CHAPTER ONE

1.1 INTRODUCTION

Teaching is often thought 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 takes place in a complicated social institution, which is filled with learners having multidimensional personalities with different learning styles. Therefore, it is necessary that teacher should use different strategies of teaching matching the objectives of teaching and learner's learning. In this context, Morrison H.C. (1934) quoted, 'Teaching is an intimate contact between a more mature personality and a less mature one which is designed to further the education of the later. Brubacher John (1939) said "Teaching is an arrangement and manipulation of a situation in which there are gaps and obstructions which an individual will seek to overcome and from which he will learn in the course of doing so." In the words of Gage, N.L. (1962) 'Teaching is a form of interpersonal influence aimed at changing the behaviour potential of another person." Smith, B.O. (1963) described, "Teaching is a system of actions involving an agent, an end in view and a situation including two sets of factors those over which the agent has no control (class size, side of classroom, physical characteristics of pupils etc) and those that he can modify (way of asking questions about instruction and way of structuring information or ideas gleaned)." Amidson, Edmund. (1967) narrated, that teaching is an interactive process, primarily involving classroom talk which take place between teacher and pupil and occurs during certain defineable activities. Clarke (1970) states that teaching is an activity that is designed and performed to produce change in student (pupil) behaviour. Green, Thomas, F. (1971) writes, "Teaching is the task of teacher which
is performed for the development of a child.

Thus, teaching is *giving information*. There are many things that the students cannot find out for themselves. There are many things that can never be known unless they are told. There are many things the use of which they do not know. These things they have to be told. So one essential part of teaching is communicating knowledge in a systematic manner. It must, however, be stressed that knowledge aspect should not be unduly emphasized.

Therefore, teaching is *causing to learn*. It is wrong to think that knowledge can be passed on from one person to another like money. Knowledge will be received only when the students are prepared to receive it. Real teaching consists in persuading the child, by one method or the other to learn for himself. The teacher is an instrument in helping a child to learn and to do things for himself.

Teaching is also *helping a child to adjust himself to his environment*. A child is reacting in one way or the other to his physical and social environment, from his very birth. His reactions are both fruitful and harmful. Teaching should help the child to make successful adjustment. This may be done in two ways. Sometimes we modify the environment and at other times strengthen the child. Teaching should make the child socially efficient, that is a worthy member of society making his contribution to the common good. Yoakam and Simpson write, "Teaching is a means whereby society trains the young in a selected environment as quickly as possible to adjust themselves to the world in which they live. In primitive societies this adjustment means conformity with things as they are. In more advanced civilizations, such as ours, effort is made not only to adjust to things as they are, but also to make an advance in the improvement of conditions of life by training the young in modes of thinking and acting which will help to improve the conditions of living that
Teaching should also fire enthusiasm of the child. It is to encourage the child in the development of his natural desires to work and to be active. Beside this teaching is training the emotions of this child. In the context, Ryburn observes, "It is also the encouraging and training of the emotional life. This is an aspect of teaching which is very commonly neglected at least in practice. But our teaching will be only one sided and distorted unless we take into account the necessity for helping the child to develop a stable emotional life. "Teaching is to develop the emotional life of the child by providing an atmosphere of love, affection and freedom. Teaching is to provide such activities as will sublimate their instinctive urge to action. Another important function of teaching is to help the immature child to develop physically, intellectually, emotionally and spiritually to participate effectively in the life of the community.

Thus, teaching is an extremely important and complex process. Experts in the field of education all over the world are seriously thinking of a variety of approaches for teaching to achieve different instructional objectives. Experiences have shown that there is no one particular way which can be said to be the only approach to achieve any instructional objectives. Therefore, it is essential to find out a number of ways to create the right environment for learning. Further we need to do research to see their effectiveness to achieve a particular goal. So, "A good model of teaching may remedy the ills in the teaching-learning process."

