researcher introduced to the Std VI students. After every Mnemonic a revision was conducted for reinforcement.
Implementation of Pre test and checking

Jnana Prabodhini High School, Nigdi, Pune was chosen for the implementation of the program on mutual consent. Permission was taken from the head, Mr. Yadavendra Joshi.

A meeting was organized by the school, where the researcher had to give a brief talk about the program to the parents of the students of the std VI class. The researcher talked to the parents about the English spellings, memorization and the schedule of the proposed program. It was very well received and the parents seemed happy and eager about it.

One the decided day, the researcher went to meet the students and implemented the Pre-test.

The co-ordinator introduced the researcher to the students and asked the researcher to proceed with the decided program. The researcher greeted the students and gave following instructions regarding the Pre-test.

- Write your name and other details properly on the paper
- Try to complete all the questions properly within 2 hours

The first question of the Pre-test was a 10 word dictation test. For this, the researcher loudly pronounced the 10 words one after another. Every word was first spoken loudly and clearly. Then it was repeated twice, this time more slowly and clearly.

When all the 10 words were completed in this manner, the researcher again called out the 10 words one after the other for another chance of correction.

After the students completed answering the remaining test, the researcher collected the papers and took leave with the assurance of meeting the students soon.

A minute evaluation was done of all the papers and the researcher prepared the marks list of the 53 students. The average of marks obtained by all the students was 31 out of 100.
This affirmed that the memory model and Mnemonics would help the students to memorize more and score better marks.

**Objectives of the Program**

The following objectives were decided for the preparation and implementation of the program-

1. To teach the students the process of memorization through a detailed diagram of the brain.

2. To teach the students the rules of phonetics and the sounds made by various consonants and syllables.

3. To teach the students the Mnemonic "Acronym" and its use in learning spellings.

4. To teach the students the Mnemonic "Picture Making" and its use in learning spellings.

5. To teach the students the Mnemonic "Chunking" and its use in learning spellings.

6. To teach the students the Mnemonic "Pyramid" and its use in learning spellings.

7. To teach the students Homophones and their use in learning spellings.

8. To teach the students spelling rules and their use in learning and creating spellings.

9. To teach the students creative ways of preparing their own rules for learning spellings.

10. To teach the students to identify correct spellings with one letter missing.

11. To teach the students to identify correct spellings with some letters missing.
Preparation of the program

The school consented to give three 30 minute lectures every week for two and a half months to the researcher for conducting Pre-test, Post-test and implementing the proposed program on the Std VI students. The researcher was allotted a class of 53 students comprising of 30 boys and 23 girls. The researcher also took the opinion of the English teacher of that class about the Pre-test. The school asked the researcher to do further co-ordination with Mrs. Anuja Bhandari regarding the minute details of the entire program.

The researcher decided to conduct the program from the following week. A detailed and comprehensive study of the memory model of teaching was done. The researcher referred to many books for this study.

Books and various websites were referred to for the details of Mnemonics which could be used to teach the memorization of English spellings effectively. A list of these Mnemonics was prepared which would be a part of the memory model. A rough draft of the program was prepared and was checked by the guide. The program aimed at including about 300 spellings which would be taught to the students. The program was approved by the guide and an explicit plan for its implementation was prepared. The researcher was given the roll list of Std VI students which was allotted for the research. This would enable the researcher to keep a record of the attendance of the students during the entire program.

Pilot Study

The researcher conducted a pilot study of the program prepared before its implementation.

Sample:

A smaller group of students of Std VI were chosen. For this the researcher chose 7 students enrolled in a private coaching class.
**Duration:**

The researcher implemented the pilot program for a period of one week. Approximately 6 lessons of 30 minutes each were taken.

**Implementation:**

The researcher taught five Mnemonics through the memory model and some of the rules. The researcher introduced 50 new words through this pilot program.

These Mnemonics were

- Picture Making
- Acronyms
- Pyramid
- Chunking
- Spelling Rules

**Outcome of the program:**

The program was well received as it was innovative and involved creative participation on the part of the students. The students were seen to have improved after the program as per the feedback given by the tutor.

**Observations made during the pilot study**

- Following are the observations from the pilot study
- The memory model based teaching had been useful
- Students could relate some of the Mnemonics with their experiences from the primary school days.
• The students welcomed the program as it helped them to memorize difficult spellings.

