Chapter - I

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1.1 INTRODUCTION

Education is an effective means of individual, social and economic development. Being educated is a valuable achievement and the opportunity to learn can be of direct importance to a person's freedom. Greater literacy and basic education facilitate the better utilization of available resources. Due to these facts, universalisation of Elementary education has been set up as one of the most important goals of our country to attain universal enrollment, universal retention and qualitative improvement of schooling. Qualitative improvement envisages a continuous renewal of the curricular materials to make it relevant to the changing needs and aspiration of the community to which the children belong. Improving the quality of education requires the adoption of innovative instructional procedures and techniques of evaluation, development of appropriate teaching learning processes, experiments and Research. Following the lines of National Policy of Education 1986, programme of Action 1992 and Sharva Shiksha Abayan 2001-2010, intellectual development and acquisition of knowledge by the students have become primary concerns of pedagogy.

Educational efforts over last fifty years have experienced several changes in the roles of teacher, learner and teaching-learning process. The major shift from 'teaching' to 'learning' gives clear that neither one nor the other by itself can achieve the ends and hence the combination of teaching and learning appears to be an appropriate strategy for student's intellectual development. Out of the total educational endeavor, the teaching remains the pivot around which the entire process revolves around in the formal system. It is in this light that National Policy
of Education 1986 and its programme of Action make a policy statement, “Teacher should have the freedom to innovate, to devise appropriate methods of communication and activities...”. During last two decades, so many new methods of teaching and training have been developed, tested, modified and adopted to different kinds of learning situations. Still there is a need to direct efforts towards the transformation of teaching methods right up to the development of science and technology. In order to meet the continuing need of updating methods with technological development, obsolete methods need replacement with introduction of ‘models of teaching’. The world of tomorrow, which will usher in an information rich and technology intensive society calls for models of teaching as an approach to teaching.

The process of teaching is not as same as the process of learning. A theory of teaching must attempt to set for the means of maximizing learning on the part of children. Since intellectual development and acquisition of knowledge by the students are primary concerns of pedagogy, specific mental processes like concept formation, reasoning and the styles of thinking along with positive attitudes will go a long way in effective and efficient information processing which is a stepping-stone for achieving the needed learner behavior. It is in this scenario that Joyce in 1990 has stated, ‘To provide an all round development, we need to design suitable instructional strategy which helps our students grow emotionally, physically, socially and intellectually. There still exists a gap between theoretical knowledge and actual teaching in the classroom or schools. Models of teaching as strategies need to be incorporated in our teaching practice”. A variety of teaching approaches has evolved to design instruction. However, the investigator has chosen ‘Inductive thinking model’ for her research, keeping its instructional and nurturing effects in view.
1.2 CONCEPTS OF TEACHING AND LEARNING

Will and wisdom, maxims, aphorisms and metaphors on teaching and learning are abounding. There has been a variety of definitions given by different people on teaching and learning perceiving them from different angles. It may be noted at the outset that all teaching aims at some kind of learning and that the teaching is a cause and learning is intended result or effect. The two concepts are different and yet closely connected. Whenever we talk of teaching some kind of leaning implied. It is therefore important to analyze these two concepts in order to understand the models of teaching.

1.2.1 Concept of teaching

Teaching as a concept is quite ambiguous and complex. There are several meanings attached to this concept traditionally. Researchers on teaching have recently advanced their own definitions of the term while philosophers of education and educational psychologists have emphasized quite different theoretical orientations from time to time. A non professional interprets teaching to be a kind of coaching done systemically at a particular place at a particular time and through the agency of an appointed person.

Lexicographers define teaching as imparting knowledge or skills, giving instructions or lesson, inspiring, assisting another to learn, providing information of appropriate situations, conditions or activities designed to facilitate learning.

Flanders (1970) explains teaching as a transactional activity between the teacher and taught. He says that teaching behavior by its very nature exists in the context of social interaction. The acts of teaching leads to reciprocal contacts between the teacher and the learners and the interchange itself called teaching.

Ronald T. Hyman observes that teaching involves a triad of elements (the teacher, the learner, the subject matter) and this triad is dynamic in quality. He rightly asserts that the nature of teaching cannot understand properly by looking at
only one or two of the elements of the teaching relationships or by thinking of teaching as dyadic. Thus all the three elements must be considered together in order to understand the interaction recurring during teaching. In this frame of reference, a teacher needs not only to be aware of his aim of teaching but also of his relationship with his learners and the subject matter and the learners relationship with the subject matter. Also it prevents the teacher from trying to teach the ‘syllabus’ as handed out by department as it constitutes a static and not a dynamic relationship between teacher and subject matter.

**B. F. Skinner** defines teaching as ‘the arrangement of contingencies of reinforcement’. **K. Mitra** in his national lecture at centre of Advanced study in Education, defined teaching ‘as a series of acts carried out by a teacher and guided by the formulation of teaching task in a formalized instructional situation’.

The aforementioned definitions of teaching bring out the following qualities in this concept:

1. Teaching is a system of activities. In other words, it is a number of logically contrived set of activities having a specific structure, form and orientation.
2. Teaching aims at changing others or causing learning in others. Without a suitable goal or objective, no worthwhile teaching can be arranged.
3. The core of teaching act is interaction between teacher, learners, and subject matter. Thus it is by its very nature a social enterprise involving dynamic interaction among a triad.
4. Teaching involves an influence orientation where the direction of focus of control is from the teacher to the learner.
5. Teaching does not just occur, rather it is a planned and an implemented set of activities in an interactional setting in terms of the prior thought about the learning goals, instructional strategies and the subject matter configuration.
6. As it is practiced, teaching implies an ‘intentional’ rather than ‘success’ act. In other words, when teacher engages in the act of teaching, his intention is to cause learning but he may or may not succeed in the achievement of this goal. It is for this reason that we often debate the ‘effectiveness’ of teaching from one situation to the other.

7. The verbal action and use of language at various levels constitutes the predominant feature of teaching act in any context. The analysis of teaching act is therefore, quite frequently conducted with the help of data collected form the verbal behaviour of teachers. It may, however, be useful to remember that both verbal and non verbal parts of teaching behaviour occur simultaneously and function in close juxtaposition to each other in order to accomplish the necessary effect.

The critical attribute of teaching act involves 'reasoning' and 'an enlightened analysis of facts'. It is not concerned with bare listing or relaying of facts in a mechanical fashion. The entire teaching act can be explained in terms of three definite phases within it – the introductory or orientation phase; the development and fixation phase; and the evaluation phase. The introductory or orientation phase involves the presentation of the new information and concept or behaviour. The development and fixation phase implies their establishment in the repertoire of the learner and the evaluation phase indicates the point where the designer of the instructional system checks the extent of learning having occurred. The teaching act by itself can also be prefixed and suffixed with two different stages. The prefix is now given a name of 'pre active' stage and the suffix is called the 'post active' stage of teaching. In the pre active stage, the goals of teaching are decided, the content of presentation is identified and the strategies and tactics for interaction setting are planned. In the post active stage of teaching, the events of the interactive stage are analyzed in retrospect and decisions for further interaction in a face to face set up are taken. The interactive stage is the actual teaching conducted by the
teacher when he is before his learners. The understanding of above qualities of teaching would remain useful to understand the models of teaching, the frame of this investigation.

