

**A STUDY OF THE EFFECTIVENESS OF MEMORY  
TECHNIQUES AND MEMORY MODEL FOR  
MEMORIZING SPELLINGS**

**A Thesis Submitted to**

**TILAK MAHARASHTRA VIDYAPEETH, PUNE  
For the Degree of Doctor of Philosophy (Ph. D.)  
In Education**

**Under the Board of Education Studies**

**By**

**Mrs. KIRTI DHANANJAY NAMJOSHI**

**Under the Guidance of**

**DR. DATTATREYA TAPKEER**

**September - 2014**

## **DECLARATION**

I hereby declare that the thesis entitled “**A STUDY OF THE EFFECTIVENESS OF MEMORY TECHNIQUES AND MEMORY MODEL FOR MEMORIZING SPELLINGS**“ completed and written by me has not previously formed the basis for the award of any Degree or Other similar title upon me of this or any other Vidyapeeth or examining body.

**Mrs. Kirti D. Namjoshi**

**Place:**

**Date:**

## **CERTIFICATE**

This is to certify that the thesis entitled “**A STUDY OF THE EFFECTIVENESS OF MEMORY TECHNIQUES AND MEMORY MODEL FOR MEMORIZING SPELLINGS** ” being submitted herewith for the award of the Degree of Vidyavachaspati (Ph.D.) in Education of Tilak Maharashtra Vidyapeeth, Pune is the result of original research work completed by **Mrs. Kirti Dhananjay Namjoshi** under my supervision and guidance. To the best of my knowledge and belief, the work incorporated in this thesis has not formed the basis for the award of any Degree or similar title of this or any other University or examining body upon her.

**(Dr. Dattatreya Tapkeer)**

**Research Guide**

**Place:**

**Date**

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**(An Abstract)**

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## **ABSTRACT**

### **Memory**

Memory is an integral part of our day to day life. It is also the most important and fundamental aspect of the teaching learning process. In the teaching learning process, the learner has to remember the information, knowledge and wisdom gathered by self and others. There is a definite process through which all this is stored in the brain. Memory is the process by which information is encoded, stored and retrieved.

Many educationists believed that memory and memorization were the lowest skills in the hierarchy of the learning process (Bloom's Taxonomy) and so were unimportant.. But some Psychologists and Educationists realised that memory or remembering is the most important aspect of the learning process and true to its place in the hierarchy it is the basis or fundamental aspect of any learning process. All the later mental processes are possible only if at the given moment the necessary information can be retrieved.

### **Process of Memorization**

It is important to form a clear image when we receive any sense stimulation and it is equally important that the mental image is recalled whenever desired. Without this power of conscious recall or memory an individual's powers of achievements would be almost nil. It is difficult to recall something that you have either not really learned or understood because memory functions as ideas are learned, retained, recalled and recognized. Memorizing is important to the extent that it provides useful material for thinking. Thus a person who learns to remember his experiences can become a better thinker. Memorization is blamed mostly because of the deadly drills. Contemporary research and innovative teachers have created methods that improve our efficiency in memorization and make the process delightful!

## **Mnemonics**

Thus, it becomes important to give a serious thought to memory and memorization. If memorization is the doorway to all mental and physical activities, it should be learnt in a systematic manner. There are various techniques through which this is possible. Mnemonics are memory techniques which make the process of memorization interesting and effective. These are methods in which any given information can be memorized using principles of association, attention, organization, meaningfulness and visualization.

## **English Language Spellings**

There are 26 letters, 44 sounds made by 5 vowels and 21 consonants in the English language. These form more than 2,50, 000 words that make the English language and are listed in the Oxford Dictionary. English spellings are based on Phonology, some are orthographic, and some have remained in their original forms, belonging to some other language from which they have been adopted. This also makes it difficult to memorize spellings as a particular rule cannot be applicable to their formation. Due to this spelling memorization has always been a challenge to teachers and learners.

## **Memory model**

Every teacher uses a specific method to teach any given content. The methodology that the teacher follows is usually that which is learnt in teacher education. In a similar manner, methodologies which are researched and tested form models of teaching which can be followed by any teacher to seek predictable outcomes.

One such model which was used by the researcher was 'The memory model'.

## **Need and Significance of the present study**

Spellings are the building blocks of the English language and so they have to be learnt and used correctly while writing. But has the importance of teaching students to spell accurately been lost in the age of computers, spell checkers and SMS texting? Is spelling instruction being considered marginally important in schools today?



The significance of this research study is that the researcher has tried to teach the students to establish sense, and create meaning regarding a few spellings through Mnemonics. The knowledge of Mnemonics helped the students to work at their individual level to create their own personal associations to memorize spellings. These Mnemonics once taught can be used by them for any information that they need to memorize. These techniques will assist them through the enormous amount of information that they will encounter during their lives.

### **Statement of the Problem**

To study the effectiveness of memory techniques and memory based model in the memorization of spellings of Std VI students.

### **Operational Definitions**

- **Effectiveness:** The strength of the learned response gathered after the implementation of the programme based on Mnemonics and Memory Model.
- **Mnemonics:** Certain Memory Techniques like Pyramid, Chunking, Acronym, Picture Making which aid in remembering English spellings
- **Memory model:** A model of learning based on the memorization abilities of students to help them to memorise given spellings.
- **Memorization:** The process of storing and retrieving spellings.
- **Spellings:** A meaningful sequence of alphabets.
- **Standard VI students:** Students who have passed their Std V examination and are studying in Std VI of SSC Board English Medium School

### **Research Objectives**

1. To study the difference between spelling ability of boys and girls through their pre-test scores.

2. To prepare a program on Mnemonics and Memory based Model for memorizing English spellings.
3. To study the effectiveness of the memory model on the memorization skills of the students through post test.
4. To study the effect of the program on the spelling ability of boys and girls through their post test scores.

### **Research Assumptions**

- Students have to learn new spellings in schools.
- Students make mistakes in writing correct spellings
- Memory techniques can effectively help in recollection of spellings
- Memory model can enhance memorisation skills in students.

### **Research Hypotheses**

1. There will be a significant difference between scores of boys and girls before the implementation of the programme.
2. Programme based on Memory techniques and Memory model is effective in memorizing English spellings.
3. There will be a significant difference between scores of boys and girls after the implementation of the programme.

### **Null Hypotheses**

1. There will be no significant difference between scores of boys and girls before the implementation of the program.
2. Program based on Memory techniques and Memory model does not have significant difference in learning English spellings.

3. There will be no significant difference between scores of boys and girls after the implementation of the program.

### **Scope**

- This research study was applicable to std VI students of Maharashtra state board schools.
- This research focused only on the various spellings that the students learn till std VI.

### **Limitations**

Some limitations of this study were

- It is difficult to provide attention to students individually.
- Various factors like age, maturity, attention, interest, fatigue on the part of the students cannot be controlled.

### **Brief Outline of research methodology**

- A single group Pre test , Post test experimental design was used.
- A group consisting of 53 Boys and Girls from Std VI of an English medium school was selected.
- A Pre test was conducted
- A program was designed for teaching the students to memorize the spellings.
- A pilot study of the program was conducted.
- Independent Variables Memory techniques and Memory based model.
- Dependent variables: Post test scores of the students.
- Duration of the training program prepared was 32 periods comprising of 30 min each.
- Tools for data collection were  
Pre test scores  
Post test scores

### **Statistical Treatment**

- Mean of Pre test and Post test scores
- Standard Deviation values of Pre test and Post test scores
- t test

### **Review of the related literature**

The researcher visited various libraries and websites in search of any literature/ theses in the field of Mnemonics and memorization of spellings. A thorough reading of the material showed that researches had been made on various types of spellings by identifying the pattern in their formations and various ways of teaching them to the students so that memorization would be effective. The different types of spelling formations that the researcher came across were inventive spellings, inflectional suffixes, morphology of spellings, word mapping in spellings and use of phonology in spellings.

The researcher could also study the different approaches that had been investigated by different educationists and linguists to teach spellings effectively. Although work had been done on the process of teaching and learning spellings, with rare contributions through Mnemonics, the researcher was unable to find the use of memory model as a teaching technique in spellings. The Mnemonics used by some researchers were very specific and their studies were limited to use of a single Mnemonic for the study. This made the researcher probe into thinking about the effectiveness of using Memory model for teaching spellings.

The given table is an overview of the various types of research and study material scrutinized by the researcher.

### Overview of types of related researches scrutinized

Area Of research	Type of work			
	Ph.D. Theses	M.Ed. Dissertations	Articles / Papers/ Online publications	Programmes
Memory and Mnemonics	3	-	6	1
Mastering Spellings	2	4	3	
Strategies Used to spell	2	1	3	
Classroom Instructions and	6		6	
Meeting the needs of diverse	1		3	
Study of spellings			5	

#### **Programme based on Mnemonics and Memory Model**

The researcher had decided to use 5 different Mnemonics through the Memory Model for this research. The five Mnemonics chosen were

- **Pronunciation**
- **Acronyms**
- **Picture Making**
- **Chunking**
- **Pyramid**

The researcher used many teaching aids which is a need of the Memory Model. This made the entire programme successful as it catered to the needs of students who were different types of learners.

#### **Post test**

A post test was conducted to study the effectiveness of the programme.

## Findings of the Data Analysis

Following were the findings of the data analysis through statistical treatment

Sr. No	Hypothesis/ Objective	t' value	Findings
1	Hypothesis 1: There will be a significant difference between scores of boys and girls before the implementation of the programme.	2.976	There is a significant difference between scores of boys and girls before the implementation of the programme.
2	Hypothesis 2 : Programme based on Memory techniques and Memory model is effective in memorizing English spellings.	9.459	There is a significant difference in the scores of pre test and post test of the total group
3		9.305	There is a significant difference in the scores of pre test and post test in case of Full Word questions
4		4.663	There is a significant difference in the scores of pre test and post test in case of questionson words with 1 alphabet less
5		2.866	There is a significant difference in the scores of pre test and post test in case of partial word questions
6		8.587	There is a significant difference in the scores of pre test and post test in case of memory questions
7		5.926	There is a significant difference in the scores of pre test and post test in case of boys
8		8.938	There is a significant difference in the scores of pre test and post test in case of girls

9	Hypothesis 3 : There will be a significant difference between scores of boys and girls after the implementation of the programme.	1.239	There is no significant difference between scores of boys and girls after the implementation of the programme.
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## CONCLUSIONS

While studying for the preparation of the programme on Mnemonics through the Memory Model, the researcher found facts based on research work and articles, that rote learning is uninteresting and temporary. The programme made the children participate actively (both physically and mentally) in the learning process. Thus, the learning became interesting, innovative and permanent.

The experience gained by the researcher during the classroom interactions was both demanding and encouraging. Once the children were introduced to the various memory techniques it made them more imaginative, participating and experimenting. Their positive attitude and enthusiasm was enough receipt about the success of the programme. Every new technique introduced brought lots of feedback in the form of questions, ideas, inquiries and prompt implementations.

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# **CHAPTER I**

## **INTRODUCTION**

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### CHAPTER 1 INTRODUCTION

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## **1.1 INTRODUCTION**

Research in every field and more so in the field of education is the demand of the day. Progress in any field is directly linked with the researches done in that field. Thus, our problems and difficulties in the field of education necessitate a purposeful effort in research. This may be a huge task but consistent research will provide new directions to the educational theories propounded and practices undertaken. A researcher of any aspect of life needs to study the patterns, behaviors, cause and effects of the subject chosen. Amongst the various topics related to the subject the researcher has to point out to a certain aspect or part of the subject in which more study is needed to be done. To begin with, the researcher has to identify the area of interest and the need prevalent. The point of view of the research is then defined. With this background, the researcher can focus on the topic of research.

The researcher intends to perform study in the field of education. Education comprises of the process of teaching and learning. This is well understood and studied in Educational Psychology.

## **1.2 EDUCATIONAL PSYCHOLOGY**

*“Educational Psychology is that branch of Psychology which deals with teaching and learning”*  
–Skinner, C.E.

Educational Psychology is one of the important applications of Psychology to education. History tells us that teachers in ancient India, since the times of the “Rig Veda” to as recent as 12<sup>th</sup> Century A.D., followed Psychological principles to teach the young children between the preschool age and adolescence. These teachers knew the various developmental stages with their characteristic features of specific emotions in learning at

various stages which were based on external stimuli through sense perception. The reason is that they believed in the importance of the role of sense perceptions in the process of teaching learning and used optical sense, auditory sense, tactual sense, gustatory sense and olfactory senses as gateways of knowledge.

Apart from all these sense perceptions, imagination also played a vital role in the acquisition of knowledge. The ancient education system believed that sensations, perception and imaginations pave the way for memory.

The knowledge gained changed the perceptions and the ways of thinking of people and there was growth in civilization. The knowledge also formed differences in the world and the world went through a lot of revolutions and historical and political upheavals. It was in the modern era, that educationists felt the need to revive Educational Psychology.

In the modern times, educational Psychology was founded by several pioneers just before the beginning of the 20<sup>th</sup> Century. A major figure in shaping the field of educational Psychology was John Dewey. We are well aware that prior to Dewey it was believed that Education is best gained when the child sits passively in the class listening to the teacher. Dewey contradicted the prevalent idea by showing that learning happens most effectively when students do activities in the classroom.

“Educational Psychology as a tool in the teaching learning process helps teachers to comprehend and foster better understanding about human beings and how humans learn.”  
(Bhargav, 2012, Page 40)

## **Significance of Educational Psychology**

Thus, Educational Psychology is beneficial in ...

**Method of teaching:** Educational Psychology helps the teacher to understand and implement the importance of various methods of teaching with respect to students' need, interest, ability and difficulties.

**Learning process:** The teacher understands the learning process through Educational Psychology. It helps the teacher to modify the teaching process so that the learning is effective.

**Evaluation:** Comprehensive all round assessment of the student is possible. Educational Psychology helps in understanding the pattern of evaluation. Evaluation can be done based on the requirement also. Educational Psychology helps synthesizing the evaluation process and thus, proves helpful in the effectiveness of the evaluation.

**Text books and curriculum:** Educational Psychology helps in curriculum construction based on the various principles of Pedagogy. This helps in the creation of textbooks which fulfill key areas like comprehension, interest, skill and curiosity in the teaching learning process.

**To understand growth and development:** The core function of Educational Psychology is to understand and research the various growth and developmental phases of a child. All the aspects of teaching learning can be ideally achieved through this.

Educational Psychology is about teaching and learning process. Both these processes are studied in Educational Psychology in details. More emphasis is given on learning in the recent times as it focuses on the needs of the students. The learning process is studied in Educational Psychology from the point of view of its effectiveness in gaining knowledge. A lot of theories and practices are researched and formulated to explain how the process of learning happens.

### **1.3 THEORIES OF LEARNING**

“Learning is an active process that needs to be stimulated and guided towards desirable outcomes.” (Crow and Crow, 1973, Page 225).

Learning is to understand and create new ways and methods to do things, to overcome problems and to adapt to new situations. There is a progressive change in the behavior of the individual to perceive and adapt to situations in order to meet the demands of the moment. Learning is a process of modification. It is an active process which involves both physical and mental activity. True learning affects conduct of the learner.

Thus,

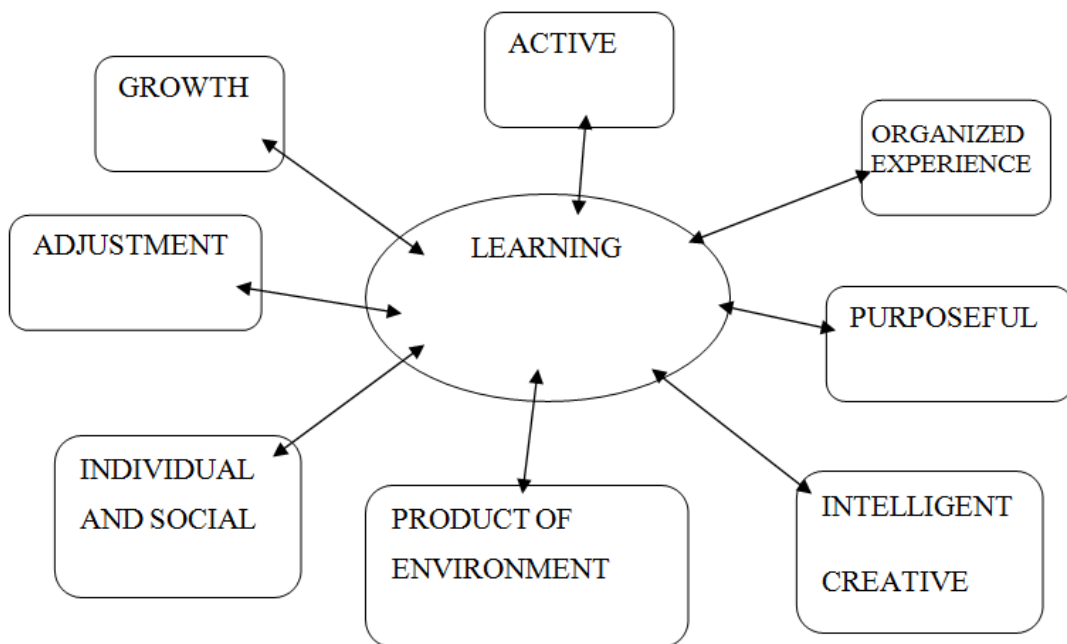
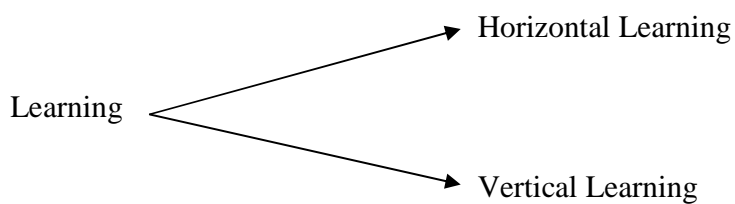


Fig 1.1 Learning

Learning is also the acquisition of habits, knowledge and attitudes.

Learning is classified in two ways





## **Horizontal learning**

-What is learnt is integrated and organized as part of a functioning unit of expanding experiences

## **Vertical Learning**

-Precision in performance increased, information is added to that already learnt.

Various theories of learning are

The connectionist theory : Thorndike : Learning is a matter of bond connections

Stimulus --- Responses (S --- R)

- Learning becomes so called trial and error process that applies particularly to mastery of more complex learning situations. (Crow and Crow, 1973, Page 231)
- Behaviourist theory (Pavlov's theory of conditioning) : Learning is habit formation resulting from conditioning.
- Insight in learning (Gestalt): Learning is concerned with the whole individual and arises from the interaction of a maturing individual with his environment.

All these theories explain the different ways in which effective learning takes place in a scientific way. This gives the researcher the choice to follow the particular way of organizing and implementing teaching activities so that the desired goals can be achieved. For this Educational Psychology also explains the steps involved in the learning process.

### **1.3.1 Steps in learning**

- Motivation within the learner
- A goal becomes related to the motivation

- Tension arises
- Learner seeks an appropriate line of action to meet the goal
- Learner fixes appropriate line of action according to the nature of the goal
- Inappropriate behavior is dropped

After a detailed study, comprehension and thought, on the learning process, the researcher finds that the teaching and learning process is related to memorization. An integral part of any activity in learning involves a crucial role of memory. Memory is a measure of the internalization of learning which can be in the form of information, knowledge, skill or habit.

The teaching learning process has evolved since the ancient times. Teachers, for ages together, have followed a variety of methods in teaching their students. The evolution of Education and society brought about fundamental changes in teaching. The growth in knowledge and the progress of humankind in all the various fields justifies the effectiveness of these teaching methodologies. With the advent of Educational Psychology, a more thorough and focused research was possible on the various ways of teaching that were known and prevalent. The result of all this exhaustive study has come to us in the form of various models of teaching as an avenue to liberate student learning capacity and by doing so not only affirm effective learning but also purposeful teaching.

## **1.4 MODELS OF TEACHING**

Models of teaching enable us to construct vital environments for our students. Models have come from the ages and all the teacher researchers who were courageous and creative enough to invent new ways of teaching. When these are researched and

developed they become formulae which can be used expecting desired goals in the classroom scenario.

The models of teaching are classified into four families.

- The behavioral system family
- The information processing family
- The social family
- The personal family

The researcher decided to study the information processing family for this research purpose.

### **Information processing family**

The information processing family models help us to process information, make decisions, develop intellectual capacity and express and enhance creativity. The teaching models in this family emphasize peoples' desires to make sense of the world by gathering and organizing data, determining problems, and finding solutions. All this is done in ways that may appear innovative or strange but eventually lead to process information in such an effective way that a better understanding is the outcome. Some models help us design courses where students organize information, build concepts and test and evaluate these concepts. Sometimes other models lay out concepts so that students can build structures to hold information based on these concepts. There are models which help us memorize information while a few which help us create new ideas.

This family includes the largest number of models all working on the common objective of creating powerful learners. The models included in this family are

- Thinking Inductively

- Attaining Concepts
- Picture- word inductive model
- Memorization (Memory model)
- Learning from Presentations (Advance organiser)
- Inquiry Training
- Synectics

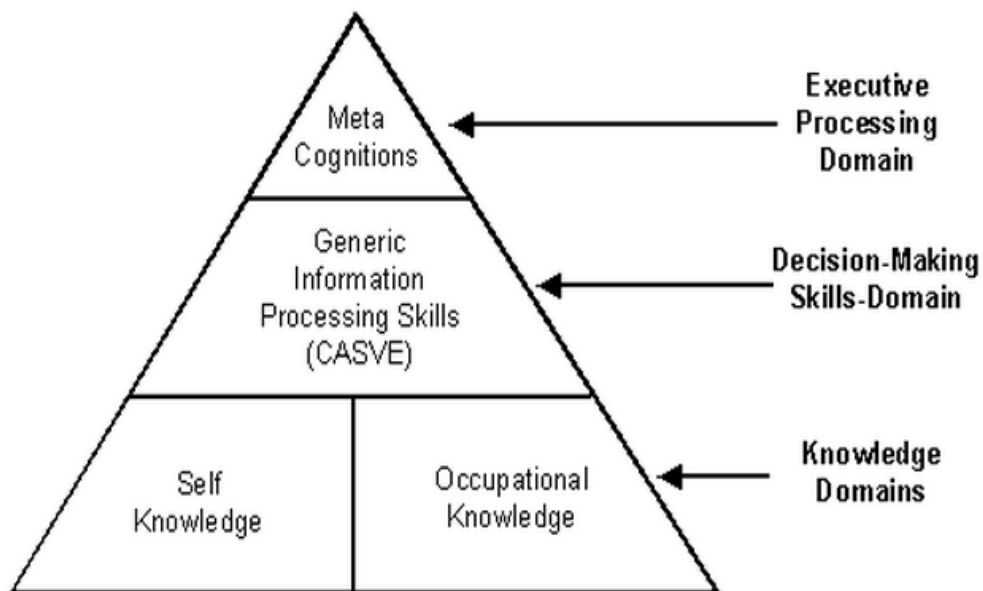


Fig 1.2 Information processing family model

The researcher has decided to study and use the memory model for the present research

## 1.5 THE MEMORY MODEL

*“The memory is a treasurer to whom we must give funds, if we are to draw the assistance we need”*

-Rowe

This model has been developed on the work done by Pressley, Levin and their associates. The popular book by Harry Lorayne and Jerry Lucas, 'The Memory Book,' also has been influential in the construction of this model. In their book, Lorayne and Lucas emphasize that it is necessary to strengthen Attention, Association and Sensory Perception for enhancing our memory skills. This model includes these as the important principles of this model along with Awareness, Ridiculous Association and the Link System. These have been described in the Principles of Mnemonics.

## **Syntax**

Step 1: Attending to the material. This is done using the techniques of underlining, listing, reflecting.

Step 2: Developing connections. Make the material familiar by making connections using key words, link word system, or other mnemonics.

Step 3: Expanding Sensory Images. Techniques of exaggeration and ridiculous association are used. Images are revised.

Step 4: Practicing Recall. Practice recalling the material until it is completely learned.

## **Social System:**

The social system is co-operative. Teacher and students work as a team with the new material. Over the time the initiative should increasingly become the students' as they understand the technique and use it to memorize the given material.

### **1.5.1 Principles of Reaction:**

The teacher should help the students to identify associations by offering suggestions but should use the students' frames of references. The familiar elements should be primarily from the students' storehouse of material, experiences, images etc.

### **1.5.2 Support System:**

The sensory richness of association should be increased with the help of a generous use of teaching aids. All the customary devices of the curriculum, Pictures, concrete aids, films, audiovisual devices should be used.

The Instructional and nurturing effects of this model are:

Mastery of facts and ideas.

Tools for mastering information and concepts.

A sense of intellectual power.

Self esteem.

Self understanding.

Self reliance and independence.

## **1.6 MEMORY**

*"A man's real possession is his memory. In nothing else is he rich, in nothing else is he poor"*

-Alexander Smith

*“Memory like learning is fundamental process of adjustment. One of the most cardinal features of adequate adjustment is the ability to profit by past experience, and it is obvious that, in the absence of memory, this ability would be impossible. There is no phase of human living untouched by memory.”* -Schneiders A. Alexander

From the time when man first began to depend on his mind for coping with his environment, the possession of excellent memory has been a step to positions of command and respect. (Buzan 2004, Page 35)

It is difficult to say exactly when the first ideas of memory were integrated. However, scholars attribute it to the Greeks about 600 years before Christ. Over all these ages, great thinkers and philosophers like Parmenides, Plato, Aristotle, Zeno, Stoic, Herophilus, Cicero, The great physician- Galen, St. Augustine, Descartes, Thomas Hobbes, Newton, The Czech physiologist Georg Prochaska have contributed to intricate theories on Memory. In the modern times, Hermann, Ebbinghaus, Wilder Penfield, David Bohn are contributors to the advancement in the study of memory.

Ancient Indian literature was memorized and conveyed from generation to generation through oral memorization. All the Vedas, Upanishads and even important verses and epics were chanted and remembered. The recitation method was also enriched by constructing the verses in a rhythmic pattern. This also helped in memorization. Verses about the Knowledge about all the aspects of life were created and transferred through generations by this method. Knowledge about memory was thus, not new for Indian Rishis.