• Some confusion was observed when more than one Mnemonics were taught in one period.

• The tutor also gave a feedback that the students were more involved in regular studies after these sessions.

• The researcher concluded that every Mnemonic should be introduced in a fresh session with in depth revision for better clarity and understanding.

• The researcher got the most wanted confidence about the effectiveness of the program through this pilot study.

3.8.2 Implementation of the program

Table No. 3.1

Activities performed during the program

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Periods allotted (30 mins)</th>
<th>Topic taught</th>
<th>Teaching aids used</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>How memory is formed?</td>
<td>Diagrams, Charts</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>Pronunciation</td>
<td>Diagrams, Charts, Games</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>Acronyms</td>
<td>Charts, Work sheets, Games</td>
</tr>
<tr>
<td>4</td>
<td>3</td>
<td>Picture making</td>
<td>Charts, Games</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>3</td>
<td>Chunking</td>
<td>Charts, Work sheets, Games</td>
</tr>
<tr>
<td>6</td>
<td>3</td>
<td>Pyramid</td>
<td>Charts, Work sheets, Games</td>
</tr>
<tr>
<td>7</td>
<td>2</td>
<td>Homophones</td>
<td>Charts, Games</td>
</tr>
<tr>
<td>8</td>
<td>8</td>
<td>Rules</td>
<td>Charts, Games</td>
</tr>
<tr>
<td>9</td>
<td>4</td>
<td>My rules</td>
<td>Games</td>
</tr>
<tr>
<td>10</td>
<td>2</td>
<td>How to improve memory</td>
<td>Charts, Food items, Pictures, Games</td>
</tr>
</tbody>
</table>

**Activity 1  How Memory is formed?**

The researcher started the session by greeting and taking attendance of the students. The researcher explained the various function performed by the different parts of the brain showing related diagram. The researcher later taught in detail the process of memorization by drawing diagram on the black board. This helped the students to understand how memory works. This was an introductory lesson to the entire program and was taken in the traditional lecture method of teaching.

The researcher took a small activity of showing various articles like Pen, Story Book, Duster, Chalk, Fan, Handkerchief, Apple, Bag, Pencil Box, Stapler and Marker for a period of 15 seconds and then covered them up. The students were asked to recollect all the articles that they had seen. The students enjoyed the activity and thus, the program started on a happy and involved note. The researcher explained to the students that vision plays an important role in memorization. The students were asked to become keen observers so that the entire program would be beneficial.
Activity 2  Pronunciation

The researcher started the session the usual greetings and attendance. The students were made to read the sounds associated with all the alphabets and their combinations. The students were made to drill the phonological rules in a sing-song manner which is very common at the primary school level. Music and harmony enhances the memorization process. The researcher told the students that many spellings and their sub parts could be understood through the proper knowledge of Phonetics. The revision of Phonology was the start to the study of memorization of spellings.

The researcher used charts to re-in force the phonetic rules. The next step was revision and recall of these rules.

Some examples used in the activity:

- Pronunciation,
- Spin,
- February,
- Shut,
- Spell

Activity 3  Acronyms

After usual greetings and attendance, the researcher started the session by saying a few words and asked the students to spell them. When the students denied saying they were difficult, the researcher stated that a new Mnemonic named Acronym would help them to memorize all such words easily. Acronym is a Mnemonic which is creating a sensible and humorous sentence having words which start with every letter of the spelling. The teacher gave an example and the class burst into laughter.
“A Rat In The House May Eat Ice Cream : Arithmetic”

The researcher asked the students to create Acronyms for words written on the black board. The students worked with energy and fun to create hilarious sentences and also to outdo one another in forming them. The entire session was completed in laughter and memorization of many spellings which had seemed difficult in the beginning.

This session gave the researcher a chance to bond with every student who wanted to make himself / herself heard for the creative endeavor that he/she had done.

Some examples used in the activity:

- GEOGRAPHY: George’s Elderly Old Grandfather Rode A Pig Home Yesterday
- RHYTHM: Rhythm Helps Your Two Hips Move

**Activity 4  Picture making**

The researcher and students greeted each other more expectantly now and the students were keen to learn more techniques as the researcher quickly went through the attendance. The researcher pronounced few words and asked some students to spell them. Students could spell some of the spellings correctly. The researcher then introduced a new Mnemonic “Picture Making”.