Improvements in the process of teaching have been made from time to time by the teacher also. In fact, every good teacher in the classroom always tries to prepare a model of teaching, which he or she wants to follow for all times. He also goes on modifying it with the passage of time, when he gains more and more experience of classroom teaching. Therefore, it is essential to find a number of ways to create the right...
Many analytical research and a good deal of discussion has been going on in recent years to reorganize and revitalize classroom teaching. The Secondary Education Commission (1952-53) emphasized the need of dynamic methods of teaching. Indian Education Commission (1964-66) also recommended the improvement of methods of teaching in educational institutions. In search for good teaching different educationists and pedagogists have transformed prevailing theories and theoretical knowledge into different 'Models of Teaching' which can be readily used by teacher in schools as well as college setting.

Glaser, Bigge and Hunt (1962) have tried to present teaching learning setting on a theoretical line. Dececco and Crawford (1977) and Joyce and Weil (1980) gave their view on Models of teaching.

1.2 MODELS OF TEACHING

A model of teaching is a plan or pattern that can be used to shape curriculum, to design instructional materials. The models are used to achieve specific educational objectives. They are just blueprint of the teaching activities in advance for providing necessary structure and direction to the teacher for realizing the stipulated objectives. In other words, models of teaching describe teaching as it ought to be. In this context "Model" does not mean to follow a pattern explicitly but rather to guide one's behaviour by the example of the model. Thus, a 'Model of teaching' consists of guideline, for designing educational activities and environments.

From dictionary meaning the 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.

The term 'model' carries different meanings in our day to day life. We look
at the model of Taj Mahal and find it an exact replica of the original. Thus model prove a quite effective and as a substitute for reality in classroom situations.

Model or Modelling is used in presenting some ideal figure or behaviour for the purpose of its copying or imitation by the individual concerned. A teacher, a leader or a screen hero may work as a model for a child in the modification of his behaviour and in the task of helping the child to learn good habits and to imbibe desirable attitudes, interests and so many other personality characteristics. Thus, teaching by modelling implies behaving by a teacher in such a way as the learner will try to acquire through imitation where as teaching model is a tentative theory of teaching. The best way to proceed in formulating a theory of teaching is to begin with what is known about learning in the laboratory and in the classroom by adopting a model derived from a theory of learning. Skinner, B.F. has evolved a teaching model; Modification of behaviour based upon his theory of operant conditioning.

The different meanings of 'model' was stated by a number of research workers. Joyce and Weil (1972) have defined, "Teaching models are just instructional design. They describe the process of specifying and producing particular environmental situation which causes the students to interact in such a way that a specific change occurs in his behaviour. Paul D. Eggen (1979) said,"Models are prescriptive teaching strategies designed to accomplish particular instructional goals.

Thus a model of teaching consists of guide line for designing educational activities and environments and the Model chosen is specifically designed to achieve a particular set of objectives and will determine in a large part the action of the teacher. It is, therefore, necessary to put forward 'Models of teaching' for providing newer outlook to teaching system, maintaining classroom climate applicability to Indian classroom etc. Keeping this in mind the researchers and teacher educators in India are exploring the
possibilities of trying out these models in the classroom. Out of these researches we conclude that these 'teaching models' provide a specific outline of teaching activities. These can be broadly classified under six categories:

- Learning outcomes are written in behaviour terms;
- The appropriate stimulus situations are selected for emitting desired responses to the learner;
- The learning situations are specified for observing the students responses;
- The criterion behaviour is defined for students performances;
- The teaching tactics are specified for creating the interaction between students and environment;
- The learning situation and teaching tactics can be improved and modified for desirable change in students behaviour.

Teaching models help in planning curriculum, student teacher interaction, preparing an outline for guiding students activities and to develop specific teaching aids. The models may be helpful in formulating and developing theory of teaching. Teaching models are based on the following assumptions:

- Teaching is a mean of generating an environment of learning. It involves independent variables;
- The content and skill functions as the instruction through which students and teachers interact to one another. Thus it provides an opportunity to develop physical and social efficiency;
- Different types of teaching objectives are achieved by organizing teaching elements in different ways;
- Teaching model provides the learning experiences by creating appropriate environment for real behaviour outcome.
There are large number of teaching models available for use by the teacher. Every model is based on some theory founded by researchers. In the present the investigator has selected various information processing models.

