A COMPARATIVE STUDY OF EFFECTIVENESS OF CONCEPT ATTAINMENT MODEL AND MEMORY MODEL ON STUDENTS SELF CONCEPT IN ENGLISH GRAMMAR

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Abstract
This experimental study determined the Effectiveness of Concept Attainment Model, Memory Model and Conventional Method on Students Self Concept in English Grammar. In the present study, pre-test, experimental treatment and post-test design was employed. It involved three groups of students, two experimental groups and one control group. The Experimental Group-I was taught English Grammar through Concept Attainment Model. Experimental Group-II was taught English Grammar through Memory Model and the Control Group was taught English Grammar through Conventional Method. The design comprised three stages. The first stage involved pre-testing of all the students of three groups on achievement in Biology, Intelligence and Socio-Economic Status. The second stage involved treatment of twenty weeks. The experimental treatment consisted of teaching English Grammar through Concept Attainment Model to Experimental Group-I, through Memory Model to Experimental Group-II and through Conventional Method to Control Group. In the third stage, the students were post tested on Self-Concept. Purposive sampling was used for the present study. The Sirsa School, Sirsa was selected. Four sections of IXth class were taken. These were divided in to Experimental Group - I and Experimental Group - II and Control Group having 60 students in each group. The Experimental Group - I, Experimental Group - II and Control Group were equated on Mental Ability or Intelligence and Socio-Economic Status. After equating the groups there were 40 students in Each Experimental Group - I, Experimental Group - II and Control Group. Results indicated that the post-test Self-Concept mean scores of the experimental and control groups, controlling for intelligence and Socio-Economic status, differ significant in favor of the experimental groups. This implies that the students who were taught English Grammar through Concept Attainment Model and Memory Model have shown significant improvement in Self-Concept than the students who taught through Conventional Method. This suggests that Concept Attainment Model and Memory Model contributes in raising the Self-Concept of students. The group of students taught English Grammar through Memory Model has shown significantly higher Self-Concept than the group of students taught English Grammar through Concept Attainment Model. The group of students taught English Grammar through Concept Attainment Model has shown significantly higher gain in Self-Concept than the group of students taught English Grammar through Conventional Method. The group of students taught English Grammar through Memory Model has shown significantly higher gain in Self-Concept than the group of students taught English Grammar through Conventional Method. The group of students taught English Grammar through Memory Model has shown significantly higher gain in Self-Concept than the group of students taught English Grammar through Concept Attainment Model.

Key Words: Experimental Study, Concept Attainment Model, Memory Model, English Grammar, Self Concept.

Introduction

Education is the continuous life long process. It is never ending, starts with the birth of an individual and then its goes on till last day of the individual. Education makes an individual a real human being. Man becomes man through education. He learn something at every moments and on every day. Education equips the individual with social, moral and spiritual aspects and thus makes life progressive, cultural and civilized. Education is a process of human enlighten for the achievement of a better and higher quality of life. A sound and effective system of education results in the speed up of learner's potentialities, enlargement of their competencies and transformation of their interests, attitude and values.. The basic purpose lying at the very root of every plan and programme of education is evidently growth of the student into full-fledged responsible citizens. Education is evidently a process through which desirable changes in the behavior of a child in terms of knowledge, value, skills, attitudes etc. are expected to be brought about. In school desirable attitude, knowledge and beliefs are inculcated in him through the teaching of different subjects and a regular course of training.

Teaching

Teaching is often thought of as something that comes rather naturally to people who know their subject. In general, it is thought that it is a simple process that produces simple outcomes. But teaching is an intriguing, important and complex process.   It is true that teaching is a process by which teacher and students create a shared environment including sets of values and beliefs which in tern color their view of reality.

Teaching is a set of activities which is designed and performed to achieve certain objectives in terms of changes in pupil behavior. It is the process by which a person helps others to achieve knowledge, understanding, skills and attitudes. Gage (1963) defined teaching as "an act of interpersonal influence aimed at changing the behavior potential of another person."

Teaching and Learning

Learning is generally regarded as change in behavior. It is affected by many factors e.g. pupils intelligence, age, social background and interest etc. Besides this, teaching plays prominent role in learning. The main focus of teaching is to facilitate learning. Although each student learns up to his capacities but these capacities probably can be enhanced with the help of teaching. It must be designed in such a way that appropriate learning conditions can be developed and desirable changes can be brought in learners.

Models of Teaching

Model is a pattern of something to be made or reproduced and means of transferring a relationship or process from its actual setting to one in which it can be more conveniently studied. In the point of view of teaching, a model of teaching is to improve the instructional effectiveness in an interactive atmosphere and to improve or shape of curriculum. Model of teaching are the innovative practices which have drawn the attention of educational researchers and teachers since last few years.