In this Mnemonic the student tries to associate the spelling with a picture to help memorize it or create a picture out of the spelling with its different letters. The picture is more effective in memorizing the spelling and during recall the picture helps to spell the word properly. This Mnemonic is popularly used for expressive writing. Students were familiar with this method and immediately started telling words which they associate with pictures.

The researcher wrote a set of words on the board and told the students to patiently visualize every word. The researcher gave her own inputs for some words so that the process of thinking would start. The students started working on the words and created
their own versions of associations of pictures and words. This activity was completed by a recall of all the words studied during the session.

This activity was different than the previous ones as it involved drawing and sketching in the creation of individual work. It was a fulfilling activity and enhanced the creativity of all the students regarding picture making during the entire session. All the students, those who were comfortable with drawing and those who were not, participated without apprehension.

Some examples of this activity are shown in the Appendices

**Activity 5  Chunking**

As the name suggests this Mnemonic deals with memorizing the word by breaking it up into small parts of “Chunks” of alphabets which can be memorized easily based on either pronunciation or some other association with previous experience. Words which are broken up into small parts become easy to memorize as small memorization helps to put the words together and form a big word.

The researcher introduced the session by teaching the new Mnemonic “Chunking” by examples. This Mnemonic was well received by the students as it was helpful in remembering small parts of a long spelling. This was comparatively easy as it followed the maxim – Part to whole.

The fun part of using this Mnemonic was the breaking up of words into smaller parts. Usual words were synthesized into laughter provoking parts which made the memorization all the more easier. By the end of the session, a lot of scary long spellings were broken up and memorized by the students.

Some examples used in the activity:

- Exception = Ex + cep +tion
• Consonant = Con + son + ants

• Attendance = At + ten + dance

Activity 6  Pyramid

The sessions about memory and Mnemonics would start with greetings and attendance every week and the researcher and the students would plunge into newer techniques and theories. This session was about another simple technique where one letter at a time would add up to a large spelling.

True to the name, this Mnemonic, Pyramid, is used to remember the word by writing it in the form of a Pyramid. This helps in repetitive writing of the alphabets and this is the reason for effective memorization.

The researcher brushed up the memory of the students by demonstrating the methodology of this Mnemonic. It is very simple to understand and hence, is effectively used in the initial primary school years. The researcher asked the students to spell a big word which was difficult to memorize when the class failed to do so, the researcher asked the students to the black board one by one and every time gave a new alphabet with the previous one to write on the board. Over a period of time, a pyramid of letters was formed with the complete word spelt at the end. Work sheets were also provided to help the students to revise the topic.

This simple yet effective technique was learnt quickly and the researcher could revise more words learnt that day.
Some examples used in the activity:

<table>
<thead>
<tr>
<th>BEAUTIFUL</th>
<th>APPRECIATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>A</td>
</tr>
<tr>
<td>BE</td>
<td>AP</td>
</tr>
<tr>
<td>BEA</td>
<td>APP</td>
</tr>
<tr>
<td>BEAU</td>
<td>APPR</td>
</tr>
<tr>
<td>BEAUT</td>
<td>APPRE</td>
</tr>
<tr>
<td>BEAUTI</td>
<td>APPREC</td>
</tr>
<tr>
<td>BEAUTIF</td>
<td>APPRECI</td>
</tr>
<tr>
<td>BEAUTIFU</td>
<td>APPRECIAT</td>
</tr>
<tr>
<td>BEAUTIFUL</td>
<td>APPRECIATE</td>
</tr>
</tbody>
</table>

**Activity 7  Homophones**

The researcher and students greeted each other and the researcher took the attendance. The teacher told the students that the task for the day was to learn a new set of words known as Homophones. Homophones are words which spelled differently but pronounced similarly. This similarity creates confusion in spellings. A detailed knowledge and drill of most common Homophones helped the students to memorize the differently spelled similar sounding words.

This was also a very interactive session as many words were known to the students but they did not know the spellings of their counterparts. Students admitted that very frequently they misspell words which are Homophones and write the wrong word.

A revision of these words helped them to brush up their knowledge and also learn new Homophones.

