CHAPTER II

INTRODUCTION AND THEORETICAL FOUNDATIONS
CHAPTER-II

INTRODUCTION AND THEORETICAL FOUNDATIONS

For any research study, it is essential to provide a convincing theoretical framework which should have the support of the latest available body of knowledge related to the area of the investigation. In this chapter, an attempt has been made to provide the necessary theoretical foundations for the present research problem.

Although educational systems vary widely in organization structures and pedagogical practices as well as in philosophical and cultural orientations, yet, in so far as the institution of education is concerned, there are many common processes out of which teaching is a key factor. The main theme of this investigation is concerned with teaching process. Therefore, the first part of the theoretical orientation in this chapter is an attempt to illustrate the concept of teaching followed by the description of teaching behaviour, with a view to arriving at clear understanding about teaching and related concepts.

The other part of the theoretical foundations is the description of the nature of the variables of intelligence, self-concept and attitude towards teaching, followed by the statement
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of the problem, objectives, hypotheses, limitations and operational definitions of terms.

2.1 Some Assumptions Regarding Teaching

The teaching learning process is considered to be one of the most delicate, complex, challenging and significant social process. However, throughout the history of professional concern about the processes of education; there has never been sufficient appreciation of the complexity of teaching. One or another simplified assumption has prevailed about the nature and function of teaching.

Taba (1969), noted three false assumptions about teaching. Among these, the most simplest and most stubborn assumptions has been the notion that the chief, if not the only, function of teaching is to impart knowledge. The assumption seems to be that the knowledge of content areas to be taught bears a simple relationship to success in teaching. While there is no doubt that extending the mastery of academic background would improve teaching, it would be foolhardy to assume that strengthening this background alone would assure effective teaching. Another widely accepted assumption according to Taba about teaching is that it is the product of mastering certain specified methods for certain subjects, such as history, physics, geography and biology. This conception of teaching, as Taba noted
not only takes for granted that there is one "right" method to teaching anything, but this method is equally effective in the hands of all teachers, for all kinds of children, and under all varieties of learning conditions. It also implies that any particular method can be developed and applied apart from the larger rationale of the general teaching process. The third assumption is that good teachers are born, not made. Such a conception practically bars an objective analysis of the processes of teaching or learning, and denies the possibility of imparting that 'art' to prospective teachers by such ordinary means as education.

As the result of continued criticism of education and an increased flow of money into research and experimentation, however, a new interest has been kindled in the theory of instruction and in the analysis of the teaching process. Scientific explanations could be given to the variables involved in the teaching and learning process. Teaching is defined not in terms of a single aspect like knowledge of subject matter, but in terms of large number of variables interacting with each other in complex combinations. In recent years, conviction is growing that to understand teaching, we must study it as it occurs in the classroom. In this shift of the focus of studying teaching and
learning in the classroom, the description of teaching acts has become the chief tool for securing information.

Some studies on teaching (Flanders, 1966; Ober, 1967; Roy, 1970; Kumar, 1982) focused on the description of teaching acts by grouping teacher behaviours from observation or from the transcriptions of classroom interaction into certain functional categories. Different researchers used different categories or functions depending upon their particular ideas about what was important about teaching. The main focus to all of them, however, was the same, teaching behaviour or teaching styles. Teaching then is viewed as an extremely complex process, which means a variety of things.

2.2 Concept of Teaching

Different people have viewed teaching from different perspectives and thus have come out with different definitions. Some have defined teaching as an act, some as a function of achieving goals, and still others have the opinion that teaching is decision-making, instruction, guidance or direction.

In order to understand the concept of teaching, therefore, it appears desirable to probe into the various definitions and put them into some order.
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Highet (1950) viewed teaching as an art which is depended on certain variables, such as liking and knowing pupils, knowing the subject matter, planning and preparation, methods, the environment in which teaching and learning are taking place and certain other attributes of the teaching, pleading thereby that the concept of teaching is a system of action intended to induce or facilitate learning.

According to Jerry (1975), teaching is referred to as both an art and a science. While a body of knowledge relative to learning theories and instructional strategies (the science aspect of teaching) can be taught, a major part of the teaching role is not so easily developed into a curriculum. Admittedly much of the teachers role is an art, but then there is an art to assuming any socially established role and leaving it uniquely in one's own way. An art of imagination and creativity in the use of time are necessary to mediate among the demands placed upon a teacher by the community, the school, the student, the discipline and by the self-imposed demands of personal and professional priorities. The ability to relate to people as well as to the world of ideas is an important teaching art for teaching and learning are individuals but not solitary activities; they occur within a social context.
Vedanayagam (1988) shared the same opinion with Jerry. Teaching as an art according to Vedanayagam, portrays the imaginative and artistic abilities of the teacher in creating a worthwhile situation in the classroom in which the learners learn and achieve the immediate and ultimate goal of education. As a science, it points to the logical, mechanical and procedural steps to be followed to attain effective accomplishment of goals.