### **1.6.1 Significance:**

The mind is extremely complex in its capabilities, but without memory it cannot perform the simplest of tasks. The memory is the storage capacity of the mind. Every individual has specific capacity or power of collecting experiences which are specific and different from the others. Thus, these experiences are collected also in different manners by every

individual either in the conscious or sub conscious part of human mind and are referred to as memory or remembering. This is often neglected and unappreciated until some incident makes us take notice of how important it is for our well-being. For an individual, the best friend, guide and philosopher is memory. It enables a person to be efficient, both individually and socially. We are able to remember and recall important facts, ideas, names etc due to memory. Students are immensely worried about it and want a “good memory” to remember the studies. Therefore, one of the important functions of school instructions and curriculum is to enable and encourage the students to develop good memory for the purpose of examination, evaluation and also to face the challenges of life during the school years and afterwards. We remember what we have experienced in the past. We remember the skills that we acquired, the knowledge that we gathered and the various experiences gained. We have traces of attitudes, prejudices and disposition in our minds. Since infancy or for that matter even before that .i.e. from our mother’s womb we learn and recognize millions of things, objects, persons and events. We mystically retain and recall all these in our brains. As mentioned earlier “good memory” then is learning, retaining, recognizing, recalling or all of them. According to Bloom, the development of intellectual skills is movement through a series of levels, from the simplest to the most complex. Knowledge /Remembering is the initial step of using one’s intellectual abilities.

### **1.6.2 Definitions and Meaning of memory:**

Psychology traces memory from the major power of the mind –MNEME. This is the general power of the mind to conserve the past experiences of the individual and the race. Mneme is derived from Greek language, meaning remembrance, memory.

**Woodworth** : Memory consists in remembering what has previously been learned.

**James Drever**: The characteristic of living organisms in virtue of what they experience leaves behind effects which modify future experience and behavior.



**Ross** : A new experience determined by the disposition laid down by previous experiences and the relation between the two being clearly apprehended.

**Stout** : The ideal revival ,i.e. to revive the things , objects or experiences in the same order and form.

Thus, memory may be defined as the function of the mind by virtue of which it records, retains and processes ideas.

According to Woodworth the four main elements of memory are:

LEARNING – process of establishing association of the ideas in mind.

RETENTION – process of relegation of the past experiences in the sub-conscious mind of the individual in the form of a mental experience.

RECOGNITION - is the awareness of the experience that has been retained or stored up in the mind. It is knowing any object that has been experienced before.

RECALL – It is bringing again to mind the past experience on the basis of association of ideas.

Recall is of two types –

*Spontaneous* - make no effort to recall.

*Deliberate* – make an effort to recall.

Recall is dependent on association of ideas, which in turn is dependent on Laws of Similarity, Contrast, Contiguity, Regency, Frequency, Primacy and Vividness.

### **1.6.3 Process of memorization**

It is important to form a clear image when we receive any sense stimulation and it is equally important that the mental image is recalled whenever desired. Without this

power of conscious recall or memory an individual's powers of achievements would be almost nil. It is difficult to recall something that you have either not really learned or understood because memory functions as ideas are learned, retained, recalled and recognized. Memorizing is important to the extent that it provides useful material for thinking. Thus a person who learns to remember his experiences can become a better thinker. Memorization is blamed mostly because of the deadly drills. Contemporary research and innovative teachers have created methods that improve our efficiency in memorization and make the process delightful!

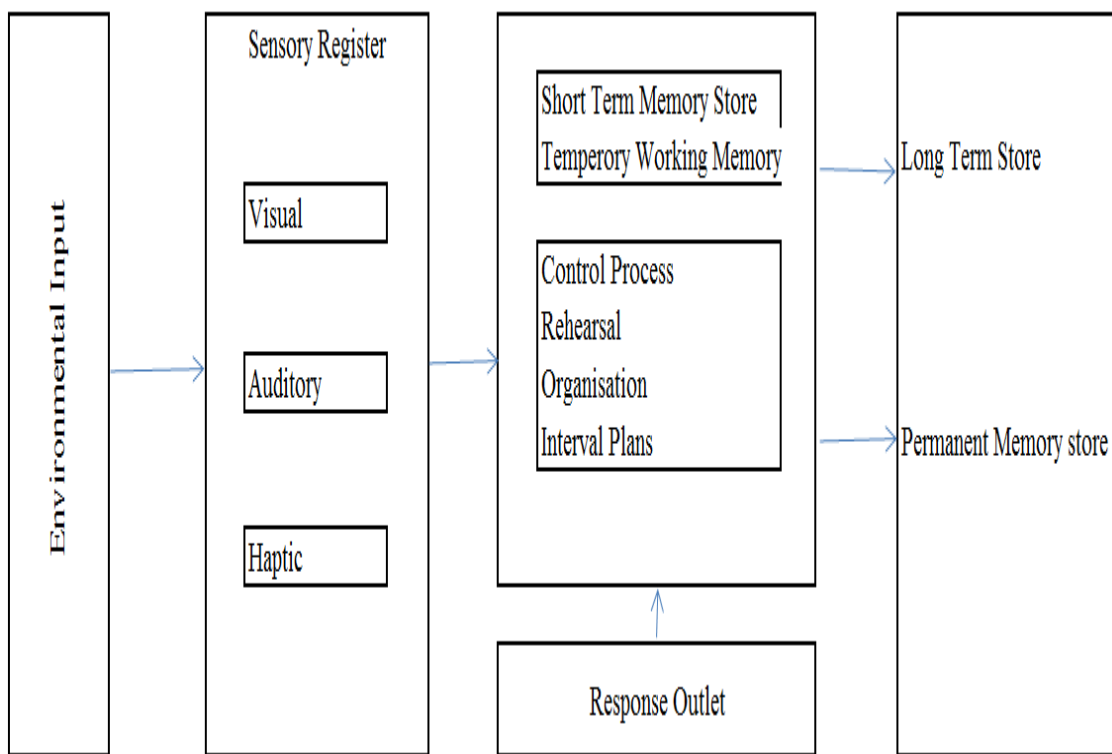


Fig 1.3 Process of memorization

There are three types of memory.

**Sensory Memory:** The ability to look at an item and remember what it looks like with just a second of observation is an example of sensory memory. This memory is only for the initial 200 to 500 milliseconds after an item is perceived.

**Short Term Memory:** This memory allows recall for a period of several seconds to a minute without rehearsal. Its capacity is also very limited.

**Long Term Memory:** This memory can store much large quantities of information for potentially unlimited duration. (Sometimes a whole lifespan). Its capacity is immeasurably large.

As information is acquired through the sensory receptors, it passes through the sensory register into the short term store. Control process such as rehearsal or any other method of purposeful repetition permits the transfer of this information into long term store from where it can be retrieved. Thus, we see that any information that is rehearsed goes into the long term memory store.

In the absence of any kind of rehearsal or repetition, it is easily forgotten through the short term store. Memorization is the process of committing something to memory. This is a deliberate act performed in order to store relevant information in the memory for later recall.

#### **1.6.4 Factors Improving memory**

Learning Method

Saving Method

Prompting Method

Scoring Method

Repetition

Use of Modern Technology

Meaningful organization of subject matter

Interest

Attention

Motivation

Mnemonics

The researcher chose to focus on Mnemonics and the Memory model to be used and implemented on the school children in this given research.

## **1.7 MNEMONICS**

Mnemonics are memory devices or learning techniques that help in retention of information. Mnemonics are used to translate information into a form that is easy for the human brain to store and retain.

The word Mnemonic is derived from the ancient Greek word “Mnemonikos” meaning “of Memory” and is related to Mnemosyne the name of the Goddess of Memory in Greek mythology. Mnemosyne was the most beautiful of all Goddesses and a favorite of Zeus. She bore nine muses. These Goddesses preside over Love Poetry, Epic Poetry, Hymns, Dance, Comedy, Tragedy, Music, History and Astronomy. Thus, for Greeks, the infusion of energy (Zeus) into memory (Mnemosyne) produced both creativity and knowledge.

True to this belief, with these twin improvements, our overall mental functioning and assimilation of knowledge can be accelerated to a fantastic pace.

(Buzan, 2010, Page 39-40)

Ancient Greeks and Romans classified memory into two types.

Natural Memory: This is inborn and so is used by everyone automatically, without thinking.

Artificial Memory: This is trained and developed through learning and practicing.

Mnemonics encompass all the methods, techniques, approaches devised or learnt by individuals or groups to memorize information. These are ways to simplify data for the brain which can easily be rehearsed. Mnemonics may not have an inherent connection with the material to be learnt but they impose meaning or structure on material that otherwise is not either meaningful or organized. They usually involve adding something to the material being learnt to make it more memorable and thus, are referred to by many researchers as visual or verbal elaborations. These elaborations create meaningful associations between what is already known and something to be learnt. Thus, Mnemonics helps remember information that is otherwise quite difficult to recall.

The human brain can code and interpret complex stimuli like images, colour, structure, sounds, smells, tastes, touch, spatial awareness, emotions language and many more. Mnemonics use these sophisticated interpretations made by the brain with the help of the environment and create good memory.

### **1.7.1 Basic Principles of Mnemonics.**

#### **MEANINGFULNESS:**

Mnemonic techniques and systems help make material meaningful by using rhymes, patterns, and associations.

#### **ORGANIZATION:**

Mnemonic techniques and systems impose a meaningful organization on the material.

#### **ASSOCIATION:**

You associate the new material that you want to learn with the material that has been memorized previously.

#### VISUALIZATION:

This plays a central role in the mnemonic systems as the associations are usually made visually.

#### ATTENTION:

Mnemonic systems force you to concentrate on the material in order to form pictures and associate them. Mnemonics can foster attention as they tend to be more interesting and fun than rote learning.

### **1.7.2 Significance of Mnemonics**

Research on Mnemonics began in 1960's. By the early 1970's several psychologists and researchers had suggested the potential value of mnemonics in education. Some of the important reasons for teaching mnemonics to students are

Mnemonics are versatile ,

Mnemonics are time efficient ,

Mnemonics are adaptable to student differences

Most children enjoy using mnemonics.

A great amount of research published since 1970's has shown that mnemonics can help in the kinds of memory tasks required in school .

Specific subjects where mnemonics have found to be effective are –

- Spelling,
- Foreign language vocabulary,
- English vocabulary,

- Definitions,
- States and Capitals,
- Medical terms,
- Properties of minerals,
- Hardness scale of minerals,
- Cities and their products,
- Reading ,
- People's names and their accomplishments, etc.

Extensive mnemonic programs have also been developed in the United States for such areas as reading, spelling, grammar and basic mathematics skills. It is strange that we expect students to learn, solve problems and remember a lot of material, but we seldom teach them how to learn, solve problems and remember. It is time to make up for this lack by developing applied courses in learning, problem solving and memory and by incorporating them in the academic curriculum for solving some memory problems.

Memorization is a low level mental skill to many educators, so they usually state the purposes of education in terms of loftier goals than remembering, such as understanding and applying principles, critical and creative thinking, reasoning and synthesizing. Such misconceptions must be dispelled, for memory research to make a positive contribution to educational practice. Two points may be made regarding the role of memory relative to the loftier goals in schools. First, whether we like it or not, there is a lot of straight memory work in school. Education consists of 'basic school tasks' involving list and paired – associate learning as well as 'complex school tasks' like meaningful prose learning. Secondly, remembered facts serve as the basis for the loftier goals. One of the conclusions stated in the U.S.

Department of Education book 'WHAT WORKS' is : "Mnemonics help students remember more information faster and retain it longer" (HIGBEE, 1988). Mnemonics have found to benefit good students as well as poor students. Even gifted students in Elementary Schools have benefited by using imagery Mnemonics. Memory plays an important role in decision making and problem solving, in areas such as Engineering, Computer Programming, Social Science, Reading Comprehension, Physics, Medicine and Mathematics. Mnemonics have been conceptualized as problem solving technique for solving some memory problem.

Many strategies or techniques have been devised and invented by researchers and educationists to make the work of memorization interesting and effective. Some of the popular devices are

- Acronyms or First Letters
- Association and Linking
- Attention
- Classification
- Flow Chart
- Key Words
- Meaning
- Organization
- Picture Making
- Rehearsal
- Mind Tools
- Pegging



The researcher is going to study the effect of Mnemonics on the acquisition of English Spellings on school children. The researcher has chosen the following Mnemonics especially for English spellings.

- Acronyms
- Picture making
- Chunking
- Pyramid
- Homophones
- Repetition of Rules
- Creativity

The researcher is a student of English language and hence decided to undertake study in the concerned area by narrowing down on one important aspect of English language – ENGLISH LANGUAGE SPELLINGS.

## **1.8 ENGLISH LANGUAGE AND ITS SIGNIFICANCE**

Modern English is dated from about 1550, when United Kingdom became a colonial power. English served as *lingua franca* of the colonies of the British Empire. In post colonial period, many newly created nations opted to continue with English to avoid political difficulties inherent in promoting indigenous local languages. As a result, English was adopted in North America, India, Africa, Australia and many such regions.

English is spoken as a first language by a majority of inhabitants of several nations. It is the third most common native language in the world. It is widely learnt as a second

language and is an official language of the European Union, many commonwealth countries and United Nations as well as many world organizations.

English is often referred to as a world language, the *lingua franca* of the modern era.

Modern English is the required international language of communications, Science, information technology, business aviation, seafaring, entertainment, radio and diplomacy. A working knowledge of English has become a requirement in various fields, occupations and professions.

One impact of the growth of English is the reduction of native linguistic diversity in many parts of the world.

In independent India, English continues to be one of the official languages of business. The University Grant Commission and Secondary Education Commission have also recommended the study of English due to its importance worldwide.

## **1.9 ENGLISH SPELLINGS**

### **1.9.1 Introduction to English Spellings**

The English spelling was first developed in the 7<sup>th</sup> century but during coming ages it was continuously altered.

In the fifth century Germanic invaders entered Britain through the east and south coasts. These invading tribes spoke languages which in Britain developed into what we now call “Old English”. Old English was very different from today’s English and in today’s times, we might have great difficulty in understanding it! Though, the most commonly used words in modern English have been derived from this Old English. Old English was spoken until 1100 A.D.

Duke of Normandy {France} invaded and conquered England in 1066. The Normans brought with them a kind of French which was to become the language of the royal court

and the ruling and the business classes. Hence, there was a period based on linguistic class difference as the lower classes spoke English and the upper classes spoke French. By the 14<sup>th</sup> Century English became dominant in Britain again but with the inclusion of many French words. This became the language of the middle ages of Britain which witnessed great poets like Chaucer, expressing prolifically. They too, are difficult, for the English learners to understand today.

Towards the end of Middle English era, a sudden and distinct change in pronunciation started with vowels being pronounced shorter and shorter. By the 16<sup>th</sup> century, the British had established contact with many different peoples around the world. In addition, the Renaissance of classical learning resulted in the introduction of many new words and phrases into the English language. During this time another revolution happened in the field of language and that was the invention of printing! This meant that a common language was now available to all in print. Printing made books cheaper and more and more people learned to read. Printing also brought standardization to English. Spelling and grammar became fixed and the dialect of London became standard as most publishing houses were in London.

Owing to the assimilation of words from many languages through history, modern English contains a very large vocabulary. This was due to the need created for new words for the various terms, phenomena, actions, things that were a result of the Industrial revolution. Another important factor was the fact that the British Empire covered a major surface area of the planet and during their rule in these various regions the English language adopted many foreign words from these parts of the world, in the process enriching itself profusely. The Oxford English dictionary lists over 2,50,000 distinct words made up of 26 letters (consonants and vowels) in the English language.

## 1.9.2 Spellings

*“It is true that English Spelling is a national misfortune to England and an international misfortune to the rest of the world”* -Max Muller

“Yet it cannot be denied that spelling ability in English is an important acquisition. It is regarded as one of the obvious indications of one’s education. “ (Bhatia and Bhatia, 2007, Page 333).

The spelling system or orthography of English is multilayered with elements of French, Latin and Greek spelling and to top it the native Germanic system. Orthography has not been able to keep pace with the complications which have arisen through sound changes. English spelling is not a reliable indicator of pronunciation and vice versa.

English spelling is based on sound letter correspondences, that is, it is basically phonemic. However, the system is not obviously consistent. Thus, sometimes letters relate to sounds, sometimes to linguistic units, sometimes to grammatical and semantic units.

Irregularity of English spellings with respect to letters and their pronunciations.

For example

TOO .... TWO,

SEAS .... CEASE

WRITE .... RIGHT (Letters are different but pronunciation is same)

GREAT... CHEAT

COME ... HOME

PUT ... BUT (Similar letters but different pronunciations)

PSYCHOLOGY, SOMBER, SUBTLE (Silent letters)

The ability to spell correctly shows that a person is an observant reader and a patient listener. Wide reading helps one to become good at spelling. Visual memory plays great role in learning spellings. We write the spelling when we are doubtful about it. Therefore the main appeal in teaching spellings should be through eyes. To some extent it depends upon finger muscular coordination.

### **1.9.3 English language spelling reform**

For many years, individuals have advocated spelling reforms for English. They seek to make English spellings more consistent and more phonetic so that they follow alphabetic principles and pronunciations.

American Spellings-

Due to unreasonable and unsystematic nature of English spellings, attempts have been made by American linguists to reform it. Thus, we see many simplified spellings. However, they are not recognized as correct in England

An example of the differences made by the American linguists over the British spellings is given below. There are many such words which are spelled differently by the Americans.

**Table 1.1**

**Table of British and American Spellings**

<b>British Spelling</b>	<b>American Spelling</b>
Behaviour	Behavior
Colour	Color
Centre	Center
Oestrogen	Estrogen

Analyse	Analyze
Fulfil	Fulfill
Travelling	Traveling
Dialogue	Dialog
Defence	Defense
Judgement	Judgment
Cheque	Check
Program	Program
Aluminium	Aluminum
Tyre	Tire
Sceptic	Skeptic

### **English Orthography**

Orthography is a study of letters and how they are used to express sounds and form words. A phonemic orthography is a system for writing a language in which the graphemes (written symbols) correspond to the phonemes (significant spoken sounds) of the language. Scholars and Students of English have often termed Orthography as the practice or study of correct spelling according to established usage. English spelling is based for the most part on that of the 15th century, but pronunciation has changed considerably since then, especially that of long vowels and diphthongs. This was the extensive change in the pronunciation of vowels, known as the ‘Great Vowel Shift’. Many languages of India written in Brahmic scripts, such as Hindi (apart from schwa and nasal vowels), Tamil and Marathi, but not Bengali and Gujarati, have very high degree of phonemic orthographies.

Numerous changes, such as music for musick(c. 1880)and fantasy for phantasy (c. 1920), have been accepted in English Language, but spelling has continued to be in part un-phonetic. With time, pronunciations change and spellings become out of date, as has happened to English and French. In order to maintain a phonemic orthography such a

system would need periodic updating, as has been attempted by various language regulators and proposed by other spelling reformers.

#### **1.9.4 Importance of correct spelling:**

At the two ends of the educational pole are -

(1) An otherwise well –educated and intelligent person who prides himself for poor spellings and remarks that genius never could spell, indicating thereby his lack of concern regarding practical details of language,

(2) the traditional schoolmaster who makes a fetish of “spelling bees” in which children are expected to spell correctly words that are long or tricky, and the meanings of which often are not known even to the “star “speller. It is evident that the schoolmaster thinks that spelling should be taught for its disciplinary value rather than for its practical use in writing. It is necessary to develop an attitude based on these to extremes.

The preciseness of meaning is characteristic of the written language. A person’s writing vocabulary should include all the words he will need when he attempts any form of written expressions of ideas. Though, the present trend in writing is towards simplicity of vocabulary the learner should be motivated to learn new words and to spell them correctly.

Learning to spell is an individual matter. Perception of the word and inter-association of its parts is the process involved in learning to spell. Visual imagery is preferred to auditory imagery in learning to spell correctly as many words in English language are not pronounced as they are spelled. Spelling a word aloud is a vocal experience and writing is the kinesthetic experience.

Some studies support the method of generalization where on a common element words are grouped and instead of using the rules of spelling as a starting point for teaching the spellings they are used indirectly, while there are some studies which support otherwise.

Questions have been raised concerning use of rules in spelling, defining words as their spelling is taught, number of practice periods and their duration, use of various modes to develop spelling skills. Writing correct spelling is an acquired skill.

Spelling rules prove effective if they are applied as needed and not as a teaching end.

### **1.9.5 Common Methods used for teaching spellings**

Pupils can keep individual word books having difficult words spelled correctly which cause them difficulty.

Word building

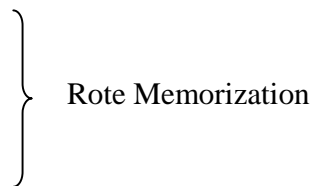
Memory games

Dictation Spelling bee

Oral Drill

Motor Drill

Visual Drill



Using Dictionary

### **1.9.6 Need and importance of the study of spellings**

Today, technological advancements have given us modes of communication as internet, SMS etc. The language has become “Simple” or slackened. Where Gr8 is written and read as Great. The software used for writing come with an inbuilt dictionary which promotes correct spellings as per the vocabulary fed in. The significance of spellings is never been questioned by technological advancements to this magnitude. Still, the



spellings have not lost the importance as the building blocks of the language are spellings.

As an English teacher, the researcher has experienced students to have poor knowledge of English spellings. Surprisingly, even adolescents, the young generation and adults also are poor spellers. This is a result of teaching learning process during the school days.

Teachers use “Sentence” method and “Look and Say” method for reading. Due to these methods, attention of the student is drawn to the general patterns of shape of a word or sentence as a whole and not the component letters.

Over Emphasis is given on oral work in the early stages of learning English. Thus, depreciating the importance of written work which is very essential for correct spellings.

Teachers employ no suitable methods in teaching and improving this necessary ability. A majority of teachers use drill method which is done collectively, ignoring individual needs and difficulties.

A teacher needs to teach ways to the pupils about memorizing the spellings. Mnemonics is an innovative way of helping students to memorize things effectively. Our curriculum needs this kind of a change to upgrade itself.

Memorization has had something of a bad name, mostly because of bad drills. Contemporary researches and innovative teachers have created methods that not only improve our efficiency in memorization, and also make the process delightful. Another outcome of these various techniques is the improvement of imaging capacity and also other creative forms of learning required for information based learning.

Our capacity for remembering particular material is strengthened and we become more effective memorizers.

## **1.10 RESEARCH QUESTIONS**

How can phonetically illogical spellings be memorized effectively?

How effectively can the memory techniques be taught to the students?

What are the various memory techniques?

How will memory model work with learning of spellings?

## **1.11 STATEMENT OF PROBLEM**

To study the effectiveness of Memory Techniques and memory based model in memorizing of spellings for Std VI students.

## **1.12 DEFINITIONS**

### **1.12.1 Conceptual Definitions**

**Effectiveness:** A measure of the extent to which a specific intervention, procedure, regimen or service, when deployed in the field in routine circumstances, does what it is intended to do for a specified population.

**Mnemonics:**

Methods for aiding the memory

Any of several techniques or devices used to help remember or memorize names or concepts

**Memory:** The ability of the Brain to store, retain and subsequently recall information.

**Memorization:** Actively organizing and working with concepts or terminology to improve incorporating these concepts into memory.

### **1.12.2 Operational Definitions**

**Effectiveness:** The strength of the learned response gathered after the implementation of the program based on Mnemonics and Memory Model.

**Mnemonics:** Certain Memory Techniques like Pyramid, Chunking, Acronym, Picture Making which aid in remembering English spellings

**Memory model:** A model of learning based on the memorization abilities of students to help them to memorize given spellings.

**Memorization:** The process of storing and retrieving spellings.

**Spellings:** Meaningful sequence of alphabetical letters.

**Standard VI students:** Students who have passed their Std V examination and are studying in Std VI of SSC Board English Medium School

### **1.13 RESEARCH OBJECTIVES**

1. To study the difference between spelling ability of boys and girls through their pre-test scores.

2. To prepare a program on Mnemonics and Memory based Model for learning English spellings.
3. To study the effectiveness of the memory model on the memorization skills of the students through post test.
4. To study the effect of the program on the spelling ability of boys and girls through their post test scores.

## **1.14 RESEARCH HYPOTHESES**

1. There will be a significant difference between scores of boys and girls before the implementation of the program.
2. Program based on Memory techniques and Memory model is effective in memorizing English spellings.
3. There will be a significant difference between scores of boys and girls after the implementation of the program.

### **1.14.1 Null Hypotheses**

1. There will be no significant difference between scores of boys and girls before the implementation of the program.
2. Program based on Memory techniques and Memory model does not have significant difference in learning English spellings.
3. There will be no significant difference between scores of boys and girls after the implementation of the program.

## **1.15 VARIABLES**

Controlled variables: Age and std of the students.

Independent variables: Memory techniques and Memory based model.

Dependent variables: Post test scores of the students.

## **1.16 ASSUMPTIONS**

- Students have to learn new spellings in schools.
- Students make mistakes in writing correct spellings.
- Memory techniques can effectively help in recollection of spellings.
- Memory model can enhance memorization skills in students.

## **1.17 SCOPE**

- This research study is applicable to std VI students of Maharashtra state board schools.
- This research focuses only on the various English spellings that the students learn till std VI.

## **1.18 LIMITATIONS**

Some limitations of this study are

- It is difficult to provide attention to students individually.
- Various factors like age, maturity, attention, interest, fatigue on the part of the students cannot be controlled.

## **1.19 DE LIMITATIONS**

- The present research study is limited to students of English medium schools in Pune city.
- The present research study is limited to students of STD VI of English medium schools.
- The present study has focused on memorization of spellings.
- Only memory techniques and memory model have been used.

## **1.20 SIGNIFICANCE OF THE RESEARCH**

- As we are aware, there are more than 200 thousand spellings in English language. Each year, as the student grows new spellings will be introduced in the curriculum. Thus, to memorize spellings in rote way would be more and more difficult as these spellings will vary both in complexity and quantity.

- It will be beneficial for the students if some techniques to learn and memorize the spellings are taught to them. The present study is an attempt not only to help the students understand the structure of every spelling but also to use their creativity to analyze them so that easy learning is possible.
- The significance of this study would be when the students are able to use the various Mnemonics for a variety of content and subjects for effective learning and memorization.

## **CHAPTER 2**

### **REVIEW OF RELATED LITERATURE**

### **AND RESEARCH**



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### CHAPTER 2 REVIEW OF RELATED LITERATURE AND RESEARCH

2.1	INTRODUCTION
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## 2.1 INTRODUCTION

One of the most important aspects of research is a review of all the previous researches done in that field of study. A detailed study of all the previous work done marks the various boundaries of knowledge acquired and also inspires the researcher to follow any loose lead so that further investigation can be done to make the respective body of study more enriched. There could be more than one way to research in a particular subject. Some can choose a path to explore and hence, explore as the subject presents itself during the journey. This is how new lands like America were explored. Another way could be to predict about the existence of a specific content by extrapolation based on the knowledge available. eg completing the missing links, as in the case of the Periodic table or the existence of planets in the solar system.

The review of literature is essential due to the following reasons :

- To review research done previously in the particular area of interest gives the researcher an indication of the direction in planning their research work.
- To get up to date information about the latest knowledge available to the research problem.
- To avoid replication of the study of findings to take an advantage from similar or related researches.
- It provides a source of study through analogies provided by other related literature and researches.