1.2.2 Concept of Learning

The term ‘Learning’ implies a change in the behavior or performance capability of an individual. Every individual picks up new information, acquires skills and habits, forms attitudes and cultural values, develops character traits and appropriate sex roles and learns to love and hate and to fear and be self confident. All these instances are evidences of learning. Hence learning is a complex and all pervasive act.

Ernest R. Hilgard and Gordon H. Bower (1966) described learning as “a process by which an activity originates or is changed through reaching to an encountered situation, provided that the characteristics of the change in activity cannot be explained on the bases of native response tendencies, maturation or temporary states of that organism”.

Robert M. Gagne (1970) considered it to be ‘change in human disposition or capability which can be retained and which is not simply ascribable to the process of growth’. He is of the opinion that the kind of change called learning exhibits itself as a change in behaviour and the influence of learning is made by comparing what behaviour was possible before the individual was placed in a learning situation.

The above definitions reveals the following seven features of learning:

1. Learning is a process which can be inferred from the behavioural change of an organism.
2. The behavioural change implied by learning may be overt or covert or partly overt or partly covert.
3. The change in behaviour attributable to learning is different in quality and quantity from change which appears due to maturation, fatigue, motivation, and drugs etc.

4. Learning occurs as a result of the initiative taken by the learning organism. Whatever a person learns, he must learn for himself, no one else can learn for him. It is also pertinent to note that one learns in one’s own interest and therefore activity of learning is as personal as eating, breathing and digesting etc.

Thus learning is different from teaching in a number of ways. The nature of two activities varies both in the conceptual as well as operational details. Teaching resembles a family of activities and as such it may be perceived in the form of an interrelated set of not one but many activities like telling or showing something, asking, instructing, directing, praising or encouraging, conforming and correcting and so on. It occurs in a social context as a teacher figure (X) interacts with a pupil or pupils (Y) with the subject matter instrumentalities (Z). Thus the heart of teaching in interaction - a simultaneous mutual interchange (SMI) - between the three elements denoted by X, Y, and Z. Learning on the other hand, is a single activity. It occurs 'privately and at the instance and initiatives of the person - the learner. It may arise from a social interaction of different sort. It may be caused by others or by the self of the learning person itself or by both.

Thomas Green has argued in his book entitled 'Activities of Teaching' that there is no learning without teaching and teaching may not be without learning. He puts like this, 'teaching goals may be learning but all teaching may not facilitate learning. He has further illustrated that pleading a case may be the purpose to win it but there is no surity to win the case. Similarly the doctor gives a treatment to cure the patient but every patient is not cured by the treatment. Teacher designs teaching to induce learning but every student is not able to learn.
1.3 FORMS AND LEVELS OF TEACHING AND LEARNING

The activities of teaching and learning may be organised at various levels of abstraction; ranging from the use and application of simple mental powers to the most complex ones. Such organisations are distinguished and labelled as ‘forms and levels’ of teaching. There are three identifiable levels of teaching and learning activities: Memory level, understanding level and Reflective level. Morris L. Biggie (1976) has added one more level under the rubric ‘autonomous development’.

The memory level is that where simple processes of recall and recognition are insisted. The understanding level is one where seeing of relationship or insight is stressed and the reflective level is that where critical thinking or problem solving is the chief concern. The autonomous development level is student oriented and is dependent on learner’s feeling and judgement. Morris L. Biggie (1976) is his work ‘Learning theories for Teachers’ observes that teaching learning situations may be characterized according to where they fall on a continuum that ranges from ‘thoughtless’ to ‘thoughtful’ modes of operation.

The four levels of teaching and learning may be shown on a continuum in the following way:

![Teaching - Learning continuum](image)

1.3.1 Autonomous development level

The first level, Autonomous development level is student centered. The teacher’s function in the process of teaching is more negative than positive in the sense that there is little or no leadership, direction, coercion, prescription, or imposition of student thought or behaviour. ‘Intellectual development is something
that just naturally happens’. The obvious implications of this is that there is no need for any kind of formal teaching.

1.3.2 Memory level

Memory level teaching or learning is the least thoughtful. This is one of the most familiar types which we witness in our day to day classrooms. Recall, recognition and retention are specially emphasized in this form of teaching or learning. The instructional arrangement is such that the learner is helped in cramming or parroting the content presented to him. In this process, he may not show a thoughtful assimilation or understanding of the elements or item of knowledge. Thus the memory level teaching and learning is marked by teacher’s arrangement of the material to help or aid the process of quick recall, recognition and retention.

1.3.3 Understanding level

The understanding level is characterized by seeing of relationship and tool use of a fact. This level of teaching is that teaching which seeks to acquaint students with the relationship between generalization and particulars and between principles and solitary facts, which show the uses for which the principles may be applied. The ‘explanatory understanding’ as a form of teaching is supported by the Theory of Apperception of Herbart. According to this theory, three stages of learning are implied. First is the stage primarily of ‘sense activity’. This is followed by the stage of ‘memory’ which is characterized by exact reproductions of previously formed ideas. The third and highest level is that of ‘conceptual thinking’ or ‘understanding’. Teaching becomes a highly systematic and ordered set of activities in the ‘understanding level’ presentations. Preparation, presentation, comparison, generalization and application are five Herbartian steps indicated here to equip the students to generalize insights which can be employed in problematic situations both in and outside the school.
1.3.4 Reflective level

The term ‘reflective level’ is indicative of the highest level of thoughtfulness on the part of the teacher as well as the learner. This level basically involves the use of scientific method to the understanding of the problems with which a person is confronted. It consists of two phases: 1. Problem raising and 2. Problem solving. The personal involvement of the learner and his intensity of feeling for obtaining a solution are the indicators of the success of reflective level of teaching and learning. The ‘cognitive field theory’ provides a support to the reflective level of teaching and learning. The method of teaching in this frame of reference becomes an inquiry into the problems and their solutions. It assumes spontaneous interchange between the teacher and student.

The awareness and skill of the concept of teaching and learning relationship and the levels of teaching and learning is more important for the teachers. Because it has great significance in planning and preparing lesson plan and for achieving objectives by creating appropriate learning situations. Transfer of learning can be improved by using the theory of generalisations and identical elements.

1.4 STAGES OF TEACHING

The activity of teaching can be described in terms of three specific stages. They are: Pre-active, Interactive, and Post-active.

1.4.1 Pre-active stage

The pre-active stage begins from the point of time when the teacher decides to teach a particular item to a particular group of students and ends when the teacher is face to face with his students. Philip. W. Jackson observes that ‘behaviour relevant to the teaching task in this pre active stage includes many things, such as preparing lesson plans, arranging furniture and equipment within the room, studying test reports, reading sections of a text book, and thinking about the aberrant behaviour of a particular student. Formulating objectives, identifying the
important ingredients of the contexts, specifying entry behaviour of the learners, listing the available resources for learning, developing a criterion test, and writing a teaching unit or a lesson plan are significant operations in the pre-active stage of teaching. K. P. Pandey (1997) says, “there are three types of statements of objectives: general, specific and behavioural”. The general objective are quite abstract and are derived from the social philosophy of the country, the psychology of learning and the nature of the content. These statements are made specific by reference to the specific learning outcomes to be achieved after the presentation of instructional situation. Without mentioning the specific objectives, no efficiency in the system of instruction can be vouched. For writing behavioral objectives Mager (1962) and Gronlund (1971) prescribed the observance of the following three-step contingency:

1. Identifying the terminal or end behaviour by name. This will require specifying the kind of behaviour that will be accepted as evidence that the learner has achieved the objective.