Sharma (1990) defined teaching as a task oriented activity that has very close relationship to learning. Learning according to him is achievement oriented. Teaching as a performance activity is providing the pupils with opportunity to learn. Its direct purpose is to arrange the contingencies of classroom so that pupil will have experience and will engage in activities favourable to learning.

Amidon (1967) defined teaching as an interactive process primarily involving classroom talk which takes place between teacher and pupils and occurs during definable activities. Similarly, Flanders (1970) considered it as an interactive process. Interaction, according to Flanders, means participation of both teachers and students and both are benefited by this. The interaction takes place for achieving
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desired objectives. As a concluding remark, the definition of teaching by Gage (1972) could be noted. Teaching according to Gage is a series of events wherein teacher attempts to change the behaviour of students along the intended direction. Research on teaching, therefore, by implication, includes the study of relationship between variables at least one of which refers to a teacher characteristics or behaviour of a teacher.

As the teacher makes efforts in the direction of realization and attainment of ultimate educational goals (change in students behaviour), he works with pupils in different roles, sometimes he is a decision maker, sometimes he behaves like an instructor, in some other situations he acts as a guide. In this context, teaching may be defined as decision-making, instruction, guidance or direction. The basic premise of McDonalds' (1959) theoretical study of teaching and the teacher is that the teacher is a decision-maker who on the basis of his evaluation of pupils' readiness for learning or present status in learning, organizes a learning experience which leads the pupil to new differentiations and new integrations of behaviour. Hence, a statement of desired teacher competence is explained as a result of the interaction of the several variables in the teacher behaviour equation presented in Figure 2.1.
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\[ T_b = f(T_v), (P_v), (E_v) \]

*Figure 2.1: Teacher Behaviour Equation*

Where:

- **\( T_b \)** is teacher behaviour
- **\( F \)** is factor variable
- **\( T_v \)** are teacher source variables; e.g., his intelligence, self-concepts, attitude, interest, adjustment, needs, motivation values, abilities, capabilities, knowledge, understanding and the persistent and transitory physical-physiological characteristics related to behaviour.
- **\( P_v \)** are pupil source variables, i.e., the pupil as person, learner and member of a group, his abilities, capabilities, attitudes, values, interests and physical-physiological characteristics.
- **\( E_v \)** are the environment source variables that are external to both the teacher and the students and which affect the teacher, teaching-learning process and the pupil. These factors include selected aims and objectives of teaching/education; aids, methods or techniques approach, the local and or the larger community influence, and institution related factors that affect policy organization, administration, facilities and financing.


Referring to as an "Instruction" concept of teaching, Adaraledbe (1971) views teaching as an instruction system which provides for optional interdependent relationships among the components of content, learning and communication within an
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environment and for a defined purpose or purposes. The diagrammatic representation of this situation is presented in Figure 2.2.

![Diagram of Instructional System Model]

Fig. 2.2: An Instructional System Model.


Conceptual framework presented above made it obvious that teaching essentially involve communication and interaction in some form between the teacher and the learner. Its ultimate aim is to achieve the desired educational goals. The attainment of desired educational goals underlies the relationship among teachers, pupils and other persons concerned with the educational undertaking and could be evaluated in respect of: (a) process of teaching behaviour, (b) products of teaching behaviour, and (c) concomitants of teaching behaviour (Ryan, 1960). The attainment
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of goals of teaching behaviour may be referred to as successful or effective teaching. This brings us to the task of defining and developing of a clear understanding of teaching behaviour.

2.3 Teaching Behaviour : The Concept

Classroom organization does not merely involve handling the people and materials; it is one of the vital aspects of the teacher-pupil relationship and the communication structure which exists in the classroom (Gammage, 1971). The chain of all acts which the teacher performs in the classroom constitutes his classroom behaviour.

Ryans (1969(a)) suggested that the behaviour of a teacher may be defined simply as the behaviour or activities of persons as they go about doing whatever is required of teacher, participating in those activities which are concerned with the guidance or direction of learning.

Flanders (1970) defined teacher behaviour as those acts of the teacher which occur in the context of classroom interaction. As the primary responsibility of a classroom teacher is to guide the learning activities of children, every teacher adopts a particular strategy of behaviour. As he helps children to learn in the classroom situations, the teacher as the leader, interacts with the children both as an individual and a group. In
the process of this interaction, he influences the children, sometimes intentionally with planned behaviour, sometimes, unconsciously without planning but often without awareness of his behaviour and the effects which it might have on the learning process. The teacher then is continuously exerting his influence on the pupils and for this reason it becomes very important to study his behaviour.