For the present study, various national and international books, journals, compiled abstracts, research papers, doctoral theses, dissertations and books in the printed format proved useful to decide the direction to focus on for the particular study. In modern times, the internet has proved to be a rich source of information and knowledge which

can be made easily available at a click of a button. Researcher had an access to various study material from all parts of the globe.

## **2.2 REVIEW OF RELATED LITERATURE**

### 1) Models of Teaching (VIII edition)

Bruce Joyce, Marsha Weil, Emily Calhoun (2009); Published by Jay Print Pack Pvt Ltd.,  
New Delhi; (Price Rs 350/-)

ISBN 978-81-203-3546-2

This book gives a deep insight into various models of teaching. Various models ; like Social family of models, Personal family of models, Behavioral systems family of models and Information processing family of models are described. The researcher was particularly interested in the Information processing family of models as the Memory model belongs to this family of models.

The book discusses the concept of information being processed, decisions being made, intellectual capacities being developed and creativity being expressed and enhanced. This knowledge helps us to design courses, organize information, build and test concepts, memorize existing information and at the same time create new ideas. The underlying objective is always to help students become creative learners. Thus, this book provides simple but smart tools for learning , which will help the students in their growing up years and accompany them in their adult lives.

The researcher decided to study the memory model in detail which has the potential of not only enriching the memorization process but also achieve higher orders of thinking and creativity. This model explains the knowhow of remembering any data or information not through mere rote learning but by understanding, conceptualizing and establishing connections. The book gives systematic orientation of the model by

describing goal and assumptions, the Mnemonics part, other memory assisted systems, concepts about memory, the syntax of the model, the social system, principles of reaction and support system which the model comprises of. In the later half, it also elucidates application and instructional and nurturing effects that the model will deliver. A purposeful and detailed study of this book reveals that the book is very important to acquire information regarding any model of teaching. The researcher has used this book as the basis for studying, implementing and testing the Memory model.

2) Leap ---- Memory, Awakening the Potential.

Published by Leadstart Publishing Pvt Ltd.

ISBN 978-93-80154-63-3

This short book on Memory deals with the various aspects of Memory in a very crisp but effective manner. The book has short chapters which deal with everyday examples of activities performed by us which are related to Memory. There are topics which explain aspects activities and foods that enhance Memory. The book also talks about the hazards of Memory loss and the boon which presents itself in the form of researches that are done to study ways to restore and enrich Memory.

This is a complete guide to Memory which made the researcher curious to study more and try to find out that aspect of Memory which could be associated with the Memorization of English spellings.

3) Dynamic Memory Methods

Biswaroop Roy Chowdhury

Publication: Fusion Books (2011)

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The catch line of this book is “Scientific Methods to double your Memory in 21 days”. The author is a Guinness World record holder for Memorization. The author gives an introduction to the meaning of Memory and its importance. He also talks about an effective way to discipline our day to day lives with respect to our activities and food habits which will enhance and enrich our Memories. A major part of the book comprises of a variety of Mnemonics that the author gives to help the readers memorize information dealing with numbers, data, formulae, foreign languages, spellings etc.

The author has given a couple of Mnemonics which can help the readers memorize English spellings. This made the researcher look for many different types of Mnemonics and methodologies which could prove effective in memorization of spellings.

### **2.3 A GENERAL VIEW OF RESEARCH ON SPELLINGS**

Education was still evolving and by the last quarter of the twentieth century educators started to gain interest in spellings. The researcher found many researches which focused on rote learning as an obvious method of memorization, researches based on the fact that some of the English spellings are hard to remember. They have studied and used methods like writing, repeating which can be practiced to be perfected. Although, this is an ancient and effective method for ages, it has been effective in retaining information in a rote way. A prevalent belief was that it was obvious to memorize only through rote learning. Though it required lots of time and energy and was not a creative process. And because it was such a mechanical process it could be easily forgotten. But there are a number of creative mnemonic techniques which can make the work of memorization very simple and effective. These memory techniques, once learnt, could also be used to categorize, summarize and remember other data like numbers, equations, periodic table, rules, formulae, names, any information from our everyday life which needs to be remembered.

The researcher found that the researches about the art of mastering spellings or remembering them have been studied and thought of from different points of views. The researches found could be broadly classified as follows

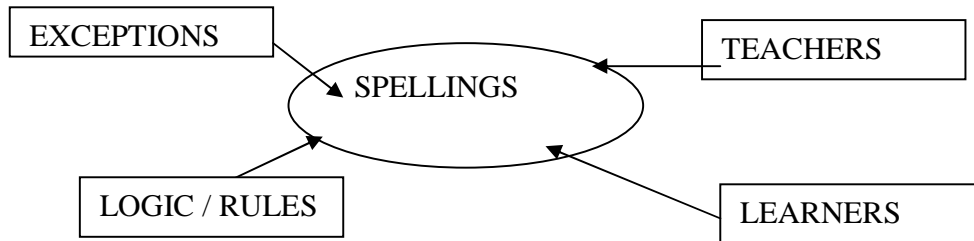


Fig 2.1 Researches classification

The English spellings are formed either based on a rule or some exceptions. These exceptions are found to be the focus of most of the researches. These exceptions are normally tackled through rote learning or repetition. The researcher also found some study and experiments performed on the other two important variables in the learning of the spellings. They are the teacher and the learner. Methods and techniques to assist the teachers and special learning methods for special learners.

The following categories take overview of the related research studied by the researcher.

## **2.4 MEMORY AND MNEMONICS (MEMORY TECHNIQUES)**

Learning to spell is a complex process. Past spelling researches focused on rote memorization, learning words one at a time. But current trends say that learning spellings is a developmental process. English spellings are unpredictable and thus cannot be

learned through a single method like rote memorization only. Students often take refuge of rote learning which leads to accumulation of information in short term memory. Mnemonics is a logical extension that has a potential to supersede the short term memory limitations.

In a research, “Development of Memory and Categorization skills in schooled and unschooled children.” (Padhee, B., 1985) it was found that age and schooling plays an effective role in student’s performance to recall and in rote learning. This research also affirms that verbal instructions improve memory performance in students. This research also compares the memory performance of schooled and unschooled children.

Effects of socio-economic status and age on working memory and spelling competency of children (Mohanti, B ; Dash, A 1997))

In a research design course, investigations findings were completed in the paper ‘Mnemonics in World History Classes’ (Students at Georgia college and state university in Fall quarters of 1994-95 and 97).

General issues concerning basic mechanisms in human memory, particularly working memory were found to be studied. Working memory structures sub serves most complex cognitive abilities, including language production and comprehension, reasoning and problem solving. (Brian, McElree,)

“The Aesthetic Core of Classroom Mnemonics” was based on adaptation for practical use of various types of memory triggers and cues drawn from Renaissance Humanist Mnemo techniques, students can develop and cultivate points of connection to the text or material studied. By virtue of the mnemonically based exercises, they are assigned (which, as a portfolio, constitutes a record of their cumulative progress in their journey towards knowledge), students discover how best to identify a master work’s themes, stylistic features and ethical co-ordinates. They become “artfully Responsible” for their learning and can apply what they are learning to all other areas of their education and it is hoped, their lives as well. (Bill Engel’ Massachussets, Leonard Bernstein.)

In Process Mnemonics : Principles, Prospects and Problems (Masachika Nakane,) the researcher has developed and used extensive mnemonic programs based on stories , rhymes and songs for learning Mathematics, Spellings, Grammar, English language and Science.

Other research work was found in the form of “Using Visual Mnemonics to help students remember the spellings of irregular plural nouns.” (Nirmala Ramkrishnan, 2007).

In a Journal Article: Using Mnemonics in Vocabulary Tests (Daniel Idoine-Shirai), the Grammar Translation style of teaching English common in high schools in Japan and other Asian countries were studied. It requires students to learn a large vocabulary for regular class tests and in preparation for university entrance examinations. This paper introduces the use of mnemonics as a possible method to improve high school vocabulary test scores and finishes with some recommendations for conducting tests in higher education.

Another Journal Article : The Mnemonic Value of Orthography for Vocabulary Learning (Rosenthal, Julie; Ehri, Linnea C. Feb 2008) In 2 experiments, the authors examined whether spellings improve students' memory for pronunciations and meanings of new vocabulary words. Results of analyses of variance showed that spellings enhanced memory for pronunciations and meanings compared to no spellings. Results indicate that orthographic knowledge benefited vocabulary learning and diminished dependence on phonological memory. Instructional implications are that teachers should include written words as part of vocabulary instruction and that students should pronounce spellings as well as determine meanings when they encounter new vocabulary words.

A Journal Article : Spelling transparency and its impact on short term memory: Evidence from Persian and English. (Baluch, Bahman and Choudhury, Sajida ,2010)) discusses about Spelling transparency and its impact on short term memory.

Article on Spelling mechanics which leads to improved reading “How spelling supports reading” (Louisa Moats ,2006).



Thus a reading of all these revealed that -

- Majority of researches focused on the rote memorization methods .
- Mnemonics were used but were limited to only a single technique .
- There was work done on the study of pronunciation and meaning of the words.

**Table no 2.1**

**Related Researches on Memory and Mnemonics**

No	Name	Author	Year	Type
1	Development of Memory and Categorization skills in schooled and unschooled children.	Padhee, B., Ph.D. Psychology, Utkal,U.	1985	Research
2	‘ Mnemonics in World History Classes’	Another research done by students at Georgia college and state university studies	1994-95 & 97	Paper
3	General issues concerning basic mechanisms in human memory, particularly working memory.	Brian, McElree, Asst. Professor of Psychology		Research
4	“ Process Mnemonics : Principles, Prospects and Problems”	Masachika Nakane ,		Mnemonic program

5	“Using Visual Mnemonics to help students remember the spellings of irregular plural nouns.”	Nirmala Ramkrishnan A/P N.R.K.Pillai KSPK TESL	2007	Journal article
6	Using Mnemonics in Vocabulary Tests	Daniel Idoine-Shirai	2007	Journal Article
7	The Mnemonic Value of Orthography for Vocabulary Learning	Rosenthal, Julie; Ehri, Linnea C.	Feb-08	Journal Article
8	Spelling transparency and its impact on short term memory: Evidence from Persian and English.	Baluch, Bahman and Choudhury, Sajida	2010	Journal Article
9	How spelling supports reading	Louisa Moats	2006	Article
10	Effects of socio-economic status and age on working memory and spelling competency of children	Mohanti, B ; Dash, A	1997	Thesis

## 2.5 MASTERING SPELLINGS

The researcher found that there is one category of the researches where the researchers have tried to know what the spellings are made up of or how they are formed. A kind of

KYS (Know your Spellings!!). There is a certain discomfort about spellings in all the teaching media. Hence, some researchers have tried to further categorize the exceptions.

A Journal Article “Mastering Inflectional Suffixes: A Longitudinal Study of Beginning Writers' Spellings” (Turnbull, Kathryn; Deacon, S. Helene; Bird, Elizabeth Kay-Raining June 2011) indicated that the order in which children learned to spell inflectional suffixes correctly is similar to the order in which they learn to use these spellings in oral language, before school age. Discrepancies between the order of mastery for inflectional suffixes in written and oral language are discussed in terms of English spelling conventions, which introduce variables into the spelling of inflected words that are not present in oral language.

In another article 5 guidelines for learning spelling were discussed which emphasizes on understanding the process of spelling formation. 6 ways for practicing spelling were also mentioned which basically focused on repetition and the use of mnemonics.(Susan Jones, 2002)

Another Journal Paper explains Strategy development and learning how to spell new words. (Kwong, Trudy E; Varnhagen, Connei K.)

After three year project (1995 – 98) on children’s spelling development a book “Understanding Spelling” was published giving a full account of the project and its implications for schools.(Olivia O’Sullivan and Anne Thomas ,2000.)

Immediate student self correction is generally the most effective was the inference of one of the studies (T. Horn 1946; Louis ,1950; Beseler, 1953; Tyson, 1953;Thomas, 1954; Schoephoerster, 1962; E. Horn,1963; Christine and Hollingsworth,1966).

A Marathi dissertation इयत्ता सातवीच्या इंग्रजी विषयातील शब्दसंपत्ती समुद्धीकरिता उपक्रम विकसन आणि व त्याच्या परिणामकारकतेचा अभ्यास (by आव्हाड शैलजा (M.Ed.)diss.(2010-2011)) describes about a program formulated and its effectiveness for class VII students.

Another M.Ed. dissertation: Development of training program for English vocabulary and a study of its effectiveness for VII Marathi medium students (Madhuri Bhosale ,2005-6)

This work showed that it is more difficult for the students who are taught in a medium other than English to learn the spellings.

Related researches were found done for 9th std students

(पूनम दत्तात्रय तांबे (२००७-८)) इयत्ता नववीच्या विद्यार्थ्यांच्या इंग्रजी लेखनातील स्पेलिंगच्या चुका कमी करण्यासाठी उपचारात्मक अध्यापन कार्यक्रम निर्मिती व त्याच्या परिणामकारकतेचा अभ्यास

And (नलिशा पवार (२००९-१०)) इयत्ता सातवीच्या इंग्रजी लेखनातील स्पेलिंगच्या चुका कमी करण्यासाठी उपचारात्मक अध्यापन निर्मिती व त्याच्या परिणामकारकतेचा अभ्यास

Promotion of spellings and peer tutoring (Gyanani, T.C. ,1996) was discussed in one of the researches.

These studies showed that-

- Spellings should be first understood, regarding their formation.
- Strategies like peer tutoring , self correction give an insight to the student to retain correct spellings.

**Table no 2.2**

**Related Researches on Mastering Spellings**

Abs No	Name	Author	Year	Type
1	Mastering Inflectional Suffixes: A Longitudinal Study of Beginning Writers' Spellings	Turnbull, Kathryn; Deacon, S. Helene; Bird, Elizabeth Kay-Raining	June 2011	Journal Article
2	5 guidelines for learning spelling and 6 ways for practicing spelling	Susan Jones	2002	Article
3	Strategy development and learning to spell new words	Kwong, Trudy E; Varnhagen, Connei K.		Journal Paper :
4	Understanding Spelling	Olivia O'Sullivan and Anne Thomas	2000	Book on a 3yr project
5	Immediate student self correction is generally the most effective	T. Horn 1946; Louis ,1950; Beseler, 1953; Tyson, 1953;Thomas, 1954; Schoephoerster, 1962; E. Horn,1963; Christine andHollingsworth,1966		Research

6	इयत्ता सातवीच्या इंग्रजी विषयातील शब्दसंपत्ती समृद्धीकरिता उपक्रम विकसन आणि व त्याच्या परिणामकारकतेचा अभ्यास	आव्हाड शैलजा	2010- 2011	(M.Ed.)dis s.
7	Development of training program for English vocabulary and a study of its effectiveness for VII Marathi medium students.	Madhuri Bhosale	2005- 6	M.Ed. dissertation :
8	इयत्ता नववीच्या विद्यार्थ्यांच्या इंग्रजी लेखनातील स्पेलिंगच्या चुका कमी करण्यासाठी उपचारात्मक अध्यापन कार्यक्रम निर्मिती व त्याच्या परिणामकारकतेचा अभ्यास	पूनम दत्तात्रय तांबे	२००७- ८	M.Ed. dissertation :
9	इयत्ता सातवीच्या इंग्रजी लेखनातील स्पेलिंगच्या चुका कमी करण्यासाठी उपचारात्मक अध्यापन	नलिशा पवार	२००९- १०	M.Ed. dissertation :

	निर्मिती व त्याच्या परिणामकारकतेचा अभ्यास			
10	Promotion of spellings and peer tutoring	Gyanani, T.C.	1996	Thesis

## 2.6 STRATEGIES USED TO SPELL

This category of related researches is more from the teacher's point of view. Describing methods that can help the teachers to teach the students to spell. Most of the strategies suggested further subcategorise exceptional spellings. Repetition, excessive reading and writing are considered to be effective in memorization. Most of the strategies are about making the "traditional way of memorising" more effective.

Improving student spelling skills through the use of effective teaching strategies (Chase-Lockwood, Rebekah; Masino, Misty)

The method used is a classroom action research in which the researcher taught English word spelling through Word Olympics Game to improve their word spelling ability (Eni Rosnija, Bambang Wijaya)

An article Word study: A new approach to teaching spelling (Diane Henry Leipzig ,2000) talks of " Word study as an alternative to traditional spelling instruction which is based on learning word patterns.

An M.Ed Dissertation about The Effects of Word Sorting on Spelling Retention (Jennifer L. Cook April, 2003) was found.

In an Article: W or d / mapping: How Understanding Spellings Improves Spelling Power (Murray, Bruce A.; Steinen, Nancy ,May 2011) it is described that spelling is a subject

that often opens a chasm between "haves" and "have-nots". Teachers noticed that students with learning disabilities were drawing on their intelligence to use rote strategies to learn words. However, memorization strategies are inefficient and unreliable for retaining spellings permanently. To circumvent a memorization strategy, teachers developed techniques that required phonological analysis before revealing standard spellings to help students with learning disabilities understand and remember spellings.

We know that there are many mnemonics available for storing and retrieving information. Eg VIBGYOR used to remember the placing of colours in Rainbow, Key words, linking. After referring to all these researches, Memory model with mnemonics were not found to be used. The researcher decided to proceed with the predictive research method using memory model with mnemonics.

A "whole person" approach to spelling instruction (Olrich, Frank ,1983) was described through the use of visualization, relaxation, music, suggestion and mnemonics for spelling acquisition.

All these researches revealed-

- Study of the formation of spellings makes it easier to memorize them.
- Usual activities if used creatively can accelerate the process of memorization.



**Table No. 2.3****Related Researches on Strategies Used to Spell**

Abs No	Name	Author	Year	Type
Strategies Used to spell				
1	Improving students' English word spelling ability by using word Olympic game	Eni Rosnija, Bambang Wijaya		Research
2	Word study: A new approach to teaching spelling	Diane Henry Leipzig	2000	Article
3	The Effects of Word Sorting on Spelling Retention	Jennifer L. Cook	April, 2003	M.Ed Dissertation:
4	W or d / mapping: How Understanding Spellings Improves Spelling Power	Murray, Bruce A.; Steinen, Nancy	May 2011	Article:
5	Improving student spelling skills through the use of effective teaching strategies	Chase-Lockwood, Rebekah; Masino, Misty		Thesis
6	A "Whole person" Spelling class	Olrich, Frank	1983	Article

## 2.7 CLASSROOM INSTRUCTION AND SPELLINGS

This category also suggests aids and improvements in teaching methods for teachers to help them teach spellings effectively.. Some researches talk about how rote learning and phonemic approach can be improved. (Griffith & Olson, 1992; Haskell, Foorman & Swank, 1992; Helfgott, 1976; Wylie & Durrell, 1970; Torgesen, Wagner & Rashotte, 1994; Yopp, 1992)

In the journal Article: Classroom Spelling Instruction: History, Research, and Practice (Bob Schlagal) discusses three major types of spelling instruction: the incidental, the developmental word study, and the basal speller approaches.

Effects of immediate and delayed feedback on the improvement of spellings in English (Thakore, M. (1995)) was also studied.

An Article: Word study instruction in the K-2 Classroom (Cheri Williams, Colleen Phillips-Birdsong, Krissy Hufnagel and Diane Hungler, et al , 2009) states Small group word study instruction and hands on word work activities, teachers can keep students motivated and engaged in learning about the English spelling system.

Another Article talks about Why Phonological awareness is important for reading and spelling (Louisa Moats and Carol Tolman (2008))

A research concludes Writing words several times does NOT help ensure spelling retention. (Abbot, 1909; E. Horn, 1967; Green, 1968; Petty, 1968)

Whereas a research states In order to learn to spell, it is not necessary for children to learn the meaning of the majority of their spelling words (Petty, 1968)

Spelling lists derived from the various curricular areas are of little value in increasing spelling ability (Fitzgerald, 1951, 1953)

Research on teaching children to spell (Flint Simonsen, Lee Gutner and Nancy Marchand-Martella, Ph.D.) describes practises for teaching students to be better spellers

Intentional spelling: Seven steps to eliminate guessing (Newlands, Michelle (April 2011))  
The seven steps provide an approach to spelling instruction that encourages word study based on words students experience in their daily writing activities

In a Journal Article: Spelling English language arts concept (Mazzio, Frank ,1983) gives effective instructional strategies to help students improve their spelling abilities .The integrated spelling curriculum (Edeger, Marlow , 1994) says that Spelling needs to be stressed as the writing need evolves.

The study of these articles discusses -

- Strategies like self corrected tests, using typewriters, ‘Imagetics’ machine , games and computers make spelling memorization effective and interesting.
- Approaches like the Phonemic, Whole word and Morphemic .
- Activities like morning messages, use of dictionaries, word banks etc can enhance spelling acquisition.

## Table No. 2.4

### Related Researches on Classroom Instructions and Spellings

Abs	Name	Author	Year	Type
Classroom Instructions and Spellings				
1	Classroom Spelling Instruction: History, Research, and Practice	Bob Schlagal		Journal Article

2	Effects of immediate and delayed feedback on the improvement of spellings in English	Thakore, M.	1995	Thesis
3	Word study instruction in the K-2 Classroom	Cheri Williams, Colleen Phillips-Birdsong, Krissy Hufnagel and Diane Hungler, et al	2009	Article
4	Why Phonological awareness is important for reading and spelling	Louisa Moats and Carol Tolman	2008	Article
5	Writing words several times does NOT help ensure spelling retention	Abbot, 1909; E. Horn, 1967; Green, 1968; Petty, 1968		Research
6	In order to learn to spell, it is not necessary for children to learn the meaning of the majority of their spelling words	Petty,	1968	Research
7	Spelling lists derived from the various curricular areas are of little value in increasing spelling ability	Fitzgerald,	1951-1953	Research

8	Phonemic awareness training and phonological/orthographic training is important for developing reading and spelling skills	Griffith & Olson, 1992; Haskell, Foorman & Swank, 1992; Helfgott, 1976; Wylie & Durrell, 1970; Torgesen, Wagner & Rashotte, 1994; Yopp, 1992		Research
9	Research on teaching children to spell	Flint Simonsen, Lee Gutner and Nancy Marchand-Martella, Ph.D.		Research Summery
10	Intentional spelling: Seven steps to eliminate guessing	Newlands, Michelle	April 2011	Article
11	Spelling English language arts concept	Mazzio, Frank	1983	Journal Article:
12	The integrated spelling curriculum	Edeger, Marlow	1994	Opinion paper

## **2.8 MEETING THE NEEDS OF DIVERSE LEARNERS**

In the teaching learning scenario any inability in rote memorization or learning is considered as disability on the students' part. Here, some researches are found to be exploring possibilities out of the "practicing" premise. Some of the mnemonics have been mentioned in these researches.

The effect of cognitive imagery training on spelling performance with students with spelling skills deficits (Webber, Laura A., 2009) explains that Learning to spell (LeTSpell) is a strategy developed by combining a visual imagery technique and a modified model training. The purpose of the study was to measure the impact of LeTSpell on spelling performance of six students with specific learning disabilities.

Comparing Whole-Word and Morphograph Instruction During Computer-Assisted Peer Tutoring on Students' Acquisition and Generalization of Vocabulary (Charles L. Wood,1 April L. Mustian,1 and Nancy L. Cooke1, 2010) was a study of Students with disabilities.

In the an Article : Spelling and dyslexia (International Dyslexia Association ,2008) and

Another Article Spelling and students with learning disabilities (Louise Spear-Swerling ,2004) it was found that for students with learning disabilities , strategies have to be created specifically for every child to suite him and then remembering spellings is not a problem for them .Mnemonics prove very effective here.

**Table no 2.5**

**Related Researches on Meeting the needs of Diverse learners**

Abs No	Name	Author	Year	Type
Meeting the needs of diverse learners				
1	The effect of cognitive imagery training on spelling performance with students with spelling skills deficits	Webber, Laura A.	2009	Thesis
2	Comparing Whole-Word and Morphograph Instruction During Computer-Assisted Peer Tutoring on Students' Acquisition and Generalization of Vocabulary	Charles L. Wood,1 April L. Mustian,1 and Nancy L. Cooke1	2010	Online Publication
3	Spelling and dyslexia	International Dyslexia Association	2008	Article
4	Spelling and students with learning disabilities	Louise Spear- Swerling	2004	Article

## 2.9 STUDY OF SPELLINGS

This is the category where history of spellings is discussed in the article: Historical layer of English ( Louisa Moats and Carol Tolman ,2008) , and working vocabulary is discussed in Basic spelling vocabulary list (Steven Graham, Karen R. Harris and Connie Loynachan ,2008)

Articles like Orthographic awareness of highly successful spellers (Logan, John W. And hers,1987) find out how the most prolific spellers effectively do it!

Some articles also try to find the extremes of the spellings such as “English gets a bad rap!” (Louisa Moats and Carol Tolman ,2008) and “Spelling: Logical learnable and critical” (Shane Templeton (2002)) where the writers explain the discrepancies in the spelling system and at the same time try to find logic in the way these spellings were created.

Invented spellings (Charles Read, 1975), refers to young children’s attempts to use their best judgement about spellings. It believes that learning to spell is not a matter of memorizing words, but a developmental process that culminates in a much greater understanding of English Spelling. The various stages of spelling development in the invented spelling learning process are:

- Pre communicative stage
- Semi phonetic stage
- Transitional stage
- Correct stage.

Researches done on this type of spelling acquisition have the following findings:



Young children using invented spelling employ a considerable greater variety of words in their writing than those encouraged to use only the words they can spell correctly.

Children using invented spellings develop word recognition and phonic skills sooner.

**Table No. 2.6**

**Related Research on Study of Spellings**

Abs No	Name	Author	Year	Type
	Study of spellings			
1	Orthographic awareness of highly successful spellers	Logan, John W. And others	1987	Article:
2	Historical layer of English	Louisa Moats and Carol Tolman	2008	Article:
3	English gets a bad rap!	Louisa Moats and Carol Tolman	2008	Article:
4	Basic spelling vocabulary list	Steven Graham, Karen R. Harris and Connie	2008	Article:
5	Spelling: Logical learnable and critical	Shane Templeton	2002	Article:
6	Invented Spellings	Charles Read	1975	Research

## 2.10 CONCLUSION

A detailed study and keen reading of all the above listed doctoral researches, M.Ed dissertations , Books, research reports, Journal articles etc. , made the researcher conclude, that, in spite of all the various approaches used by researches over the years, the primary criteria for memorization was still the rote learning method through repetition. The other important findings were:

1. English spellings have created dissatisfaction due to the unsystematic ways of their formations.
2. A scrutinized study of the rules of English spellings will eventually lead us to understand the pattern of the formation of the spellings.
3. The various methods to study spellings are rules, word sorting, word mapping and invented spellings.
4. A lot of researches have been done on the rote learning of spellings.
5. Another popular method used for the memorization of spellings is Repetition.
6. Visual mnemonics are effective in the memorization of spellings.
7. Mnemonics have been used in the memorization of spellings.
8. The different approaches to teach the students to memorize spellings are Phonemic, Whole word and Morphemic.
9. Other activities like self correction, peer tutoring, suggestions, music, use of the dictionary, computers, etc prove useful in the memorization of spellings.