2. Defining the desired behaviour further by describing the important conditions under which the behaviour will be expected to occur.

3. Specifying the criteria of acceptable performance by describing how well the learner must perform to be considered acceptable.

The use of taxonomic principle categories - cognitive, affective and psychomotor domains is also found useful in indicating the goals for designing effective teaching-learning programmes. The taxonomy of Educational objectives (Bloom.1956) consists of a set of general and specific categories that encompass all possible learning outcomes that might be expected from instruction. The objectives are of great use for curriculum development, teaching and testing. The cognitive domain refers to those objectives that emphasize intellectual outcomes such as knowledge, understanding and thinking skills. The affective domain deals with
those objectives that lay stress on feeling and emotions such as interests, attitudes, appreciation and methods of adjustment. The psychomotor domain includes those objectives that emphasize motor skills such as handwriting, typing, swimming and operating machinery. Writing a teaching unit or lesson plan is also an important activity in the pre-active stage of teaching.

1.4.2 Interactive stage

The actual implementation phase of the planned instructional system is Interactive stage. It arises from face to face encounter in a social situation in which the teacher communicates knowledge, information or skill to the pupils with references to a subject matter. The nature of interaction between these three elements are highly dynamic in quality and this aspect of teaching is normally emphasized in empirical studies. It is so crucial that without interaction, no teaching could be said to have occurred. The verbal as well as non verbal behaviours of teacher and pupils are involved in this process. It may be undertaken at the cognitive, social and performance levels. For the interaction at cognitive domain, the linguistic behaviour i.e. use of language serves as a powerful vehicles. For the interaction in the social domain, the mutual relationship of the acceptance, rejection and neutrality between the teacher, and pupil is important. In the performance domain, the mobility and actions of the teacher and pupils in response or reaction to directions, requests and commands assume significance. In the nonverbal behaviour, the gestures, gesticulation, and facial expressions involving the movement of eyes, lips etc play a dominant role. Both verbal and nonverbal behaviour get expressed concomittently and function in complementation to each other. During interaction phase, presenting, asking, responding, reading, structuring, evaluating, and providing feed back are some of the specific operations.
1.4.3 Post-active Stage

Post Active stage appears as suffix to the activity of teaching. The basic point of this stage is that the teacher is so overpowered by the events of the interactive setting that he continues to think about their meaning even after they have disappeared. Hence this gives firm basis for correcting the mistakes and reorganizing the instructional system with suitable orientations on a subsequent occasions. The important operations of this stage are recollecting, listing, extrapolating, formulating a guideline and weighing the evidence.

All the three stages may be viewed as an interrelated set as the impact of the decision and action in one stage may be analyzed during the subsequent stage. The researches on teaching have concentrated on the study of interactive stage even to the exclusion of pre active and post active stages which are so integrally connected. Hence, the present investigator, has been urged to make efforts to set right the imbalance through her scientific probe of model of teaching.

1.5 INSTRUCTIONAL STRATEGIES

Instructional strategy according to B.O. Smith refers to 'a pattern of teaching acts that serves to attain certain outcomes and to guard against others. It is a purposefully conceived and determined plan of action'. B. B. Strasser (1964) defines a teaching strategy as, 'A generalised plan for lesson(s) which includes structure, desired learner behaviour in terms of the goals of instruction, and an outline of tactics necessary to implement the strategy'.

Sing (1990) in his paper, 'Teaching methodology – changing orientation' states that teaching seems to stem from the capacity to teach differing learners and to create rich and multidimensional environment for them. Taneja (1989) in his paper, 'Romance of Teaching' has rightly stated that the weaver only knows where the shoe pinches. National Policy on Education (1986) envisaged teachers 'to devise appropriate methods of communication and activities relevant to the needs and
capacities of the concern of the community’. The teachers need to collect information from multifarious resources, integrate these and then utilise in a gainful manner. The teacher may be required to process the information as received from primary sources to the level of the students. Theories of learning are like the software and teaching strategies as hardware. If we analyse the teacher training programmes and their curriculum till now along with classroom teaching there in, we find that they all emphasize the theoretical knowledge and conditions of learning. Smith (1961) comments that teaching cannot be treated as mirror image of learning and teaching is different process from learning. The theory of instruction should specify the ways for achieving instructional goals which are based on specific patterns regarding use of mind. Strategies of teaching attempt to structure knowledge in a way that is easily grasped by the students. Thus it is implied that the sequence in which material is presented to a learner is the ‘teaching strategy’ that facilitates learning.

The ‘child centered’ and ‘activity based approach’ should be main strategies for curriculum transaction. This impulse many things which a teacher should be consistently aware. The curriculum content, books, instructional materials, classroom and teachers should serve as means to the learner development and not as ends in themselves dominating over them. This should essentially be a warm, welcoming and encouraging approach that takes into consideration of the needs and motives and the interests of the learner. The involvement of the learner in the learning process should go beyond the process of listening passively to that of ‘thinking’, ‘reasoning’, ‘feeling’ and ‘doing’. Doing and discovering has been the natural and normal course through which the mankind has been able to gather gradually the vast fond of knowledge about and control over various facts and events.
The process of strategy building rests on the following considerations:

1. The educational philosophy of the institution.
2. The objectives of the learning situation
3. The learning theory to which the teacher subscribes.
4. The most suitable functions of the strategy
5. The observation and feedback plans.
6. The modification and improvement of the strategy in terms of feedback.
7. Selecting the sequence of instruction, translating knowledge about students into motivational devices and making abstractions concrete are the main function of strategy building.
8. The strategies of Teaching should aim at developing the desire to do work with the highest measure of efficiency of which one is capable. Developing the capacity for 'clear thinking', 'expanding the range of students' interest by providing numerous opportunities to participate in freely accepted projects and activities are to be included in the teaching strategies.

A successful teacher always keeps in view the learning theories and their implications in the teaching process. He does not depend on any one method, strategy or technique of instruction. He remains aware of the fact that the teaching strategies must be dynamic and in accordance with the learners comprehension.

1.5.1 Stages of development

Research indicates that the understanding of a random phenomenon requires the use of certain concrete logical operations well within reach of a young child. It is difficult to believe the general heuristic roles - the use of analogy, the appeal of symmetry, the examination of limiting conditions when used frequently will be nothing but a support to intuitive thinking. The practice of teaching has been limited because of lack of refined knowledge of goals, roles, designs and strategies
of instruction. According to Eggen (1979), “The educational goals have been divided into cognitive, affective and psychomotor domains. The cognitive goals address the development of the students intellect; affective goals are concerned with emotional and social growth; the psychomotor goals are aimed at acquisition of manipulative and movement skills. Cognitive skills are important in information processing, the affective goals in development of attitudes while psychomotor goals in development of mental processes. Thus, all the three need to be taken into account while deciding strategies of teaching”.

Gage (1963) professes two kinds of theories of teaching. The first one explains why teachers behave as they do in teaching and second explains how the behaviour of a teacher can influence learning of pupils. The common implication of these facts is that the teachers should use different strategies matching the objectives of teaching and pupil’s learning styles and personality dimensions. It is true that theories of teaching are not available as yet, but there are a number of teaching strategies which have been developed by the researchers to realise specific instructional goals. These strategies have been developed on the assertion that there is no single way to teach as such different instructional strategies are required to realise different instructional goals.