The researcher conducted an activity to revise the Homophones and at the same time to bring creativity and humor to the class. This activity needed the students to construct sentences where one sentence contained both the Homophones. This activity engaged the
students in a deep thought process which finalized in formation of interesting and comic sentences.

Some examples used in the activity:

- Wait
  Weight
- Peace
  Piece
- Night
  Knight

**Activity 8 Rules**

The session started with exchange of greetings and attendance. This session was one of the important and lengthy sessions. The English language has numerous rules which are the basis of spelling formations. The most interesting part is that almost every rule has exceptions. For a spellings’ learner, it is vital to learn these rules with exceptions and memorize them so as to have a generous understanding of English spellings. Some of these rules are created to form a rhyming pattern so that the rule itself can be easily memorized. We do know that rhymes are the easiest to memorize.

The researcher explained every rule with the help of associated spellings so that the rule as well as the spelling could be memorized due to association. As there were many rules to be learnt, this session proved to be a lengthy one. Through the syntax of the memory model the students could recollect the spellings. In this manner, this session covered the theoretical aspect of the English spelling rules.

Surprisingly, contrary to the researcher’s expectations, this session proved equally rewarding. The students not only sailed through the learning of the rules but also took interest in understanding them. This made spellings which seemed so complicated, easy to understand. A major role was played by recitation and revision of spellings belonging to the various rules.

Some examples used in the activity:
• I before E except for C: Believe, Receive

• Q is always written as QU

• When sounded like “Ay” as in neighbor and weigh

Activity 9  My rules

This deals with the creative aspect of the students where students themselves form their individual rules for memorizing spellings.

The researcher thought that after the various sessions based on Mnemonics and rule formation; it was time to give the students an opportunity to be creative in analyzing any new spelling which came their way. The spellings which did not fit any rule or were not appropriate for memorization through any specific Mnemonic to be best remembered by applying individual but specific rules based on the formulators’ previous experiences.

These kinds of rule formation are easily linked to previous knowledge and have proved to serve long term memory. This also gave a chance to the students to think individually and at the same time give justifiable answers to the listeners.

This activity also created a rule bank for the 53 students which could be mutually shared for years to come. The beauty of the activity lies in the fact that over a period of time these same rules will be applicable to memorizing more complicated stores of information. Another aspect of this endeavor was that the creative process and the rule formation were helping the students to achieve higher levels of thinking process which would eventually lead to problem solving techniques.

The researcher thus, ended the session by heartily congratulating and appreciating the efforts of the young ones.
Activity 10  How to improve memory

On the last day of the program, the researcher greeted and took the attendance of the students in the usual manner. The researcher talked to the students about the importance of memory and various ways in which it could be enhanced and enriched. The researcher showed charts and explained various day to day activities which could help everyone to become better memorizers. The researcher displayed a number of food items which enrich memory and help in long retentions. The children were made to look at all the items and were advised to follow them for effective memory.

A list of foods and things to do for better memory was given to the students. The same is attached in the Appendices.

A few other methods to memorize spellings were told to the students.

Cover Copy Compare (Skinner, Mclaughlin, Logan, 1997)

In this method, a word is written on the left side of a paper. The student is made to read it. Then the left side is folded in such a way that the word is covered. The student is asked to recall the word and write on the right side. The paper is then unfolded and the words are compared.

Mark the differences (Chowdhury, 2010, page no. 111,112)

Usually some words are spelt incorrectly with only one letter extra or one misspelt alphabet. This can be corrected in the following manner.

By writing the wrongly spelt alphabet in Capital form

eg if the wrongly spelt word is calander, write it as calEndar. (Repeat 5 times)

The wrongly spelt word develope can be written as developX (Repeat 5 times)
The researcher explained that every student can form his own individual method to learn spellings. The researcher also explained that the entire program is to make the students aware that the spellings are not to be memorized but to be understood and learnt.

Thus, the entire program was systematically completed.

3.8.3 Rationale for the program

The researcher used following games during the implementation of every activity in the classroom.

- Word Perfect- A learning game
- Educational Phonic Word- For learning short and long vowels, consonants, phonograms and blends etc.
- Alpha Words- Learning through building words
- Word Scrabble

The researcher always divided the students into groups and made them work with these games after every study session. This became an activity based revision class of its own. The students started looking forward to playing these games with meaning. These games also provided hands on experience for the students to practice the respective Mnemonic. The students literally touched the words and made friends with them.