The researcher was unable to find any researches which were done using the Memory Model for the acquisition of spellings. The researcher decided to concentrate the studies on using the Memory model to teach the students to memorize spellings.

A study of the different researches revealed that researches had been done using some specific approach or teaching aid or activity or mnemonic. The mnemonics used in these researches were usually limited to only one or two. This instigated the researcher to use five different mnemonics along with the spelling rules to be used through the Memory model to teach the students to memorize spellings.

## **CHAPTER 3**

### **RESEARCH METHODOLOGY**

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### CHAPTER 3 RESEARCH METHODOLOGY

<u>3.1</u>	INTRODUCTION
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<u>3.8</u>	RESEARCH PROCESS

### **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.” (Saravanel, 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.

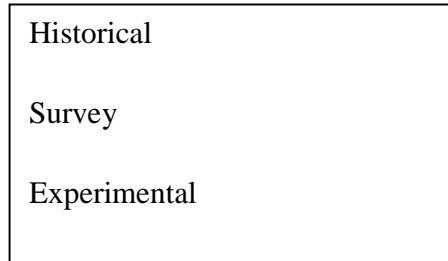
Thus, the researcher confirmed that it is necessary to study the effectiveness of several memory techniques when put together in the memory based model to memorize spellings. The design of the program was finalized based on the topic of research.

### **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



**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.



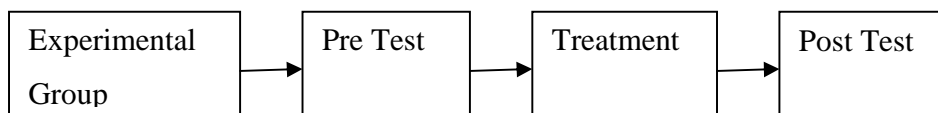
### 3.3 EXPERIMENTAL DESIGN

Experimental design method is a blue print 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



DESIGN OF THE STUDY:-

PRETEST	INDEPENDENT VARIABLE	POST-TEST
Y 1	X	Y 2

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 rigor 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

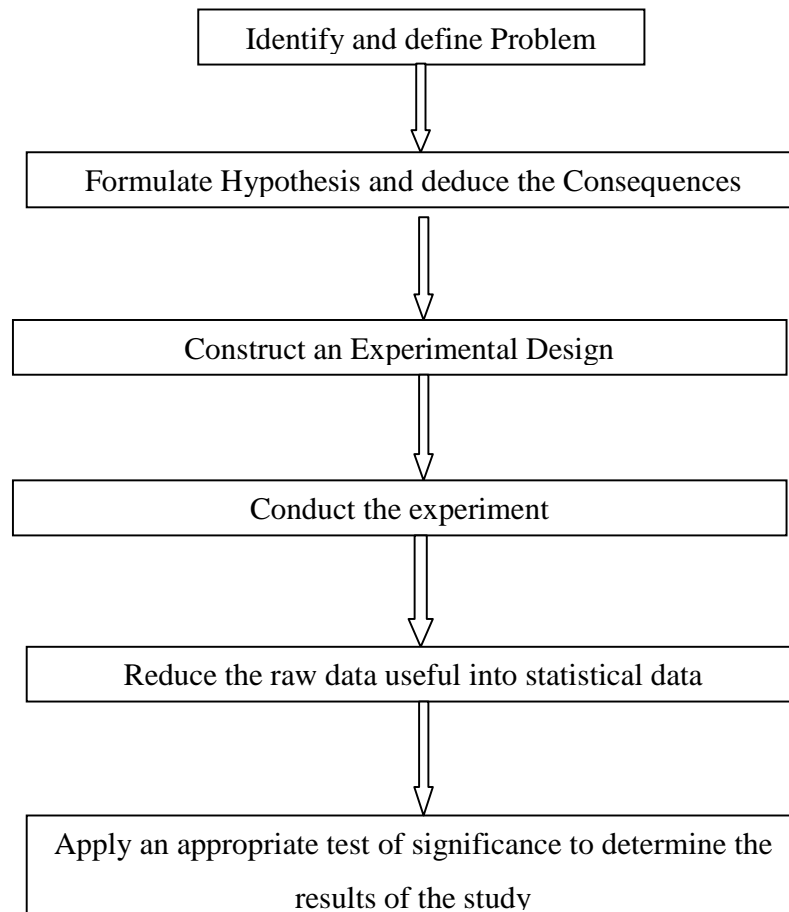


Fig 3.1 Steps involved in experimental research

### 3.8 RESEARCH PROCESS

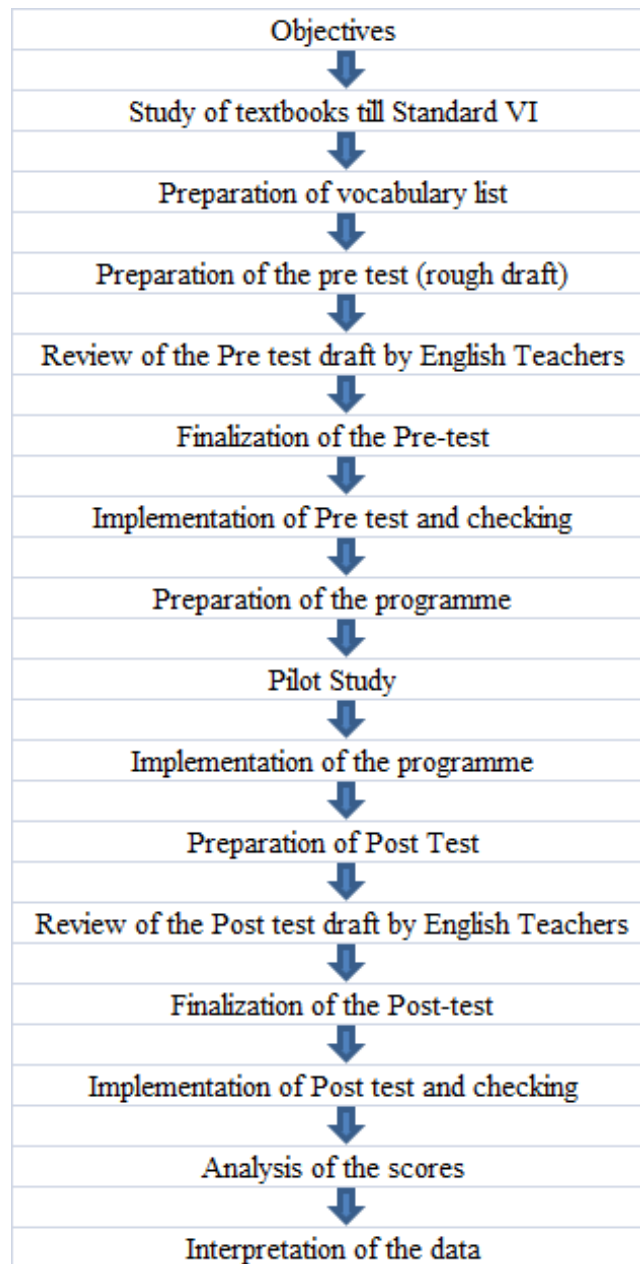


Fig 3.2 Flow chart



### **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 its 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, Mukangan 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**

Sr. No	Periods allotted (30 mins)	Topic taught	Teaching aids used
1	2	How memory is formed?	Diagrams, Charts
2	2	Pronunciation	Diagrams, Charts, Games
3	3	Acronyms	Charts, Work sheets, Games
4	3	Picture making	Charts, Games



5	3	Chunking	Charts, Work sheets, Games
6	3	Pyramid	Charts, Work sheets, Games
7	2	Homophones	Charts, Games
8	8	Rules	Charts, Games
9	4	My rules	Games
10	2	How to improve memory	Charts, Food items , Pictures, Games

### **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:

BEAUTIFUL

B
BE
BEA
BEAU
BEAUT
BEAUTI
BEAUTIF
BEAUTIFU
BEAUTIFUL

APPRECIATE

A
AP
APP
APPR
APPRE
APPREC
APPRECI
APPRECI
APPRECIAT
APPRECIATE

### **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 develop~~e~~ can be written as develop~~e~~ (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 class room.

- 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.

## **CHAPTER 4**

### **DATA COLLECTION, DATA ANALYSIS & DATA INTERPRETATION**

## CONTENTS

### CHAPTER 4 DATA COLLECTION, DATA ANALYSIS, DATA INTERPRETATION

4.1	INTRODUCTION
4.2	STATISTICAL ANALYSIS OF DATA COLLECTED
4.3	STATISTICAL TERMS USED AND THEIR MEANINGS
4.4	STATISTICAL EQUATIONS USED IN CALCULATION OF “t” VALUES
4.5	STATISTICAL TREATMENT TO THE TEST
4.6	ANALYSIS OF TEST DATA
4.8	CONCLUSION



## **4.1 INTRODUCTION**

Once the topic of research and the research hypothesis are finalized, the researcher has to evaluate the hypothesis. This has to be done statistically as the researcher has decided to do Quantitative Research. A Pre Test consisting of a mix of logical and exceptional spellings was conducted for a class of std VI students. The answer sheets were evaluated and the results were recorded as part of data. Then a mnemonics program consisting of classroom lectures and demonstrations was conducted for the same students. At the end of the program, a Post Test with similar difficulty level but with different words was conducted. The results for the Post Test also were recorded as data. For both Pre Test and Post Test, the words were taken from text books studied till std V.

After the exciting activity of experimentation and generation of data comes another equally fascinating part. To analyze the data collected and interpret it. Although, the data itself indicates the trends and magnitude of success of the experiment, it is only completely understood after methodical analysis. Certain areas of the subject studied which are not evident also are revealed during the analysis. It is the most rewarding step of the research where the researcher gets to know the worth of the research. The analysis also enlightens newer paths for the researcher to study further after the accomplishment of the present task.

Memory is a very vast subject and is not explored by many researchers. The hypothesis of the research thesis also will be evaluated during the analysis. This is the most important part of the research.

Data analysis and interpretation consists of raw data structured in tabular form. The raw data is the answer sheets given by the students during the pre test and post test. Raw data also is the form of answer sheets. This raw data is categorized, classified, summarized into various tables, graphs and calculations in this report. The aim of these activities is to reveal the appropriate information for confirmation or negation of the hypothesis.

There are two types of analysis considered in this research

### **Quantitative Analysis:**

In this case, the numerical data generated during the experimentation will be evaluated based on the statistical methods of evaluation. Quantification is defined as a numerical method of describing observations of the data collected and its characteristics. When a defined portion of the data or the characteristic is used as a standard for measuring any sample, a valid and precise method of data description is provided.

Quantitative analysis can only be applied for some aspects of the observations which are mainly in form of a database.

### **Qualitative Analysis:**

That analysis in which the description of observations is expressed in qualitative terms is the Qualitative Analysis. In this analysis means other than numerical measures are used to describe, obtain or to arrive at a conclusion. Qualitative analysis is normally based on the observations and communication happening during the process of experimentation.

Qualitative and Quantitative Analysis are both independent and inter dependent. Since, the activity through which numerical data is generated is the basis of both the analysis, they often complement each other. Thus, both are considered in this thesis.

## **4.2 STATISTICAL ANALYSIS OF DATA COLLECTED**

The experiment was done on a single group. As the hypothesis dealt with effectiveness of the mnemonics and memory model in memorizing spellings, following statistical procedure was followed.

Mean values of pre test marks and post test marks scored by the same set of students was found out. Pre test and post test evaluation of memorization of spellings was found out.

Standard deviations of pre test and post test scores was found out.

The standard error of means of marks obtained by the students in pre test and post test was calculated.

Finally the 't' value was calculated and compared with standard tables in order to decide whether the difference is significant or not.

The post test results also indicate the effect of memory methods and memory model exercised during the teaching.

### **4.3 STATISTICAL TERMS USED AND THEIR MEANINGS**

#### **Data**

Data in the case of this study is the scores obtained by the same set of students during the pre test and the post test. This is a random data and hence, the same is expected to have normal distribution.

#### **Standard Error**

The standard deviation of sampling errors is usually referred to as the standard error of mean. The standard error of mean is an indication of the difference between sample means. In a given population, even if the samples are separate the standard error is same. The standard is also referred to as standard deviation. We get the following information from standard deviation

- The spread of the parameter values
- Unreliability of a sample

We also use the standard deviation to test the hypothesis.

## **Null Hypothesis**

The null hypothesis, in essence, states that there is no real difference between the parameters. Whatever difference we observe is because of the sampling error. Thus, it also states that there is no significant difference in the test results or in other words, there is no significance of the hypothesis.

Thus, negation of the null hypothesis is more conclusive support to the testing of the research hypothesis.

## **Tests of significance of the Hypothesis**

At the end of the data collection and study, there are two group means. The aim of the significance test is to find out the difference between the means and conclude beyond discrepancy that the difference is enough. The decision of the significance should be based on analysis of experimental data rather than own best guess. The test of significance, selected by the researcher is the “t test”.

Based on the outcome of the ‘t’ test, the decision about falseness of the null hypothesis is taken.

## **Two tailed or One tailed testing of Hypothesis**

Two tailed test allows for the possibility of the difference in both the directions. This means, the test considers that the difference in the groups can occur in both positive and negative directions. Thus, the two tailed testing also tests the possibility of the null hypothesis being true. This is the most widely used testing method as the researcher is not expected to judge the outcome. On the other hand, the one tailed test is used when the researcher is very sure about the outcome knows that the difference will always be on one side. This then has a major advantage over the one tailed test. It is easier to find a significant difference.

In the present research, the researcher knows that the mnemonics will definitely help the students and will improve their scores. In other words, the difference between marks

obtained in the post test will be more than the pre test. Hence, the researcher has chosen to use one tailed test.

### **Level of significance and Degrees of freedom**

The aim of the research, apart from the hypothesis, is also to unequivocally state the results. For this the researcher needs to be sure that the trends seen in the results of pre test and post test are due to the phenomenon under consideration and not by chance! This means that the test has been significant. There are varieties of significance levels that are chosen by the researchers mainly based on the type of test. Eg level of significance 0.05 or 0.01.

The researcher has chosen level 0.01.

The degrees of freedom are 1 less than the sample size.

## **4.4 STATISTICAL EQUATIONS USED IN CALCULATION OF “t” VALUES**

Arithmetic Mean

$$Mx = \frac{\sum x}{N}$$

Where x = Scores of Sample x

N = Sample size

Standard Deviation

$$\sigma = \sqrt{\left(\frac{\sum x^2}{N}\right) - M^2}$$

Linear Correlation coefficient for group scores x and y

$$r = \frac{\sum xy - NMxMy}{\sqrt{[\sum x^2 - NMx^2][\sum y^2 - NMy^2]}}$$

Standard error of means

$$\sigma M = \frac{\sigma}{\sqrt{N}}$$

Standard error of difference between means of co-related scores

$$\sigma D = \sqrt{\sigma Mx^2 + \sigma My^2 + 2r \sigma Mx \sigma My}$$

$$t \text{ value} = \frac{Mx - My}{\sigma D}$$

#### 4.5 STATISTICAL TREATMENT TO THE TEST

The statistical treatment is given to the data obtained through the tests conducted to find out the respective “t” values.

The steps shown as follows were followed to calculate the ‘t’ values. The actual ‘t’ value is compared with ‘t’ value mentioned in the table D entitled as Table for ‘t’. This table is used to determine the significance of statistics.

## **4.6 ANALYSIS OF TEST DATA**

The test data is interpreted in the following categories.

- Entire group for all questions
- Gender wise
- Only boys for all questions
- Only girls for all questions
- Based on type of questions
- All students for full word questions (4 questions)
- All students for 1 alphabet less type questions (2 questions)
- All students for partial word type questions (2 questions)
- All students for memory type questions (2 questions)

These categories will also help the researcher to understand the effectiveness of mnemonics in these areas.

### **4.6.1 Testing the hypothesis 1**

#### **Research Hypothesis 1**

There will be a significant difference between scores of boys and girls before the implementation of the program.

## Null Hypothesis 1

There will be no significant difference between scores of boys and girls before the implementation of the program.

**Table 4.1**

### 't' value for hypothesis 1

	Sample size N	53	
		Girls	Boys
M	Mean	36.826	27.066
s	Standard Deviation	18.789	14.729
sM	Standard Error of means	2.580	2.023
sD	Standard error of difference	3.279	
	Difference of means	9.759	
t	t value	2.975	
	Degrees of freedom	51	

As per table for One tailed t test for 0.01 significance level and for degrees of freedom 51, we have the following t value for the significance.

't' value = 2.405 for degrees of freedom 51

Since, there is a significant difference between the 't' value obtained (2.976) and the one from the table (2.405), the null hypothesis is rejected. The research hypothesis 1 is accepted.

This proves that there was a significant difference between the scores obtained by boys and girls before the implementation of the program.



## 4.6.2 Testing the hypothesis 2

### Research Hypothesis 2

Memory techniques and Memory based model are effective in writing correct spellings.

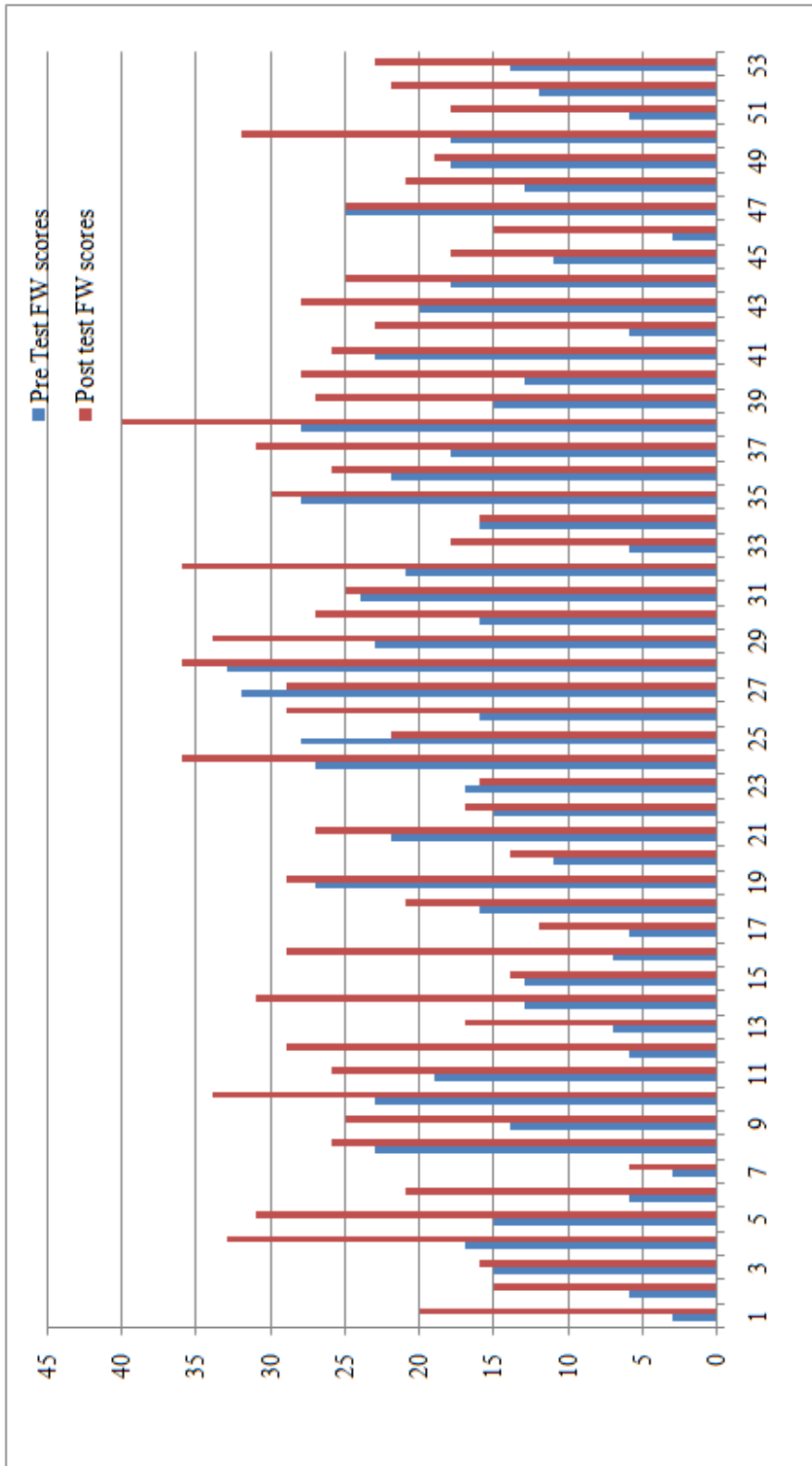
### Null Hypothesis 2

Program based on Memory techniques and Memory model does not have significant difference in learning English spellings.

**Table 4.2**

**'t' value for hypothesis 2 Entire group-Full word questions**

	Sample size N	53	
		Pre test	Post test
	Degrees of freedom	52	
M	Mean	16.169	24.415
s	Standard Deviation	7.821	7.228
sM	Standard Error of means	1.0744	0.992
r	Linear Correlation Coefficient	0.635	
sD	Standard error of difference	0.886	
	Difference of means	8.245	
t	t value	9.305	



**Fig 4.1 Full Word Score Comparison**

As per table for One tailed t test for 0.01 significance level and for degrees of freedom 52, we have the following t value for the significance.

't' value = 2.423 for degrees of freedom 40

't' value = 2.390 for degrees of freedom 60

Interpolating, we get

't' value = 2.403 for degrees for freedom 52

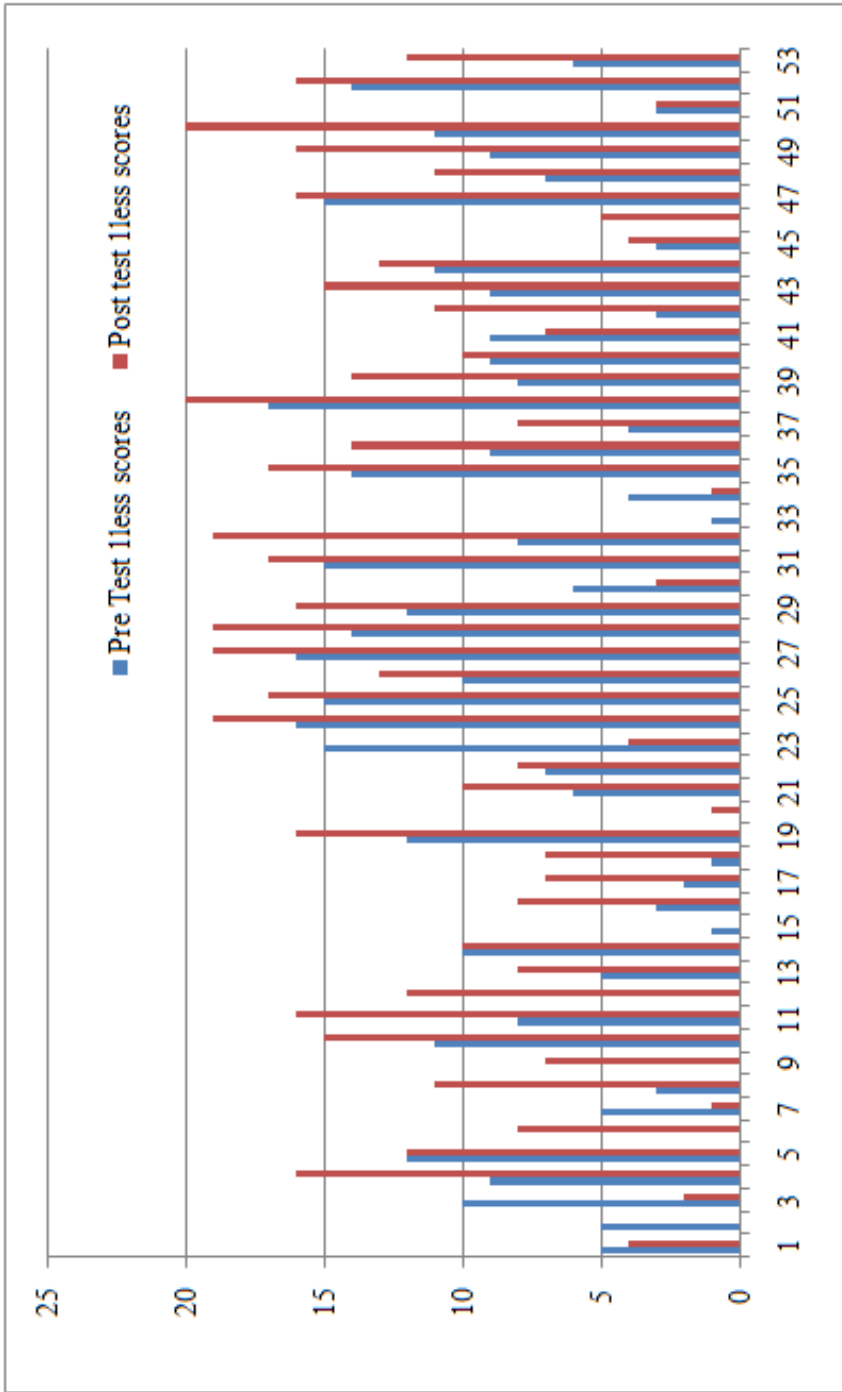
Since, there is a significant difference between the 't' value obtained (9.305) and the one from the table (2.403), the null hypothesis is rejected. The research hypothesis 1 is accepted.

## **Objective 6 Entire group-1 less letter questions**

**Table 4.3**

### **'t' value for Objective 6**

	Sample size N	53	
		Pre test	Post test
	Degrees of freedom	52	
M	Mean	7.698	10.528
s	Standard Deviation	5.021	6.072
sM	Standard Error of means	0.689	0.834
r	Linear Correlation Coefficient	0.697	
sD	Standard error of difference	0.607	
	Difference of means	2.830	
t	t value	4.662	



**Fig 4.2 Individual scores for 1 less alphabet questions**

As per table for One tailed t test for 0.01 significance level and for degrees of freedom 52, we have the following t value for the significance.