Almost similar to the system/analytical approach provided by Ryans (1963), the work of Wallen and Travers (1963) suggested that, "The behaviour of the teacher (T) is a function of goals to be achieved (Rg) and the present behaviour of the pupil (Ri)". This concept is symbolically presented in the form of an "equation" as shown in Figure 2.3.

\[ T = f (R_g, R_i) \]

* Fig. 2.3 : A Teaching-Learning Equation. *

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The current efforts to understand teaching behaviour is towards developing a taxonomy of the teacher behaviour (Sharma, 1990). Openshaw et al. (in Furst, 1971) have developed a taxonomy of teacher behaviour which includes four major dimensions:

1) A Source Dimension
2) A Direction Dimension
3) A Function Dimension
4) A Sign Dimension

The Source Dimension of teaching provides an interaction of the relationship of students and the teacher at a basic level. Teaching is an instruction between a projector entity called teacher, and receptor entity called student, as well as inanimate objects with which the teacher interacts. According to Openshaw and his colleagues, the identification and classification of the nature of receptor entities provide the Direction Dimension of teaching.

The teacher performs certain tasks in the classroom. One task is related to subject matter or content. Another important task is maintaining interpersonal relations among persons within the classroom so that the content task may be realized. The third task is the facilitation of the learning
process. Behaviour engaged in by the teacher to accomplish these three tasks constitute the Function Dimension of teaching.

In order that a behaviour be observed, it must be communicated in some way. Communication takes several avenues and a given function may require more than one mode of expression. The mode of communication makes up the Sign Dimension of teaching. The above description can be illustrated in Figure 2.4.

Fig. 2.4. Taxonomy of Teacher Behaviour.
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It may be observed that the Source Dimension of behaviour controls other dimensions of teacher behaviour, but it may be determined through the direction dimension. The mode of communication together with purpose of the behaviour gives meaning to the total behaviour.

Such operational definitions and descriptions of teaching behaviour imply two important postulates:

a) Teaching behaviour is a social behaviour.

b) Teaching behaviour is relative.

a) One implication of the aforementioned definitions of behaviour is that teacher behaviour is essentially social. In addition to the teacher, there must be pupils who are interacting with the teacher and with each other. It is believed that not only do teachers influence pupils behavior but the reverse is also possible since the interaction is reciprocal in nature.

b) Another implication of the definitions is that teacher behaviour is relative. The teacher behaviour is adjudged good or bad, right or wrong, effective or ineffective on the basis of activities expected of a teacher; the kind of activities desired and means to achieve this learning, determined by particular cultural value systems.
As has been noted under postulate (a) above, teaching behaviour, by its nature, exists in the context of social interaction. The acts of teaching lead to reciprocal contacts between the teacher and the pupils, and the interchange itself is called teaching (Filanders, 1970). The reciprocal contacts can either be maintained by a verbal communication or by physical indications. Thus, teacher behaviour in the classroom can be further divided into two categories, vis-a-vis:

(a) verbal and (b) Non-Verbal.

a) Verbal Teaching Behaviour

This incorporates all Verbal acts on the part of the teacher. Teacher Verbal Communication in the classroom comprises of mainly, lecturing, questioning, praising or criticising the pupils. The Verbal Behaviour of the teacher has been further classified into (i) Direct Verbal Behaviour, and (ii) Indirect Verbal Behaviour.

(i) Verbal Behaviour which has a direct impact upon the students is known as Direct Verbal Behaviour. This includes teaching activities like lecturing, questioning, giving directions and criticising the pupils by the teacher. The direct behaviour of the teacher has also been referred to by different
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names by different researchers according to its nature. Some of the terms used have been namely; authoritarian, dominative, closed, teacher centered, etc. (Anderson, 1946; Singh 1969; Flanders, 1970; Gammage, 1971; Kakkar, 1974; Gupta, 1975; Gupta, 1980 and Vasudev, 1990).

(ii) Indirect Verbal Behaviour refers to the indirect impact or influence of the teacher which is reflected when a teacher praises the student or accepts their feelings or asks open-ended questions while developing his lesson. This type of behaviour on the part of the teachers has also been referred to by the above researchers as being open, child-centered, democratic, integrative, etc.

b) Non-Verbal Behaviour

The behaviour of the teacher in the classroom other than his Verbal Behaviour comes under the Non-Verbal Behaviour. The Non-Verbal Behaviour of the teacher includes his gestures, signs of confusion, irritation, movement of the eyebrows, acting, casual glances, silent demonstration, nodding, shouldering, etc. acts which communicate meaningful information to the pupils.

On the basis of the assumption that verbal behaviour of a teacher is an adequate sample of his total behaviour, quite a
large number of research studies in the field of teacher education followed the work of Flanders. There has also been a rapid growth in the number of books and research articles that have highlighted the importance of non-verbal teaching behaviour (Goffman, 1971; and Hore, 1976.)

2.3.1. Patterns of Teacher Behaviour

It is a common observation that during classroom teaching, some sequences of events occur again and again. These activities or behaviour of teacher that occur simultaneously or in sequence in a unified manner are called "Patterns of teacher behaviour" (Gage, 1969). A pattern is a short chain of events that can be identified and occurs frequently enough to be of interest and can be given a label or name.