Joyce and Weil (1980) have identified 23 models of teaching which are classified into four families – Information processing models, personal models, social Interaction models and behavioral modification models. Information processing may be defined as the ways people handle stimuli from the environment, organize data, sense problems etc. The goals of information processing models are to help individuals to acquire knowledge through an analysis of data from the world around us. They aim at intellectual growth of the individual. These models of teaching are inductive thinking model, inquiry training model, concept attainment model, cognitive growth model, biological Science Inquiry Model, Advance Organiser Model, memory and group investigation.

Concept Attainment Model: Concept Attainment Model is inductive teaching strategy propounded by Jerome S. Brunner, Goodnow and Austin. This model has been developed from the 'Study of Thinking'. The concept attainment strategy, as model of teaching, is concerned with two separate but related ideas: the nature of concept themselves and the thinking process used by individual to learn concept. Concept is the key building blocks for the structure of knowledge of the various academic disciplines. Concepts are the distillate of sensory experiences and the vital link between external inputs and overt behaviours. They are vehicle of thought. They are the critical components of an individual's cognitive structure. Concept learning is thus regarded as identification of concept attributes which can be generalized to newly encountered examples and discriminate examples from non examples. Concept can be thought of as information about objects, events and process that allows us to differentiate various things or classes, Know relationship between objects and generate ideas about events, things and processes.

Memory Model: Memory model is propounded by Henary Lorayane. The objective of this model is to improve the memorization of material by the student that they can recall it when needed. The capacity to take information to integrate it meaningfully and later to retrieve it at will is the final outcome of memory learning. It is agreed by all that the ability to remember is fundamental to intellectual, effectiveness. For from being a passive, trivial, memorizing and remembering are active pursuits. The capacity to take information, to integrate it meaningfully and later to retrieve it at will is the product of successful memory Most important , individual can improve this capacity to memorize material so that they can recall it later when needed. This model has four phases; attention to the material developing connections, expanding sensory images and practicing recall.

Rationale of the Study

The teaching model approach is one of the latest developments in the art and skills of teaching and various teaching models have been developed as a result of researches in educational psychology, teaching methods and effective teaching behaviours. These models have the potentiality of being matched to the objective of teaching as well as pupil's learning styles. These models have been classified under four families by Joyce and Weil (1985) the four families are: Informational Processing Models, Social Interaction Models, Personal Models and Behaviour Modificational Models. The use of models of teaching in class room can help the teacher to improve the quality of teaching and to create a more conducive environment of learning for students In order to know the comparative effectiveness of models of teaching, the researcher in the present study will select two models of teaching, namely, Concept Attainment Model and Memory Model taken from the Information Processing Family of Model of Teaching

Ranjana (1992) conducted a study on the Effectiveness of Mastery Learning Strategy on VI graders in the subject of science and reported that students taught through Mastery Learning Strategy showed significant improvement in the achievement, Self-Concept and classroom trust behavior.

Studies were conducted to compare the Effectiveness of Concept Attainment Model and Biological Science Inquiry Model (Sushma Kumari, 1988), Concept Attainment Model, Inductive Thinking Model and Advance Organiser (Gupta, 1995) and

Halda Taba's Inductive Thinking Model and (Khare, 2000). It is evident from this brief survey of researches conducted in India on the use of Concept attainment Model and Memory Model that very little work has been done to test their effectiveness in Indian situations and to adapt them to our peculiar need Effectiveness of Concept attainment Model and Memory Model in achievement in English particularly has not been attended to adequately. Since the subject is gaining importance in school curriculum and has been made compulsory up to secondary level, research to use Concept Attainment Model and Memory Model to improve pupil's achievement in English needs to be conducted.

Statement of the Problem
"A comparative study of effectiveness of concept attainment model and memory model on student's achievement in English grammer and their self concept".

Definition of Key Terms
The key terms used in the statement of the problem are defined in operational terms.

Effectiveness
It refers to the effect of particular treatment given to a learner which produces a significant change in pupil's behavior in terms of their achievement and Self-Concept.

Concept Attainment Model: Concept Attainment Model is inductive teaching strategy propounded by Jerome S. Brunner, Goodnow and Austin. This model has been developed from the 'Study of Thinking'. The concept attainment strategy, as model of teaching, is concerned with two separate but related ideas: the nature of concept themselves and the thinking process used by individual to learn concept. Concept is the key building blocks for the structure of knowledge of the various academic disciplines. Concept is the distillate of sensory experiences and the vital link between external inputs and overt behaviours. They are vehicle of thought. They are the critical components of an individual's cognitive structure. Concept learning is thus regarded as identification of concept attributes which can be generalized to newly encountered examples and discriminate examples from non examples. Concept can be thought of as information about objects, events and process that allows us to differentiate various things or classes, Know relationship between objects and generate ideas about events, things and processes.