't' value = 2.423 for degrees of freedom 40

't' value = 2.390 for degrees of freedom 60

Intrapolating, we get

't' value = 2.403 for degrees for freedom 52

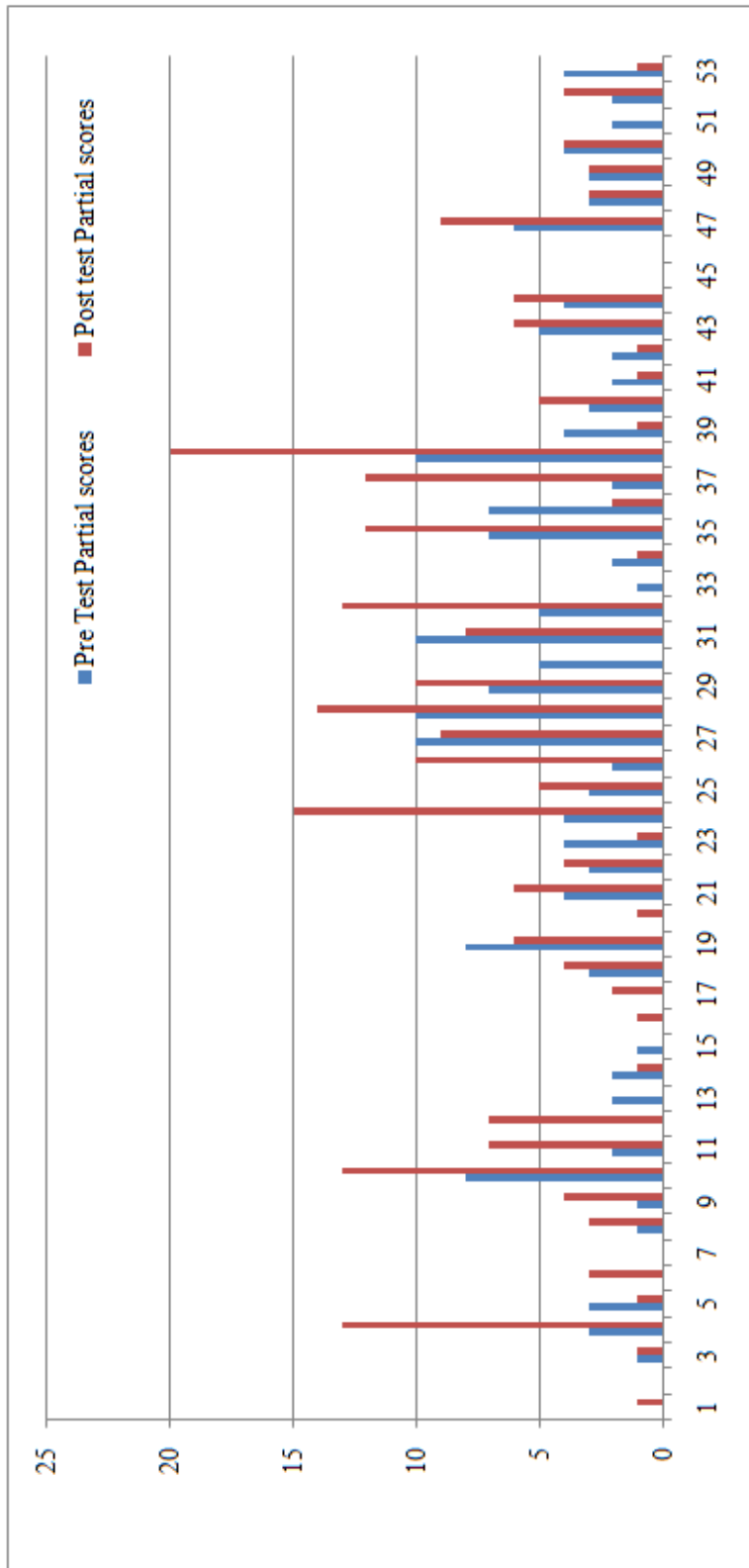
Since, there is a significant difference between the 't' value obtained (4.663) and the one from the table (2.403), the null hypothesis is rejected. The research hypothesis 1 is accepted.

## **Objective 7 Entire group-partial word questions**

**Table 4.4**

### **'t' value for Objective 7**

	Sample size N	53	
		Pre test	Post test
	Degrees of freedom	52	
M	Mean	3.302	4.792
s	Standard Deviation	2.899	4.908
sM	Standard Error of means	0.398	0.674
r	Linear Correlation	0.638	
sD	Standard error of	0.52	
	Difference of means	1.49	
t	t value	2.866	



**Fig 4.3 Individual scores for Partial info questions**

As per table for One tailed t test for 0.01 significance level and for degrees of freedom 52, we have the following t value for the significance.

't' value = 2.423 for degrees of freedom 40

't' value = 2.390 for degrees of freedom 60

Intrapolating, we get

't' value = 2.403 for degrees for freedom 52

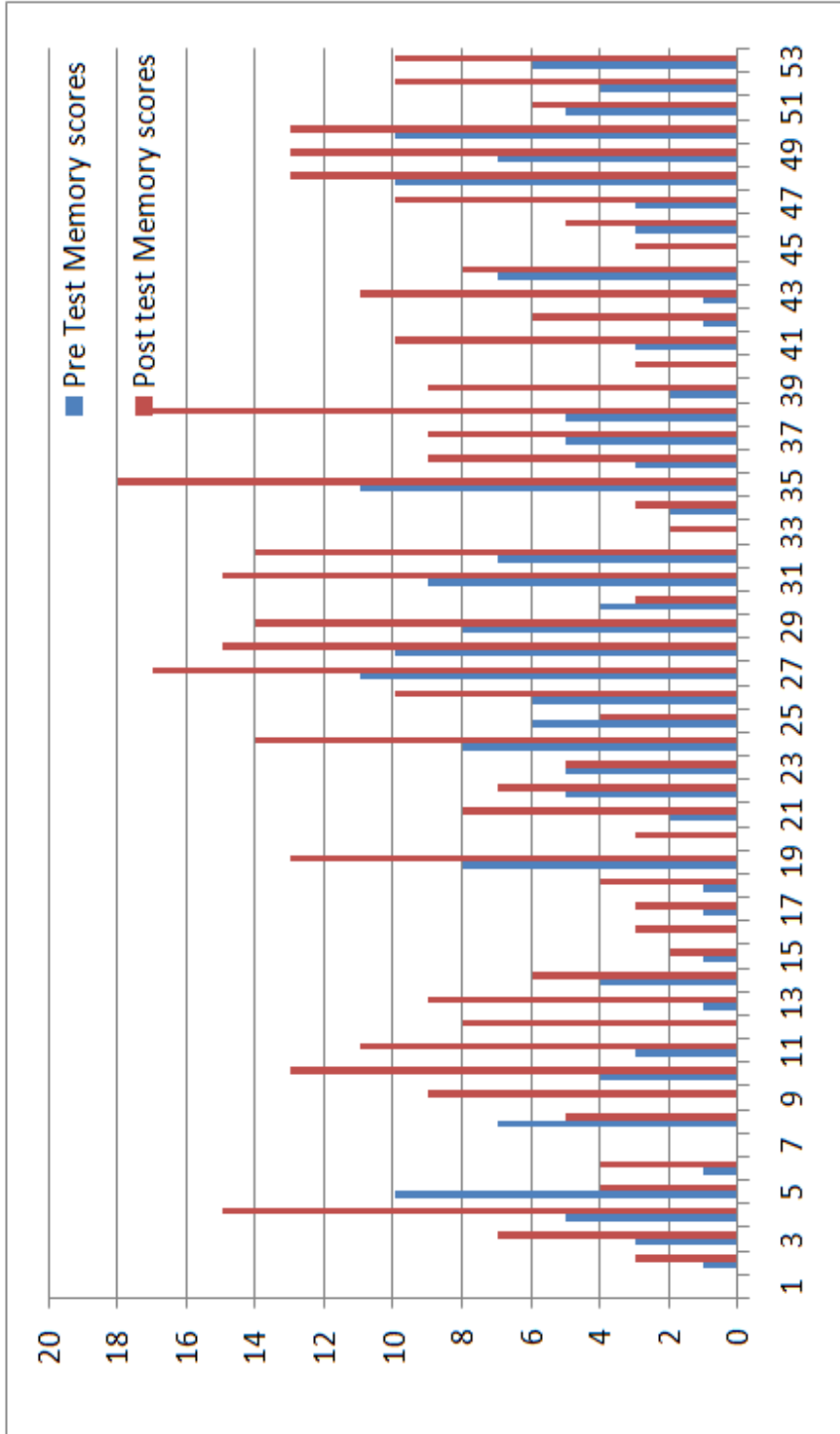
Since, there is a significant difference between the 't' value obtained (2.866) and the one from the table (2.403), the null hypothesis is rejected. The research hypothesis 1 is accepted.

## **Objective 5 Entire group-spelling memory questions**

**Table 4.5**

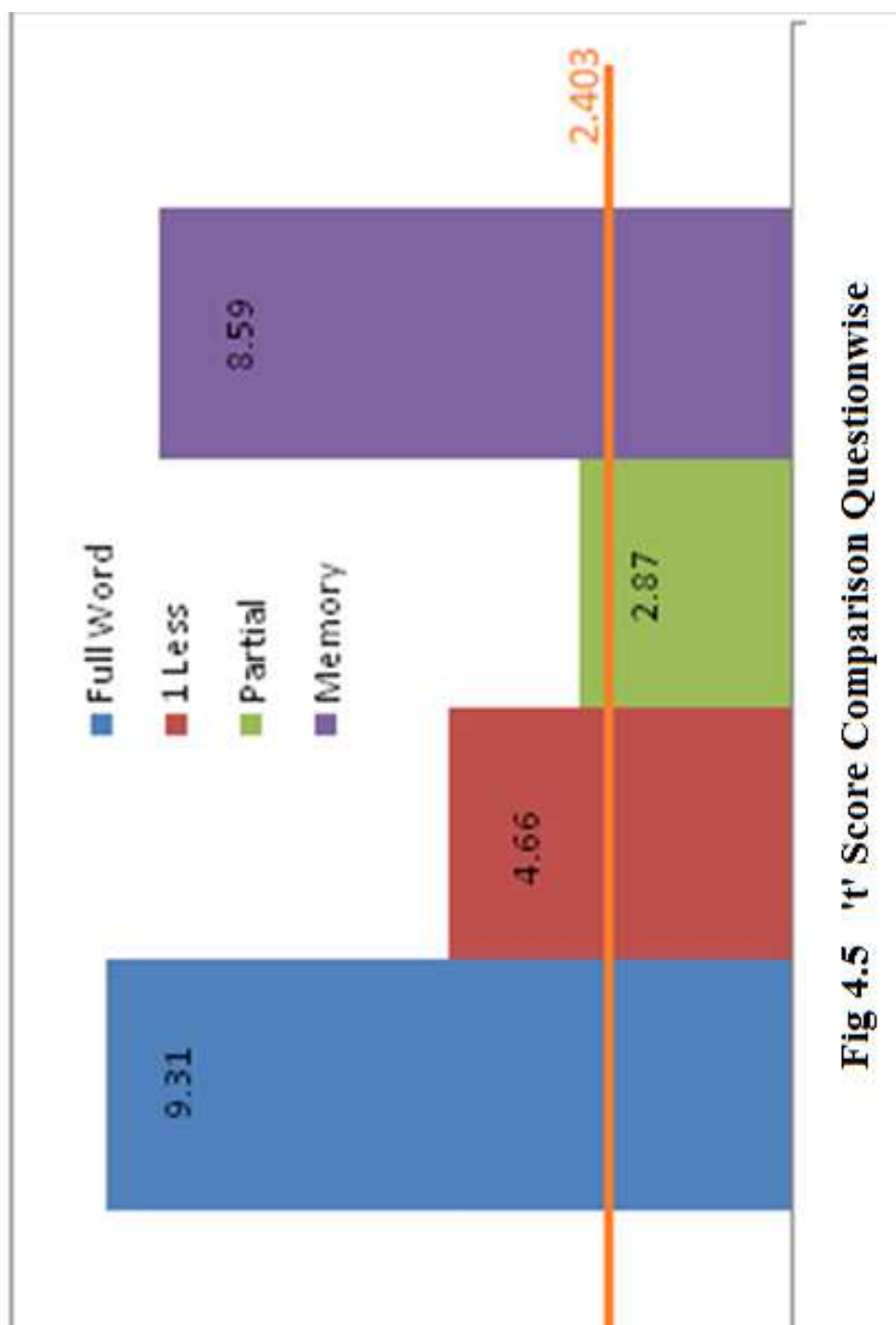
### **'t' value for Objective 5**

	Sample size N	53	
		Pre test	Post test
	Degrees of freedom	52	
M	Mean	4.132	8.226
s	Standard Deviation	3.402	4.778
sM	Standard Error of means	0.467	0.656
r	Linear Corelation	0.687	
sD	Standard error of	0.476	
	Difference of means	4.094	
t	t value	8.587	



**Fig 4.4 Individual scores for Memory questions**





**Fig 4.5 't' Score Comparison Questionwise**

As per table for One tailed t test for 0.01 significance level and for degrees of freedom 52, we have the following t value for the significance.

't' value = 2.423 for degrees of freedom 40

't' value = 2.390 for degrees of freedom 60

Intrapolating, we get

't' value = 2.403 for degrees for freedom 52

Since, there is a significant difference between the 't' value obtained (8.587) and the one from the table (2.403), the null hypothesis is rejected. The research hypothesis 1 is accepted.

## Gender wise

### Girls

**Table 4.6**

#### 't' value for marks obtained by Girls

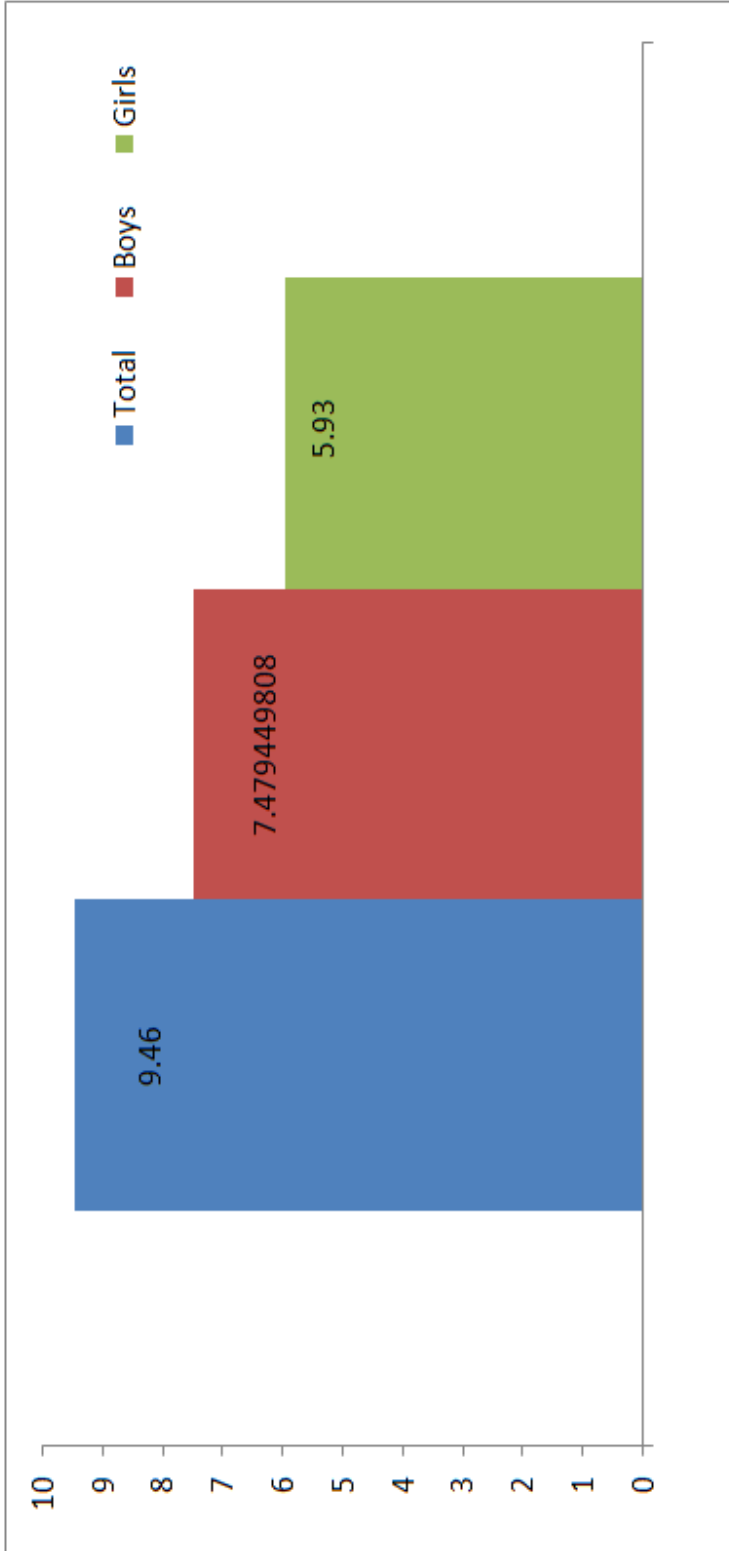
	Sample size N	23	
		Pre test	Post test
	Degrees of freedom	22	
M	Mean	36.826	50.826
s	Standard Deviation	18.79	22.834
sM	Standard Error of means	3.918	4.761
r	Linear Correlation	0.869	
sD	Standard error of	2.362	
	Difference of means	14	
t	t value	5.926	

## Boys

**Table 4.7**

**'t' value for marks obtained by Boys**

	Sample size N	30	
		Pre test	Post test
	Degrees of freedom	29	
M	Mean	27.066	45.766
s	Standard Deviation	14.729	19.047
sM	Standard Error of means	2.689	3.477
r	Linear Correlation	0.799	
sD	Standard error of	2.092	
	Difference of means	18.7	
t	t value	8.937	



**Fig 4.6 Gender wise Comparison**

As per table for One tailed t test for 0.01 significance level and for degrees of freedom 22, we have the following t value for the significance.

't' value = 2.508 for degrees of freedom 22

Since, there is a significant difference between the 't' value obtained (5.926) and the one from the table (2.508), the null hypothesis is rejected. The research hypothesis 2 is accepted.

As per table for One tailed t test for 0.01 significance level and for degrees of freedom 29, we have the following t value for the significance.

't' value = 2.462 for degrees of freedom 29

Since, there is a significant difference between the 't' value obtained (8.938) and the one from the table (2.462), the null hypothesis is rejected. The research hypothesis 2 is accepted.

## Entire Group

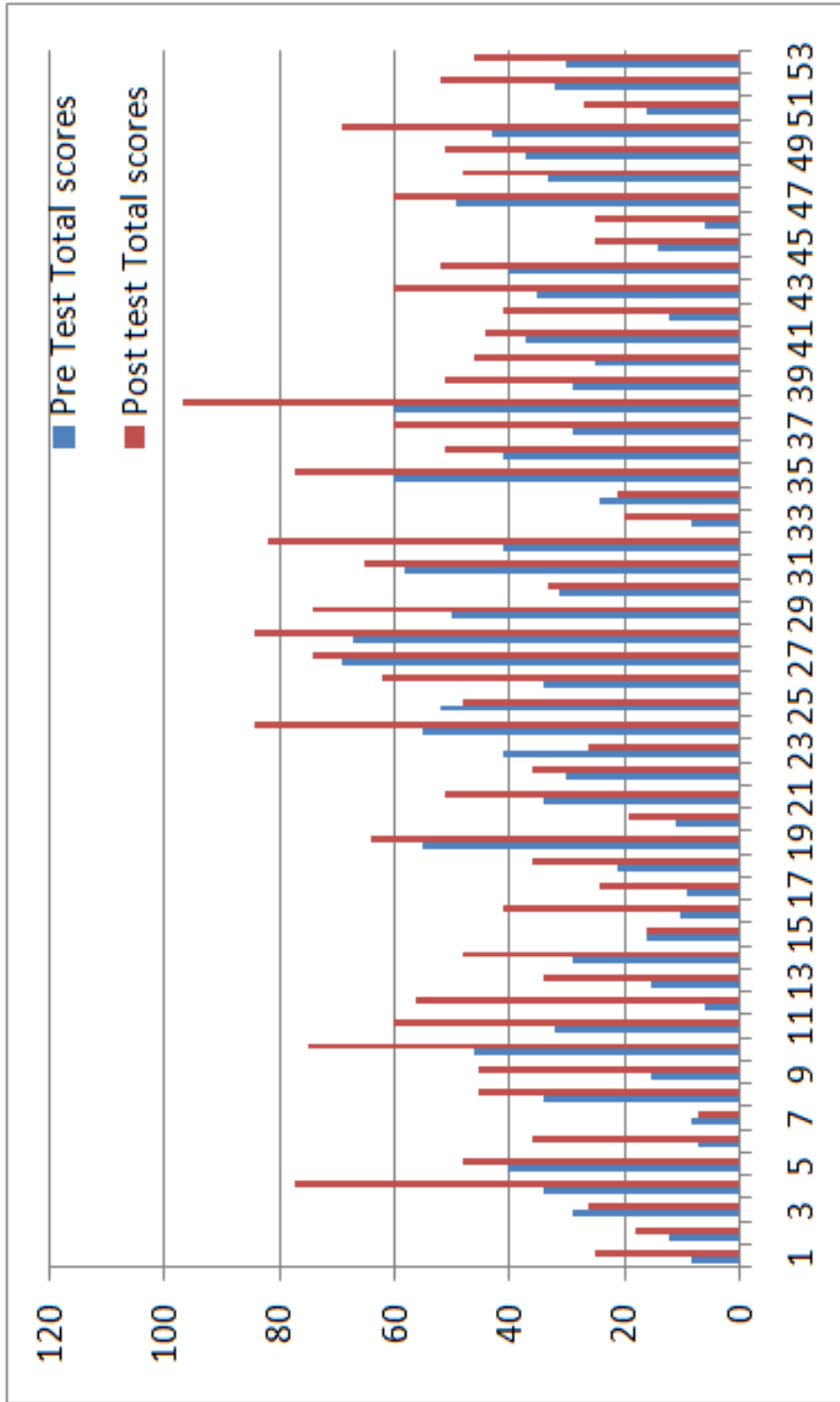
**Table 4.8**

### 't' value for entire group all questions

	Sample size N	53	
		Pre test	Post test
	Degrees of freedom	52	
M	Mean	31.301	47.962
s	Standard Deviation	17.152	20.720
sM	Standard Error of means	2.356	2.846
r	Linear Correlation Coefficient	0.786	
sD	Standard error of difference	1.761	
	Difference of means	16.660	
t	t value	9.458	



**Fig 4.7** Average scores Pretest and Post test



**Fig 4.8 Individual total scores**

As per table for One tailed t test for 0.01 significance level and for degrees of freedom 52, we have the following t value for the significance.

't' value = 2.423 for degrees of freedom 40

't' value = 2.390 for degrees of freedom 60

Interpolating, we get

't' value = 2.403 for degrees for freedom 52

Since, there is a significant difference between the 't' value obtained (9.459) and the one from the table (2.403), the null hypothesis is rejected. The research hypothesis 1 is accepted.



### 4.6.3 Testing of Hypothesis 3

#### Hypothesis 3

There will be a significant difference between scores of boys and girls after the implementation of the program.

#### Null Hypothesis 3

There will be no significant difference between scores of boys and girls after the implementation of the program.

**Table 4.9**

#### 't' value for Hypothesis 3

	Sample size N	53	
		Girls	Boys
M	Mean	50.826	45.766
s	Standard Deviation	22.834	19.047
sM	Standard Error of means	3.136	2.616
sD	Standard error of	4.084	
	Difference of means	5.059	
t	t value	1.238	
	Degrees of freedom	51	

As per table for One tailed t test for 0.01 significance level and for degrees of freedom 51, we have the following t value for the significance.

't' value = 2.405 for degrees of freedom 51

The 't' value obtained (1.239) is less than the one from the table (2.405). Thus, the null hypothesis is accepted. The research hypothesis 3 is rejected.

This proves that there was a no significant difference between the scores obtained by boys and girls after the implementation of the program. Thus, the program was effective in bringing down the difference between the understanding of spellings amongst boys and girls.

#### **4.7 FINDINGS OF THE STATISTICAL TREATMENT**

Following are the findings of the statistical treatment

- There is a significant difference between scores of boys and girls before the implementation of the program.
- There is a significant difference in the scores of pre test and post test of the total group
- There is a significant difference in the scores of pre test and post test in case of the boys and the girls respectively
- There is a significant difference in the scores of pre test and post test in case of different type of questions.
- Although the partial word test also has shown that there is a significant difference in pre test and post test results the difference is small.
- Significant rise in scores is evident in case of full word questions in both boys and girls.

- More significant rise in scores is observed in boys for all the questions.
- The 't' value calculated for marks obtained by boys and girls in the pre test is marginally higher than the value given for the 0.01 reliability. However, the 't' value for the scores obtained by boys and girls in post test is less than the value given for the 0.01 reliability. This shows that the program implemented was effective in reducing the difference between the knowledge of spellings amongst boys and girls.
- The 't' values at a glance are

**Table 4.10**

**'t' scores overview**

Test criterion	Degrees of	t' value	t' value as per 0.01
Pre test	51	2.976	2.405
Full Word	52	9.305	2.403
1 Less	52	4.663	2.403
Partial	52	2.866	2.403
Memory	52	8.587	2.403
Girls	22	5.926	2.508
Boys	29	8.938	2.462
All	52	9.459	2.403
Post test	51	1.239	2.405

## **4.8 CONCLUSION:**

1. The analysis of the data for the total group reveals that the research hypothesis holds good and the null hypothesis is rejected.
2. The analysis of the data for the boys and girls reveals that the research hypothesis holds good and the null hypothesis is rejected.
3. The analysis of the data for the total group for different types of questions reveals that the research hypothesis holds good and the null hypothesis is rejected.
4. The second hypothesis about relative effectiveness of the program for boys and girls has been accepted as the boys have been seen to have improved more than the girls.
5. As all the students have different learning patterns, the Mnemonics are effective in catering to all these needs. The reduction in difference in understanding of spellings reveals the true potential of Mnemonics in teaching learning process.

## **CHAPTER 5**

### **SUMMARY AND CONCLUSION**

## **CONTENTS**

### **CHAPTER 5 SUMMARY AND CONCLUSION**

5.1	SUMMARY OF RESEARCH WORK
5.2	CONCLUSIONS
5.3	EDUCATIONAL IMPLEMENTATIONS OF THE STUDY
5.4	SUGGESTIONS FOR FURTHER RESEARCH :
5.5	EPILOGUE

## **5.1 SUMMARY OF RESEARCH WORK**

### **5.1.1 Importance of Memory**

“Memory is the knowledge of a former state of mind after it has already once dropped from consciousness, or rather it is the knowledge of an event, or fact of which mean time we are not been thinking with the additional consciousness that we have thought or experienced before.”  
-William James

Memory is an integral part of our day to day life. In every work that we do and every form of communication, we rely completely on memory of past experiences, conversations, information and skills. It is also the most important and fundamental aspect of the teaching learning process. In the teaching learning process, the learner has to remember the information, knowledge and wisdom gathered by self and others. There is a definite process through which all this is stored in the brain. Memory is the process by which information is encoded, stored and retrieved.

