

Effectiveness of Memory Model for Teaching English in terms of Achievement in English of Class IX Students

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ABSTRACT

This research paper is based on the Memory Model of teaching which belongs to the Information Process Family and developed by Richard Atkinson and Richard Shiffrin in the year 1968. According to them the memory is mainly of two types short term memory and Long term memory .This study looks into students' perspectives and point of view of the mnemonic technique in teaching and learning English vocabulary. The selected respondents are students who are currently learning English subject in a school. Objective of the study was to compare the mean achievement score of the group taught through Memory model of teaching and the group taught through traditional method of teaching .Sample was collected from two different English Medium IX class students of Indore city One group of students were taught through the Memory Model of teaching and the other group of students were taught through the traditional method of teaching An achievement test of English was prepared by the researcher to collect the data. The data were analyzed by the one way ANCOVA and before preceding for the parametric test assumption of the parametric test were tested. Findings of the study revealed that the memory Model of teaching was found effective in enhancing the achievement of IX class students of Indore city.

INTRODUCTION

The present study entitled “Effectiveness of Memory Model for teaching English in terms of Achievement in English of class IX students.” This study pertains to the area of educational technology and in that belongs to the Models of Teaching. A model of Teaching is a description of a learning environment. Models provide learning tools to the students.

Teaching and learning process

Teaching Learning process is the heart of education. It is the most important instrument to bring the desired change among students. Teaching learning process is one that helps society to develop children of today as good citizens of

tomorrow who can make best use of things in the world around them effectively and efficiently. Teaching learning is a process that is made up of four aspects: teacher, student, content/curriculum and learning environment. Teacher is one who creates the learning environment, without whom children cannot be considered as students and teacher is the only one who transmits curriculum to student in an effective and efficient manner. Classroom environment is one of the most important factors affecting student learning. Simply put, students learn better when they view the learning environment as positive and supportive **(Dorman, Aldridge, & Fraser, 2006)**. A positive environment is one in which students feel a sense of belongingness, trust others, and feel encouraged to tackle challenges, take risks, and ask questions **(Buchholz & Sheffler, 2009)**. Such an environment provides relevant content, clear learning goals and feedback, opportunities to build social skills, and strategies to help students succeed **(Weimer, 2009)**. In the absence of any one, teaching learning process cannot take place. **According to New National Education Policy (2020)** One major objective of education, undoubtedly, is to impart people with the skills and knowledge that will help them to earn their livelihood. However, the employability of students in Indian education system today is alarmingly disappointing in relation to what various industries need in terms of skills and knowledge. Creativity, innovation, critical thinking, high order thinking capacities, problem-solving abilities, teamwork, communication skills, more in depth learning, mastery of curricula across fields, increase in social and moral awareness should be enhanced by integrating Humanities and Art with Science, Technology, Engineering and Mathematics (STEAM). These skills can be enhanced if we switch over to some new methods of teaching and learning rather than traditional methods of teaching. Models of Teaching supports this kind of environment through which high order thinking, intellectual, aesthetic, social, physical, emotional and moral values can be developed easily and effectively. Thus NEP 2020 insists on the holistic development of the child, promote critical and high order thinking among students.

So, there is a need of such a method of teaching where specific climate in the classroom is generated through which the desirable characteristics or qualities could be developed among children. An integral part of any activity in learning involves a crucial role of memory and so researcher decides to research in the field of Models of Teaching. Models of Teaching is an avenue to liberate

student learning capacity and by doing so not only affirm effective learning but also purposeful teaching.

Need of models of teaching

Print materials are now and probably will remain an important resource in the classroom. A perpetual concern of educators is the preparation and use of materials that are organised in such a way that maximizes learning. A crucial area of interest among educators has been the development of techniques to facilitate students' learning from text. In India, teachers, by and large, are unable to adopt appropriate methods for teaching various subjects due to lack of comprehensive knowledge of such methods. As teaching is a complex task and it is very difficult to find a single best method or effective method of teaching. The most vital and significant issue of immediate concern to the teaching community is the inadequacy of traditional methods and use of technologies in present scenario through which the learner acquires knowledge, and skills. Students know the information but they cannot correlate this to their daily life situations. Hence there arose the need for methods, strategies and techniques that are suitably and effectively help to develop creative attitudes and capacities among students, a sense of intellectual power, mastery of facts and ideas. Memorization of the content help to use the facts in different ways and thus new knowledge can be constructed. Therefore efforts are being made to develop theories of teaching as a result of which some teaching models or paradigms have been developed. Since the main focus of this research, lies upon 'Memory Model of Teaching ', the investigator intends to explain about the Memory Model of Teaching in detail.