Memory Model: Memory model is propounded by Henary Lorayane. It is agreed by all that the ability to remember is fundamental to intellectual, effectiveness. For from being a passive, trivial, memorizing and remembering are active pursuits. The capacity to take information, to integrate it meaningfully and later to retrieve it at will is the product of successful memory. Most important, individual can improve this capacity to memorize material so that they can recall it later when needed.

Conventional Method of Teaching
In Conventional Method of teaching the teacher is the only active participant in the teaching learning process and the pupils are the passive listeners. He gives lecture to a class of nearly forty pupils, gives house assignment and administers tests periodically. These tests are given only to give marks to the pupils and have no value in terms of improving the quality of instruction.

Self-Concept
The inner image of the man in known as "Self", It is defined as the perception by the individual of his own of inner feelings. There are several terms that are virtually synonymous with Self-Concept among which are 'self image', the 'ego', 'self understanding', 'self perception' and 'phenomenal self'.

Self-Concept has been referred by lowe (1961) as one's attitudes towards self and by Paderson (1965) as an organized configuration of perceptions, beliefs, feelings, attitudes and values which the individual views as a part of characteristics of himself. Rogers (1965) defined Self-Concept as, " an organized configuration of perceptions of the self which are admissible to awareness. It is compared to such elements as the perceptions of one's characteristics and abilities, the percepts and concepts of the self in relation to others and to the environment, the value qualities which are perceived as associated with experiences and objects and the goals and ideas which are perceived as having positive or negative valence".

Objectives
- To study the mean scores, on the test of Self-Concept, of the three groups of students, taught   English Grammar with before the experimental treatment

- To study the mean scores, on the test of Self-Concept, of the three groups of students, taught English Grammar after the experimental treatment.
- To study the mean gain score, on the test of Self-Concept, of the three groups of students after the experimental treatment.

Hypotheses
In order to realize the objectives of the study following hypotheses were tested.

H1: There is no significant difference in the mean scores, on the test of Self-Concept, of the three groups of students, taught English Grammar with the use of Concept Attainment Model, Memory Model, and Conventional Method of teaching before the experimental treatment.

H2: There is a significant difference in the mean scores, on the test of Self-Concept, of the three groups of students, taught English Grammar with the use of Concept Attainment Model, Memory Model and Conventional Method of teaching after the experimental treatment.

H3: There is a significant difference in the mean gain scores, on the test of Self-Concept, of the three groups of students, taught English Grammar with use of Concept Attainment Model, Memory Model and Conventional Method of teaching after the experimental treatment.

Delimitations
Keeping in view the constraints of time and resources, certain delimitations need to be imposed for conducting the study. Following were the delimitations of the present study.

1. The study was confined to a single Public School at Sirsa in Haryana only.
2. The sample was chosen from IXth class only.
3. Only topics from English Grammar syllabus of IXth class have been selected for collecting the data.
4. The study was conducted in the subject of English Grammar only.
5. The experiment was limited to twenty weeks of the academic session.
6. Although there are various teaching models. The present study was confined to Concept Attainment Model and Memory Model only.
7. The study can be conducted on a variety of other educational outcomes but it was conducted only on achievement and Self-Concept.

Design and Procedure of the Study
Research design is the blueprint of the procedure that enables a researcher to test hypothesis by reaching valid conclusions about relationships between independent and dependent variables (Best, 1981). Fate of any activity and its outcome depends essentially upon its design. Kerlinger (1974) described" Research design as the plan, structure and model of investigation conceived so as to obtain answers to research questions and control variance" Thus, design provides a picture of what and how to do the work. In any research project, design provides the investigator a blue print of research dictates the boundaries of project and helps in controlling the experimental, extraneous and error variances of the problem under investigation.

This chapter describes about the design employed, procedure followed, sample selected, tools used, and sequence of events that occurred, procedure adopted for data collection and statistical analysis conducted to realize the objectives of the study.

Design
In the present study, pre-test, post-test and control design was employed. It involved three groups of students, two experimental groups and one control group. The Experimental Group-I was taught English Grammar through Concept Attainment Model. Experimental Group-II was taught English Grammar through Memory Model and the Control Group was taught Conventional Method. The design comprised three stages. The first stage involved pre-testing of all the students of three groups on achievement in English Grammar, Intelligence, Socio Economic Status and Self Concept. The second stage involved treatment of twenty weeks. The experimental treatment consisted of teaching of four units of English Grammar through Concept Attainment Model to Experimental Group-I, through Memory Model to Experimental Group-II and through Conventional Method to Control Group. In the third stage, the students were post tested on achievement in English Grammar and Self Concept.

The Sample
Purposive sampling was used for the present study. The Sirsa, School, Sirsa was selected. Four sections of IXth class were taken. These were divided in to Experimental Group 1 and Experimental Group II and Control Group having 60 students in each group.