Information processing refers to the way people handle stimuli from the environment, organize data, sense problems, generate concepts and solutions to the problems and employ verbal and non verbal symbols. Models under this category help the students to develop the methods of processing information from the environment. Models of this category are concerned with the intellectual growth rather than emotional or social development of the individual. The different models focussing on information processing have emerged as a result of investigation from several sources. They are as under:

1. **Studies of thinking**: During the present century studies of thinking have been carried on using laboratory experiments and observations of individuals in problem solving situations. Computer simulation of mental processes have been developed, and a whole science of information theory has grown up to assist in the study of thinking and in problem solving. It is but a short leap to move from a description of a mental process to a model of teaching designed to improve thinking. The psychologists studies of how individuals form concepts or in teaching concepts within curriculum areas. There are many examples of models for teaching that are built around mental processes, ranging from systems for teaching general problem-solving ability to procedure for teaching specific thinking processes such as the Inductive Teaching Model of the Hilda Taba and Inquiry Training Model of Richard Suchman.

2. **Learning theorists**: Many theorists are concerned with developing models for teaching concepts because they feel, the students uses the concepts he or she learn to process information. To teach a set of concepts would be, by this view, to change a portion of the individual’s thinking processes. Theorists such as David Ausubel have con-
fined themselves primarily to verbal learning whereas others have dealt with additional kinds of learning. It is, therefore, evident that David Ausubel's theory of meaningful verbal learning and Brunner's model of using different strategies of learning concepts have been emerged.

3. The Scholarly disciplines. Many models have been developed to teach either the major concepts or systems of inquiry used by the disciplines, with the assumption that as students learn the process and ideas of the discipline, they incorporate them into their own systems and behave differently as a result. A teaching model developed by Joseph Schwab and his associates of biological sciences study committee are based on the scholarly discipline. The committee developed this model as one of the chief methods for a biology course for secondary schools.

4. Developmental Studies of human intellect: Investigators have also studied the development of intellectual processes in the child and adolescent. These numerous studies provide, a fairly tentative map of intellectual development, but they can be used to generate theories about how to increase intellectual development. It has been illustrated in Models developed from the work of Jean Piaget, he is a leading authority on the intellectual development of children whose work is frequently used as the basis for models of teaching.

1.3 Fundamental Elements of a Teaching Model.

A teaching model provides valuable guidelines and blue print for carrying out the task of teaching and realization of same specific goal. They are useful for teachers for planning and organizing teaching activities. The teacher can make it use in planning curriculum, student teacher interaction, preparing an outline for guiding students activities and to develop specific teaching aids. These models may be helpful in formulating and developing theory of teaching. For this purpose the fundamental elements involved in this
model should be known to the teacher. A model of teaching generally consists of six fundamental elements: (i) focus (ii) syntax (iii) Principle of reaction (iv) Social system (v) Support system (vi) Application context.

1.3.1 Focus Focus means the central point of a teaching model. It is a goal or objective of teaching. It highlights the main objectives of teaching model in relations to the environments of the learner. Therefore, objective of teaching and aspects of environment, generally constitute the focus of the model.

1.3.2 Syntax - The syntax or phasing of the model describes the model in action. There are some phases and activities in each model which are arranged in a specified sequence. When a teacher comes to know about the syntax of a teaching model, his work becomes very easy. He then finds how he should begin and proceed further to achieve his objectives. For example one model begins with a presentation to the learner of an organizing concept which the teacher presents to the students verbally, in either written or oral form. In second phase, data is presented to the learner. He or she read it, watches a film or exposed to the data in some other way. This phase is followed by another in which the learner is helped to relate the material to the organising concept. In a different model, the first phase of a typical activity includes data collection by the students. The second phase involves organization of the data under concepts the student forms himself or herself, and the third, a comparison of the concepts developed with those developed by other people. Table 1.1 showed these two models have a very different structure, or set of phases, even though the same type of concept might emerge from both models and they were in fact designed for different purposes. The first was designed for the mastery of material and the second to teach student inductive thinking processes.