1.5.2 Types of Teaching Strategy

A teacher organises his activity of teaching to bring about desirable change in the behaviour of the learners. Thus, the learners are forced to achieve learning objectives. Most of the teaching strategies are selected to be used by students with their full capacity. They attempt to achieve maximum students’ performance. Therefore it is essential to know about different teaching strategies, in terms of their effectiveness in achieving different kinds of learning objectives. These are the means for realising the learning objectives.
Teaching strategies can be classified under the following two heads:


All teaching strategies can be used to achieve cognitive objectives and affective objectives. Psychomotor objectives can be achieved by lesson demonstration, practical tutorials and independent study.

1.6 TEACHING AND INFORMATION PROCESSING

In the fast growing age, lot of information has to be collected from multifarious sources, integrated and then processed in a gainful manner, not only within self but to the next generations. Teachers have been shouldered with the responsibility of processing it through a formal system to the level of the students. Hax wertheimer was the first to investigate the ways one tends to superimpose upon what one sees or hears. He suggested that information processing is a matter of perceptual organisation imposed upon stimuli so that new patterns can be seen. These are involved in human learning and performance. Hess (1963) states on the bases of his research that there is a reason to believe but do not unfold naturally and inevitably. It requires active participation of a stimulating environment in order to attain normal development. Abstractions and 'concept formation' have been regarded extremely important to research and teaching. But it has not been matched by the rigour of procedures used to study them.

Gagne has named information processing as a language available for expressing the strategy for inference. It has been accepted as a process to direct thoughts that can be conceived as a linear sequence of operations actually carried
out by the subject according to a system. It may be ability to structure the problem frame to differentiation of relevant cues and integrate them accurately. Structuring, handling information and feedback which the teacher institutes further effect the flow of cues. In information processing visual symbols are to be converted into meaningful phrases in mind. From develop mentalists’ view, the information processing approach offers a methodology for precisely specifying the changes in organizing states and systems or strategies that have been practicing and modifying for a longtime. Moraine Dershimer and others (1990) in a recent study on ten teachers in a suburban elementary school indicated considerable success in stability of information processing styles.

Through the teaching of information processing, capabilities of the learners are facilitated and ability to master information is enhanced. Teachers handle information coming from outside, organise data, enable the learner to raise problems, generate concepts and solutions to the problems with the use of verbal and nonverbal symbols. Elements of information processing in teaching are five fold: flow of cues, interpretation, perception of cues, processing and responding. The teacher is a powerful agent in determining the processing of information by reducing the amount the natural behaviour of children, instituting the instructional patterns, building a social system and regulating the instructional process.

Greater emphasis has thus been laid on information processing power of academic disciplinarian in a formal teaching system. Hence, it is inferred that:

1. Information processing is an important component and requirement of pedagogy.
2. Theories of learning have a direct bearing on information processing.
3. Information processing effects all the cognitive, affective and psychomotor processes.
4. Information processing can be enhanced.
5. Information processing can be studied.

6. Information processing can be manipulated and taught through formal education.

1.6.1 Methods of Teaching - Traditional and Modern

Teaching is an art in so far as excellent teachers are born but not made. But teaching is also a science in so far as a mediocre teacher can become a good teacher by learning to communicate with his learners in accordance with certain principles of psychology and sociology. In the modern times several theories and principles of teaching have been developed philosophical, psychological and sociological theories and the teaching-learning situations.

Methods are the ways to understand and practice, the art of teaching. Different methods of teaching have been propounded by different educational thinkers. Teaching methods are divided into two classes as teacher centered and learner centered. Teaching, as conventionally understood by a traditional teacher is the act of disseminating information to another individual or a group of individuals in the classroom. In this type, the teaching is focussed on narration by the teacher and on the part of learners' listening, retention and recall. The teaching environment is very much formalized and the teacher occupies central position in the classroom. Here the learner acquires knowledge or information with practically an opportunity to develop understanding, application and skills. They know the information but they cannot correlate this to the daily life situations. This method also fails to draw the total attention of the learner towards learning abilities. Hence there arose the need for new methods, strategies and techniques that are suitably and effectively used in modern days. Besides, the focus of educational psychology has been on learning, but now there is a shift from learning to teaching because learning theories cannot solve the problems of teaching. Therefore efforts are being made to develop theories of teaching but so far no final theory of teaching has been formulated. The
educationists and psychologists are making efforts to evolve theories of teaching, as a result of which some teaching models or paradigms have been developed out of several methods. ‘Models of teaching’ emerged as a major innovation in the recent years. Since the main focus of this research, lies upon ‘teaching model’, the investigator intends to explain about the Teaching model in detail.

1.7 MODELS OF TEACHING

Development of models of teaching is one of the recent innovations in teaching. It is a midway approach between teaching method and teaching skill approach. There appear to be exerting a certain definable way of working with the students that helps them to grow more than any other way. An important purpose of these models is to assist the teacher to have wide range of approaches for creating a proper interactive environment for learning. An intelligent use of these approaches enables the teacher to adapt him to the learning needs of the students. A number of educationists and psychologists like Flander (1970), Glaser (1962), Bruner and Hilda Daba have proposed model approach to teaching. The credit for transforming prevailing teaching theories into different models of teaching goes to Bruce Joyce and Marsh Aweil (1980). In India the first national project on model of teaching was planned, designed and executed during 1985-86.

1.7.1 Definition and meaning of Teaching Model

Teaching models have been defined in a number of ways. Some of the important definitions are as follows:

Allen and Ryan (1969) define, ‘Modelling is an individual demonstrating particular pattern which the trainee learns through imitation. Bandura (1969) defines, ‘Modelling demonstrates that virtually all learning phenomena resulting from direct experiences can occur on a vicarious basis through observation of other person’s behaviour and its consequences for them’. Decececo (1968) has made a distinction between teaching models and a theory of teaching, stating that models do
not have vigour of tested theories. They are consciously and systematically designed to accommodate all important variables. Models may eventually give rise to empirically tested theories. Paul D. Eggen et al. (1979) says, “Models of teaching are, however, prescriptive teaching strategies designed to accomplish particular instructional goals. They differ from general approaches to teaching in the way that they are designed to realize specific instructional objectives”. B. K. Passi, L. C. Singh and D. N. Sansanwal (1991) define that a model of teaching consists of guidelines for designing educational activities and environments. Model of teaching is a plan that can also be utilized to shape courses of studies, to design instructional material and to guide instruction. Joyce and Weil (1990) have defined it as ‘a plan or pattern that can be used to shape the curriculum, to design instructional material and to guide instructional in a classroom and other settings’. Simply a model of teaching may be defined as ‘a blue print designed in advance for providing necessary structure and direction to the teacher for realizing the stipulated objectives’.