Research has pointed out that the memory is stored in certain areas of the brain and sensory perceptions, which convey the stimuli to the brain have a certain way of decoding the information. All this has given new perspective to the memorization process. Although, people have memorized a vast amount of data like Vedas or holy text, the memorization processes used were not evolved beyond repetition, rote learning and association.

From the conventional rote method which was followed for ages, to creative new methods like making a story to remember unrelated words and phrases, research and study have made significant progress in the study of memorization.

Many educationists believed that memory and memorization were the lowest skills in the hierarchy of the learning process (Bloom's Taxonomy) and so were unimportant. It was said that the other skills like understanding, applying, analyzing, evaluating and creating which were placed on a higher rung were more significant and worth giving attention to. But some Psychologists and Educationists realized that memory / remembering is the most important aspect of the learning process and true to its place in the hierarchy it is the basis or fundamental aspect of any learning process. All the later mental processes are possible only if at the given moment the necessary information can be retrieved.

The mind is complex in its capabilities, but without memory it cannot perform the simplest of tasks. The memory is the storage capacity of the mind. Often neglected, often unappreciated until something occurs to make us take notice of it.

### **5.1.2 Mnemonics:**

Thus, it becomes important to give a serious thought to memory and memorization. If memorization is the doorway to all mental and physical activities, it should be learnt in a systematic manner. There are various techniques through which this is possible. Mnemonics are memory techniques which make the process of memorization interesting and effective. These are methods in which any given information can be memorized using principles of association, attention, organization, meaningfulness and visualization.

Memory is formed from the time that we are born and it is a continuous process of events, experiences and situations which we receive through the senses. This vast information should be stored in a systematic manner so that it can be easily retrieved when necessary. This is like trying to locate a particular book from a huge library. If there is a proper catalogue, list made with reference to either subject, title or author of the books then finding the book is a very simple task but if all these lists or catalogues are unavailable, locating the book becomes a very tedious and confusing job.



Mnemonics are like these catalogues which help us memorize information in such a manner that it is stored in a very systematic method so that retrieving it is a simple task.

### **5.1.3 English Language Spellings**

There are 26 letters, 44 sounds made by 5 vowels and 21 consonants in the English language. These form more than 2,50,000 words that make the English language and are listed in the Oxford Dictionary. English language used today is a result and product of many influences over the ages. Every Invasion, Revolution, Colonization and Migration which marked the events in History of the world left some traces in the English language in the form of new vocabulary which kept enriching this lingua franca.

As a result of this we see that the English spellings are very unsystematic. Some are based on Phonology, some are orthographic, and some have remained in their original forms, belonging to some other language from which they have been adopted. This also makes it difficult to memorize spellings as a particular rule cannot be applicable to their formation. Due to this spelling memorization has always been a challenge to teachers and learners.

### **5.1.4 Memory model**

Every teacher uses a specific method to teach any given content. The methodology that the teacher follows is usually that which is learnt in teacher education. Over a period of time, the teacher modifies the various methodologies learnt on the basis of important factors like responses given by the students, challenges faced by the teacher, learning outcome, time factor and constitution of the students in the class. In a similar manner, methodologies which are researched and tested form models of teaching which can be followed by any teacher to seek predictable outcomes.

One such model which was used by the researcher was “The memory model”. This model was implemented following the steps given below.

The syntax of this model is:

Step 1 : Attending to the material. This is done using the techniques of underlining, listing , reflecting.

Step 2 : Developing connections. Make the material familiar by making connections using key words, link word system, or other mnemonics.

Step 3: Expanding Sensory Images. Techniques of exaggeration and ridiculous association are used. Images are revised.

Step 4: Practicing Recall . Practice recalling the material until it is completely learned.

### **5.1.5 Views of the researcher; Need & Significance of the present study:**

Spellings are the building blocks of the English language and so they have to be learnt and used correctly while writing. But has the importance of teaching students to spell accurately been lost in the age of computers, spell checkers and SMS texting? Is spelling instruction being considered marginally important in schools today? The practices associated with traditional approaches to spelling instruction suggest that schools and teachers might place less value or importance on spelling as compared to other academic content areas. Usually in the lower classes a weekly spelling test is conducted for which the students are either given a list of words to memorize or the particular lesson in the text book on which the test is scheduled is assigned to the students for study. Many times this approach leaves the students to mechanically memorize the spellings for the test after which the words are forgotten easily. This leaves students as poor achievers as eventually the memorized spellings are forgotten and it also disorients teachers as far as the teaching of memorizing of spellings is concerned. Additionally the conventional wisdom

regarding the English spellings pattern is that they make no sense. No wonder a number of adults and students have trouble with spelling.

The significance of this research study is that the researcher has tried to teach the students to establish sense, and create meaning regarding a few spellings through Mnemonics. The knowledge of Mnemonics helped the students to work at their individual level to create their own personal associations to memorize spellings. These Mnemonics once taught can be used by them for any information that they need to memorize. These techniques will assist them through the enormous amount of information that they will encounter during their lives.

### **5.1.6 Statement of the Problem**

To study the effectiveness of Memory Techniques and memory based model in memorizing of spellings for Std VI students.

### **5.1.7 Definitions**

#### **5.1.7.1 Conceptual Definitions**

**Effectiveness:** A measure of the extent to which a specific intervention, procedure, regimen or service, when deployed in the field in routine circumstances, does what it is intended to do for a specified population.

**Mnemonics:**

Methods for aiding the memory

Any of several techniques or devices used to help remember or memorize names or concepts

**Memory:** The ability of the Brain to store, retain and subsequently recall information.

**Memorization:** Actively organizing and working with concepts or terminology to improve incorporating these concepts into memory.

### **5.1.7.2 Operational Definitions**

**Effectiveness:** The strength of the learned response gathered after the implementation of the program based on Mnemonics and Memory Model.

**Mnemonics:** Certain Memory Techniques like Pyramid, Chunking, Acronym, Picture Making which aid in remembering English spellings

**Memory model:** A model of learning based on the memorization abilities of students to help them to memorize given spellings.

**Memorization:** The process of storing and retrieving spellings.

**Spellings:** Meaningful sequence of alphabetical letters

**Standard VI students:** Students who have passed their Std V examination and are studying in Std VI of SSC Board English Medium School

### **5.1.8 Research Objectives**

1. To study the difference between spelling ability of boys and girls through their pre-test scores.
2. To prepare a program on Mnemonics and Memory based Model for learning English spellings.
3. To study the effectiveness of the memory model on the memorization skills of the students through post test.

4. To study the effect of the program on the spelling ability of boys and girls through their post test scores.

### **5.1.9 Research Assumptions**

- Students have to learn new spellings in schools.
- Students make mistakes in writing correct spellings
- Memory techniques can effectively help in recollection of spellings
- Memory model can enhance memorization skills in students.

### **5.1.10(A) Research Hypotheses**

1. There will be a significant difference between scores of boys and girls before the implementation of the program.
2. Program based on Memory techniques and Memory model is effective in memorizing English spellings.
3. There will be a significant difference between scores of boys and girls after the implementation of the program.

### **5.1.10 (B) Null Hypotheses**

1. There will be no significant difference between scores of boys and girls before the implementation of the program.

2. Program based on Memory techniques and Memory model does not have significant difference in learning English spellings.
3. There will be no significant difference between scores of boys and girls after the implementation of the program.

### **5.1.11 Scope**

- This research study was applicable to std VI students of Maharashtra state board schools.
- This research focused only on the various spellings that the students learn till std VI.

### **5.1.12 Limitations**

Some limitations of this study were

- It is difficult to provide attention to students individually.
- Various factors like age, maturity, attention, interest, fatigue on the part of the students cannot be controlled.

### **5.1.13 De Limitations**

- The research study was limited to students of English medium schools in Pune city.
- The research study was limited to students of std VI of English medium schools.
- The study focused on memorization of spellings.

- Only memory techniques and memory model was used.

#### **5.1.14 Review of the related literature**

The researcher visited various libraries and websites in search of any literature/ theses in the field of Mnemonics and memorization of spellings. The researcher was able to find considerable work and research being done in the teaching and learning of spellings. A thorough reading of the material showed that researches had been made on various types of spellings by identifying the pattern in their formations and various ways of teaching them to the students so that memorization would be effective. The different types of spelling formations that the researcher came across were inventive spellings, inflectional suffixes, morphography of spellings, word mapping in spellings and use of phonology in spellings.

The researcher could also study the different approaches that had been investigated by different educationists and linguists to teach spellings effectively. Methods like word sorting, inflectional spellings, whole person approach, use of word Olympic games, repetition, intentional spellings were understood. Through all the study material, the researcher came to know that specific visual Mnemonics had also been used for better spelling.

Although work had been done on the process of teaching and learning spellings, with rare contributions through Mnemonics, the researcher was unable to find the use of memory model as a teaching technique in spellings. The Mnemonics used by some researchers were very specific and their studies were limited to use of a single Mnemonic for the study. This made the researcher probe into thinking about the effectiveness of using Memory model for teaching spellings.

To provide the students with alternative ways of creating and using Mnemonics, the researcher decided to use five different Mnemonics through the Memory Model to teach students an effective way of memorizing spellings.

The given table is an overview of the various types of research and study material scrutinized by the researcher.

**Table 5.1**

**Overview of types of related researches scrutinized**

Area Of research	Type of work			
	Ph.D. Theses	M.Ed. Dissertations	Articles / Papers / Online publications	Programs
Memory and Mnemonics	3	-	6	1
Mastering Spellings	2	4	3	
Strategies Used to spell	2	1	3	
Classroom Instructions and	6		6	
Meeting the needs of diverse	1		3	
Study of spellings			5	

**5.1.15 Research Methodology**

The study followed Experimental method of research.

The effectiveness of the memory techniques and memory based model on the memorization of spellings of the students was studied.

The research design for the study was Single group Pre test - Post Test design.

A sample of 53 students studying in standard VI of Jnana Prabodhini English Medium

High School, Nigdi, Pune was chosen for the study.



### **5.1.16 Program based on Mnemonics and Memory Model**

The study of related literature and researches helped the researcher to develop the idea of preparing a program based on the memory model and Mnemonics to teach English spellings to Std VI students.

As mentioned earlier, the researcher had decided to use 5 different Mnemonics through the Memory Model for this research. The five Mnemonics chosen were

- Pronunciation (Phonology)
- Acronyms
- Picture making
- Chunking
- Pyramid

It was necessary to know the extent to which the students were acquainted with spellings. Hence, a Pre Test Examination paper was prepared. Since, there was no standardized spelling test available, the researcher prepared a 100 marks spelling test based on the spellings learnt by the students till Std V. This test was verified by English language teachers and teacher educators.

A program consisting of 32 teaching periods of 30 min each was prepared and followed by the researcher. The researcher and the students studied and implemented the various Mnemonics that were taught. The students understood the Mnemonics and started enjoying the process. The researcher used many teaching aids which is a need of the Memory Model. The use of teaching aids, the imagination involved in Mnemonics and hands on experience given to every student proved to be beneficial for all the different type of learners that formed the group. This made the entire program successful as it catered to the needs of students who were different types of learners.

To conclude the program effectively, the researcher organized an exhibition in the school. In this exhibition, all the teaching aids used during the program, charts giving details about Mnemonics and spelling rules were displayed. The process of memorization was also explained and so were the various factors, activities and diet that contributed to healthy and enriched memory. All these were displayed for all the students, teaching and non teaching staff. As the exhibition was organized on an Open house day, the parents who came to the school also could benefit. This exhibition reaffirmed the importance of memory and made the visitors study the exhibits with curiosity and interest.

A Post test was prepared based on the same guidelines as followed in the Pre test. Post test was implemented on the same students who attended the program.

### **5.1.17 Data Analysis**

#### **5.1.17.1 Tools used for the study**

- Pre test
- Program prepared on Mnemonics and Memory Model
- Post Test

#### **Statistical Tools:**

- Mean of Pre test and Post test scores.
- Standard Deviation values of Pre test and Post test scores.
- 't' test .

### 5.1.18 Findings of the statistical treatment

Following were the findings of the statistical treatment

**Table 5.2**

#### **Findings of Data Analysis**

Sr. No	Hypothesis/ Objective	t' value	Findings
1	Hypothesis 1: There will be a significant difference between scores of boys and girls before the implementation of the program.	2.976	There is a significant difference between scores of boys and girls before the implementation of the program.
2	Hypothesis 2 : Program based on Memory techniques and Memory model is effective in memorizing English spellings.	9.459	There is a significant difference in the scores of pre test and post test of the total group
3		9.305	There is a significant difference in the scores of pre test and post test in case of Full Word questions
4		4.663	There is a significant difference in the scores of pre test and post test in case of questions on words with 1 alphabet less
5		2.866	There is a significant difference in the scores of pre test and post test in case of partial word questions
6		8.587	There is a significant difference in the scores of pre test and post test in case of memory questions
7		5.926	There is a significant difference in the scores of pre test and post test in case of boys
8		8.938	There is a significant difference in the scores of pre test and post test in case of girls

9	Hypothesis 3 : There will be a significant difference between scores of boys and girls after the implementation of the program.	1.239	There is no significant difference between scores of boys and girls after the implementation of the program.
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### 5.1.19 Findings made during research work

1. Memorization is the initial step towards enhancing the learning process and eventually intellectual abilities.
2. Script writing improves spelling as a comparison with printed words (Bhatia and Bhatia, 2007, Page 332)
3. Factors contributing to good memory are health of the learner, attentiveness of the learner, distinct and vivid impressions and repetition insights.
4. Factors for improving memorization:
5. Browse through a good dictionary
6. Introduce a fixed number of new words into your vocabulary every day
7. Be conscious about new words in the language.
8. Learning a musical instrument or music can improve the memory
9. A good diet and exercise helps your memory as you age
10. Sufficient sleep improves memory
11. Calculations may harm your short term memory
12. Dieting affects the memory adversely
13. Small children have better memories than their parents.

14. Caffeine can improve memory
15. Forgotten memories can be accessed through hypnosis
16. Stress can make you forgetful temporarily
17. Ecstasy can also make you forgetful temporarily
18. Noisy places make it harder to remember
19. Horses have a good memory
20. Playing Bridge can boost the memory
21. Learning a new language enhances memory
22. Cooking is a cure to memory loss
23. Herbs like Turmeric, Ginger and Cinnamon improve memory
24. Meditation, “Pranayam” (Breathing exercises) and Yoga are useful for healthy memory
25. Vitamin B is a miracle memory supplement
26. Solving puzzles, Preparing Jigsaw puzzles and working on Crosswords or Sudoku provide the Brain with necessary exercise to enhance and enrich memory.

## **5.2 CONCLUSIONS**

The complete study has been a learning experience. Right from the time that the idea was conceived till the program reached its final stage of report writing, every moment proved enriching as it gave an insight into several things like the working of the mind, the interest, potential and inclination of the students and the pitfalls of the current educational pattern.

While studying for the preparation of the program on Mnemonics through the Memory Model, the researcher found facts based on research work and articles, that rote learning is uninteresting and temporary. The program made the children participate actively (both physically and mentally) in the learning process. Thus, the learning became interesting, innovative and permanent.

The experience gained by the researcher during the classroom interactions was both demanding and encouraging. Once the children were introduced to the various memory techniques it made them more imaginative, participating and experimenting. Their positive attitude and enthusiasm was enough receipt about the success of the program. Every new technique introduced brought lots of feedback in the form of questions, ideas, inquiries and prompt implementations.

### **5.3 EDUCATIONAL IMPLICATIONS OF THE STUDY**

If Mnemonics is introduced in the school curriculum then it will be a bold step towards child centered education. Students will get ample opportunities to use their imaginative, creative and intellectual powers.

From the teacher's point of view too, this program will prove helpful as the teacher can rely on Mnemonics to make the learning of any study material interesting and permanent. The teacher can also use his/her imaginative and creative skills to prepare new strategies for memorizing.

The lesson plans can be prepared in such a manner that Mnemonics applicable to the particular topic can be introduced while teaching the lesson itself making memorization a part of the teaching-learning process, whenever necessary.

Mnemonics is not topic or subject bound, but it can be extended and applied to any topic, subject or learning material.

Mnemonics does not have any age limit. It can be taught and used by anyone and everyone belonging to any age group.

Spellings should be taught through Mnemonics by language teachers as a regular practice of teaching learning.

Language teachers should have a course on Mnemonics during their pre service training.

School curriculum should include Mnemonics as they will assist the students for processing the information throughout their life.

#### **5.4 SUGGESTIONS FOR FURTHER RESEARCH:**

1. A study of the effectiveness of the Memory Model in different school subjects and various contents.
2. A study of the effectiveness of Mnemonics on various school subjects.
3. A comparative study of the effect of Mnemonics on both English medium and vernacular medium students.
4. A study of the effectiveness of introducing Mnemonics during the teacher's training program.
5. A comparative study of the effectiveness of introducing Mnemonics during pre-service training and in-service training.
6. To study the effect of Mnemonics to develop creativity in school children.

7. To study the effect of Mnemonics on the learning outcomes with regards to all subjects and content.
8. Retention studies can be conducted on topics taught through memory model.

## **5.5 EPILOGUE**

Memorization of English spellings poses a problem for most of the students. A few techniques of memorization are used by teachers during the primary stages of education when English language is introduced. The students, then, fend for themselves and device methods to memorize spellings. Some succeed, some do not. The want for teaching proper methods for memorization, not only for spellings, but also for various other subjects and data is not catered to in our curricula.

This study gave the researcher an opportunity to study the process of memorization and look at it creatively so that methodologies could be created to make it interesting and meaningful. The entire process from thinking about the topic of study to planning and implementing it became a thought provoking activity.

The report writing with data analysis gave meaning to all the different ideas conceived and practiced in the class room. Every moment was cherished as it gave a deep understanding of so many aspects like teaching learning, interest, creativity, establishing meaning, expecting right responses and once they were found, their analysis and the wonderful experience of working with young genius minds who kept the researcher busy outside the classroom also.

This study has shown a new path which leads towards higher levels of thinking which are possible only through meaningful understanding and use of the right memory at the right time.



## **BIBLIOGRAPHY**

1. *100 Tests in Spelling*, Indian Institute of Publishing, Chennai
2. Abbot, (1909); E. Horn, (1967); Green, (1968); Petty, (1968), *Writing words several times does NOT help ensure spelling retention*
3. Aggarwal, J. (2009), *Psychological, Philosophical & Sociological foundations of Education*, Shipra Publications
4. Baluch, Bahman and Choudhury, Sajida (2010), *Spelling transparency and its impact on short term memory: Evidence from Persian and English.*
5. Best, J. & Kahn, J. (2009): *Research in Education (10th ed)*
6. Pearson Education Inc.
7. Bhargava, S. (2012) *The Textbook of Educational Psychology*,
8. Navyug Books International
9. Bhatia & Bhatia (2007) *The Principles and Methods of Teaching*, Doaba House
10. Bob Schlagal (Year not known), *Classroom Spelling Instruction: History, Research, and Practice*
11. Brian, McElree, Asst. Professor of Psychology, Year not known. *General issues concerning basic mechanisms in human memory, particularly working memory.*
12. BUCH, M.B. (ed.) (1974). *First Survey of Research in Education*, Baroda: Center
13. of Advanced Study in Education N.C.E.R.T. (Pg. 407).
14. BUCH, M.B. (ed.) (1979). *Second Survey Of Research in Education*, Baroda
15. Society for Education, Researches and Development.
16. BUCH, M.B. (ed.) (1987). *Third Survey Of Research in Education*, New
17. Delhi : N.C.E.R.T.
18. BUCH, M.B. (ed.) (1991). *Volume I & II, Fourth Survey Of Research in*
19. *Education* , New Delhi : N.C.E.R.T.

20. Buzan, T. (2004), *Use your Memory*, BBC Worldwide Ltd.
21. Buzan, T. (2010), *The Memory Book*, BBC Active
22. Charles Read (1975), *Invented Spellings*
23. Chase-Lockwood, Rebekah; Masino, Misty (Year not known), *Improving student spelling skills through the use of effective teaching strategies*
24. Cheri Williams, Colleen Phillips-Birdsong, Krissy Hufnagel and Diane Hungler, et al (2009) , *Word study instruction in the K-2 Classroom*
25. Chowdhury, B. (2011): *Dynamic Memory Methods*, Fusion Books, New Delhi
26. Crow, L. & Crow,A. (1973), *Educational Psychology*, Euresia Publishing House Pvt. Ltd. New Delhi
27. Daniel Idoine-Shirai (2007), *Using Mnemonics in Vocabulary Tests*
28. Diane Henry Leipzig (2000), *Word study: A new approach to teaching spelling*
29. Edeger, Marlow (1994) Opinion Paper, *The integrated spelling curriculum*
30. Edwin, S. (2008), *Dictionary of Education*, Ivy Publishing House
31. Eni Rosnija, Bambang Wijaya (Year not known), *Improving students' English word spelling ability by using word Olympic game*
32. Fitzgerald (1951-1953), *Spelling lists derived from the various curricular areas are of little value in increasing spelling ability*
33. Flint Simonsen, Lee Gutner and Nancy Marchand-Martella, Ph.D., *Research on teaching children to spell*
34. Griffith & Olson, (1992); Haskell, Foorman & Swank, (1992); Helfgott, (1976); Wylie & Durrell, (1970); Torgesen, Wagner & Rashotte, (1994); Yopp, (1992), *Phonemic awareness training and phonological/orthographical training is important for developing reading and spelling skills*
35. Gyanani, T.C.(1996), *Promotion of spellings and peer tutoring*
36. International Dyslexia Association (2008), *Spelling and dyslexia*
37. Jennifer L. Cook (April, 2003), *The Effects of Word Sorting on Spelling Retention*, M.Ed Dissertation:
38. Joyce, B. & Weil, M. & Calhoun, E. (2009) : *Models of Teaching (8th ed)*, Prentice Hall, Inc.

39. Kwong, Trudy E; Varnhagen, Connei K. (Year not known), *Strategy development and learning to spell new words*
40. *LEAP Memory-Awakening the Potential* (2010), Leadstart Publishing Pvt. Ltd., Mumbai
41. Logan, John W. And others (1987), *Orthographic awareness of highly successful spellers*
42. Louisa Moats (2006), *How spelling supports reading*
43. Louisa Moats and Carol Tolman (2008), *Why Phonological awareness is important for reading and spelling*
44. Louisa Moats and Carol Tolman(2008), *Historical layer of English*
45. Louisa Moats and Carol Tolman(2008), *English gets a bad rap!*
46. Louise Spear-Swerling (2004), *Spelling and students with learning disabilities*
47. Madhuri Bhosale, (2005-6), *Development of training program for English vocabulary and a study of its effectiveness for VII Marathi medium students*. M.Ed. Dissertation S.N.D.T. University
48. Masachika Nakane, (Year not known) “ *Process Mnemonics : Principles, Prospects and Problems*”
49. Mathur, Dr. S. (2008), *Educational Psychology (7th ed)*, B.P. Printers
50. Mazzio, Frank (1983), *Spelling English language arts concept*
51. *Methodology of Teaching English-I* (2004), ICFAI University
52. Mohanti, B ; Dash, A (1997), *Effects of socio-economic status and age on working memory and spelling competency of children*
53. Murray, Bruce A.; Steinen, Nancy(2011), *W or d / mapping: How Understanding Spellings Improves Spelling Power*
54. My English Book Five (2011), Maharashtra State Bureau of Text Book *Production and Curriculum Research*
55. My English Book Four (2011), Maharashtra State Bureau of Text Book *Production and Curriculum Research*
56. *My English Book Six (2011)*, Maharashtra State Bureau of Text Book Production and Curriculum Research
57. Newlands, (2011), *Intentional spelling: Seven steps to eliminate guessing*

58. Nirmala Ramkrishnan A/P N.R.K.Pillai KSPK TESL (2007), *“Using Visual Mnemonics to help students remember the spellings of irregular plural nouns.”*
59. Olrich, Frank (1983), *A “Whole person” Spelling class*
60. Padhee, B., Ph.D. Psychology, Utkal,U.(1985), *Development of Memory and Categorization skills in schooled and unschooled children.*
61. Petty (1968), *In order to learn to spell, it is not necessary for children to learn the meaning of the majority of their spelling words*
62. Rosenthal, Julie; Ehri, Linnea C. (2008), *The Mnemonic Value of Orthography for Vocabulary Learning*
63. Safaya, R. Dr. & Shukla, C. Dr. & Bhatia,B. (2007), *Modern Educational Psychology (9th ed)*, Dhanpat Rai Publishing Co. Ltd.
64. Sahu, N.& Swine, D. (2013) : *Research Methodology*, SSDN Publishers, New Delhi
65. Sarvanavel, P. (1987) : *Research Methodology (16th ed)*, Kitab Mahal, Allahabad
66. Shane Templeton (2002), *Spelling: Logical learnable and critical ‘ Mnemonics in World History Classes’*
67. Sidhu, K. (1984) : *Methodology of Research in Education*, Sterling Publishers Pvt. Ltd., New Delhi
68. *Sixth Survey of Educational Research (1993-2000) (Vol 1 and Vol 2)*, NCERT
69. Steven Graham, Karen R. Harris and Connie Loynachan (2008), *Basic spelling vocabulary list*
70. Stubbs,M. (1986), *Educational Linguistics*, T.J. Press Ltd, Cornwall, UK
71. Students at Georgia college and state university studies (1994-95 and 97), ‘*Mnemonics in World History Classes’*
72. Susan Jones (2002), *5 guidelines for learning spelling and 6 ways for practicing spelling*
73. T. Horn (1946); Louis ,(1950); Beseler, (1953); Tyson, (1953);Thomas, (1954); Schoephoerster,(1962); E. Horn,(1963); *Christine and Hollingsworth,(1966)*, *Immediate student self correction is generally the most effective*

74. Thakore, M. (1995), *Effects of immediate and delayed feedback on the improvement of spellings in English*
75. Turnbull, Kathryn; Deacon, S. Helene; Bird, Elizabeth Kay-Raining (2011), *Mastering Inflectional Suffixes: A Longitudinal Study of Beginning Writers' Spellings*
76. Webber, Laura A.(2009), *The effect of cognitive imagery training on spelling performance with students with spelling skills deficits*
77. Wright,A.;Betteridge, d.;Buckby,M. (Year not known), *Games for language learning (3rd ed)*, Chambridge University Press
78. आव्हाड शैलजा,(2010-2011), *इयत्ता सातवीच्या इंग्रजी विषयातील शब्दसंपत्ती समृद्धीकरिता उपक्रम विकसन आणि व त्याच्या परिणामकारकतेचा अभ्यास*, (M.Ed.)diss. S.N.D.T. University
79. कुलकर्णी, अ. डा. आणि देव, ने. डा (२०१३), *शैक्षणिक संशोधन*, नित्यनूतन प्रकशन
80. नलिशा पवार (२००९-१०), *इयत्ता सातवीच्या इंग्रजी लेखनातील स्पेलिंगच्या चुका कमी करण्यासाठी उपचारात्मक अध्यापन निर्मिती व त्याच्या परिणामकारकतेचा अभ्यास* M.Ed. Dissertation S.N.D.T. University
81. पूनम दत्तात्रय तांबे, (२००७-८), *इयत्ता नववीच्या विद्यार्थ्यांच्या इंग्रजी लेखनातील स्पेलिंगच्या चुका कमी करण्यासाठी उपचारात्मक अध्यापन कार्यक्रम निर्मिती व त्याच्या परिणामकारकतेचा अभ्यास*, M.Ed. Dissertation S.N.D.T. University

### **News Paper Article**

1. Chhabra, A. (2013, April 14), *Spelling it out for life*, "Pune Mirror", *The Times of India*
2. चौथीपर्यंत होणार ५०० स्पेलिंग पाठ (2012, February 15), Sakal

### **Citations from Internet sources**

1. *Some rules and suggestions about spelling* (retrieved May 31, 2013),
  - a. From <http://grammer.ccc.commnet.edu/grammer/spelling.html>
2. *Some useful Mnemonics* (retrieved May 31, 2013),
  - a. From [http://www.fun-with-words.com/mnem\\_example.html](http://www.fun-with-words.com/mnem_example.html)
3. *Hints and things* (retrieved May 31, 2013),
  - a. From <http://www.hintsandthings.co.uk/library/words.html>
4. *Facts on the Teaching of Spelling* (retrieved May 31, 2014),
  - a. From [www.heinemann.com/shared/online resources](http://www.heinemann.com/shared/online_resources)
5. Wikipedia
6. [www.eric.ed.gov](http://www.eric.ed.gov)
7. [www.amazon.com](http://www.amazon.com)
8. [www.avko.org/Research/trad\\_sp\\_summary.htm](http://www.avko.org/Research/trad_sp_summary.htm)
9. [intl-rse.sagepub.com](http://intl-rse.sagepub.com)
10. [www.readingrockets.org](http://www.readingrockets.org)

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## APPENDIX A

### PRE TEST

**Name :** \_\_\_\_\_

**School :** \_\_\_\_\_

**Age :** \_\_\_\_\_ **Gender (M/F) :** \_\_\_\_\_

**Standard :** \_\_\_\_\_ **Date :** \_\_\_\_\_

Marks : 100. Time : 2 hrs

---

Note : All Questions are compulsory. All questions carry equal marks.