A comparison of the phasing of the two models in table 1.1 reveals the
practical difference between them. An inductive strategy has different activities and a
different sequence than a deductive one.

Table 1.1 Illustration of phasing in two models.

<table>
<thead>
<tr>
<th>Model 1</th>
<th>Phase One</th>
<th>Phase Two</th>
<th>Phase Three</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Presentation of Concepts</td>
<td>Presentation of Data</td>
<td>Relating data to Concept</td>
</tr>
<tr>
<td>Model 2</td>
<td>Presentation of data</td>
<td>Development of Catagories by students</td>
<td>Identification and naming of Concepts</td>
</tr>
</tbody>
</table>

1.3.3. **Principles of Reaction**

Principle of reaction tell the teacher how to regard the learner and how to shape behaviour by rewarding certain student activities and maintaining a neutral stance toward others. In other models such as those designed to develop creativity the teacher tries to maintain a non evaluative, equal stance so that the learner becomes self directing. Principles of reaction provide the teacher with rules of thumb by which to tune into the student and select model appropriate responses to what the student does.

1.3.4 **Social system**- The social system describes students and teacher roles and relationships and the kind of norms that are encouraged. The leadership roles of the teacher vary greatly from model to model. In some models the teacher is a reflector or a facilitator of group activity, in other a counsellor of individuals, and in others a taskmaster. In some models, the teacher is the center of activity the source of information and the organizer and pacer of the situation ( high structure ). Some models distribute activity equally between teacher & student ( moderate structure ), whereas others place the student at the
centre, encouraging a great deal of social and intellectual independence (low structure).

As roles, relationships, norms and activities become less externally imposed and more within the students control, the social system becomes less structured.

1.3.5 - The Support system: This element of the model refers to the additional requirement beyond the usual human skills from the teacher and facilities available in an ordinary classroom such type of additional support may demand some special skills, knowledge and capacities from the teacher. The support system generates a desirable classroom environment eg Human Relations Model may require a trained leader, the Nondirective Model may require an exceedingly patient, supportive personality. Suppose a model postulates that students should teach themselves with the roles of teacher limited to consultation and facilitation. Here support is required in the form of books, films, self instructional systems, and travel arrangement is necessary.

1.3.6 - Application Context: This element of a model describes the application aspect. It differs in terms of goal achievement, conative, cognitive or affective. Therefore, each model through its element of application context tries to describe the feasibility of its use in varying context and achieving specific educational goals and demanding specific work environment.

1.4 The Families of Models:

Over the years, a great many educational models, have been developed by people engaged in distinctively different kinds of activity. Models are based on practice, empirical work, theories and on speculation about the meaning of theories and research done by others. Out of these models, teacher has to choose the right model in accordance with the objectives. Many attempts have been made by the researchers to classify teaching models in some specific categories. Hilgard and Bower (1975), Patterson (1977)
Dececco and Crawford (1977), Joyce & Weil (1980) etc. Joyce and Weil (1980) have grouped the models on the basis of specific educational goals and means into the following families:

1. **Information Processing Models**

   The term information processing has been introduced by Joyce and Weil. In their words, "Information processing refers to the ways people handle stimuli from the environment, organize data, sense problems, generate concepts and solution to problems and employ verbal and nonverbal symbols." Information processing models are more concerned with the intellectual growth rather than the emotional or social development of the individual. However, to some extent, all these models contribute towards the realization of personal and social goal. The important models of this family are given in next page.
Table- THE INFORMATION PROCESSING FAMILY OF MODELS

<table>
<thead>
<tr>
<th>Models</th>
<th>Major Theorist</th>
<th>Mission or goal for which Most applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Inductive Thinking Model</td>
<td>Hilda Taba</td>
<td>Designed primarily for development of inductive mental process and academic.</td>
</tr>
<tr>
<td>2. Inquiry Training Model</td>
<td>Richard Suchman</td>
<td>Reasoning or Theory buildings, but these capacities are useful for personal and social goals as well.</td>
</tr>
<tr>
<td>4. Concept Attainment Model</td>
<td>Jerome Bruner</td>
<td>Designed primarily to develop inductive reasoning, but also for Concept development and analysis.</td>
</tr>
<tr>
<td>6. Advanced Organiser Model</td>
<td>Davind Ausubel</td>
<td>Designed to increase the efficiency of information processing capacities to meaningfully absorb and relate bodies of knowledge.</td>
</tr>
</tbody>
</table>