The Experimental Group 1, Experimental Group II and Control Group were equated on Mental Ability or Intelligence and Socio-Economic Status. After equating the groups there were 40 students in Each Experimental Group I, Experimental Group II and Control Group.

Variables
In the experimental researches the relationship between three types of variables namely independent dependent and intervening variables are studied. All these three kinds of variables which were identified for the study are discussed below.

Independent Variables
Different methods of teaching which were used in the present study to see their effect on Self Concept constitute the independent variables. The experimental Group-I was taught English Grammar through Concept Attainment Model, the Experimental Group-II was taught English Grammar through Memory Model and the Control Group was taught English Grammar through Conventional Method. Thus Concept Attainment Model, Memory Model and Conventional Method were the three independent variables for the present study.

Dependent Variables
Self-Concept was the dependent variable. This variable was measure twice during the course of the study first before the experimental treatment which is pre-test stage and then after providing and experimental treatment i.e. post-test stage.

Intervening Variables
There are certain variables which have their effect on the learning outcome. These variables, known as intervening variables, can influence both.

It is necessary to control all those variables that may effect the dependent variables. Hence suitable the independent and dependent variables. Different intervening variables in a research study can be nature of school, grade level, subject to be taught, intelligence of pupils, socio economic status of pupils, previous knowledge of pupils etc. These intervening variables were controlled either experimentally or statistically.

Control Employed: Control were employed for each such variables.

Nature of School: The sample was selected from a single school in Sirsa (Haryana). It was The Sirsa School, Sirsa situated in Barnala Road, Sirsa.

Grade Level: IXth class selected for the present study and grade level was thus kept constant during the study.

Subject: All the three groups were taught same topics of English Grammar.

Socio-Economic Status: This variable was controlled experimentally.

Intelligence of Pupils: This variable can greatly affect the achievement of pupils. It was also controlled by experimentally.

Tools Used
For the purpose of collecting data related to different variables covered in this study, following tools were used.
1. Self Concept Questionnare (SCQ) a test of Self Concept by R.K. Saraswat to measure the Self Concept of students.
2. Raven's Progressive Matrices developed by J.C. Raven to measure the Intelligence of students.
3. Socio-Economic Status Scale by Dr. Gyanendra P. Srivastva measure the Socio-Economic Status of Students.

Experimental Procedure
It consisted of three stages: (i) Pre-testing (ii) Experimental treatment (iii) Post-testing.
Pre-Testing: Before the commencement of experiment, pre-tests were conducted. They were administered in all the three groups by the investigator himself. Cooperation of the class teacher was sought for conducting the tests properly. All the instructions were explained clearly to the students before administering the test.

Experimental Treatment
After pre-testing the experimental treatment of teaching English Grammar to Class IX students was started. All the three groups Control Group, Experimental Group 1 and Experimental Group II) were taught by the investigator himself. The control group was taught through conventional method of teaching. E1 and E2 groups were taught through Concept

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Attainment Model and Memory Model respectively. Content of the English Grammar was identified for the experiment. Major concepts were analysed and arranged in proper sequence. The next step was the preparation of lesson plan based on the Concept Attainment Model and Memory Model. For the Experimental Group 1 lesson plans on Concept Attainment Model were developed. A copy of one lesson plan based on Concept Attainment Model may be seen in Appendix iii. In the Experimental Group11 Memory model were formulated according to concepts and sub concepts and lesson plans were developed. Lesson planning guide for the Concept Attainment Model as suggested by supervisor was followed. One lesson plan based on Concept Attainment model is presented in Appendix-iv.

The treatment was of 20 weeks duration for both the groups. The researcher taught Control Group through conventional method of teaching Experimental Group1 through Concept Attainment Model and Experimental Group 2 through. Memory model on the same day the same content. This was done to avoid carry over effects of one teaching strategy into other. The time was of one period (40 minutes) duration only so that schedule of schools was not disturbed.

Post- Testing: After teaching the contents to all the three groups, the students were given post – tests.

Scoring: Responses of each student to intelligence test, socio-economic test, Achievement Test and Self Concept Test were measured using the prescribed scoring key or the key prepared for the purpose. These scores were then tabulated and statistical analysis done.

Statistical Analysis
Statistics has become an indispensable tool for research. It is fundamental to the proper analysis of data. In order to achieve the objectives of the study, the data collected was statistically analyzed using the following techniques.
1. Analysis of variance (ANOVA). Was used on pre-test, post-test mean scores and gain scores of their Self Concept.
2. Mean and standard Deviations were used on pre-test, post-test mean scores and gain scores of their Self Concept.
3. As the hypothesis of this study were directional, one tailed "t" test was employed for testing the significance of difference between the means scores of self concept. This test was also used on post-test and gain scores.