---

#### **Q 1: Dictation:**

- |          |           |
|----------|-----------|
| 1) _____ | 6) _____  |
| 2) _____ | 7) _____  |
| 3) _____ | 8) _____  |
| 4) _____ | 9) _____  |
| 5) _____ | 10) _____ |

#### **Q2: Tick the word with the correct spelling**

- |     |                                       |                                      |                                      |
|-----|---------------------------------------|--------------------------------------|--------------------------------------|
| 1)  | Biskit <input type="checkbox"/>       | Biscuit <input type="checkbox"/>     | Buiscit <input type="checkbox"/>     |
| 2)  | Paralell <input type="checkbox"/>     | Paralul <input type="checkbox"/>     | Parallel <input type="checkbox"/>    |
| 3)  | Rhym <input type="checkbox"/>         | Rhyme <input type="checkbox"/>       | Ryme <input type="checkbox"/>        |
| 4)  | Diagram <input type="checkbox"/>      | Dygram <input type="checkbox"/>      | Diegram <input type="checkbox"/>     |
| 5)  | Secratory <input type="checkbox"/>    | Sekretury <input type="checkbox"/>   | Secretary <input type="checkbox"/>   |
| 6)  | Emphatically <input type="checkbox"/> | Mphaticully <input type="checkbox"/> | Amfatically <input type="checkbox"/> |
| 7)  | Ajile <input type="checkbox"/>        | Agyle <input type="checkbox"/>       | Agile <input type="checkbox"/>       |
| 8)  | Emurjency <input type="checkbox"/>    | Emergency <input type="checkbox"/>   | Imurgensy <input type="checkbox"/>   |
| 9)  | Headacke <input type="checkbox"/>     | Headache <input type="checkbox"/>    | Headake <input type="checkbox"/>     |
| 10) | Newtrition <input type="checkbox"/>   | Nutrision <input type="checkbox"/>   | Nutrition <input type="checkbox"/>   |



**Q3 : Rearrange the letters to form a meaningful word:**

- 1) GIHH \_\_\_\_\_
- 2) OPAS \_\_\_\_\_
- 3) EWOTR \_\_\_\_\_
- 4) URODO \_\_\_\_\_
- 5) RBDIEG \_\_\_\_\_
- 6) LOPIT \_\_\_\_\_
- 7) XCAO \_\_\_\_\_
- 8) WOLB \_\_\_\_\_
- 9) OUHNOR \_\_\_\_\_
- 10) NOERW \_\_\_\_\_

**Q4: Fill in the blanks with correct vowels:**

- 1) \_ \_ R \_ PL \_ N \_
- 2) F \_ BR \_ \_ RY
- 3) C \_ \_ RT \_ \_ RS
- 4) \_ RR \_ NG \_
- 5) D \_ L \_ C \_ \_ \_ S
- 6) H \_ NDK \_ RCH \_ \_ F
- 7) ST \_ \_ N
- 8) B \_ \_ \_ T \_ F \_ L
- 9) F \_ V \_ \_ R \_ T \_
- 10) C \_ RR \_ \_ G \_

**Q5: Form a meaningful word by repeating any one letter in each of the following words:**

- 1) CAROT \_\_\_\_\_
- 2) WARIOR \_\_\_\_\_
- 3) OCUPATION \_\_\_\_\_
- 4) GIRAFE \_\_\_\_\_
- 5) PILAR \_\_\_\_\_
- 6) BULOCK \_\_\_\_\_
- 7) PATERN \_\_\_\_\_
- 8) PUZLE \_\_\_\_\_
- 9) BRAS \_\_\_\_\_
- 10) MILENIUM \_\_\_\_\_

**Q6: Form a smaller word from each of the given words:**

- 1) PROCESSION \_\_\_\_\_
- 2) TAILOR \_\_\_\_\_
- 3) FOSSILS \_\_\_\_\_
- 4) THEATRE \_\_\_\_\_
- 5) WHISTLE \_\_\_\_\_
- 6) PLEASANT \_\_\_\_\_
- 7) DISCUSS \_\_\_\_\_
- 8) MINUTE \_\_\_\_\_
- 9) CONTINUE \_\_\_\_\_
- 10) RACKET \_\_\_\_\_

**Q7: With the help of the antonyms / opposite words, given in the bracket,**

**complete the sentences:**

- 1) She made lots of f \_ \_ \_ \_ s through her behavior.  
(enemies)
- 2) It was very b \_ \_ \_ \_ t when I stepped outside. (dark)
- 3) The class was very q \_ \_ \_ \_ t when the teacher entered.  
(noisy)
- 4) Have you read the story of the slow t \_ \_ \_ \_ e?  
(rabbit)
- 5) The crowd caught the t \_ \_ \_ \_ f. (police)
- 6) This species of animal is u \_ \_ \_ \_ e. (general, common)
- 7) Cinderella met a w \_ \_ \_ \_ d witch in the forest. (good, decent)
- 8) This act of c \_ \_ \_ \_ e will be awarded by the people.  
(fear, coward)
- 9) The commanders worked hard to r \_ \_ \_ \_ e the people on the ship. (capture)
- 10) Soon it will be a \_ \_ \_ \_ n and the leaves will change their colour. (spring)



**Q10: Using the clues complete the crossword.**

	1				
2			6		
	3			7	
			9		8
4					
			5		

**Across : (Horizontal Words)**

1. Grows on plants and is a food of birds
2. To laugh and make fun of somebody
3. This is a home built in the trees for birds
4. Life became easy when man discovered this very hot thing
5. Students are instructed to stand in this formation properly
9. Favourite game of children or the uppermost part of a thing

**Down: (Vertical words)**

1. A colour of our flag showing prosperity
6. Antonym / opposite of brother
7. A preposition
8. Claws of the wild animals



## **APPENDIX B**

### **LIST OF STUDENTS WITH SCORES**

**(Marks obtained out of 100)**

Sr. No.	Name	PRE TEST	POST TEST
1	Aarya Gondale	41	82
2	Akshata Kelkar	32	52
3	Anushka Tapshalkar	55	84
4	Apeksha Palse	69	74
5	Bhairavi Patil	24	21
6	Chinmayee Deshmukh	8	20
7	Dhanashri Yadav	43	69
8	Dnyaneshwari Khatawkar	41	26
9	Gargi Sachin	60	77
10	Gayatri Divekar	33	48
11	Manasi Kshirsagar	6	25
12	Manasi Nirmal	55	64
13	Mrudula Marathe	9	24
14	Nupur Mahadar	30	36
15	PradnyeshA Gardi	37	51
16	Sae Joshi	34	51
17	Samruddhi Purohit	67	84
18	Saumya Kamble	46	75
19	Sayli Patki	58	65
20	Shruti Bhuse	14	25
21	Siddhi Walke	34	45
22	Ujjwala Bihani	11	19
23	Vaishnavi Kamble	40	52

Sr. No.	Name	PRE TEST	POST TEST
24	Abhijit Sutar	15	45
25	Aditya Lohar	34	62
26	Aditya More	12	41
27	Adwait Kumbhar	37	44
28	Atharv Jagtap	35	60
29	Bhushan Tingare	6	56
30	Harshwardhan Pawar	21	36
31	Himanshu Surwansh	16	27
32	Nachiket Bhate	29	51
33	Prajwal Jagtap	16	16
34	Pranit Walke	12	18
35	Prathamesh Basarge	25	46
36	Prathamesh Shinde	29	48
37	Pratik Joshi	31	33
38	Preshit Tendulkar	29	26
39	Rohit indalkar	7	36
40	Saket Bhide	49	60
41	Satyam Kharpude	8	25
42	Shrikant Kayangude	15	34
43	Shriraj Shudkar	8	7
44	Shubham Bhartade	40	48
45	Shubham Mahajan	60	97
46	Sumedh Joshi	10	41
47	Sumit Dangude	32	60
48	Suyog Walhekar	50	74
49	Vibhav Joshi 1	34	77
50	Vibhav Joshi 2	41	51
51	Vijay Joshi	29	60
52	Vinay Shimpi	52	48
53	Vishwajit Shinde	30	46

## APPENDIX C

### Word List

(Total words 300)

#### **Three and four letter words (33)**

Bell	Blow	Coax	Each
Eat	Egg	Face	Fan
Flaw	Girl	Hair	High
Ink	July	Know	Lock
Nail	Nest	Night	Noun
Pair	Pen	Play	Pore
Pour	Rag	Rope	Rug
Shoe	Soap	Sob	Star
Wait			

#### **Five and six letter Words (108)**

Agile	Angles	Angry	Assort
August	Autumn	Basket	Branch
Brass	Bridge	Bright	Career
Carrot	Castle	Clean	Clown
Dazzle	Desert	Elves	Empty
Essay	Excuse	Export	Famous
Float	Flower	Friend	Gadget
Giant	Grain	Grass	Green
Heart	Honour	Horse	Igloo
Insect	Island	Knight	Laptop
Laugh	Letter	Listen	Marry
Merry	Mirror	Mouse	Museum

Night	Ocean	Odious	Odour
Office	Owner	Parade	Parrot
Peace	Peanut	Pearl	Pencil
Phrase	Piece	Pillar	Pilot
Please	Puzzle	Queen	Quiet
Quilt	Quite	Racket	Really
Region	Repeat	Rescue	Rhyme
Rhythm	Sister	Solemn	Source
Space	Stain	Steady	Stitch
Straw	Table	Tailor	Tease
Their	There	Thief	Tower
Train	Tumult	Twelve	Unique
Uranus	Violin	Waist	Weight
White	Whole	Wicked	World
Wrist	Yacht	Yellow	Youth

**Seven and eight letter words (92)**

Alphabet	Anagram	Ancient	Announce
Argument	Arrange	Audience	Average
Balloon	Because	Bicycle	Biscuit
Blossom	Building	Bullock	Carriage
Carrier	Character	Chunking	Conquer
Continue	Courage	Creature	Cupboard
Dessert	Diagram	Dinosaur	Discuss
Emperor	Exhaust	February	Foliage
Fossils	Gigantic	Giraffe	Goddess
Headache	Ignorant	January	Journey
Jupiter	Leather	Library	Machine
Martyrs	Merrily	Message	Minute
Ostrich	Parallel	Passage	Pattern



Peddler	Picture	Pleasant	Process
Pyramid	Quarrel	Quarter	Rainbow
Receive	Require	Riotous	Sapphire
Separate	Session	Sometime	Spelling
Station	Stomach	Strange	Student
Suggest	Suitable	Surprise	Synonym
Theatre	Thought	Tomorrow	Tortoise
Treasure	Trekking	Trouble	Tsunami
Tuesday	Uniform	Variety	Village
Warrior	Weather	Whether	Whistle

**Words with more than 8 letters (67)**

Accumulate	Abbreviation	Accustomed	Aeroplane
Agriculture	Anniversary	Arithmetic	Astronaut
Atmosphere	Beautiful	Beginning	Ceremony
Commentary	Community	Congratulations	Controversy
Courtiers	Czechoslovakia	Delicious	Emergency
Emphatically	Environment	Exaggeration	Excellent
Extravagant	Fairyland	Favourite	Frightening
Geography	Guardian	Handkerchief	Herbivorous
Immediately	Independence	Ingenious	Institute
Intelligent	Interview	Kangaroo	Laboratory
Language	Majestic	Marvelous	Mathematics
Millennium	Mountains	Mountaineering	Necessary
Neighbor	Nutrition	Occupation	Opportunity
Patience	Principal	Principle	Procession
Renowned	Sanctuary	Secretary	Simultaneously
Sincerely	Sovereign	Suggestion	Surrounding
Temperature	Tremendous	Wednesday	

## APPENDIX D

### SPELLING RULES

- No English word ends in 'v' except spiv. Use ve instead.
- No English word ends in 'j'. Use ge or dge instead.
- The word endings 'dge', 'tch', may only be used after a short vowel  
e.g. badge, hedge, lodge, fetch, Dutch, catch.  
Exceptions to this rule are: much, such, rich, which.
- We double 'l', 'f', 's' and 'z', after a single vowel at the end of a short word.  
e.g. call, tell, toss, miss, stiff, stuff, fizz, jazz.  
Exceptions to this spelling rule: us, bus, gas, if, of, this, yes, plus, nil, pal.
- Do NOT double the final consonant when the base word has two vowels or two final consonants  
e.g. leaf, leafy; shout, shouting; fool, foolish; self, selfish; mend, mending.
- 'ti', 'ci', 'si', are three spellings most frequently used to say 'sh' at the beginning of all syllables except the first.  
e.g. nation, patient, torrential, infectious, spacious, ancient, optician, financial, tension, session, admission, pension, division.
- If the letter after the vowel is *f, l, or s*, this letter is often doubled.  
Examples: staff, ball, pass.
- **Two-Vowels Together:** When two vowels are next to each other, the first vowel is usually long (the sound is the same as the sound of the letter) and the second vowel is silent.  
Examples: meat, seat, plain, rain, goat, road, lie, pie
- **Y as a long e:** When y or ey ends a word in an unaccented syllable, the y has the long sound of e.  
Examples: money, honey, many, key, funny.

- **I before E:** Write i before e when the sound is long e except after the letter c.  
Examples: relieve, relief, reprieve. Notice the change when there is a c preceding the ie: receipt, receive, ceiling, deceive, conceive.
- **E before I:** Write e before i when the sound is long a.  
Examples: weight, freight, reign.
- **Ou or Ow:** Use ou in the middle of a word and use ow at the end of words other than those that end in n or d.  
Examples: mouse, house, found, mount, borrow, row, throw, crow.
- **Double Consonants:** When b, d, g, m, n, or p appear after a short vowel in a word with two syllables, double the consonant: b, d, g, m, n, or p.  
Examples: rabbit, manner, dagger, banner, drummer.
- **The "ch" sound:** At the beginning of a word, use "*ch*." At the end of a word, use "*tch*." When the "*ch*" sound is followed by *ure* or *ion*, use *t*.  
Examples: choose, champ, watch, catch, picture, rapture
- When the /k/ is in a beginning blend of a word it is usually spelled with c.  
ex: clown, clasp, crash
- -ck: The /k/ sound at the end of a one syllable, short vowel word is usually spelled -ck. It is also used in two syllable words ending in -et and -le.  
ex: back, flick, truck, neck, clock  
ex: jacket, tickle
- The letter c usually has the soft sound of /s/ when it comes before an e, i, or y. It has the hard sound of /k/ when it comes before an a, o, or u.  
ex: city, cell, cycle  
ex: come, can, cut
- The letter g usually has the soft sound of /j/ when it comes before an e, i, or y. It has the hard sound when it comes before an a, o, or u.  
ex: gym, gem, gin  
ex: go, game, gun
- -tch: Use -tch to spell the /ch/ sound after one short vowel at the end of a one syllable word and also in a few two syllable words.  
ex: patch, itch, stretch, kitchen  
(common exceptions: such, much, rich, which)

- -dge: Use -dge to spell the /j/ sound after one short vowel on the end of a one syllable word and also in a few two syllable words.  
ex: judge, bridge, dodge, gadget
- -zz, -ze: A word never ends with a single z.
  - A. Use -zz after a short vowel.
  - B. Use -ze after long vowels or vowel combinationsex: fizz, buzz, freeze, ooze
- q, v, w, x, and y: These letters are never doubled.

## APPENDIX E

### Appendix E: Lesson Plan 1

**Objective:** To teach the students the process of Memorization through a detailed diagram of the Brain.

Lesson Plan 1	How Memory is formed?				
Teaching Points	Teaching Objectives	Teaching Aids	Teacher's activity	Students' Activity	Evaluation
Diagram Of the Brain, Process of Memorization	Knowledge: Students know some functions of the brain and know that the information is stored in the brain	Diagrams, Charts, Actual Articles	Teacher greets the students and takes attendance	Students greet the teacher and give attendance	

	Comprehension: Students understood the process of Memorization		Teacher asks the students	Students answer	Do you know which part of the brain helps in remembering?
	Application: To form new Memory		Teacher shows diagram of the Brain and states, "Today we will try to understand the functions of the brain and the process of memorization"	Students listen	
			Teacher explains the various functions of the brain.	Students listen	
			Teacher explains the process of memorization with the help of a chart	Students listen	
			Teacher recapitulates	Students listen	

			Teacher shows some articles and asks the students to recollect them.	Students recollect	
			Teacher asks the students to explain the process of memorization	Students answer	

## Appendix E2: Lesson Plan 2

**Objective:** To teach the students the rules of Phonetics and the sounds made by various consonants and syllables.

Lesson Plan 2	Pronunciation				
Teaching Points	Teaching Objectives	Teaching Aids	Teacher's activity	Students' Activity	Evaluation
Rules of phonetics	Knowledge: Students know that every alphabet has a specific sound	Charts, Games	Teacher greets the students and takes attendance	Students greet the teacher and give attendance	
	Comprehension: Students understood the phonological pattern for combination of alphabets		Teacher states, "Today we will study the rules of pronunciation"	Students listen	
	Application: Students learnt to pronounce the words correctly		Teacher reads the rules of phonetics	Students listen	



			Teacher asks the students to repeat the same but in a sing-song manner	Students read and recite	
			Teacher shows charts and emphasizes on rules of phonetics	Students listen	
			Teacher asks the students to recollect the rules	Students recollect	
	Skill: Students learnt to spell the words based on pronunciation		Teacher asks the students to spell some words based on the rules studied	Students answer	Can you spell these words: Pronunciation, Spin, Skill, February, Burn, Shut, Spell, Spent
			Teacher gives home work to make a list of 10 words which are spelt based on the phonetic rules	Students note down	

### Appendix E3: Lesson Plan 3

**Objective:**

To teach the students the Mnemonic “Acronym” and its use in memorizing spellings

Lesson Plan 3	Acronyms				
Teaching Points	Teaching Objectives	Teaching Aids	Teacher's activity	Students' Activity	Evaluation
Acronyms	Knowledge: Students can form sensible sentences	Charts, Work Sheets	Teacher greets the students and takes attendance	Students greet the teacher and give attendance	
Ocean Geography Because Rhythm	Comprehension: Understanding of acronyms		Teacher states, “Today we will study a Mnemonic called Acronym!”	Students listen	
Arithmetic Necessary Argument	Application: Students use acronyms to memorize difficult spellings		Teacher explains the Mnemonic Acronym	Students listen	
	Skill: Students use acronyms to memorize		Teacher writes a few spellings on the board: Arithmetic, Geography	Students watch	

	difficult spellings		Teacher creates Acronyms for these words	Students listen	
			Teacher creates Acronyms for words : Necessary, Because on their own	Students listen	
			Teacher gives work sheets to the students to create more Acronyms for practice	Students fill the work sheets	Students, read out the Acronyms you have formed one by one.
			Teacher explains that Acronyms become effective if funny sentences are created.	Students listen	
			Teacher asks the students to spell the words studied during the session.	Students recite	

## Appendix E4: Lesson Plan 4

### Objective:

To teach the students the Mnemonic “Picture Making” and its use in memorizing spellings

Lesson Plan 4	Picture Making				
Teaching Points	Teaching Objectives	Teaching Aids	Teacher's activity	Students' Activity	Evaluation
Picture making	Knowledge: Students know basic drawing skills	Charts	Teacher greets the students and takes attendance	Students greet the teacher and give attendance	
Parallel Autumn Excuse Island Require	Comprehension: Visualization of picture in words		Teacher states, "Today we will study a Mnemonic called Picture Making!"	Students listen	Do you all know how Picture Making can be used to learn spellings?

Environment	Application: Students associate with pictures to memorize difficult spellings		Teacher explains the Mnemonic Picture Making	Students listen	
	Skill: Students associate with pictures to memorize difficult spellings		Teacher rights a few spellings on the board	Students watch	
		Teacher asks students to visualize	Students visualize and answer		
		Teacher draws some pictures on the board which are associated with words	Students watch		
		Teacher asks the students to create more Pictures for practice for remaining words written on the board	Students create new pictures		

			Teacher explains that shapes, colors of the picture is useful in memorization of the spellings	Students listen	
			Teacher asks the students to spell the words studied during the session.	Students recite	

## Appendix E5: Lesson Plan 5

### Objective:

To teach the students the Mnemonic “Chunking” and its use in memorizing spellings

Lesson Plan 5	Chunking				
Teaching Points	Teaching Objectives	Teaching Aids	Teacher's activity	Students' Activity	Evaluation
Chunking Agriculture Extravagant Immediately Controversy	Knowledge: Students know small words	Charts, Worksheets	Teacher greets the students and takes attendance	Students greet the teacher and give attendance	
	Comprehension: Visualisation of phonetic parts in words		Teacher states, “Today we will study a Mnemonic called Chunking!”	Students listen	
	Application: Students visualise small phonetic parts of a long spelling which can be remembered easily		Teacher explains the Mnemonic Chunking	Students listen	

			Teacher rights a few long spellings on the board by breaking them into parts	Students watch	
			Teacher asks students to visualise	Students visualise and answer	
	Skill: Students visualise small phonetic parts of a long spelling which can be remembered easily		Teacher provides work sheets to the students to practice for remaining words written on the board	Students break the words into small spellings	
			Teacher asks the students to spell the words studied during the session.	Students recite	



## Appendix E6: Lesson Plan 6

### Objective:

To teach the students the Mnemonic “Pyramid” and its use in memorizing spellings

Lesson Plan 6	Pyramid				
Teaching Points	Teaching Objectives	Teaching Aids	Teacher's activity	Students' Activity	Evaluation
Pyramid Beautiful Pyramid	Knowledge: Students know the alphabets and short words	Charts, Worksheets	Teacher greets the students and takes attendance	Students greet the teacher and give attendance	
	Comprehension: Learning to memorize one by one		Teacher states, “Today we will study a Mnemonic called Pyramid!”	Students listen	

	Application: Students remember the longer spellings alphabet by alphabet		Teacher explains the Mnemonic Pyramid	Students listen	
	Skill: Students learnt to remember the longer spellings alphabet by alphabet		Teacher says a spelling loudly and writes it on the board in Pyramid form	Students watch	
			Teacher asks students to spell in the same way	Students draw Pyramid of alphabets	
			Teacher provides work sheets to the students to practice	Students write the long spellings in pyramid form	
			Teacher asks the students to spell the words studied during the session.	Students recite	

## Appendix E7: Lesson Plan 7

### Objective:

To teach the students the Mnemonic “Homophones” and its use in memorizing spellings

Lesson Plan 7	Homophones				
Teaching Points	Teaching Objectives	Teaching Aids	Teacher's activity	Students' Activity	Evaluation
Homophones Knight-Night Know-No Peace-Piece Week-Weak Wait-Weight	Knowledge: Students know that similar sounding words may have different spellings	Charts	Teacher greets the students and takes attendance	Students greet the teacher and give attendance	
Pale-Pail Pain-Pane	Comprehension: Students understand the concept of Homophones		Teacher states, "Today we will study about Homophones!"	Students listen	

	Application: Students learn to identify the Homophones based on their meanings		Teacher explains the concept of Homophones	Students listen	Do you know any words which have different meanings but are pronounced similarly?
	Skill: Students learnt to use Homophones in their sentences		Teacher reads out a list of Homophones	Students listen	
			Teacher asks students the difference in every pair of Homophones	Students answer	What do you mean by "Wait till I loose my weight."? What is the difference between Piece and Peace?
			Teacher provides answers to difficulties and new Homophones asked by students	Students listen and ask queries	

			The teacher asks the students to construct sentences where one sentence contained both the Homophones	Students think and write	
			Teacher asks the students to spell the words studied during the session.	Students recite	

## Appendix E8: Lesson Plan 8

### Objective:

To teach the students Spelling Rules and their use in memorizing and creating spellings