2. **Personal Developmental Model**

Members of the second family share an orientation toward the individual and the development of self-hood. They emphasize the processes by which individual construct and organize their unique reality. Frequently they give much attention to emotional life. The focus on helping individuals to develop a productive relationship with their environments and to view themselves as capable persons is also expected to result in richer interpersonal relations and a more effective information processing capability. Important models under this family are:
<table>
<thead>
<tr>
<th>Models</th>
<th>Major Theorist</th>
<th>Mission or goal for which Most applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Non directive Model</td>
<td>Carl Rogers</td>
<td>Emphasis on the development of self awareness, understanding, autonomy and self concept</td>
</tr>
<tr>
<td>2. Awareness Training Model</td>
<td>Fritz Perls</td>
<td>Emphasis on the development of interpersonal awareness and understanding as well as body and sensory awareness</td>
</tr>
<tr>
<td>4. Conceptual System Model</td>
<td>David Hunt</td>
<td>Designed to increase personal complexity and flexibility.</td>
</tr>
</tbody>
</table>

3. **Social Interaction Models:**

The models in this family emphasize the relationships of the individual to society or to other persons. They focus on the processes by which reality is socially negotiated. Consequently models from this orientation give priority to the improvement of the individual's ability to relate to others, to engage in democratic processes, and to work productively in the society. It must be stressed that the social relations orientation does not assume that these goals constitute the only important dimensions of life. While social relation may be emphasized more than other domains, Social theorists are also concerned with the development of mind and the self and the learning of academic subjects. Some of the important models of this family are:
<table>
<thead>
<tr>
<th>Models</th>
<th>Major Theorist</th>
<th>Mission or goal for which Most applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Group Investigation Model</td>
<td>Herbert Thelen and John Dewey</td>
<td>Development of skills for participation in democratic social process through combined emphasis on group skills and academic inquiry skills.</td>
</tr>
<tr>
<td>2. Classroom Meeting Model</td>
<td>William Glaser</td>
<td>Development of self understanding and responsibilities to oneself and one's social group.</td>
</tr>
<tr>
<td>3. Social Inquiry Model</td>
<td>Byron Massialas and Benjamin Cox</td>
<td>Social problem solving, primarily through academic inquiry and logical reasoning.</td>
</tr>
<tr>
<td>4. Laboratory Method Model</td>
<td>National Training Laboratory</td>
<td>Development of interpersonal and group skill and through this, personal awareness and flexibility.</td>
</tr>
<tr>
<td>5. Jurisprudential Model</td>
<td>Bethel, Maine Donald Oliver and James P Shaves</td>
<td>Designed primarily to teaching the jurisprudential frame reference as a way of thinking about and resolving social issues.</td>
</tr>
<tr>
<td>6. Role Playing Model</td>
<td>Fannie Shaftel and George Shaftel</td>
<td>Designed to induce students to inquire into personal and social values, with their own behaviour and values becoming the source of their inquiry.</td>
</tr>
<tr>
<td>7. Social Sumulation Model</td>
<td>Sarene Bocrock</td>
<td>Designed to help students experience various social processes and realities and to examine their own reaction to them.</td>
</tr>
</tbody>
</table>

4. **Behaviour Modification Models:**

All the models of this family share a common theoretical base, a body of knowledge which can be referred as behaviour theory. This model emphasises on changing the visible behaviour of the learner rather than the underlying psychological structure and unobservable behaviour. Behavioural models have wide applicability, addressing a variety of goals in education, training, interpersonal behaviour and therapy. Based on the principles of stimulus control and reinforcement, behavioural models have been successfully employed in the interactive conditions and mediated conditions on an individual basis and on a group basis. Some of the important models of this family are:

- Contigency Management Model - B.F. Skinner
- Stress Reduction - Rimm & Master Wolpe
- Direct Training - Gagne Smith and Smith

These models mentioned above aim at the development of different aspects of human personality.
1.5. **Meaning of Concept**

An idea or expression representing the common element or attribute of a group or class. A concept is a generalized idea including all that is suggested to the individual by an object, symbol or situation. Individual differ in their level of concept formation, on the basis of their age, intelligence and experience.