In lecture method, for example, the pattern consists of an uninterrupted sequence of oral statements by the teacher. Bellack and others (1966) found that "the fundamental pedagogical discourse consists of a teacher's solicitation followed by a pupil's response; and this sequence was frequently followed by teacher's reaction." Here, the components of behaviour are; teacher's asking a question, the pupil's response and teacher's reaction to or rating of pupil's response. Their occurrence in a
given sequence constitute the pattern, and reoccurrence of the pattern constitute a teaching method.

2.3.2. Interaction Analysis as a Technique of Studying Teacher's Classroom Behaviour

The term interaction analysis is a label that refers to any technique for studying the chain of classroom events in such a manner that each event is taken into considerations. Likewise any scientific technique for recording, organizing and analysing the spontaneous classroom behaviour can be termed as systematic observation.

Interaction analysis is an observation procedure that permits a systematic record of spontaneous acts, and scrutinises the process of interaction by taking into account each small bit of interaction. The development of these systematic recording techniques has been going on for the last 40 years. The first efforts were isolated projects, but the interest in such techniques has increased with time and many researchers have been developing their own systems, even though the efforts till 1950 were not successful (Morsch & Wilder, 1954). Since 1952, the search to find teaching acts which are significantly and consistently correlated with positive pupil's attitude and
achievements adjusted for initial ability has been much more successful (Gupta, 1980). Some of the notable studies include those conducted by Campbell and Stanley, (1963); Turner, (1967); and Samph, (1968). The progress in the area was made possible because of the perfection of various systems for analyzing classroom events.

Interaction analysis techniques enable:

i) coding of spontaneous verbal communication,

ii) arranging the data into a useful display, and

iii) analyzing the results in order to study patterns of teaching and learning.

Each technique is essentially a process of encoding and decoding. For this purpose, some apriori categories for classifying teaching acts are established. A code or symbol is assigned to each category and a trained observer records data by jotting down code symbols. Decoding is a reverse process; a trained analyst interprets the display of the coded data which are encoded even though, he may not have been present when the data were collected. A particular system of interaction analysis will usually include (a) a set of categories each defined clearly, (b) a procedure for observation and a set of ground rules which govern the coding process, (c) steps for tabulating
the data in order to arrange a display which aids in describing the original events, and (d) suggestions which can be followed in some of the more common applications.

2.3.2a) Flanders' Interaction Analysis System

One of the best known techniques for classroom observation is the Flanders' Interaction Analysis System. Not only has it been extensively researched, but it is also widely used in teacher-training programmes. It is called 'interaction analysis' because the observation categories are used to record all verbal interactions that occur between the teacher and his pupils in a classroom setting. The record is analysed to determine the verbal patterns which characterize the teaching style used by the teacher.

2.3.2b) Flanders' Interaction Analysis Categories

The Flanders Verbal Interaction Categories are shown in Table 2.1, below. With the exception of category 10 (silence or confusion) all categories describe a specific type of verbal behaviour. Any verbal statement made by a teacher or a pupil can be classified into one of the nine categories. This is true irrespective of the subject being taught or the level to which it is taught. It cannot be used to analyse classroom activities
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involving no interaction between the teacher and his pupils, for instance when the class is engaged in independent work, watching a film or listening to a broadcast.

**TABLE 2.1**
Flanders' Interaction Analysis Categories* (Flanders, 1970)

<table>
<thead>
<tr>
<th>Response (Indirect Behaviour)</th>
<th>TEACHER TALK</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Accepts Feelings: Accepts and clarifies an attitude or the feeling tone of a student in a non-threatening manner. Feelings may be positive or negative predicking and recalling feeling are included.</td>
<td></td>
</tr>
<tr>
<td>2. Praises or encourages: Praises or encourages students; says 'um hum' or 'go on'; makes jokes that release tension, but not at the expense of the student.</td>
<td></td>
</tr>
<tr>
<td>3. Accepts or uses ideas of students: Acknowledges the student's talk. Clarifies, builds on or asks questions based on students' ideas.</td>
<td></td>
</tr>
</tbody>
</table>

* Based on Flanders, N.A., Analyzing Teaching Behaviour, 1970. No scale is implied by these numbers. Each number is classificatory; it designates a particular kind of communication event. To write these numbers down during observation is to enumerate, not to judge a position on a scale.
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4. Asks questions: Ask questions about content or procedure, based on the teacher's ideas, with intent that student will answer.

5. Lectures: Offers facts or opinions about content or procedures; expresses his own ideas, gives his own explanation or cites an authority other than student.

6. Gives directions: Gives directions, commands or orders with which student is expected to comply.

7. Criticizes student or justifies authority: Makes statements intended to change students' behaviour from no-acceptable to acceptable patterns; arbitrarily corrects students' answers, basis some one out or states why the teacher is doing what he is doing; uses extreme self-reference.

8. Student-Talk-response: Student talk in response to a teacher contact that structures or limits the situation. Freedom to express one's own ideas is limited.

9. Student Talk-Initiation: Student initiates or expresses his own ideas, either spontaneously or in response to teacher's solicitation. Freedom to develop opinions and a line of thought; going beyond existing structure.