Models of teaching

In order to overcome problems of current scenario and use of E- learning a teacher is required to teach students by using various methods and strategies one of which can be Models of Teaching.

According to Joyce and Weil (1983) “Models of Teaching consist of such guidelines that helps in developing a plan or pattern that can be used to shape curricula, to design instructional materials and to guide instruction in the classroom that help to develop learning environment of the classroom cohesive and interesting “A Model of Teaching is a description of a learning environment. Models provide learning tools to the students. Some Models of Teaching have broad applications while others are designed for specific purposes. Models of Teaching can be used comfortably and efficiently in

classroom and in other educational settings. A model of teaching is a plan or pattern that can be used to shape curriculum, to design instructional material and to guide instructions in classrooms. These Models of Teaching are grouped under four families. These are Information Processing Family, Personal Family, Social Family and Behavioural System Family (**Bruce Joyce & Marshel Weil**).

Assumptions of models of teaching

- The desirable environment can be created by the teacher to facilitate teaching.
- Different styles of learning require different models of instruction.
- Mode of instruction depends upon the objectives to be achieved.
- The body of knowledge can be structured so that is readily grasped by the learners.

Information processing family

Information Processing Models usually focus on Cognitive capacity. They are usually concerned with the ability of the learners as how they observe and organize data in progressive steps, actions and operations that take place and try to understand information and concepts related to verbal and nonverbal symbols.

The models which belong to this family are: The Concept Attainment Model, The Memory Model, Inquiry Training Model, The Advance Organizer Model, Cognitive Growth Model, and Biological Science Inquiry Model. Researcher would like to research in detail about Memory Models of Teaching.

Memory model of teaching

Memory Model of Teaching falls under the **Information Processing Family**. Memory Model of teaching was developed by **Jerry Lucas & Mary Lorayne in 1974**. It is especially designed to store and retrieve information. Basic terminology in cognitive Psychology includes four terms- Memory, Storage, Encoding and Retrieval. In Memory Model of Teaching word '**Memory**' is of great importance. Memory is the integral part of our day to day life. In every work that one do and every form of communication, one rely completely on memory of past experiences, conversations, information and skills. Memory is the process by which information is encoded, stored and retrieved. **According to Squire (2018)** psychological Memory is defined as the faculty of encoding, storing, and retrieving information. Psychologists have found that memory includes three important categories: sensory, short-term, and long-term. Each of these kinds of memory has different attributes. According to **Attikson & Shiffrin (1968)**. Memory refers to learner's ability to save thing (mentally). The term

‘Storage’ refers to the acquisition of new knowledge; the process of putting what is learnt into memory in the first place. ‘Encoding’ refers to assigning specific meaning and interpretation to stimuli and event change into some sensory image- visual, audio, smell, taste and texture. Audio may be converted to visual form while encoding and vice versa.

Salient features of memory model

Lucas & Mary Lorayne built their model to increase:

1. Attention to what is to be learned.
2. The sense involved in attending, and
3. The associations one makes between the new material and things that have previously been learned.

Components of models of teaching

Syntax

Sequences of activities called as syntax. The syntax of Memory Model of teaching has the following phases:

Phase-I: Attending to the Material

Phase-II: Developing Connections

Phase-III: Expanding Sensory Images

Phase-IV: Practicing Recall

Phase-I: Attending to the Material: At this phase of the Memory Model of teaching, the teachers and learners use techniques of underlining, listing, and reflecting.

Phase-II: Developing Connections: At this phase of the Memory Model of teaching the teacher and the learners make learning material familiar. The teacher and the learners develop connections using key word, substitute word and link system techniques

Phase-III: Expanding Sensory Images: At this phase of the Memory Model of teaching, the teacher and the learners use techniques of ridiculous associations and exaggeration. The learners must make the revision of images.

Phase-IV: Practicing Recall: At this phase of the Memory Model of teaching the teacher encourages the learners to make the practices of recalling the learning material of various lesson of a unit which are already learnt by them.

The social system

The social system is cooperative. Teacher and students become a team who work on the new material together. Gradually students become the central part as

they obtain control over the strategy and used the strategies to memorize ideas, words and formulas. Thus, it describes the students and teachers relationship.