Lesson Plan 8	Rules				
Teaching Points	Teaching Objectives	Teaching Aids	Teacher's activity	Students' Activity	Evaluation
Rules —	Knowledge: Students know some rules based on which spellings are formed and pronounced	Charts	Teacher greets the students and takes attendance	Students greet the teacher and give attendance	
I before E except for C —	Comprehension: Students understand the rules		Teacher states, "Today we will study about some Rules of spelling formation!"	Students listen	
	Application: Students learn to identify spellings based on the rules		Teacher explains each rule with example	Students listen	Do you know how the word

					Friend is formed?
	Skill: Students learnt to spell complicated words		Teacher states new rules and asks the students to give examples	Students listen and give examples	Tell me an example of " Q is always written as QU"
			Teacher provides answers to difficulties	Students listen and ask queries	
			The teacher revises every rule with examples	Students participate	
			Teacher asks the students to prepare columns having rules on the left and corresponding spellings on the right.	Students do the assignment	

## Appendix E9: Lesson Plan 9

### Objective:

To teach the students creative ways of preparing own rules and their use in memorizing spellings

Lesson Plan 9	My Rules				
Teaching Points	Teaching Objectives	Teaching Aids	Teacher's activity	Students' Activity	Evaluation
My Rules	Knowledge: Students know some rules based on which spellings are formed and pronounced		Teacher greets the students and takes attendance	Students greet the teacher and give attendance	
	Comprehension: Students understand the rules		Teacher states, "Today we will study about some Rules of spelling formation that you will form on your own!"	Students listen	



	Application: Students learn to identify spellings based on the rules		Teacher explains the concept of forming own rules.	Students listen	Can you form your own rules to memorize a word like "Persimmon", "Rumbustious"?
	Skill: Students learnt to form their individual rules		Teacher helps every student in formulating their ideas	Students work to create their own rules	
			Teacher provides answers to difficulties	Students listen and ask queries	
			Teacher revises all the individual rules formed	Students answer	

## WORK SHEET F1

### ACRONYM

Prepare sentences using every alphabet in the word given

Ex. OCEAN : **O**ny **C**at's **E**yes **A**re **N**arrow

Words for practice

EAT : \_\_\_\_\_

COAX: \_\_\_\_\_

ANGRY: \_\_\_\_\_

AUGUST: \_\_\_\_\_

ANCIENT: \_\_\_\_\_

CREATURE: \_\_\_\_\_

ODOUR: \_\_\_\_\_

LAUGH: \_\_\_\_\_

SISTER: \_\_\_\_\_

VILLAGE: \_\_\_\_\_

## WORK SHEET F2

### CHUNKING

Break the long word into small words which can be easily remembered

Ex. CONTROVERSY : **CON + TRO + VER + SY**

Words for practice

HERBIVOROUS : \_\_\_\_\_

MATHEMATICS: \_\_\_\_\_

CONGRATULATIONS: \_\_\_\_\_

GEOGRAPHY: \_\_\_\_\_

SANCTUARY: \_\_\_\_\_

TREMENDOUS: \_\_\_\_\_

NECESSARY: \_\_\_\_\_

EXTRAVAGANT: \_\_\_\_\_

ASTRONAUT: \_\_\_\_\_

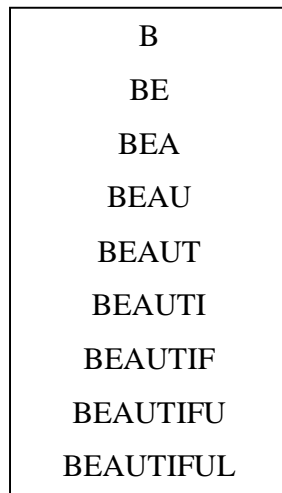
ANAGRAM: \_\_\_\_\_

## WORK SHEET F3

### PYRAMID

Break the long word into small words which can be easily remembered

Ex. BEAUTIFUL



Words for practice : (To be written in the manner shown above)

ACCUMULATE

AEROPLANE

CEREMONY

COMMENTARY

DELICIOUS

TEMPERATURE

INSTITUTE

COMMUNITY

ASTRONAUT

WEDNESDAY

## APPENDIX G

### Teaching Aids and Exhibits



1

When there is only one vowel in a word or syllable and the vowel comes between two consonants, the vowel is usually short.  
ex. back, fed, gun, fig



2

When there is only one vowel in a word or syllable and the vowel comes at the beginning of the word, the vowel is usually short.  
ex: egg, off, it, add, us

## Vowels

3

When there are two vowels in a word or syllable, the first vowel is usually long and the second is silent.  
ex: maid, hear, cute, coat, tied



"When 2 vowels go walking, the first one does the talking."

4

When there is only one vowel in a word or syllable and the vowel comes at the end, the vowel is usually long.  
ex: why, no, he



5

When a is followed by u, w, r, ll, and It in the same syllable, it often has the third sound of a, the Italian a.  
ex: haul, pause, scar, fall, pawn, fault

6

When Y comes at the end of a two or more syllable word, Y has the sound of long e if the Y syllable is unaccented.  
ex: funny, penny, soapy, flaky, tidy





7

When Y comes at the end of a two or more syllable word, Y has the sound of long i if the Y syllable is accented.

ex: defy, comply, identify, supply, multiply

8

When words end with the suffix -ing, -ed, or -er, the first vowel is usually short if it comes between two consonants.

ex: skinned, helper, canned, robber, shunned



9

When words end with the suffix -ing, -ed, or -er, the first vowel is usually long if it comes before a single consonant.

ex: tamer, noted, user, zoning, cubed,



# Formations of Spellings



**"q" is always written as "qu".  
It never stands by itself.  
e.g. quick, queen, quarrel.**

---

**When "c" is followed by "e", "i" or  
"y", it says "s". Otherwise it says "k"  
e.g. centre, ceiling, circle, cycle.  
cottage, cave, cream, curious,  
clever.**

# Formations of Spellings



**To form plurals of words with a hissing ending, add "es".  
i.e. after "s, x, z, sh, and ch".  
e.g. buses, foxes, buzzes, wishes  
and churches.**

---

**er" or "or" endings. The most  
common everyday words end in "er"  
e.g. baker, painter, teacher.  
If in doubt, use "or", when the  
meaning of the word is "one who" or  
"that which".  
e.g. author, director, instructor,  
indicator, conveyor, escalator.**

# Acronyms



Spellings can be learnt by constructing easy and funny sentences using letters of the spelling

## ARITHMATIC

A Rat In The House May Eat The Ice Cream

## BECAUSE

Big Elephants Can Understand Small Elephants

## OCEAN

Only Cat's Eyes Are Narrow

# Picture making

Memorising spellings  
by creating pictures  
out of it. All spellings  
are learnt by this  
method by us.



Autumn

excuse

Require

Island

Parallel

Environment

ab**bre**viation



exa**g**geration

immedi**a**tely

simultane**o**usly

con**q**uer

Czechoslovakia

# Chunking



Spellings can be broken into small parts for individual memorization

**AGRICULTURE = AGRI + CUL + TURE**

**CONTROVERSY = CON + TRO + VER + SY**

**EXTRAVAGANT = EXTRA + VA + GANT**

**IMMEDIATELY = IM + ME + DI + ATE + LY**

# Pyramid

Break each letter  
to memorise spelling  
of any word



P	P
PY	PY
PYR	PYR
PYRA	PYRA
PYRAM	PYRAM
PYRAMI	PYRAMI
PYRAMID	PYRAMID

B  
BE  
BEAU  
BEAUT  
BEAUTI  
BEAUTIF  
BEAUTIFU  
BEAUTIFUL

B  
BE  
BEAU  
BEAUT  
BEAUTI  
BEAUTIF  
BEAUTIFU  
BEAUTIFUL

# Practice



**Practicing helps as Speaking and Writing the word over and over again so that more senses are involved**

**Listening, Speaking, Writing & Seeing**

**Revising in a sing-song manner helps to memorize eg: tables, rules and definitions**





# My Rules

**Make your own rules while learning spellings**



**I hear with my ear**

**Eigh is pronounced as "a"  
eg Neighbor, Weight, Weigh**

**I before E except for C !! eg.  
Receive, Receipt, Deceit,  
Conceive and Friend, Diet,  
Quiet, Piece**

**BOOKKEEPER:  
Triple Compound OO, KK, EE !**

**A Principal is your Pal and  
Principle is a rule**

**Remember  
Affect is Verb  
Effect is Noun**

**I lost an E  
in an argument!  
(Argue...Argument)**

# Homophones

Words that have  
same pronunciation  
but different spelling  
& meanings



**KNIGHT and NIGHT**

**KNOW and NO**

**PEACE and PIECE**

**WASTE and WAIST**

**WEEK and WEAK**

**WEIGHT and WAIT**

# Things that improve memory

- Learning a musical instrument
- Good diet, exercise and Yoga
- 8 hours of sleep every day
- Less use of calculators
- Caffeine
- Reading 
- Playing bridge
- Learning a new language
- Meditation
- Using Mnemonics



# Foods Good for Memory

- Turmeric
- Ginger
- Cinnamon
- Basil
- Rosemary
- Tea, Coffee
- Cow's milk
- Olive Oil
- Vitamin B
- Broccoli
- Green Leafy vegetables
- Foods rich in anti-oxidants



# Facts about memory



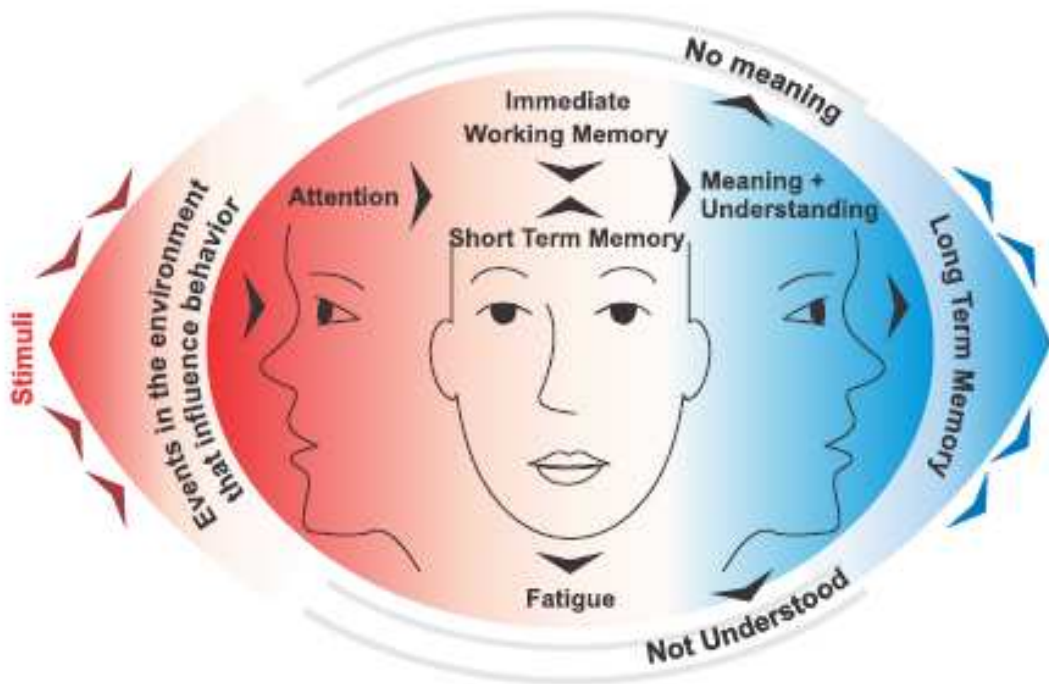
- The human brain grows till the age of 18
- Memory paired with scent can be recalled easily
- The brain consolidates memory while you sleep
- A lack of sleep decreases ability to create new memories
- Brain can feel no Pain
- About 100 Billion neurons make a brain
- Horses have good memory
- Stress and Extreme happiness make you forgetful
- Reading aloud and talking to young children provoke brain development

# 10 Tips for Memory Improvement

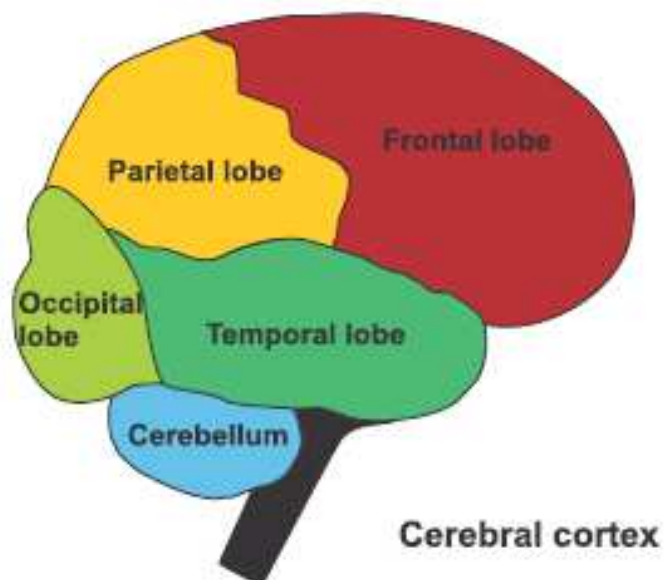
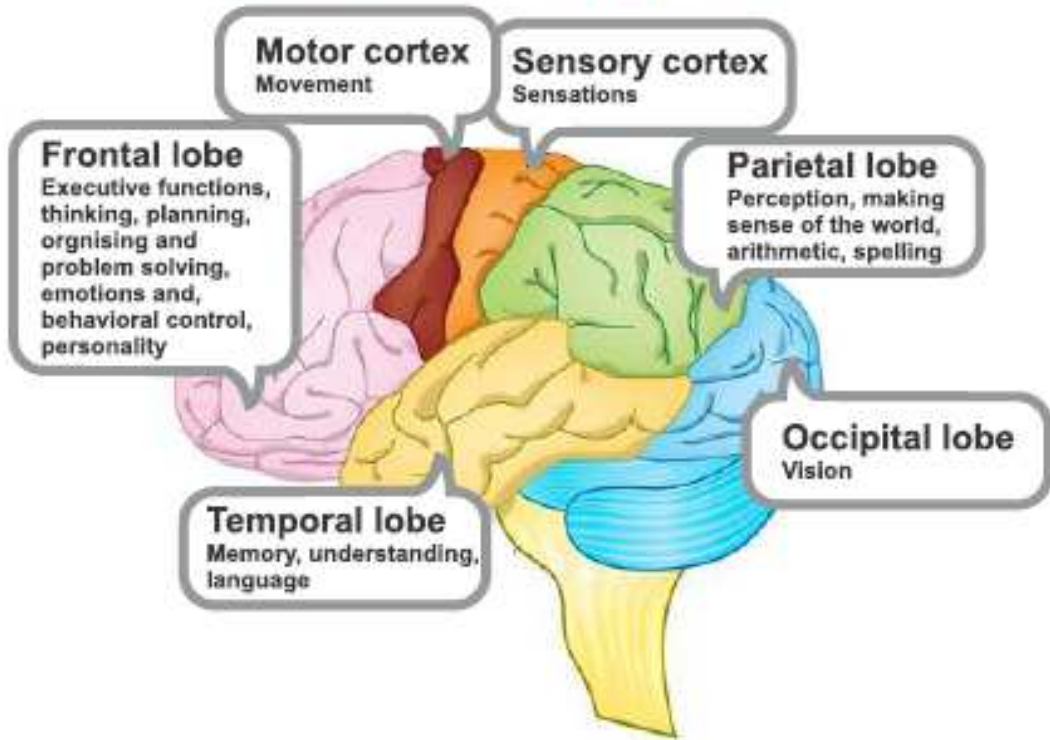
1. Focus your attention on the materials you are studying
2. Avoid cramming by establishing regular study sessions
3. Structure and organize the information you are studying
4. Utilize mnemonic devices to remember information
5. Elaborate and rehearse the information you are studying
6. Relate new information to things you already know
7. Visualize concepts to improve memory and recall
8. Teach new concepts to another person
9. Pay extra attention to difficult information
10. Vary your study routine



# How Memory is Formed



# Brain Diagram





अभिप्राय

10/3/92

1] The project is really helpful to not only students but also teachers, parents, etc to refresh their thoughts and study.  
— Sharayu Joshi

2] The exhibition is really good and it's very useful to children to complete their basic portion and it's helpful for grammar also.  
— Shradha Joshi

The project would really prove to be fruitful to the school in teaching of the children.

4) The exhibition is really too good & it children use this method to learn than they really achieve quickly and and better.  
— Anika

The exhibition is really very nice & very useful for students. Keep it up  
— Neha

5) Its very good.

6) Excellent! No other word.

7) Really Good.

अभिप्राय

अतिशय छान प्रदर्शन आहे. वेळोवेळी अरकाण  
यावे. धरगवाड

शुभाम गोडी

शुभ छान फुल्लेन वषिमाठी आणखी या प्रकल्पावर आर द्यावा.  
व मुलांचे इंटरमीडियटन छान वाठण्यात भयन होईल.

सौ. भाव्याची मज. 114

शुभाम

English development लाठी प्रदर्शन शुभ शुभ आहे. लक्षात  
हे प्रदर्शनातील मॅटर कुठेच स्वच्छता विद्यार्थ्यात आण होईल

शुभाम

शुभामिका

छान ।

शुभाम  
Shikha D. Yadav

सूचना वाचून त्याप्रमाणे केल्यास नक्कीच फायदा होईल.

v.v. शुभामिका

Very very good

Pure  
म. व.

शुभ वषी मुलांची समजावणी वाढविण्यासाठी नक्की प्रयत्न करा येईल

म. व. उ. प. शुभामिका

शुभ छान वाटेल. मुलांची प्रगती फुल्लेन वषी आणखी वाढविण्यासाठी

प्रयत्न आम्हाला मिळाले.

शुभामिका

स्मरणशक्ती वाढवण्यास याचा उपयोग होईल

मुलांची शब्द प्रांतरासाठी लक्ष्य बनविण्यासाठी यांगना  
उपयोग होईल

Shinke

KARUSU

अतिशय उपयोगी आणि मुलांच्या सर्वांगीण विकासासाठी  
मदत करणारा उपक्रम आहे

MSS

प्रयोगशीलता होणाऱ्या कुले अतिव उपयोगी  
आवर्धनीय च। विश्वास व द्ययति इति विशेषः।

श्री. कर

या उपक्रमामुळे मुलांच्या सर्वांगीण विकास नर होऊनच आहे पण  
तुम्ही तिलेच्या वेळापत्रकामुळे याचा वेळेची किंमती यांगलीय करली.

Walse

Good attempt of memory & Personality Dev. Let  
Best of luck.

हा उपक्रम अतिशय सुंदर आहे

M

हा उपक्रम अतिशय सुंदर व उत्तुल्य आहे

MSS

आज जे प्रेझेंटेशन लावले आहे त्याचे कलेकरीव्ह सुकलेट पालकांसाठी  
उपलब्ध करून द्यावे ही किर्गी. प्रेझेंटेशन एवढे आहे.

दयव्याद. MS

उपक्रम छान! मुलांना लवकर इंग्रजी समजण्यास मदत झाली.  
संबंधी

Mrs. Vaishali Dugad - Very good ! keep it up.

सौ संगिता शिंदे - छान वातलय पूटे मूलानकडून करणध्यावे

सौ कविता देशमुख - नुसच्या पुस्तकाची वाट पहात आणेत  
9604424696.

Ragini Choudhary - Very beautifully noted. If brought in practice by every one, will do magical spelling formations nicely explained. Even in my school days I studied spelling formation in same way and now use it with all my students also. to

Shilpa Sandhane :- Good information. scientific also.

Sumit Daphele :- very good.

Pharande Naren :- Its very good to improve our brain.

Vaishali Bengurkar :- Good & useful information - like to have a book.

सौ. कविता मोहोते - वाढत्या वयाच्या मुलांच्या लुद्धीमतेच्या विकासामध्ये अगदी चालना मिळवतासोई हे प्रदर्शन खूप उपयुक्त आहे

9767689544

B. R. Karande. - Exhibition is useful for pronunciation, word builder, & making spelling. It is useful improving memory: 10 Tips for memory improvement is important to the students.

(k.k) Anitha gits

Anchal - I really like this exhibition, and I will use all this fact.

(k.k) Mrs. Manjusha Purohit :- It's very useful and interesting exhibition, It is useful for teachers and students also. Thank you.

(k.k)(7<sup>th</sup>) Sayali and Siddhi :- It is very nice and we use these ~~fact~~ facts in every day. We like these facts and that are useful for every students. Thank you very much.

This exhibition is very excellent. It's useful for students, and parents and teachers also. With these methods students can learn easily, with playful learning.

computer Dept. The exhibition is not only excellent but also useful for students & parents. minute things are considered & worked very effectively.

फारच छात्र! विशेष प्रयत्न आवडला.  
विशेष मुलांसाठी प्रयोग कापरवा,

सौ. नामजोशी.

Excellent! It is really helpful for all the students Abhi

## APPENDIX I POST TEST

**Name :** \_\_\_\_\_

**School :** \_\_\_\_\_

**Age :** \_\_\_\_\_ **Gender (M/F) :** \_\_\_\_\_

**Standard :** \_\_\_\_\_ **Date :** \_\_\_\_\_

Marks : 100. Time : 2 hrs

---

Note : All Questions are compulsory. All questions carry equal marks.

---

### **Q 1: Dictation:**

- |          |           |
|----------|-----------|
| 1) _____ | 6) _____  |
| 2) _____ | 7) _____  |
| 3) _____ | 8) _____  |
| 4) _____ | 9) _____  |
| 5) _____ | 10) _____ |

### **Q2: Tick the word with the correct spelling**

- |   |                                      |                                      |
|---|--------------------------------------|--------------------------------------|
| 1) Ogust <input type="checkbox"/>       | August <input type="checkbox"/>      | August <input type="checkbox"/>      |
| 2) Chunking <input type="checkbox"/>    | Chencking <input type="checkbox"/>   | Chanking <input type="checkbox"/>    |
| 3) Yacht <input type="checkbox"/>       | Yaught <input type="checkbox"/>      | Yotch <input type="checkbox"/>       |
| 4) Pirameed <input type="checkbox"/>    | Pyramid <input type="checkbox"/>     | Piramyd <input type="checkbox"/>     |
| 5) Stomache <input type="checkbox"/>    | Stamak <input type="checkbox"/>      | Stomach <input type="checkbox"/>     |
| 6) Mathematics <input type="checkbox"/> | Methametics <input type="checkbox"/> | Mathametics <input type="checkbox"/> |
| 7) Angri <input type="checkbox"/>       | Angree <input type="checkbox"/>      | Angry <input type="checkbox"/>       |
| 8) Geography <input type="checkbox"/>   | Geogrufy <input type="checkbox"/>    | Gogrufy <input type="checkbox"/>     |
| 9) Nesesary <input type="checkbox"/>    | Necessary <input type="checkbox"/>   | Nessesury <input type="checkbox"/>   |
| 10) Temprature <input type="checkbox"/> | Tepreture <input type="checkbox"/>   | Temperature <input type="checkbox"/> |

**Q3 : Rearrange the letters to form a meaningful word:**

- 1) TAIW \_\_\_\_\_
- 2) LYAP \_\_\_\_\_
- 3) HITWE \_\_\_\_\_
- 4) TRISW \_\_\_\_\_
- 5) LOFREW \_\_\_\_\_
- 6) TIQUE \_\_\_\_\_
- 7) RAST \_\_\_\_\_
- 8) LIRG \_\_\_\_\_
- 9) SMOUFA \_\_\_\_\_
- 10) SHORE \_\_\_\_\_

**Q4: Fill in the blanks with correct vowels:**

- |                     |                     |
|---------------------|---------------------|
| 1) J _ P _ T _ R    | 6) _ TM _ SPH _ R _ |
| 2) M _ _ NT _ _ N   | 7) Q _ _ LT         |
| 3) K _ NG _ R _ _   | 8) N _ _ GHB _ _ R  |
| 4) _ _ R _ PL _ N _ | 9) S _ M _ T _ M _  |
| 5) _ STR _ N _ _ T  | 10) D _ N _ S _ _ R |

**Q5: Form a meaningful word by repeating any one letter in each of the following words:**

- |                  |                   |
|------------------|-------------------|
| 1) PAROT _____   | 6) MIROR _____    |
| 2) VILAGE _____  | 7) IGLO _____     |
| 3) SPELING _____ | 8) BEL _____      |
| 4) GREN _____    | 9) GRAS _____     |
| 5) YELOW _____   | 10) PARALEL _____ |

**Q6: Form a smaller word from each of the given words:**

- 1) OSTRICH \_\_\_\_\_
- 2) PENCIL \_\_\_\_\_
- 3) EXPORT \_\_\_\_\_
- 4) ISLAND \_\_\_\_\_
- 5) VIOLIN \_\_\_\_\_
- 6) WHISTLE \_\_\_\_\_
- 7) YOUTH \_\_\_\_\_
- 8) PLEASE \_\_\_\_\_
- 9) PROJECT \_\_\_\_\_
- 10) SURPRISE \_\_\_\_\_

**Q7: Complete the following sentences:**

- 1) We wear the watch on the w\_\_ \_ \_ t.
- 2) I want to draw a p\_\_ \_ \_ \_ \_ e.
- 3) The t\_\_ \_ \_ f ran away with the loot.
- 4) A\_\_ \_ \_ \_ m is a technique for memory.
- 5) She put her hands on her w\_\_ \_ \_ t.
- 6) The Pacific is the biggest o\_\_ \_ \_ n.
- 7) A square has four right a\_\_ \_ \_ es
- 8) Planets move in the s\_\_ \_ \_ e.
- 9) Akbar was a Mughal e\_\_ \_ \_ \_ \_ r.
- 10) It rains heavily in J\_\_ \_ \_ y.

**Q8: Correct the following spellings.**

- 1) URANS \_\_\_\_\_
- 2) MOUS \_\_\_\_\_
- 3) LAPTP \_\_\_\_\_
- 4) QURTER \_\_\_\_\_
- 5) FARYLAND \_\_\_\_\_
- 6) BAUTIFUL \_\_\_\_\_
- 7) FEBRURY \_\_\_\_\_
- 8) STDENT \_\_\_\_\_
- 9) BRACH \_\_\_\_\_
- 10) SUROUNDING \_\_\_\_\_







# JNANA PRABODHINI NAVANAGAR VIDYALAYA

Sector No. 25, Nigdi, Pradhikaran, Pune - 411 044. • Phone : 27657508 • Telefax : 27654380

## CERTIFICATE

This is to certify that **Mrs Kirti Dhananjay Namjoshi** completed her educational programme on Mnemonics for memorization of English spellings. This programme was implemented on Std VI students of our school from January 2012 to March 2012.

We wish her all the best for her Ph.D work

सिद्धि.

Head Of The Dept.

## APPENDIX K



Students and Researcher in question answer session



Researcher using teaching aids



All Students



Exhibition



Parents and teachers at the Exhibition