10. Silence or Confusion: Pauses, short periods of silence and periods of confusion in which communication cannot be understood by the observer.
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The critical distinction in Flander's System is between response and initiation (Perrott, 1982). Some of the categories of verbal behaviour are either responses the teacher makes to pupils' comments (categories 1, 2 and 3) or responses a pupil might make to a teacher-comment (category 8). Others are intended to initiate communication, with either pupil (category 9) or teacher (categories 5, 6 and 7) playing the role of initiators.

An important dimension of the interaction between the teacher and his pupils which Flanders' Interaction Analysis will help researchers analyse is the balance of initiation (direct behaviour) and response (indirect behaviour) between the teacher and pupils in the classroom (Perrott, 1982). Generally there is a complementary relationship between teacher initiation and response and pupil response and initiation. Teacher initiation stimulates pupil response and teacher response stimulates pupil initiation.

Research suggests that the use of 'indirect' and responsive teaching behaviour is associated with more positive pupil attitudes and higher pupil achievement (Flunders, 1960b), 1965, 1970). The role which classroom data play is becoming more
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crucial in the light of present trend that immediate effects of teaching on pupils are better criteria than long range consequences. Mathew (1978) emphasized that there is no more obvious approach to research on teaching than direct observation of teachers.

The present study, not only explores the patterns of teacher behaviour (the process variable) through observational study, but also examines the effects of some presage variables upon the process variables. Hence, it is a process as well as presage-process study that follows the research trend of Bowers and Soar (1961); Davis (1961); Gage (1963); Wilk & Edson (1963); Amidon (1966); Allen et al (1966); Sharma (1977); Thakur (1980); Kaur (1981); Suthar (1981); Choudhry (1982); Singh (1987); and Vasudev (1990). Attempts were made in these studies to establish relationships between teacher traits and characteristics (presage variables) and the process variables of teaching behaviour in which Flanders' Interaction Analysis System has been employed with advantage.

In view of their strong impact on one's performance in life in general and on teaching in particular, three presage variables were considered in the present study. These are intelligence, self-concept and attitude towards teaching of the
teacher. A brief description of each of these independent variables is given below.

2.4. Intelligence

2.4.1 Intelligence: Defined

In the field of Education and Psychology, intelligence remains a complex term that there is a little agreement even among the psychologists on its concept. The many conflicting interpretations of intelligence hindered the scientific work in this field for a long time. The first scientific use of the concept of intelligence has probably developed as a result of the first test constructed by Binet and Simon. Binet and Simon (1916) conceived intelligence as a capacity to make rational judgement in situations requiring a minimum formal schooling. It is an ability to learn. They stated intelligence in terms of critical analysis, comprehension, persistence and inventiveness. Some other psychologists also viewed intelligence as the capacity to learn (e.g. Colvin, 1921; Dearborn, 1921).

To Terman (1921) ability to think in terms of abstract ideas defines the degree of an individual's intelligence. This means that the degree of intelligence can be measured in terms of the degree to which an individual utilizes abstract thinking in
diverse situations. Claremont (1928) had shared similar opinion with Terman on the concept of intelligence.

Later, in a publication on the nature of intelligence, Stoddard (1943), who had been associated with investigations of intelligence for a long time, gave a composite view of the nature of intelligence. He defined intelligence as the ability to undertake activities that are characterized by difficulty, complexity, abstractness, economy, adaptiveness to a goal, social value, and the emergence of originals, and the maintenance of these activities under conditions which demand concentration of energy and responses of contradictory emotional forces. In this definition, the writer has specified several attributes of intelligence.

Wechsler (1958) believed that intelligence was the total or aggregate capacity of an individual to act purposefully, to think rationally and to deal effectively with his environment. He was of the opinion that intelligence is not a single general ability. It is the total capacity.

Supporting the view of Wechsler, Sorenson (1964) said that a person is intelligent according to the effectiveness with which he deals with all the elements and situations in his
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extensively is he able to learn and enlarge his fields of activity and experience.

The third group of definitions of intelligence maintains that intelligence is the ability to carry on abstract thinking. This implies the effective use of ideas and efficiency in dealing with abstraction, may be verbal, symbolic or numerical.

The above definitions of intelligence are not and perhaps cannot be mutually exclusive. They overlap at many points as learning itself is a sort of adjustment or adaptation, ability to use symbols and to deal with abstract thinking in a challenging and normal situations.

2.4.2 Intelligence and Teaching

Intelligence plays a significant role in teaching and learning process. A teacher endowed with higher intelligence may have a better chance to succeed in his profession. An intelligent teacher may be active, alert and dynamic in the classroom. He knows how to tackle the classroom problems, accepts and meets challenges. He can direct students in accordance with the needs of the individual and society.
environment. Intelligence is a way of observing, remembering, thinking, understanding, all the ways of knowing and of getting knowledge (Woodworth and Marquis, 1964). Guilford (1967) stated that intelligence was a collection of abilities or capacity to possess information in accordance with the principles of psychology.