Principles of reaction

The most important role of the teacher is to assist the learners in learning their material, provide a frame of reference, and help the learners in identifying key words, pairs, and images. Thus makes the learner able to substitute the difficult words with the simple and understandable words, make the awareness of words or learning material which the learner wants to remember, help the learners to maintain association of the present learning material with the other one which they have already learnt. This helps the learners to maintain integrated sequence of learning material, maintaining ridiculous association, make the key words of the whole learning material and motivate the learners to revise the learnt material.

Support system

Support is given in the form of books, films, play, pictures, concrete advertisements and other audio-visual materials which are especially useful for increasing the sensory richness of the associations.

Application of the model

This element of the model describes the application of the model. Some models are meant for short lessons, some are for large and some are for both. Models also differ in terms of goal achievements – cognitive, affective or psycho-motor. Model is taught in such a way that dependence on teacher is decreased and students can use the procedure whenever they need to memorize. The students are taught by - Organizing information to be learned, Ordering information to be learned, linking information to familiar material, linking information to visual representation, linking information to associated information, devices that make the information vivid are also useful, rehearsal (Practice) is always useful and students benefits from the knowledge of results. **Joyce & Weil (1985)** tries to describe the feasibility of its use in achieving specific educational goals and determining specific work environment.

Effects of the memory model

Each model results in two types of effects one of which is Instructional and other one is Nurturant. Instructional effects are the direct effects of the model which results from the content and skills on which the activities are based. Nurturant effects are the one which implicit in the learning environment. They are the indirect effect of the Model. The Nurturant effect comes from experience

and environments created by the model. Every teacher faces a wide variety of problems in classrooms. An effective teacher can apply these models, resourcefully and creatively so as to solve the problems. The model of teaching gives ample opportunities to the teacher to adapt them to suit the classroom requirement. Only creative flexible and resourceful teachers will achieve the maximum benefits from the Models of Teaching.

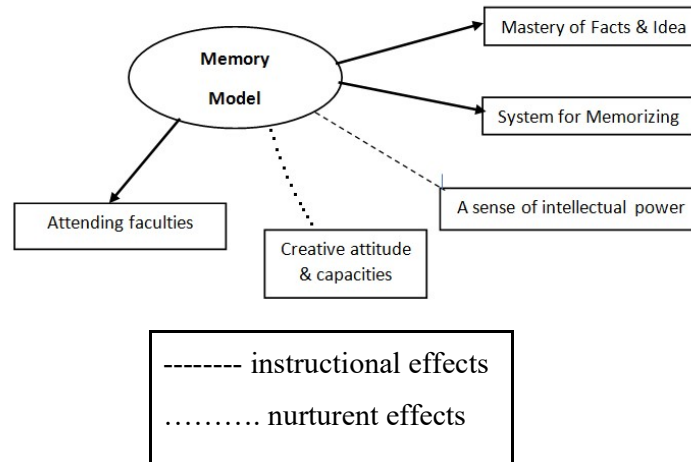


Figure 3: Effects of Models of Teaching

Source: Joyce, B. and Weil, M. (1985). Models of Teaching. Fifth Edition (pg. 230)

REVIEW OF LITERATURE

Panda (1986) conducted a study on “Effectiveness of Memory Model on learning from text material of IX grade pupil of Indore city”. Researcher found the difference between the achievement scores of people studying through Memory Model, set induction and traditional method with significance and concluded that students learning text with the help of techniques used in Memory Model scored highest as compared to traditional and set induction method.

Sushma (1987) undertook a study entitled “Effectiveness of Memory Model and Biological Science Inquiry Model for Teaching Biological Sciences to VIII Class Students”. She found Memory Model was more effective than Biological Science Inquiry Model when students’ achievement in Biological Science was analysed

Kayathri (1989) studied “Effectiveness of Jerry Luca’s Memory Model in learning English. “The findings of the study revealed that (i) Training through Jerry Luca’s Memory Model positively influenced retention of what was learnt in English. (ii) Student who had been trained through Jerry Luca’s Memory Model

differed significantly in their achievement in English from those students who had been trained through the traditional method.

Nivedita (2004) undertook a study entitled “Comparative study of Effectiveness of Memory Model, Mastery Learning Model and Conventional Method on students’ achievement in English Grammar”. The findings of the study revealed that students taught English grammar through Memory Model had scored significantly higher on the criterion Achievement test than the group of students taught English grammar through Conventional Method and Mastery Learning Model.