Every concept has a structure, which is determined by the complexity of its attribute, the rules linking them, the number of attributes and form in which attributes are experienced and how the evolution of the concepts effect intellectual development. Gagne (1970) indicate that the learning concepts must proceed from discrimination of the sensitive characteristics of objects and events to the formulation of concepts. Tennyson and Park (1971) have defined, "A concept is assumed to be a set of specific object symbols or events which share common characteristics, can be referenced by a particular name or symbol." According to Oxford's Advance Learner's Dictionary, "The Concept may be termed as idea underlying a class of thing.

**Ausubel's Advance Organizer Model (AOM)** deductively aim at developing and increasing the information processing mental capacities of the learner. Advance organizer Model of teaching provide recommendation to teachers for selecting organizing and presenting new information. In advance organizer model different strategies are used such as presentation of learning task in a logical manner, strengthening cognitive organisation by using principles of integrative reconciliation and promoting active reception learning.

An advance organizer is an introductory statement of a relationship or a high concept which is broad enough to encompass the information that will follow. Whereas **Bruner's Concept Attainment Model (CAM)** states that role of teacher is to create situation in which student can learn on their own rather than to provide packaged information to students. This is applicable to the students of all ages to learn concept and practice analytical thinking skills.
Concept learning is a natural activity as evidenced by the enormous number of concepts small children bring with them to school. These concepts are well fixed with them. They learn these concepts through concrete examples and non-examples. The concept attainment model is designed to capture these essential features of concept learning while at the same time extending the skills of students. This model helps students to develop and form new concepts and also provide opportunities to students to apply previous knowledge.

Hilda Taba's Inductive Thinking Model is designed to develop inductive mental processes, especially the ability to categorize and use categories. Her teaching strategies are built on a particular mental or cognitive process thus, the primary application of the model is to develop thinking capacity; it requires students to digest and process large quantities of information. Thus by inducing students to go beyond the given data, is a deliberate attempt to increase productive or creative thinking. Inductive processes therefore, include the creative processing of information as well as the convergent use of information to solve problems.

1.6 Cognitive Style

Cognitive style refers to self-consistent and enduring individual differences in Cognitive Organisation and functioning. The term refers both to individual differences in general principles of Cognitive Organisation (simplification and consistency trends) and to various self-consistent idiosyncratic tendencies that are not reflective of human cognitive function in general. It reflects differences in personality organisation as well as in genetically and experimentally determined differences in cognitive capacity and functioning. In a very real sense, it mediates between motivation and emotion on the one side and cognition on the other (Paul, 1959).

The most significant dimension of cognitive style that has implications for
subject matter learning, in our opinion, is the tendency for individual to be generalizers or particularizers or to be some where between these extremes on a continuum. Cognition includes the process of perception, thinking, reasoning, understanding, problem solving and remembering. Studies of cognitive style originated in attempt to understand individual difference in these processes which might accounts for the wide variations in outcome among children and adults ostensibly faced with the same tasks or demands. There is no universally agreed definition of cognitive style but most researchers have emphasized three features:

- styles are intellectual characteristics of individuals;
- they describe processes which are relatively stable over time and
- intra individual stabilities are consistent across tasks having similar requirements.

Cognitive style attempts to describe difference in the ways in which children and adult think and learn. Individuals vary in the degree to which they are able to overcome the influence of a prevailing field and kind of perception demonstrate by a person represents a deep rooted feature of his psychological make up.