1.7.2 Concept of model - Definition

The word model is used in various ways. We often hear people remarks, ‘He is a model of what a good person should be’ or ‘He is a model of an evil genies,’ or ‘This model of Taj is really close to the actual Taj Mahal of Agra’ and so on. In the first sense; the term ‘model’ implies an ideal quality hypothesized by the person or society. In the second sense, it indicates a representation or copy of something. The third sense in which the word ‘model’ is used, as a bit sophisticated and abstract. In that way the term ‘paradigm’ may also be taken as a close approximation of it and as such it is often used interchangeable. The concept of model in the sense of paradigm is suggestive of three things; 1. a structure of activities, 2. an identifiable focus and 3. a frame of reference with which the activities and the focus are rationalized. Applying this to teaching, it may be
associated with a specific set of activities having a specifiable structure, a focus in terms of learning goals intended to be achieved and a frame of reference by which the teaching activities, the goals thereof and their harmonization in a specific form or orientation may defended. Thus, we may arrive at a model of teaching and its conceptualization in accordance with our understanding of the process of teaching act, its goals, and underlying reasoning to explain the overall frame of reference.

1.7.3 Characteristics of a Teaching Model

1. Specifications of learning outcome: i.e. what the students should perform after completing the instructional sequence.

2. Specifications of environment: i.e. The environment conditions under which a student's response should be observed.

3. Specifications of criterion of performance: i.e. The criterion of performance which is expected from the students.

4. Specifications of operations: i.e. The mechanism that provides for the reaction of students and interaction with the environment.

5. Scientific procedure: i.e. The model is based on a systematic procedure of modify the behaviour of the learner. It is not a haphazard combination of facts.

1.7.4 Functions of Teaching model

Models of teaching are derived from personalize, group dynamics, academic and psychological information processing stances, behaviour modification etc. They have given functional and structural guidelines to design instructions or instructional material. They are dynamically interactive with social and cognitive purposes with the learning theory underlying procedures, with available technology and with personal and intellectual characteristics of the learners. Thus a teaching model has various following functions. They are as follows:
1. Models help in guiding the teacher to select appropriate teaching technique, strategies and methods for the effective utilisation of the teaching situation and material for realising the objectives.

2. Models help in bringing about desirable changes in the behaviour of the learners.

3. Models help in finding out ways and means of creating favorable environmental situations for carrying out teaching processes.


5. Models help in the construction of curriculum or contents of the course, the proper selection of instructional materials for teaching, and for designing appropriate educational activities.

6. Models stimulate the development of new educational innovations and formation of educational theory of teaching.

Thus the models are useful to develop social efficiency personal abilities, cognitive abilities and behavioral aspects of the students.

1.7.5 Components of a model

According to Joyce (1970) each Model of teaching has a theory and a practical training. To translate a theory into practical form, there are six concepts called components or the fundamental elements of a teaching model. These are:

Focus: Focus is a central aspect of a teaching model. Objectives of teaching and aspects of environment generally constitute the focus of the model.

Syntax: It describes the model as a flow of actions or a sequence of events, involved in the organisation of complete programme of teaching.

Principles of reactions: These are expected behaviours of the teacher to the learners' activities. Teachers' responses should be selective and appropriate.
The social system: It is related to the description of the following: Interactive roles and relationship between the teacher and students. The kinds of norms that are to be observed and students' behaviour which are to be rewarded.

Support system: It reforms to the additional requirements beyond the usual human skills, capacities and technical facilities necessary to implement a model. It includes two sources (a) Role specification for teacher (b) Requirements of the substantive nature (i.e.) experts advise, Audio-visual material like films, self learning material, visit to places.

Application context: Each teaching model attempts to describe the feasibility of its use in varying contexts, goal achievements – cognitive, connative and affective.

1.7.6 Effects of Teaching by Modeling

Bandura and Walters mention three kinds of effects in teaching by modeling. These are: a) modeling effect, b) an inhibitory and disinhibitory effect, c) An eliciting effect. A modeling effect can be seen when a teacher demonstrates to a student how to hold a pencil or write capital ‘A’ etc and thus shows a new behaviour. Hence a student learns new kinds of response pattern. An inhibitory and disinhibitory effect takes place when through modeling we let the student know that is not possible to look at pictures of nudes in an art book. An eliciting effect takes place when a teacher through modeling tries to teach students to rise when a lady enters the room and thus provides a cue eliciting a response neither new nor inhibited. There are three stages of modeling as follows:

1. Analysis of a particular skill
2. Identification of the key elements in it
3. Exposition of the elements in such a way as to exemplify satisfactorily the skills under consideration.
The motto of models of teaching is to teach by creating environments. According to Hunt (1970), "How can we build a model for optimum growth which enables teachers and others to match the learning environment to the characteristics of the individual?" This is nothing but a model of teaching. Pedagogies have to integrate several things to evolve a proper mix with sensitivity to the needs of the tasks on hand. When curriculum and teaching are in harmony, the effect of the environment is considerable. In effort to overcome the separation between curriculum and teaching, idea of models of teaching has come into recent use. According to Dunn (1972), "Schools usually do not capitalize on the existing knowledge of varying learning styles. Each pupil is not diagnosed to determine the teaching strategies through which youngsters could learn the best". Effective teaching strategies should find the ways into the models of teaching. Passi (1991) says, "A model is characterized by well defined and verifiable theory, specification of intended and unintended objectives, pedagogical syntax expressed in terms of well sequenced steps, explicitly described reactions of teachers and description of classroom support system".

1.7.7 Families of models

Different approaches have been adopted by different researchers to the evoluation of models of teaching e.g. Robert Glaser (1962) developed a basic teaching model with four components applicable to all classes: 1) Instructional objectives, 2) Entering behaviour, 3) Instructional procedure, 4) performance evaluation.

Dececco (1970) described three historical and four psychological models. In historical models he has tried to show the relationship between traditional concepts of teaching and basic teaching models, while in psychological models of teaching it is considered that they are best substitute for a theory of teaching. Historical models are: Socrates teaching model, classical humanistic model and personal
development model where as psychological models are: Basic teaching model, computer based teaching model, teaching model of school learning and Interaction model of teaching.

Israel Shefter (1970) has discussed three philosophical models of teaching such as: a) Impression model, b) Insight model, c) Rule model. Hadden, (1970) has described four models of teaching in behavioural analysis of teaching, diagnostic teaching etc. These are: Taba's model of teaching, Turner's model of teaching, A model of variation in teacher orientation and Fox-Lippit's teaching model.

Mosstons has developed seven models on a continuum in his book, ‘From command to Discovery’. These are: Command style, The task style, Reciprocal style, Individual programme (teachers' design) Guided discovery model, problem solving model and Individual programme (pupil’s design).

Lapp, Bender, Ellenwood and John (1975) believe that the multiplicity of teaching learning styles can be validly subsumed by four models – the classical model, the technological model, the personalised model and interaction model. Stallings (1977) places her five models on a continuum. Viz. Exploratory model, the Group process model, Developmental cognitive model, Fundamental model and programmed model.

Eggen, Kauchak and Harder (1979) discussed six information processing models as General inductive model, concept attainment model, Taba's Inductive thinking model, general deductive model, Asubel's model and such man’s inquiry training model. Brady (1985) discusses five models of teaching as – exposition model, behaviour model, cognitive development model, interaction model and transaction model.
1.8 MODERN MODELS OF TEACHING

The most extensive and comprehensive work or examination of teaching is that of Joyce and Weil (1990) who have identified 20 models categorized in 4 basic interaction families as well as a number of models for thinking about models. These 4 families are: 1) Information processing models, 2) Personal models, 3) Social interaction models, and 4) Behaviour models.