Interpretation of the Results on Self-Concept
In the scheme of this study, students Self-Concept is the variable. This has been studied here focusing on the following objectives.
1. To compare the mean scores, on the test of Self-Concept, of the three groups of students, taught English Grammar with the use of Concept Attainment, Memory Model and Conventional Method of teaching before the experimental treatment.
2. To compare the mean scores, on the test of Self-Concept, of the three groups of students, taught English Grammar with the use of Concept Attainment, Memory Model and Conventional Method of teaching after the experimental treatment.
3. To compare the gain scores, on the test of Self-Concept, of the three groups of students, taught English Grammar with the use of Concept Attainment, Memory Model and Conventional Method of teaching after the experimental treatment.

I. Comparison of Mean Self-Concept Scores of Experimental Group-I, Experimental Group-II and Control Group before the Experimental Treatment.

ANOVA results of Self-Concept before experimental treatment (pre-test stage) are provided in Tables 1.1 and 1.2.

Table 1.1: ANOVA for Pre-Test Self-Concept Scores Sums and Square Sums and Means of Experimental Group - I, Experimental Group - II and Control Group

Group	Pre-test Self-Concept Scores				
	N	X	X²	Mean	S.D.
Experimental Group1	40	5760.00	833799.00	144.00	±5.38
Experimental Group1	40	5846.00	857687.00	146.15	±4.86
Control Group	40	5600.00	822435.00	140.00	±5.26
Total	**120**	**17206.00**	**2513921.00**	**430.15**	

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Table 1.2: Summary of ANOVA for the Pre-Test Self-Concept Scores between Experimental Group - I, Experimental Group - II and Control Group

Sources of Variance	Degree of freedom (df)	Sum of Squares (S.S.)	Mean Squares (M.S.)	F Value	Level of Significance
Between	2	779.90	389.95	$\dfrac{389.95}{400.57}$	Not significant at 0.01 level of significance
Within	117	46867.37	400.57	**=0.97**	

Table: 1.2 shows that the F value of 0.97 for df (2,117) for the Experimental Group - I, Experimental Group - II and Control Group is not significant. It shows that there is no significant difference in the pre-test mean Self-Concept of Experimental Group-I, Experimental Group-II and Control Group.

II. Comparison of Mean Self-Concept Scores of the Experimental Group - I, Experimental Group - II and Control Group after the Experimental Treatment.

ANOVA results of Self-Concept scores after the experimental treatment are provided in Tables: 1.3 and 1.4.

Table 1.3: ANOVA for Post-Test Self-Concept Scores Sums, Square Sums and Mean of Experimental Group - I, Experimental Group - II and Control Group

Groups	Post-test Self-Concept Scores				
	N	X	X^2	Mean	S.D.
Experimental Group – I	40	6348.00	1032979.00	158.7	±5.67
Experimental Group – II	40	6488.00	1075840.00	162.2	±6.12
Control Group	40	5740.00	843784.00	143.5	±4.26
Total	**120**	**18576.00**	**2952603.00**	**464.4**	

Table 1.4: Summary of ANOVA for the Post Test Self-Concept Score between Experimental Group - I, Experimental Group - II and Control Group

Sources of Variance	Degree of freedom (df)	Sum of Squares (S.S.	Mean Squares (M.S.)	F Value	Level of Significance
Between	2	7906.40	3953.20	$\dfrac{3953.20}{590.87}$	Significant at 0.01 level of significance
Within	117	69131.80	590.87	**=6.69**	

Table: 1.4 indicates that the 'F' value of 6.69 for df (2,117) for the Experimental Group - I, Experimental Group - II and Control Group is significant at 0.01 level. It shows that there is a significant difference between the post-test mean Self-Concept scores of the Experimental Group - I, Experimental Group - II and Control Group. Since F value is significant at 0.01 level in case of post test mean Self-Concept scores, this arises a need for further testing. The 't' test, therefore, has been applied for testing the significance of the differences. The 't' test results are provided in Table: 1.5 to 1.7.

Table 1.5: Difference in Post-Test Mean Scores of the Students of Experimental Group - I and Control Group on Self-Concept

Treatment	N	Mean	S.D.	't' Value	Level of Significance
Experimental Group1	40	158.7	±5.67	**13.55**	Significant at 0.01 level of significance
Control Group	40	143.5	±4.26		

From Table: 1.5 it may be observed that the' t' value of 13.55 for the difference in the mean scores, at the post test stage, of the students of Experimental Group-I and Control Group on Self-Concept is significant at 0.01 level, with df 78. It shows that the mean score of 158.7 of the Experimental Group-I is significantly higher than the Control Group mean which is 143.5 at the post test stage. This indicates that Self-Concept of the students of Experimental Group - I is higher than that of the Control Group after the treatment.