1.7 Self Concept: Self concept refers to the experience of one's own being. It includes what people come to know about themselves through experience, reflection and feedback from others. The self concept is an organised cognitive structure comprised of a set of attitude, beliefs and values that cut across all facets of experience and action, organising and trying together the variety of specific habits, abilities, outlook, ideas and feeling that a person displays.

It is a person's idea about himself/herself. It is one of the most important factors affecting behaviour. An individual's behaviour in the classroom and level of his achievement are influenced by the kind of self concept. Self concept is picture of individual about himself. It is thought to be an image of oneself.
Mead (1934) said, "self is a socially formed self. It arises only in a social setting and is an object of awareness rather than a system of processes. He claims that the person responds to himself with certain feelings and attitudes as others respond to him. He becomes self-conscious by the way people react to him as an object. Mead suggests that a person may develop many selves in different settings, e.g., a family self, a school self, and a social self.

James (1950) defined the self or "Empirical Me" in a very general sense as the sum total of all that a man calls his/her body, traits, abilities, mental possession, his family friends and enemies, his vocation, and avocation, etc.

Symonds (1951) opines that self consists of four aspects: how a person perceives himself, what he thinks of himself, how he values himself, and how he attempts through various activities to enhance or defend himself.

Rogers (1951) also defined the term self as "the awareness of being functioning", it implies that self can be considered as constituting those ideas, strivings and emotional facing that one thinks are his own and values and interprets them as his own. He also said that self concept denotes, 'The organized, consistent conceptual gestalt composed of perceptions of the characteristics of the 'I' or 'Me' and the perceptions of the relationship of 'I' or 'Me' to others and to various aspects of life, together with the values attached to these perceptions. He also perceived man as a rational, forward moving and social entity. He possesses a self-activating tendency, an inherent tendency or organism to develop all his capacities to his fullest, based on this idea Rogers gives the following properties of self:

- Self emerges and develops through interaction with significant others in the environment;
- Self strives for consistency. The need for self-regard leads to selective perception.
Self changes as a result of maturation and learning.

Jourard (1963) feels that self concept is made of the beliefs that an individual holds about himself.

Cooper Smith (1967) conceives of self as an abstraction which an individual develops about attributes, capacities, objects and activities which he possesses and pursues. He then goes on to distinguish between positive and negative self esteem.

Labenne and Greene (1969) put forth a comprehensive definition where in they say that self concept is person’s total appraisal of his appearance, background and origins, abilities and resources, attitudes and feelings which culminate as a directing force in behavior. This implies that an individual’s conscious awareness, his thinking and feeling are the guiding forces of his action.

Self concept is very important for teachers because it is not fixed out rather modified by life experience. Self concept is not static and might change from situation to situation. So self should be seen as a development form. It is also important for teachers because the student’s concept of self i.e whether positive or negative also affects the academic achievement.

Many students have difficulty in school not because of low intelligence or bad hearing but because they have learnt to consider themselves unable to do academic work. A child who says, “I will never pass that test”, is reflecting about academic achievement may be related to a student’s conception of himself as being unable to learn.
Self concept can be conceived as a set of beliefs about the self that are presumed to be a dominant feature in social perception and the resulting attributional and self-evaluational processes.

1.8 Achievement Motivation

Motivation is a type of inner control responsible for the arousal, direction and persistence of a goal-directed activity and having its roots in changing psychological conditions (drive, needs, urges) previous conditionings and social urges. There are students who have strong desires for achieving certain goals in life. These are also reflected in their academic achievement at school or college level. Their inner urge or motive directs them to persistent in their efforts. There are different shades of this inner motive in the students. Some students never think in terms of their goals. These students lack in achievement motivation. There are others who want to be doctors or engineers and from the very beginning are persistantly active in that direction. Such motives, urges, needs which make the students achievement orientated are called achievement motivation.

It can also be defined as a pattern of planning, of actions and of feeling connected with striving to achieve some internalized standard of excellence in performance. It also refers to need for achievement. Importance is the attitude to achieve rather than the achievement themselves.

Achievement motivation also means a learned and generalized pre-disposition to attain success in competition with these standard of excellence. The standards are taken by an individual as criteria to evaluate the adequacy of his or her performance.