1.8.1 Information processing models

These models based on the capability of the learner, which means the way in which people handle stimuli, organise data, sense problems and solve them. The model of this category emphasizes the use of specific strategies within academic disciplines which lead to the development of creativity and general intellectual ability of learners. ‘Inductive thinking model’, taken for the present investigation, has been designed primarily for the development of Inductive mental processes and academic reasoning.

1.8.2 Personal models

Personal and emotional life of the individual and their internal organisation as it affects relationship with this environment are the sources of this category of models. These models aim to design to increase one’s capacity for self-exploration, self awareness, understanding, autonomy and self concept.

1.8.3 Social interaction models

The model of teaching of this category emphasizes the importance of social relationship of the person and are based on the assumption that social relation is the vehicle of education. These models are designed for the development of skills for participation in democratic social process through combined emphasis on interpersonal skills and academic inquiry skills.
1.8.4 Behaviour modification models

Behaviour modification models stress the changing of external behaviour of the learners and describe them in terms of visible behaviour rather than underlying behaviour. Skinner is the chief exponent of this model. The operant conditioning theory built by B.F. Skinner is the origin of this model which is purely a psychological model and is used in most of the teaching strategies developed in the last three decades.

1.9 ASSUMPTIONS OF MODELS OF TEACHING

All models of Teaching have the following assumptions:

1. Each model is based on the assumption that teaching is the creation of appropriate environment and various components of the environment are interdependent.

2. Environment system consists of the content, skill, social relationships, instructional roles, activities, and physical facilities etc. and all these elements interact.

3. Various combinations of different elements of the environment create different types of environments and elicit different outcomes.

4. Models of teaching create environment.

1.10 MODELS OF TEACHING IN INDIAN CLASSROOMS

Models of Teaching can be obviously made use of in the Indian classrooms. In India, the public confidence in the teaching profession is very low. Naresh Kumar Gupta says, “In order to regain the lost confidence, the Indian teacher can make use of these models for development of talent along with mental processes and creativity. These are even helpful in developing attitudes among children. They provide alternative instructional channels with in our existing school system and classroom structure. This approach relies primarily on the human beings for their
success rather than on machines and technological devices, which a developing country like ours, can hardly afford”. In this approach the teacher decides what goes on in the classroom and when a particular activity will be carried out in the classroom.

Since these models have been developed in foreign countries, where the socio-economic conditions and cultural heritage are quite different from our country, the teachers should take into considerations of the following while adopting these models in their classrooms.

1. There is little empirical evidence to establish the superiority on one another.
2. We should not consider models of teaching as panacea for all the ailing from which system of education suffers.
3. Transplantation of foreign models without making necessary changes in accordance with the philosophy of life of our people will be harmful for the nation. Vigorous and continuous research is needed for their adoption in our country.
4. Classes of activity in which the models can be related to should be identified. Models can be related to three important dimensions of the educational environment the personal, intellectual and social. Balance should be maintained to develop the individual harmoniously.
5. We should be very cautious in deciding the model in terms of skills and knowledge outcomes and social effects it will have on the society.

Thus a teaching model is not an abstract thing. It is rather a tangible and concrete working plan which a teacher may develop for his guidance, in selecting the tactics and strategies of teaching in planning and eliciting appropriate learning experiences in learners and in evaluating the learning outcomes intended by the instructional system. In evolving a model for teaching, one has therefore to be conscious of the learning goals, strategies, tactics which may ensure their
achievement and frame of reference in terms of which results are to be constantly appraised. Each one of us as a practitioner of teaching may evolve a model in consonance with these prerequisites. The effectiveness of a model of teaching so evolved has, however, to be verified on logical as well as empirical counts.

1.11 SELECTION OF INDUCTIVE THINKING MODEL:

There are varieties of models available, which are not only diverse but also have been classified under different families of models. Therefore while selecting the model of teaching; it was kept in mind that is applicable to teach physical geography. It was also considered that the models of teaching used for the study should be applicable, functional and workable in Indian setting in the classrooms. It was thereby decided to select Inductive Thinking model for the present study by the researcher on the following reasons:

1. This model is easy to handle by any teacher with little effort.
2. It has wide applicability across the subjects and can be used not only in different subjects but also variety of areas of particular subject.
3. Hilda Taba has developed this model with a belief that thinking can be taught using specific teaching strategies, in a systematic manner.
4. Inductive Thinking model is basically inductive in nature and it stresses active involvement of learners in Teaching learning process.
5. Psychologists and educationists, agree that teaching should be designed to suit individual differences and this model do involve such teaching.
6. It suggests and makes use of learning tasks which require catagorisation, further, it enriches and clarifies the known concepts, emphasizing conceptual learning.
7. This model asserts that learning should be incremental and should follow a specific developmental sequences.
8. It is a well developed teaching strategy. Because it enables to foresee instructional sequencing as the students attempt to formulate or apply the understanding of the concepts.

9. Inductive thinking model has both instructional and nurturant effects and it emphasizes both processes of skills and knowledge of content.

Therefore, in viewing of the need of the hour, need of the discipline, objectives, the Indian classrooms and nature of this model, it was felt desirable to conduct a study on the effects of inductive thinking model on criterion variables.

1.12 CONTENT OF GEOGRAPHY AT UPPER PRIMARY LEVEL

“Geography has had a very chequered course of development. The evaluation of geographical thought and concept took place during the age of discoveries and explorations. As more and more geographical concepts developed, so the geography gradually emerged from a descriptive approach of the classical times to analytical approach of the present times. The geographical discipline is currently overflowing with a number of concepts and there are as many as branches of geography which are as wide as the earth, as large as life itself. In a broad way, it can be said that the subject matter of geography is the earth, not only the rock or the water that encircles it or the Universe or the man that inhabits it or the atmosphere that surrounds it, but it studies one and all. It is because all these have a direct bearing on one another and convey a particular meaning to man, a need was felt to develop the concept of ‘Applied geography’. That is why geography for school purposes studies the Earth as the home of man. In studying it, children gain the ability to ‘think critically. The present purpose of teaching geography is mainly to inform the learner to learn the distribution pattern of phenomena on the Earth surface and some elementary ‘reasoning’ as to why such variety of distribution occurs”.

At primary and upper primary level, certain geographical facts and principles have to be fully grasped but the main objective is to stimulate pupil’s interests in the
life of the people and distant lands. It is therefore most essential that the searching should proceed through study and observation. An elementary knowledge of the common terms used in geography, like mountains and plains, rivers and lakes, oceans and seas etc and geography of the locality of which the school is situated leading to the geography of the same are the minimum requirements of geography syllabus at primary level.

At lower primary level, geography form a part of the composite area of instruction called environmental studies. It exposes the child to its physical and socio-cultural environment in a graded manner. It is thus include the study of physical and cultural features as well as the life of the people in the immediate environment of the child i.e. it’s home and neighborhood. Gradually, the child’s mental horizon is extended to study these features in relatively distant places, starting from its district to state and from country to the world at large.

At upper primary stage, geography is studied as a separate subject under social science. The course covers a period of three years, (sixth, seventh and eighth standard) and enables to wider the perspectives of the student through the study of life of different parts of the world. Though the major part of the content based on physical geography, the elements of economic, regional and practical geography form an integral part of the course spreading over three years. They help in developing a geographical perspective, so necessary to understand the complexities of the man and environment relationship in a global context and the interdependence of regions of the world. This framework helps the students in understanding the problem of economic development of the country, as well as the dependence of economic development with physical geography of a country.
1.13 THE MAIN OBJECTIVES OF TEACHING GEOGRAPHY AT UPPER PRIMARY LEVEL

1. To promote an understanding of the different elements of Earth, i.e. Land, water and air, which determine the physical environment.