The Mnemonics also taught the students various perspectives of memorization. A Mnemonic, Pyramid, approached spellings by building a long word alphabet by alphabet while another, Chunking, approached by breaking into more than one small words or sounds to remember a long word. Acronyms showed how a long funny sentence is not at all a problem to remember a difficult word. Homophones and other rules gave the students a list of things to remember while spelling a word.
More importantly, not only Picture Making but all the Mnemonics are designed to give a visual treat to the students. Visualization is the backbone of any cognitive process and memorization is not an exception! The students started visualizing the spellings and lost the fear associated without much exertion.

As the study of related research had indicated, the rote learning is the only predominant way taught for memorization. Contrary to the only method taught, some students memorize by repetition, some by synthesis and some by analysis. The activities and games gave tools to all the students suiting to all methods of memorization. So individual differences of attitudes, aptitudes and learning patterns present in the class room were satisfied through the program.

### 3.8.4 Exhibition:

The researcher decided to conclude the program by organizing an exhibition in the Jnana Prabodhini High school based on the various aspects of memory and the memorization of the English spellings. The motive for organizing this was to do a recapitulation of all the activities that had been conducted, taught and discussed during the program at the same time this exhibition would benefit all the remaining students of the school who unfortunately had not been a part of the program. The exhibition was organized for the entire school and also the parents on the open day of the school when parents visit the school for their children’s examination results. The exhibition got a very good and encouraging response from the students. The group of students with whom the researcher had worked commented that they remembered the various activities and fun that they had experienced during the program when they looked at the different charts. The other students of the school also studied all the exhibits very minutely and seemed intrigued and curious to know more. The parents saw the exhibition and requested the school to have similar activities for all the students. The parents had many queries and had long discussions with the researcher.
The following exhibits were displayed -

- A detailed diagram of the brain showing various functions
- The process of memorization
- Mnemonics like Acronyms, Pyramid, Chunking and Picture Making
- Phonetics’ rules used
- Rules of the English language which help understand the creation and formation of spellings.
- Activities regarding memory enhancement
- Foods good for memory
- Actual food articles were also displayed to drive home the importance of good food for Memory.

The games that the researcher had used in the implementation of the program were also displayed for everyone to understand their effective role in the memorization of spellings.

The exhibition got a very good response from students, teachers, school personnel and parents. The responses given by the visitors were recorded and a few of them have been attached in the appendices.

This exhibition marked a fitting end to the program by instilling interest and curiosity in the minds of the visitors regarding memory.

The charts displayed in the exhibition and information with reference to brain and memory which was given to the students is provided in the Appendices.
3.8.5 The Post -Test

The program implemented comprised of the 300 spellings from the vocabulary list. Based on the vocabulary list which was completed during the program, a draft Post test of 100 marks, comprising of 100 spellings was prepared. The structure of the Post test was kept identical to the Pre test so that the results could be compared. The Post Test also had 10 Questions having 10 marks each. These questions were categorized in the following manner.

- Full word questions where the entire spelling was required to be memorized
- 1 alphabet of the spelling was either missing or was repeated.
- Partial word type questions were those where vowels were missing

There were some questions about words that are not spelled logically. These were given as jumbled words. These were memory type questions

The Post test was prepared to check the effectiveness of the implemented program.

The draft Post test was also reviewed by the same panel of expert teachers who had reviewed the draft of the Pre test.

The teacher co-ordinator assigned by the school, who taught English to the assigned class also reviewed the Pre test and Post test drafts before their implementation.

After the suggested modifications, the Post test was finalized.

Implementation of Post test and checking

The Post test was conducted after a period of one week after the conclusion of the program. The Post test was conducted in the same manner as that of the Pre test.

After the students completed answering the test, the researcher collected the papers and took leave with the assurance of meeting the students to share their results.
A minute evaluation was done of all the papers and the researcher prepared the marks list of the 53 students. The Post-test scores showed that average of marks obtained by all the students was 48 out of 100. This confirms that the Post test marks were more than the Pre test marks.

3.8.6 Analysis and interpretation of the scores

A detailed analysis and interpretation of the Pre-test and Post-test results is given in the following Chapter 4.