In his work, Piaget (1977) viewed intelligence as adaptation to a situation.

On the basis of the variety of definitions on intelligence, Freeman (1963) classified the definitions into three groups.

The first group of definitions laid emphasis on the ability of adjustment and adoption of the individual to the total environment. According to the definitions in this group, an individual is intelligent if he can adjust to his new environment. On the other hand, an individual having lesser intelligence shows fewer responses to the challenging environments.

The second group of definitions stresses the ability to learn. The more intelligent a person, the more readily and
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The classroom teacher is always challenged with the responsibility of transmitting knowledge, ideas, and facts to students of varying capacities. The teacher needs special qualities to be able to teach successfully. Research works in the past indicated that people considered intelligence as an important characteristic of an effective teacher. Intellectual abilities of a teacher help him create a healthy teaching-learning situation. Lack of intelligence has been an important reason for a teacher failure (Barr, Burton and Brueckner, 1947). This view was supported by recent studies in the area conducted by (Kaur, 1972; Mutha, 1980; Patel, 1980; Gupta, 1985; and Swami, 1988).

But the general assumption that the more intelligent students will make better teachers is not always supported. In fifty-five studies reviewed by Morsch and Wilder (1954), the correlation between intelligence and teaching success was, in certain cases positive, in some others negative and in still others, non-significant, showing thereby the non-existence of any apparent pattern in the relationship. Likewise, some recent studies revealed no significant relationship between the two variables (Emomotimi, 1987; Meher, 1988).
Moreover, attempts were made to study the relationship between the various dimensions of teaching behaviour and intelligence (Thakur, 1980; Roy, 1981; Bisht, 1985).

In many countries, including the USA, no one can enter into the teaching profession without passing the intelligence test. The purpose of setting such a test is that admission to teaching profession in any capacity should be restricted to teachers who possessed certain minimum level of intelligence. In Ethiopia and some other countries, however, such practice is not employed though there is a general agreement that intelligence is an important factor for effective teaching.

Adval (1979), in his book, suggests that, in India, the IQ of secondary school teachers ranges from 90 to 110. He further emphasizes that there should be none with IQ, below 90 in Ethiopia, as far as the investigator's knowledge goes, not a single research has been done on intelligence of teachers in relation to their performance in teaching. In the present study, intelligence was considered as one of the independent variables to study its relationship and impact on teaching behaviour independently and in combination with other non-intellectual variables like self-concept and attitude towards teaching.
The term self-concept is widely used in the field of education and psychology. It is considered as a critical variable in educational research. This is clearly evidenced by the plethora of studies (as reviewed by Byrne, 1984) considered with aspects of self-concept in a variety of educational settings and for a diversity of students: primary (Lakey, 1977), intermediate school (Shavelson and Bolus, 1982), high school (Calsyn and Kenny, 1977), college (Bailey, 1971), the physically disabled (Rosher and Howell, 1978), the trainable mentally retarded (Nash and McQuistun, 1975), the educated mentally retarded (Calhoun and Elliott, 1977), the learning disabled (Smith, 1979), the gifted (Coleman and Fults, 1982).

Due to many complexities concerning the concept of self, two important issues warrant discussion: definition or conceptualization of self-concept.

2.5.1 Definitions of Self-Concept

An important prerequisite to the valid use of self-concept in educational research is a thorough understanding of the nature of the self. Conceptualization of self-concept within
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a theoretical framework is the central issue. The origin of the term "self" can be traced as early as the discussion of human personality found place in literature.

Sartain et al. (1958) defined self as all the beliefs, ideals, attitudes and feelings, whether conscious or unconscious, which an individual has concerning himself.

Jourard (1963) added that the self-concept comprises of all the beliefs that the individual holds concerning what kind of person he is.

La Benne and Greene (1969) observed that self-concept is a person's total appraisal of his appearance, background and origins, abilities and sources, attitudes and feelings which culminate as a directing force in behaviour.

According to Eysenck, Arnold and Meili (1972), self-concept is the totality of attitudes, judgements and values of an individual relating to his behaviours, abilities and qualities. Self-concept embraces awareness of these variables and their evaluation. Self-concept means what an individual thinks about himself. It is his own conception of his intelligence, abilities, academic status, behaviour, temperamental qualities, mental health, emotional tendencies and socio-economic status.
In general terms, self-concept is our perception of ourselves; in specific terms, it is our attitudes, feelings, and knowledge about our abilities, skills, appearance and social acceptability (Jersild, 1965; West & Fish, 1973).

Although there appears to be wide acceptance of the above definitions among self-theorists, yet, a review of the literature reveals no clear, concise and universally accepted operational definition of 'self-concept' (Hansford & Hattie, 1982). In fact, Shavelson et al. (1976) in their attempt to amalgamate operational definitions from many self-concept studies, distinguished 17 conceptual dimensions on which the multiplicity of self-concept definitions could be classified. In their extensive review of the literature, Shavelson and his colleagues concluded that seven characteristics can be attributed to self-concept, each crucial to its construct definition. Accordingly, self-concept can be described as organized, multidimensional, hierarchical, stable, developmental, evaluative, and differential.