2. To help the students to realize that there is a relationship between man and physical environment.

3. To make the students to understand that human beings everywhere try to make the best possible use of their physical environment including resources provided by nature to satisfy their needs.

4. To help the students to appreciate the role of man, aimed with science and technology in developing the natural resources for rating the standard of living of the people.

5. To help the students to realize about man’s interaction with the environment resulted in environmental degradation. Example, depletion of resources and explosion of population threatening the very survival of mankind. It is imperative to realize the students to use the resources of the environment wisely.

6. To help the students to understand the variety of ways of living in different parts of the world and interdependence of regions leading ultimately to the promotion of international understanding.

7. To develop the students to appreciation of the value of co-operative effort at local, national and world levels for developmental activities.

8. To help the students to learn from the experiences of other people and understanding their relevance to India in developing its own resources.

9. To acquaint the students with the political and physical map of the world, location of different countries, distribution of major resources and major economic products entering into international trade.
10. To develop an ability to use the tools of geography such as maps, globe, charts, pictures, atlas, and encyclopedia etc.

11. To acquaint the students on the elementary methods of study used by geographers such as field study, project work, simple surveys etc.

1.14 SELECTION AND ORGANIZATION OF CONTENT AREA AT UPPER PRIMARY LEVEL

Government of Tamil Nadu has prescribed the geography curriculum, syllabus and revised the text book recently. As per the existing syllabus, the course in upper primary level has been developed after careful selection of material. Geography is being taught exclusively from third standard as social studies, keeping the following aspects in mind.

a. The children must be able to link their basic knowledge of geography, acquired through their lesson in environmental studies at lower primary level.

   The child would acquire a basic knowledge and understanding of physical geography of the world which would help him to understand the world better. Thus the major components of the geography at this stage include Physical geography consisting of

   1. Universe, Solar system, rotation and revolution of Earth, Moon and Eclipses, form the lessons for Standard VII curriculum.

   2. Elements of Earth, Lithosphere, Atmosphere, Temperature, pressure, Humidity and rainfall, climatic regions, soils, natural vegetation are included in standard Seventh curriculum.

   3. Features on Lithosphere, soil formation, agents of erosion, formation of land forms etc. form Standard VII curriculum.

   The topics in physical geography are distributed from Standards VI to VIII standards on the basis of the difficulty level of the topic, broad area and its structural placement. The inclusion of the physical environment of the natural
regions provide the students an opportunity to understand the relationship between man and environment which inculcates the habit of protecting the environment for the sustainable development of resources. Like physical geography, practical geography is also spread over three years and is given due weightage. Practical activities form an integral part of all units. This would help the children to represent geographical data through maps, sketches, models, charts etc and in acquainting themselves with the methods of study used for geography. Some of the core curriculum areas as mentioned in POA (Programme of Action 1992) of Government of India, such as protection of Environment, inculcating scientific temper, and small family norms have been incorporated into the course content of geography at appropriate places.

The investigator has taken standard seventh geography syllabus for her research mainly because it consists of basic tenets of climatology, which forms an integral part of physical geography. Without the understanding of the concepts of climatology, one cannot get the concepts of structure and modifications of Lithosphere and Hydrosphere. It is now generally agreed that the neglect of physical geography at upper primary level leads to a serious impoverishment. Hence some periods of study on these main topics arouse interest, and thus reduces time and energy to teach general geography later.

The researcher intends to make the students to understand the changes going around them, to make an effective use of their senses to accumulate information, to organise the information to sort regularities in them and to find out why the regularities exist and finally to transmit the findings to next generations. This scientific inquiry impinges thinking skills of the students. The need for pupil participation, the need for a variety of activities and the greater competence in language skills as compared to reading skills and the need for communal activities are to be taken into consideration while teaching physical geography to the upper primary students.
1.15 THE CONTEXT OF TEACHING PHYSICAL GEOGRAPHY BY INDUCTIVE THINKING MODEL

The Teaching of Physical Geography focus to develop the following the aspects among the students at Uppe primary level. They are:

1.15.1 The distinctive character of Geography

Geography is physical social science which describes maps and seeks to explain the interrelationships between man and his physical environment. On one hand, it deals with the natural setting or physical environment in which man lives. Some of the elements in physical environment are the surface of topography of the earth, soil, rocks and minerals, climate, land and waterbeds, native plant and animal life, and location on the earth’s surface. On the other hand, geography deals with man’s occupations, his religion, art, science, music, literature, types of communities, his means of transportation and communication and other elements resulting from man’s efforts to utilise the materials of his physical environment. These two sets of elements, the physical and cultural are interrelated and the interpretation of interrelationship gives distinctive character to the study of geography.

1.15.2 The dynamic nature of Geography

Geography is dynamic, never static. Man’s adjustments to his physical environment changes from time to time because his adjustments are contingent upon his knowledge, techniques and skills and even his attitudes. As Isaiah Bowman has said, “In general man has done what he thought. The lack of knowledge and the cannons of his time have held him back for long periods. The physical world changes constantly in its meaning to man because of the constant change in his technology.

1.15.3 The Functional value of geography

Study of the distinctive characteristics of geography contributes to the all-round development of the individual. A knowledge of geography and the ability to
think geographically aid him in understanding and interpreting the realities of the world. Such knowledge also help him in analyzing and selecting values in this rapidly changing world.

1.15.4 The Vocational value of Geography

Both in choosing a vocation and later in following a business or professional life, geography has definite practical value to the individual. Geography contributes to a better understanding of industry commerce. Manufacturers must know the sources of raw materials, the conditions of both natural and cultural under which they are produced, the means and routes of transportation, and the market for the finished products. The American geographical society gives some interesting examples of inquiries from corporations when they needed certain geographical information in order to make decisions.

1.15.5 The Intellectual development

Geography has a place in one’s intellectual development. By studying geography, children gain the ability to evaluate the Earth in which they live, to trace cause and effect to note relationships. They form the habit of wanting to know ‘why’ of man’s activities and ‘why’ of natural phenomena such as Earth quakes, hurricanes, and soil erosion. They begin to test the accuracy of their own and other’s thinking. From the use of maps and pictures, in making field trips, preparing reports, they gain initiatives and judgements. As they gain the knowledge of other people (their way of living, their products, their culture) they are stimulated and inspired to a broader conception of life, a greater appreciation of man and his problems wherever he lives.

1.15.6 The Intelligent citizenship

To survive, a democracy must have educated and intelligent citizens. The knowledge of geography and the ability to think geographically help one to be a responsible intelligent citizen. For example natural resources influence population
density and economic structure which define vulnerability to blockade. Topography affects strength because of its influence on unity and internal coherence. Climate sets limits to agricultural production and conditions, transportation and international trade. All descriptions of the power position of a state must therefore begin with an analysis of its geography.