Kumar (2004) undertook a study entitled “Comparative study of Effectiveness of Memory Model and Conventional Method on student’s achievement in Geography and their self Concept of IX class students”. Findings of the study were as follows: the group of students taught Geography through Memory Model have scored significantly higher on criteria achievement as that the group of students taught Geography through Conventional Method.

Deshmukh (2005) undertook a study entitled “Comparative study on the Effectiveness of Social Inquiry Model, Memory Model and Conventional Method on pupil’s achievement in Social Science”. Findings of the study were (1) the group of students taught Social Science through Social Inquiry Model scored significantly higher on the criteria achievement as compared to the group of students taught Social Science through conventional method of teaching, (2) the group of students taught Social Science through Memory Model scored significantly higher on criteria achievement test than the group of students taught Social Science through conventional method, (3) the group of students taught Social Science through Social Inquiry Model scored significantly higher on the Criteria achievement test than the group of students taught Social Science through Memory Model.

Statement of problem

The problem was worded as given below:

Effectiveness of Memory Model for Teaching English in terms of Achievement in English of Class IX Students

Achievement in English

In the present study the achievement in English refers to the scores obtained by the students in the developed achievement test administered on the students by the researcher on some selected topics of English book.

OBJECTIVES

To compare the adjusted mean scores of Achievement in English of the group taught through Memory Model and group taught through Traditional method by considering pre achievement as covariate.

Hypothesis

There is no significant difference in the adjusted mean scores of Achievement in English of the group taught through Memory Model and group taught through Traditional method by considering pre Achievement as covariate.

RESEARCH METHODOLOGY

Sample

The sample for the study was class IX students of secondary schools of Indore city which were affiliated to CBSE Board. The age of the students was between 14-16 years approximately. Random sampling was adopted for the assignment of the treatment. One school was selected randomly for experiment and this group was termed as Experimental group. The other group was termed as Traditional group. The sample comprised of 120 students of class IX from academic session 2019-2020.

Design

The present study was experimental in nature. The study was designed on the basis of Non-Equivalent Control Group Design. According to Campbell and Stanley (1963), the layout of this design is as follows-

O X O

O O

Figure : Non Equivalent Control Group Design

Where, O = Observation of pre test and post test.

----- = Random assignment of the treatment.

X = Treatment given to Experimental group.

Variables of the study

The researcher considered the following independent and dependent variables for the study:

Independent Variables:

Method of Teaching

Memory Model of teaching Traditional Method of teaching.

Dependent Variables:

Achievement in English

Achievement test

Achievement test was developed by the researcher to assess Achievement in English. Questions were objective in nature and were taken from the selected chapters of IX class English book. Achievement test consisted of 13 questions each question had sub parts. Total time allotted for the test was 45 minutes and total marks were 60. There were no negative marking for wrong answers.

Procedure of data collection

Data were collected from the two schools namely ILVA and AgrasenVidyalaya of Indore city. The permission was taken from the Principal of both the schools. One school was randomly selected and named as an Experimental Group and treatment was given to that group. The other group was termed as Traditional Group and this group was taught English with the help of traditional method of teaching by their respective teachers. **ILVA School** was taken as an Experimental Group and the students were taught English with the help of Memory Model by the researcher.

Statistical data analysis

One Way ANCOVA was used to compare the adjusted mean scores of Achievement in English of the group taught through Memory Model and group taught through Traditional method by considering pre Achievement in English as covariate.

Comparison of the adjusted mean scores of Achievement in English of group taught through Memory Model and group taught through Traditional method of teaching by considering pre Achievement in English as covariate.

The objective was to compare the adjusted mean scores of Achievement in English of group taught through Memory Model and group taught through Traditional method of teaching by considering pre Achievement in English as covariate. In this objective the levels of Treatment were Traditional teaching and Memory Model based teaching. The Achievement in English was assessed with the help of Achievement test in English developed by the researcher. The data obtained from the two groups were analyzed with the help of One Way Analysis of Covariance (ANCOVA).

Data were on the interval scale, sample size was more than 30 and technique used for sampling was Random so basic assumptions of Parametric statistics is fulfilled in the data and researcher proceeded for testing rest of the assumptions of Parametric statistics objective wise.

Normal distribution of Dependent Variable at all levels of Independent variable:

This assumption was tested with the help of Kolmogorov- Smirnov Test as the sample size was greater than 50. In order to test whether the assumption of normality of scores holds good or not, test of normality was performed on the Achievement in English. The results of the Kolmogorov- Smirnov Test have been summarized below in **Table Below**.