Table 1.6: Difference in Post-Test Mean Scores of the Students of Experimental Group - II and Control Group on Self-Concept

Treatment	N	M	S.D.	't' value	Level of Significance
Experimental Group - II	40	162.2	±6.12	**15.84**	Significant at 0.01 level of significance
Control Group	40	143.5	±4.26		

Table: 1.6 indicates that at post test stage the 't' value of 15.84 for the difference in mean scores of the students of Experimental Group - II and Control Group on Self-Concept is significant at 0.01 level of significance. It may also be observed from the table that the mean score of 162.2 of the students of Experimental Group-II is higher than the mean score of 143.5 of the students of Control Group. This indicate that Self-Concept of the students of Experimental Group-II is higher than that of the Control Group after the treatment.

Table 1.7: Difference in Post Test Mean Scores of the Students of Experimental Group-I and Experimental Group-II on Self Concept

Treatment	N	M	S.D.	't' value	Level of Significance
Experimental Group – I	40	158.7	±5.67	**2.65**	Significant at 0.01 level of significance
Experimental Group – II	40	162.2	±6.12		

Table: 1.7 indicates that at the post test stage, the 't' value of 2.65 for the difference in mean scores of the students of Experimental Group-II on Self-Concept is significant at 0.01 level of significance . The man score of 162.2 of the student of Experimental Group II is higher than the mean score of the students of Experimental Group - I which is 158.7. This indicates that the Self-Concept of the students of Experimental Group-II is higher than that of Experimental Group-I.

III. Comparison of Mean Gain Self-Concept Scores of Experimental Group I, Experimental Group - II and Control Group, after the Experimental Treatment.

ANOVA results of students gain scores of Self-Concept are provided in Table: 1.8 and 1.9.

Table 1.8: ANOVA for Gain Scores Sums, Squares Sums and Means of Self-Concept of Experimental Group-I, Experimental Group-II & Control Group

Group	Self-Concept Gain Scores				
	N	X	X²	Mean	S.D.
Experimental Group - I	40	588.00	17640.00	14.70	±2.24
Experimental Group - II	40	642.00	21160.00	16.05	±2.18
Control Group	40	140.00	2560.00	3.50	±3.56
Total	**120**	**1370.00**	**41360.00**	**34.25**	

Table 1.9: Summary of ANOVA for the Gain Scores of Self-Concept between Experimental Group - I, Experimental Group - II and Control Group

Sources of Variance	Degree of freedom (df)	Sum of Squares (S.S.)	Mean of Squares (S.M.)	F- value	Level of Significance
Between	2	3796.87	1898.43	$\frac{1898.43}{187.37}$	Significant at 0.01 level of significance
Within	117	21922.30	187.37	**=10.13**	

Table: 1.9 shows that the 'F' value of 10.13 for df ((2,117) for the Experimental Group-I, Experimental Group-II and Control Group is significant at 0.01 level. One can observe from this table that there is a significant difference between the mean gain Self-Concept scores of Experimental Group-I, Experimental Group11 and Control Group. As the 'F' value is significant at 0.01 level, application of 't' test become necessary. The 't' test results are provided in Tables: 1.10 to 1.12.

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Table 1.10: Difference in the Mean Gain Scores of the Students of Experimental Group-I and Control Group on Self Concept

Treatment	N	Mean	S.D.	't' value	Level of Significance
Experimental Group - I	40	14.70	±2.42	16.47	Significant at 0.01 level of significance
Control Group	40	3.50	±3.56		

Table: 1.10 indicates that the 't' value of 16.47 for df 78 for the difference in the mean gain Self-Concept scores of the students of Experimental Group-I and Control Group, is significant at 0.01 level. The mean score of 14.70 of the students of Experimental Group - I is higher than that of Control Group which is 3.50 This suggests that the students of Experimental Group - I have gained significantly higher than that the students of Control Group in Self-Concept Scores.

Table 1.11: Difference in the Mean Gain Scores of the Students of Experimental Group II and Control Group on Self-Concept

Treatment	N	Mean	S.D.	't' value	Level of Significance
Experimental Group- II	40	16.05	±2.18	19.01	Significant at 0.01 level of significance
Control Group	40	3.50	±3.56		

From Table: 1.11 it is observed that the 't' value of 19.01 , for the difference in mean gain scores of the students of Experimental Group-II and Control Group on Self-Concept, is significant at 0.01 level, for df 78 . Also the mean gain score of 16.05 of the students of Experimental Group-II is higher than that of Control Group which is 3.50. This indicates that the students of Experimental Group-II have gained significantly higher than the students of Control Group.