In the various attempts made to understand and explain the nature of self-concept, notable psychologists and self-theorists have developed different theoretical models. In his literature Byrne (1984) reviewed four theoretical models: (a)
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nomothetic model, (b) hierarchical model, (c) taxonomic model, and (d) compensatory model.

(a) According to Soares and Soares (1983), the first and oldest perspective model may be referred to as the nomothetic position. In this model, self-concept is perceived as a unidimensional construct. Accordingly, characteristics descriptive of self-concept are used to explain one's behaviour in various settings.

(b) Another theoretical perspective of self-concept has been termed as the hierarchical model. This theoretical position holds that self-concept has multidimensions and that the multiple facets of self-concept may be ranked in a hierarchical formation. This model was originally proposed by Shavelson and his colleagues (Shavelson et al., 1976; Shavelson and Staut, 1981). The hierarchical model parallels in many ways Vernon's (1950), model of intelligence.

(c) The third theoretical view of self-concept supports the notion that self-concept is structured like a series of several specific factors. This perspective has been termed as the taxonomic model (Soares and Soares, 1983) and analogous to Spearman's (1927) and Thurstone and Thurstone's (1943) theories.
of intelligence. Here, facets of self-concept may be relatively independent of each other.

(d) Winne and Marx (1981) proposed the compensatory model. This perspective, in agreement with the hierarchical and taxonomic models, supports the notion of a general facet of self-concept. However, the compensatory model suggests that the specific facets are inversely related, rather than proportionally or independently so, as proposed by the hierarchical and taxonomic models respectively. Hence, lower status on one specific facet of self-concept might be compensated by higher status on another specific facet of self-concept.

In a recent study by Nurius (1986), self-concept has been viewed as dynamic and future oriented, including self-knowledge about goals and motives, personal standards, values, rules and strategies for regulating and controlling one's behaviour (Nuttin, 1984; Higgins Strauman and Klein, 1985; Gollwitzer and Wickland, 1986). The sense of what is possible constitute an important dynamic component of the self-concept. Ideas and associated motives and feelings about what is possible for one to be, to think, to feel or to experience, provide a direction or an impetus for action, change, and development. According to Markus and Nurius (1986a, 1986b), on the basis of
past experiences, one's motives, aspirations, goals, and fears are also cognitively represented within the self-concept in the form of possible selves may represent either future goals to strive for or feared possibilities to avoid. This approach to self-concept extends the work of Rogers (1961) and other researchers. Thus, as with many theoretical evolutions, the emerging cognitive analysis of the self-concept builds on and reformulates important earlier models, taking recent advances into account.

Another important dimension of current self-concept theories is that of interaction with the social environment. Human behaviour is assumed to be a function of forces both from the person and from the environment (Bandura, 1974). Each thought, feeling, or overt action can be viewed as a function of the individual and the needs, desires, goals and expectations of those in the social environment. Varied experiences with the environment and social contacts, are the inevitable background against which the self-concept emerged and developed.

2.5.2. Aspects of self

The self has many dimensions of which the following four are popular:
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a) The perceived self: perceived self is what a person thinks he is. It is influenced by his physical self, his physical appearances, dress and grooming, by his abilities, his values, his beliefs and aspirations. The Perceived self of an individual is more often called the self-concept. It is individual as known to the individual.

b) The Real Self: it refers to what the person really is. It includes what the individual is aware of and is not aware of. The Real Self mostly refers to the characteristics of the person as are assessed objectively by other people.

c) The Ideal Self: it refers to what an individual thinks he would like to be. Butler and Haigh (1954) observed the Ideal Self as "the organised conceptual pattern of characteristics and emotional states which an individual consciously holds desirable (or undesirable) for himself".

d) The Social self: this is the self as one thinks others see him. This concept may not correspond with other people's perceptions of him. Even then it has a major effect on his behaviour.
2.5.3 Self Concept and Teaching

There has been a growing realization of the importance of self-concept as a means of understanding and predicting human behaviour. With the advent of phenomenal psychology, Roger (1961) argues that self has come to be accepted as a basic factor in the formation of personality and in the determination of behaviour.

The behaviour of a teacher, like that of everyone-else is a function of his self-concept of the self. In the mental apparatus of the teacher, self-concept influences behaviour (Khatri, 1973). Snygg and Combs (1949) suggested that behaviour is entirely determined by the "perceptual field" of the behaving organism.