H₀: The given distribution for Achievement scores in English of Experimental and Traditional group do not deviate significantly from normality.

Table : *Summary of Kolmogorov-Smirnov test of Normality for Achievement in English of students of Experimental and Traditional group.*

Type	Treatment	Kolmogorov-Smirnov ^a Statistic	df	Sig.
Achievement	in Experimental	.089	60	.200*
English	Traditional	.095	60	.200*

From the **Table** above it is clear that the value of the Kolmogorov-Smirnov statistic for Experimental and Traditional Group are 0.089 and 0.095 whose significance value with df 60 is 0.200 in each case. These values are greater than 0.05 and thus is not significant at 0.05 level of significance. In the light of this the null hypothesis “The given distribution for Achievement scores in English of Traditional Group do not deviate significantly from normality” is not rejected. Thus it can be concluded that the scores of Achievement in English for Experimental and Traditional group are distributed normally.

Homogeneity of Variance of Dependent Variable on all groups

This assumption was tested with the help of Leven’s test using SPSS. The result has been summarized below in **Table Below**.

H₀: The error variance of Achievement in English is not significantly different across all the groups.

Table: *Summary of Levene’s test of equality of error variance for Achievement in English of students of Experimental and Traditional group.*

Levene's Test of Equality of Error Variances			
Dependent Variable: Achievement			
F	df1	df2	Sig.
2.760	1	118	.099

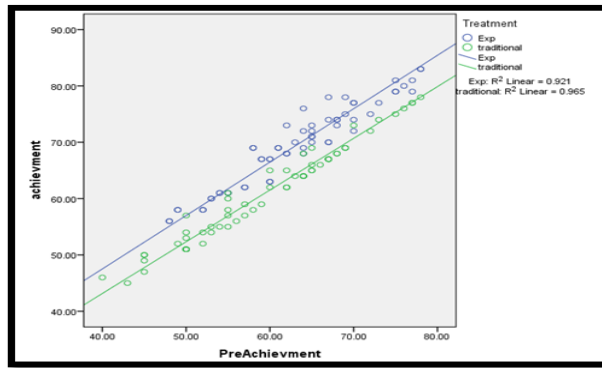
From the **Table** above it is clear that the F-value is 2.760 whose significance

value with df (1,118) is 0.099. This value is greater than 0.05 and hence is not significant at 0.05 level of significance. In the light of this that null hypothesis that “The error variance of Achievement in English is not significantly different across all the groups” is not rejected. Thus it can be concluded that the variance of Achievement scores in English is equal across the entire group.

Homogeneity of regression slopes by-graphical method

This assumption was tested with the help of Homogeneity of Regression Slopes the result is summarized below in **Graph 1**.

Graph 1: Homogeneity of Regression of Slopes

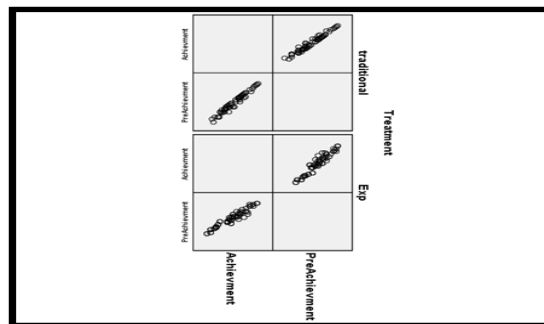


Graph 1 Scatter plot displays that for each level of Independent Variable (Experimental and Traditional group) there is linear relationship between the Dependent Variable and Covariate. It is evident that both the slopes are parallel to each other and have similar slopes. Thus, Homogeneity of Regression slopes assumption is fulfilled.

Linear relationship between Covariate and Dependent Variable in each Treatment Group

This assumption was tested with the help of graph and the result is summarized below in **Graph 2**

Graph 2: Linearity of pre and post scores for each treatment group



From the **Graph 2** it is evident that there is a linear relationship between the pre Achievement (Covariate) and Dependent variable (Achievement in English) in

both the groups i.e Experimental and Traditional.