Table 1.12: Difference in the Mean Gain Scores of the Students of Experimental Group - I and Experimental Group - II on Self-Concept

Treatments	N	M	S.D.	't' value	Level of Significance
Experimental Group - I	40	14.70	±2.24	2.73	Significant at 0.01 level of significance
Experimental Group- II	40	16.05	±2.18		

Table: 1.12 indicates that the 't' value of 2.73, for df 78 , for the difference in mean gain scores of the students of Experimental Group - I and Experimental Group - II on Self-Concept is significant at 0.01 level. The mean gain scores of 16.05 of the students of Experimental Group II is higher than that of Experimental Group-I which is 14.70. This suggest that the students of Experimental Group-II have gained higher than the students of Experimental Group-I.

Discussion of the Results on Self-Concept
The results obtained from Tables 1.5 to 1.7 and from Table: 1.10 to 1.12 indicates that the mean score and gain score on Self-Concept of the students of:
1. Experimental Group - I is significantly higher than that of Control Group.
2. Experimental Group- II is significantly higher than that of Control Group.
3. Experimental Group- II is significantly higher than that of Experimental Group - I.

In the Present study it was found that the group of students taught English Grammar through Concept attainment Model and Memory Model have scored significantly higher on the test of Self-Concept than the group of students taught English Grammar through Conventional Method and also groups of students taught English Grammar through Concept Attainment Model has scored significantly higher on the test of Self-Concept than the group of students taught English Grammar through Memory Model. This may be due to relationship between achievement and Self-Concept and also may be due to the facts that teaching based on includes several ways to promote active reception e.g. asking students for additional examples of the concepts, asking students to verbalize the essence of the material using their own terminology, asking students to examine the material from alternative point of view etc. These activities motivate the pupils to learn and develop habit of precise thinking. As a result, students have shown better result in terms of mean score and gain score on Self-Concept.

These finding is corroborated by a number of studies; Maqbool, Erum (2002) found that the good reading achievement group displayed significantly better Self-Concept than the poor reading achievement group. Muhammad and Sepidehi (1991) found that Self-Concept was significantly positively correlated to measures of achievement in English and Mathematics. Muijs

(1997) observed that academic Self-Concept and academic achievement were strong predictors of one another, even controlling for other variables and stability of both over time.

Marsh and Yeung (1997) found that not only can adolescents' levels of academic Self-Concept affect their later performance in school; their Self-Concepts are also influenced by their prior academic achievement, as indicated by their grades and their test scores. It is worth mentioning here that Fraine et al. (2007) found that evolution of Self-Concept was not related to the evolution in achievement neither at the individual level, nor at the school level. However a positive relation between students academic Self-Concept and achievement was found, the magnitude of which decreased throughout secondary school. Moreover, it is the academic aspect of Self-Concept which affects achievement (Hamachek 1995) and not general Self-Concept. However, the results of the present study are contrary to the findings of Desai and Uchat (1983), Alka (1991) and Fraine et al. (2007).

On the basis of the analysis and interpretation of the data, presented numerically, related to students Self-Concept, the following three hypotheses H1, H2 and H3 are retained.

H1: There was no significant difference in the mean scores, on the test of Self-Concept, of the three groups of students taught English Grammar with the use of Concept Attainment Model, Memory Model and Convention Method of teaching, before the experimental treatment.

H2: There was significant difference in the mean scores on the test of Self-Concept, of the three groups of students taught English Grammar with the use of Concept Attainment Model, Memory Model and Conventional Method of teaching after experimental treatment.

H3: There was significant difference in the gain scores, on the test of Self-Concept, of the three groups of students taught English Grammar with the use of Concept Attainment Model, Memory Model and Conventional Method of teaching after the experimental treatment.

Findings
1. The group of students taught English Grammar through Concept Attainment Model have scored significantly higher on the test of Self-Concept than the group of students taught English Grammar through Conventional Method.
2. The group of students taught English Grammar through Memory Model have scored significantly higher on the test of Self-Concept than the group of students taught English Grammar through conventional method.
3. The group of students taught English Grammar through Memory Model have scored significantly higher on the test of Self-Concept than the group of students taught English Grammar through Concept Attainment Model.
4. The group of students taught English Grammar through Concept Attainment Model have scored significantly higher gain on the test of Self-Concept than the group of students taught English Grammar through Conventional Method.
5. The group of students taught English Grammar through Memory Model have scored significantly higher gain on the test of Self-Concept than the group of students taught English Grammar through Conventional Method.
6. The group of students taught English Grammar through Memory Model have scored significantly higher gain on the test of Self-Concept than the group of students taught English Grammar through Concept Attainment Model.