Page and Thomas (1977) define achievement motivation as “An individual with the motive to achieve is spurred by his/her needs to satisfy his/her drives to know and understand, to acquire feeling of personal adequacy and self-esteem and to receive approval from others as part of a desire to master his/her environment. Thus achievement motivation is an inner desire or urge for achieving certain goals of life.
1.9 Need of the Study

"The chief task of education is above all to shape man or to guide the evolving dynamism through which man forms himself as a man."

Whenever a teacher teaches something to his class, his teaching intends to produce learning or bring relatively permanent changes in the behaviour of the students of his class. There is a need to adopt some teaching strategies to develop the learner physically, mentally, socially, morally and aesthetically. A teacher, by virtue of his ideal position, status, knowledge and experiences influences the behaviour of the less experienced pupils and helps them to develop according to their needs, abilities and capacities. The teacher should teach the subject matter in such a way so that it could be retained for a longer time in the minds of the learner.

So many researches in the field of models of teaching have been conducted. These researches have established the fact that no single or particular model of teaching is suitable to all topics, all subjects or to a particular subject or topics. The researchers such as Siokan, Peter (1981), Kaur, Ravinder (1986), Sood Kamala (1988), Goyal Madhvi (1990) Lata Manju (1990) have conducted researches on models of teaching and concluded that one specific strategy cannot bring complete changes in around development of the learners.

In the light of the above, there is an immediate and urgent need for a number of research studies which may provide some data on the comparison of different models of teaching for teaching science to high school students. It is all the more desirable since no such in-depth study has been conducted and ones completed abroad are scanty and none has been done with the cognitive style, achievement motivation and self-concept.
1.10 Statement of the Problem-
A STUDY OF THE EFFECTS OF TEACHING THROUGH VARIOUS INFORMATION PROCESSING MODELS ON LEARNING OF CONCEPTS IN SCIENCE IN RELATION TO SELF-CONCEPT, COGNITIVE STYLE AND ACHIEVEMENT MOTIVATION.

1.11 Objectives-
1. To find whether Advance Organizer Model, Concept Attainment Model and Inductive thinking Model effect achievement in learning of concepts is science or not.
2. To know whether the students having differential cognitive style differ in attaining the concepts.
3. To know whether students having differential achievement motivation differ in attaining the concepts.
4. To know whether students having differential self concepts differ in attaining the concepts.
5. To find whether there is any interaction between strategies of teaching concepts and cognitive style of the students.
6. To know whether there is any interaction between strategies of teaching concepts and self concept of the students.
7. To know whether there is any interaction between strategies of teaching concepts and achievement motivation of the students.
8. To know whether there is any interaction between strategies of teaching concepts, cognitive style, achievement motivation and self concept.

1.12 Hypotheses-
1. There will be no significant difference in the learning of concepts by the groups taught by Advance Organizer Model, Concept Attainment Model and Inductive Thinking Model.
2. There will be no significant difference between mean scores of students having
different levels of cognitive style
3. There will be no significant difference in the acquisition of concepts by groups
having different level of achievement motivation.
4. Self Concept does not significantly affect learning of concept in science.
5. There will be no significant interaction between models/strategies of teaching and
cognitive style.
6. There will be no significant interaction between strategies of teaching and achieve­
ment motivation.
7. There will be no significant interaction between strategies of teaching and self
concept.
8. There will be no significant interaction between cognitive style, self concept and
strategies of teaching.
9. There will be no significant interaction among cognitive style, achievement moti­
vation and strategies of teaching.
10. There will be no significant interaction among self concept, achievement motiva­
tion and strategies of teaching.
11. There will be no significant interaction among cognitive style, self
concept, achievement motivation and strategies of teaching.

1.13 Delimitation of the Study-
1) The study was limited to the comparison of only three different information pro­
cessing models viz Concept Attainment Model, Inductive Thinking Model and Advance
Organizer Model.
2) The study was restricted to the learning of concept in science of class IX.
3) The study was limited to the different schools of Ambala City and Ambala Cantt.