From the above discussion it is clear that all the assumptions of ANCOVA hold good in the context of the given data, so the researcher is justified in proceeding with the use of One Way ANCOVA for data analysis for this objective. The result are given in the **Table** below

Table: Summary of One Way ANCOVA for Achievement in English of students of Experimental and Traditional Group by taking pre Achievement in English as covariate

Tests of Between-Subjects Effects

Dependent Variable: Achievement

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Treatment	776.479	1	776.479	224.902	.000
Error	403.945	117	3.453		
Total	524260.00	120			

From the **Table** above it is evident that the adjusted F-value for Treatment is 224.902 whose significance value with $df = (1, 117)$ is 0.00. This value is lesser than 0.01 and hence is significant at 0.01 level of significance. It indicates that the adjusted mean scores of Achievement in English of students taught through Memory Model and Traditional Method differ significantly when Pre-Achievement in English was taken as covariate. In the light of this the null hypothesis that “There is no significant difference in adjusted mean scores of Achievement in English of students belonging to Experimental group and Traditional Group while Pre-Achievement in English was taken as covariate” is rejected. For further analysis comparison of adjusted mean scores of Achievement in English of both the groups i.e. Traditional and Experimental is necessary which is given in **Table** below.

Table: Adjusted mean Achievement scores in English of Experimental and Traditional Group.

Treatment	Mean	Std. Error
Experimental	68.087	.243
Traditional	62.880	.243

From the **Table** above, it is evident that the Mean scores of Achievement in English of the students taught through Memory Model is 68.087 which is higher than the corresponding mean scores of 62.880 of students taught through Traditional Method when their mean scores were statistically adjusted with respect to pre- Achievement in English. It may therefore be concluded that Memory Model was found to be significantly effective than the Traditional method in enhancing Achievement in English of class IX students.

CONCLUSION

Findings of the study

Memory Model of Teaching was found to be significantly superior to Traditional Method of Teaching in enhancing Achievement in English of students when groups were matched with respect to pre Achievement in English.

Discussion of results

Memory Model of Teaching was found to be significantly superior to Traditional Method of Teaching in enhancing Achievement in English of students when groups were matched with respect to pre Achievement in English.

On the basis of analysis of data it was found that the Memory Model was found to be effective in terms of Achievement in English. This finding is consistent with study reported by Kayathri (1989), Nivedita (2004), Kumar (2004), Gautam (2004), Kumar (2005), Deshmukh (2006), Rathi (2010) and Namjoshi (2015) as they too found that through Memory Model Achievement in different teaching subjects of the students were better than Traditional Method and they also found that their learning is more permanent in comparison to Traditional Group. The finding is obvious in view of the fact that the Memory Model is specifically designed to increase the capacity to store and retrieve information. By teaching through Memory Model, the interaction between students and teacher increases which leads to better learning. Through this, the teacher helps the students to identify key items, pairs and images related to the subject. Memory Model helps in focussing on what needs to be remembered through major ideas and examples. The Memory Model of teaching is useful for all subjects for the effective and permanent memorization of learning materials in the minds of the students. It helps to enhance imaginary skills, consciousness and develop the sense of intellectual powers. All these steps of Memory Model together help to improve the Achievement of the students. In traditional method of teaching the students are passive learners as they are always taught through lecture method. The interaction between teacher and students is less, which makes the students less

attentive and therefore affects Achievement of the students. Teaching through Memory Model helps to improve learning as it involves association of the subject matter with the previous knowledge of the students. Through this the students learn to use the techniques of ordering, underlining, listening and reflecting to the material. It is found that when the students learn in series, it is easier for them to assimilate and retain the subject matter. The above finding could have been a result of these developments in the students.

SUGESTIONS FOR FUTURE RESEARCH

1. Research can be done with large sample covering the whole syllabus of a particular class.
2. Effectiveness of Memory Model may be explored for psychomotor domain.
3. Researches may also be conducted in higher education such as IT, Psychology, Environmental Sciences, Sociology, etc. using Memory Model with some different variables.
4. Research using Memory Model can be conducted at various stages of development.
5. Research studies may also be taken to analyse the attitudes of students, teacher educator, in service and pre service teachers towards Memory Model.
6. This type of experimental study may also be conducted for non-formal group of students.
7. It will be better if this type of experimental research is under taken for public schools and convent schools.
8. Research with Memory Model may also be under taken for finding the effectiveness of models by adding some interactive video models with the help of computer.
9. Comparative research studies may also be conducted on the relation between school achievement and school related effect such as study the effect of continued success or lack of success on academic self-concept of students.
10. Research may be conducted to investigate into how teachers acquire and use models of teaching that are new to them.

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