Conclusions
1. This study shows that the post-test Self-Concept mean scores of the experimental and control groups, controlling for intelligence and Socio-Economic status, differ significant in favor of the experimental groups. This implies that the students who were taught English Grammar through Concept Attainment Model and Memory Model have shown significant improvement in Self-Concept than the students who taught through Conventional Method. This suggests that Concept Attainment Model and Memory Model contributes in raising the Self-Concept of students.
2. The group of students taught English Grammar through Memory Model has shown significantly higher Self-Concept than the group of students taught English Grammar through Concept Attainment Model.
3. The group of students taught English Grammar through Concept Attainment Model has shown significantly higher gain in Self-Concept than the group of students taught English Grammar through Conventional Method.
4. The group of students taught English Grammar through Memory Model has shown significantly higher gain in Self-Concept than the group of students taught English Grammar through Conventional Method.
5. The group of students taught English Grammar through Memory Model has shown significantly higher gain in Self-Concept than the group of students taught English Grammar through Concept Attainment Model.

Educational Implications
The present study has implications for teachers and teacher educators.

Implications for Teachers
The models of teaching serve as a repertoire of instructional approaches for teachers to tailor the teaching-learning environment to the pre-disposition of the learners to achieve a variety of educational objectives. With the Concept attainment Model, a teacher have the objective to help students to acquire bodies of useful information, and help them develop the thinking skills. By Memory Model in classroom, teacher develops interest to improve the memorization of material by the student that they can recall it when needed. The capacity to take information to integrate it meaningfully and later to retrieve it at will is the final outcome of memory learning. It is agreed by all that the ability to remember is fundamental to intellectual, effectiveness. The teacher should help them at every stage of learning. Today, when there is an exponential increase in knowledge, it is impossible for teachers to teach everything in the classroom. However, if the students are trained in the skill of self learning, they would be able to acquire efficiently more knowledge with lesser dependence on their teacher. Concept Attainment Model and Memory Model help teachers to overcome this problem.

Implications for Teacher Educators
Concept Attainment Model and Memory Model are effective teaching strategies in enhancing scholastic achievement of learners as shown by results of the present study. Therefore teacher educators should analyze every activity of the models and attain competency in them. They should plan and implement training strategies based on these models of teaching to train teachers.

Teacher educators should provide theory Concept Attainment Model and Memory Model to pre-service teachers, demonstrate lessons through these models and help student teachers to undergo practice in the use of these models. In this way, student-teachers should be trained in the application of Concept Attainment Model and Memory Model so that they may use these strategies in their classrooms for better teaching.

Not only this, Concept Attainment Model and Memory Model are better transactional approaches for in-service teachers. These teachers need to be oriented time to time through these strategies for improvement of teaching skills.

Suggestions for Further Research
In this age of unprecedented development complexity and competition the role of education has assumed a central crucial significance all over the world. It is, therefore, not only desirable but absolutely necessary to find and develop ways and means to make our educational system fully responsive to the emerging needs of today. The present study has been a modest attempt at testing the Effectiveness of Concept Attainment Model and Memory Model in coping with pressures and challenges being confronted in our country. This study however does not pretend to offer the final word on the Effectiveness of Concept Attainment Model and Memory Model. In order to supplement the outcomes of the present endeavor, more research related to Concept Attainment Model and Memory Model are warranted so as to develop a body of vital knowledge of how to optimize students learning.

The present study as confined to an experimental treatment of twenty weeks only. It is, therefore, reasonable to avoid wide and sweeping generalizations about its outcomes particularly the long term consequences of Concept Attainment Model and Memory Model. Hence, detailed longitudinal studies that follow students and teachers over a period of several years are required in order to arrive at still more reliable and precise results of this model.

- This study was conducted on a very limited sample. Similar study needs to be replicated on a larger sample.
- Only Public School was included in the present study. The relative Effectiveness of Concept Attainment Model and Memory Model may be studied in Government School where classroom climate may be different from that of Public School.
- This experiment was conducted in The Sirsa School, Sirsa only. Studies may be planned to determine the Effectiveness of Concept Attainment Model and Memory Model in schools in rural settings.
- In the present study, the effectiveness of model has been studied in terms of scholastic achievement and Self-Concept of pupils only. There is a need to study effectiveness of these models in terms of non-cognitive learning –self confidence, self esteem, receptivity to new ideas, discipline etc.
- The effectiveness of these two models of teaching may be tested on under-achievers and over-achievers in terms of their achievement at different grade level.
- Another promising field for further research can be found in the psycho-motor area. No such study has been conducted in India so far. With increasing importance of vocational education, industrial training and sports coaching, it may be worthwhile to investigate the effects of Memory Model on psycho-motor outcomes.
- Different Socio-Economic and cultural backgrounds have a casual relationship with student achievement. Since the present study was conducted on a sample taken from school of Sirsa, studied are warranted in schools located in rural areas, urban slums and on students of scheduled castes and scheduled tribes. Such studies can provide useful

information about how to make Memory Model more efficient in the conditions under which students of socially, economically and culturally backward sections of our society have to work.

- Memory Model can offer an effective instructional procedure to help students needing special care and attention. In this context emotionally disturbed, habitual truant and mentally retarded students and their problems after challenging and fruitful area of research to investigate.

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