1.15.7 The Enrichment with other subjects

Geography may enrich almost all other fields. One’s understanding of them and consequently one’s interest increases if the geographic conditional involved are understood. This is true of history, literature, economics, physics, chemistry and Biology. The progress of modern scientific geography in India is very slow, before independence and only the post partition period showed a real growth of the subject mainly due to the interest taken by the geographical and non geographical research institutions both in the public and private sectors. But much has yet to be achieved to develop the teaching of geography in schools and it is expected that much future. The study of scope, function and curriculum of geography in the school needs to be oriented according to the demands of the day. There is thus a strong pleasure for recasting of geography syllabus in Indian schools with a view to develop the concept of Applied geography. It may be stated that the future of geography in India is well assured now that the theoretical and applied geography are deep rooted on Indian soil. The emerging India is a challenge to the teachers of geography and to those concerned with education because the value of geography is increasing as India is growing maturity and self sufficiency. B.D. Shaide says, ‘the geography tries to trace the fascinating story of how man has learnt to use and control his environment and how his life has been influenced by this, how various institutions have grown out of the past and how they have undergone many more changes to meet the changing needs and must undergo many more from time to time. All that this factual knowledge without which thinking and reasoning power, which are so
essential in a democracy cannot develop. Thinking and reasoning power lead to formation of judgements and unlimitedly to solution of problems. Our present democratic ideals insist that every citizen should take part and have his say in deciding matters of national and international importance. Hence, the present researcher has chosen the Inductive Thinking model as a suitable model to realize the objectives of teaching physical geography and to inculcate the values of learning geography among upper primary students.

1.16 NEED AND SIGNIFICANCE OF THE STUDY

The classroom is a critical locus of a student’s interpersonal and educational development. Each classroom has its own distinct atmosphere and climate which may help or mitigate this development. This climate mostly depends upon the classroom interaction, which in turn, depends upon the classroom practices and conditions created thereby. This leads considerable significance to the study of critical issues of classroom teaching (William 1976). Since 1970, attempts in the area to probe with the problem of teaching in its various ramifications, have, no doubt seen the emergence of methods of teaching, duly based on research. The most noteworthy are two, namely, ‘Micro teaching approach’ for teacher preparation which only strengthened the analytical concept of teaching and the ‘Behaviour modification approach’ as well as Bruner’s (1968) theory of instruction. It is with evolving of medals of teaching by Dececco (1968) and Hunt (1970), Mosstons (1972), Lapp (1975), Stallings (1977), Gage (1979), Doyle (1979), Eggen (1979), Joyce and Weil (1990), and Brady (1985) after him an entirely new dimension approach in teaching has emerged. According to Joyce and Wiel (1990) there is a need to probe into the area with research that examines different dimensions of the instructional and nurturant effects of various models of teaching, on individuals. There has been scanty research on Inductive Thinking model and that too has not taken place with reference to the teaching of geography. Hence the
need is felt by the investigator to find out the effects of Inductive Thinking model on concept formation, logical reasoning and styles of thinking through the teaching of physical geography at upper primary level.

Inductive Thinking model has been generally applied to sciences and various tasks have been developed on this basis. A few studies like one by N. K. Gupta (1988) have revealed that comparative studies could also be attempted on models of teaching that may help in the improvement of classroom practices. Few instances of comparison of these models are of Chitrive (1983) who tried to compare Asubel's Advance organiser model with concept attainment model and traditional methods of teaching mathematics. Yadav (1984) compared master learning model to traditional methods in mathematics, Baveja (1988) has compared concept attainment model and Inductive Thinking model on concept attainment, concept formation and retention. Gupta (1988) compared these two models on achievement, self concept and attitude towards science through teaching of science while Jemini (1990) compared Advance organisers and concept attainment model on divergent thinking of class iv students. Though these independent investigators have come up with significant effects in their results, no attempt seems to have been made to apply and to see the effect of any of these models of teaching on cognitive variables through geography teaching. These domains through the crux of mental development have remained unexamined so far.

Today, classrooms are often geared to memoritor and initiative learning which do not provide opportunities for students to understand concepts and to reason out for themselves. Teaching children to think for themselves has often been recognised as a prime aim of education. Robert Fisher elaborates upon the necessity of paying attention to this aspect of teaching. He adds that like all other skills, ‘thinking’ also can be improved with practice, what we need to do is to provide the context in which it can be exercised, we need to build up the child's image of him/herself as a thinker or doer able to think both critically and creatively.
Country to Robert Fisher's views, teaching in our schools characteristically emphasizes rote learning, accepting information without thinking and understanding, restricting scope of information as dictated by prescribed textbooks, ignoring questions raised by students. Consequently our students get no opportunity to think for themselves and are thus deprived of the joy of learning through discovering knowledge and solving problems. They become automations and passive repositories of information. We tend to emphasize that our students accumulate the maximum possible information and retain it at least, till required to be produced in the examination. Rarely, if ever, we place our students in situation where they may be compelled to think, argue, weigh various possibilities, search for solutions, examine different points of view, make intelligent guesses, try alternate strategies and experiences the joy of finding something of their own by themselves. As a consequences the best curricular content, the most logical and psychologically satisfying methods of teaching and findings of researches on teaching to unlead and untried and at times declared ineffective without giving it any sincerity. This kind of situation should be changed. This is possible only by linking the curricular experiences with suitable strategies.

Further the goal of education is not just imparting information. It is stimulating to think. In providing opportunities to think, a teacher has to remember that their concepts grow gradually out of a variety of perceptual experiences and concrete concepts. The concrete concepts arise first and later do abstract concepts arise. Abstract thinking is not possible without concepts and such concepts contribute to the development of scientific knowledge. The principles of geography are mostly abstract and distributed over the entire upper primary curriculum. The understanding of these concepts at this level would be able to develop the competencies, which would equip the students to participate in the task of social and economical reconstruction. The aim of teaching geography is that it provides mental discipline which comes through the application of scientific attitude in
distinguishing facts, interpreting their effects and drawing correct conclusions and influences. Since geography is becoming vast and complex, a need has arisen for specialization. The course in geography for upper primary level deals with the concepts of man and environment and their interdependence. Considering these concepts and the short span of time available for teaching them the present researcher felt a need to find suitable teaching strategy. Further, no attempt seems to have been made to apply this Inductive Thinking model for teaching geography. In the context of above said need and significance, the present researcher attempts to find empirical evidence of the effect of Inductive Thinking model on concept formation, logical reasoning and styles of thinking through the teaching of physical geography at upper primary level.

1.17 SCOPE AND DELIMITATIONS OF THE STUDY

Scope

The study may induce the students and teachers to think logically and to solve problems in daily life activities. The academic achievement and mental processes may increase due to the Inductive thinking model of teaching. This method can be adapted to various subjects at primary, secondary and tertiary levels of schooling. Not only in rural areas, the urban schools are also can adapt this method. Teacher training programme can be framed based upon this inductive strategy for quality elementary education.

Delimitations

- The study was confined to students of standard seven.
- It was confined to selected cognitive variables only.
- It was delimited to rural Government High Schools only.
1.18 ORGANISATION OF THESIS

The Thesis consists of following six chapters:

✧ The first Chapter deals with the general Introduction.
✧ The second Chapter explains the Conceptual framework of the study.
✧ The third Chapter describes the Review of literature.
✧ The fourth Chapter frames Research procedure.
✧ The fifth Chapter discusses Analysis and Interpretation of data.
✧ The sixth Chapter conveys the Summary and Suggestions.

1.19 CONCLUSION

This chapter briefly explained the Introduction of the thesis. Conceptual framework will be dealt in the proceeding chapter.