As regards the relationship between self-concept and teaching, a number of studies (Norris, 1973; Hochel, 1973; Denton, 1974; and Chopra, 1983) revealed that there is a strong impact of self-concept on teaching performance. Likewise, high score on self-concept test was treated as an index of high degree of teacher effectiveness and the low score that of low degree of teaching performance in the light of the results of these studies.
Contrariwise to the results of the above described studies, however, there have also been some studies showing statistically negative relationship between self-concept and teaching success (e.g. Heinz, 1977). These studies recommended the need of future studies in this direction using a large sample to allow for variations in the degree of self-concept of teachers. They also advocate further investigations into the relationships of self-concept with other variables of teaching. Accordingly, self-concept as a variable in the studies on teaching has been used either along with presage, process, or product variables or in combination of these. In this study, it is used with two other presage variables and the process variable of teaching behaviour.

2.6 Attitude Towards Teaching

2.6.1 Attitude: Defined

Because of its complex nature, the concept of attitude has become a perplexing subject of discussion among the psychologists of today. The term attitude has been defined in terms of (i) predisposition of an individual towards certain object and (ii) the degree of positive and negative effect
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associated with psychological object. Attitude is a feeling, a reaction towards certain object or concept. As such, the definition of attitude varies from one authority to another.

For Cambell (1950), an individual's attitude is a syndrome of response consistency with regard to social object. According to Schramm (1955) attitude is inferred states of readiness to react in an evaluative way, in support of or against a given stimulus situation.

Cardno (1955) pointed out that commonly agreed upon characteristics of an attitude are the existing pre-disposition to respond to social objects, which in interaction with the situational and other dispositional variables, guides and directs the overt behaviour of an individual. In short, it can be said that attitude is a readiness for response to the object.

According to Osgood et al. (1957) an individual's attitude is the sum total of the strength of beliefs about the objects and evaluative aspects of these beliefs. Anderson and Fishben (1965) defined attitude in terms of evaluative dimensions of a concept.

In his recent work on attitude, Landy (1987) viewed attitude as a combination of feelings and beliefs about an
object, person or event. According to him, attitudes are made up of three distinct elements:

- behavioural,
- emotional, and
- belief

When we put the three elements together, we have all the ingredients necessary for complex pattern of behaviour.

The relationship between attitudes and behaviour remains an active area of research in psychology. Studies have found a strong relationship between attitudes and behaviour especially under certain conditions. To Landy (1987), behaviour will generally follow from attitude when people are aware of or have been thinking about their attitudes.

2.6.2 Characteristics of Attitude

Shaw and Wright (1967) mentioned six general characteristics of attitude. The summary is presented below:

a) Attitudes are learned through social interaction rather than the result of maturation (Mc Grath, 1964).

b) Attitudes have specific social referents, or specific classes. It is not necessary that referents be concrete objects. It may include such abstract referents as god, war, peace, political issues or
government policies. Individuals demonstrate their feelings toward objects according to the manner in which they have been exposed to the object earlier (Newcomb, Turner and Converse, 1965).

c) Attitudes possess varying degree of inter-relatedness to one another. Attitudes are inter-related to the extent that they possess similar referents. Attitudes which are highly inter-related form clusters or subsystems and these subsystems are related to one another to form the total attitudinal system of the individual (Krech et al., 1962; McGrath, 1964).

d) Attitudes are based upon evaluative concepts regarding characteristics of the object (Anderson and Fishbein, 1965).

e) Attitudes are construed as varying in quality and intensity on a continuum from positive through neutral to negative (Krech et al., 1962; Newcomb, Turner and Converse, 1965).

f) Attitudes are stable and enduring (Sherif and Sherif, 1956; Newcomb, Turner and Converse, 1965). There are certain attitudes which are stable and very difficult to change.

In studying attitude, we first ask whether a person is for or against a given social stimulus, person, group, activity, process, or institution. Are the affective connotations positive or negative? Does he like it or dislike it? Are these motivations such that he will behave in a manner to support or continue or endorse the stimulus or will he tend to oppose or obstruct or condemn it? Attitude of an individual, thus, tells us his mental state which tends to respond for or against a situation with affection and feelings of likes and dislikes.
2.6.3 Attitude and Teaching

Attitude plays a significant role in determining our ideals, thought, memory and learning process. The conclusions we derive from facts are influenced by attitudes. Journals of educational psychology, education, general psychology, sociology and other social sciences are replete with articles and researches dealing with the influence of attitude upon learning, perception, retention and many other psychological processes. Likewise, a number of articles relate to the influence of attitude upon teaching.

It is generally held that the attitudes of a teacher and its various aspects like attitude towards teaching profession, classroom teaching, child-centred practice, educational process, pupils and teachers have positive relationship with teaching success. The individual's personal attitude towards teaching is a great factor in determining one's success in teaching. The strength and directions of an individuals' attitude represent an important aspect of his personality. The attitudes materially affect one's educational, vocational adjustment, one's interpersonal relations and other major phases of one's daily living. Though some hold the view
that the effects of attitude have been exaggerated, yet, in so far as the variable of attitude of a teacher as a criterion of teacher effectiveness is concerned, the high score on attitude inventory has been considered as reflecting the high degree of success in teaching and the low score as reflecting the low degree of teacher effectiveness.

A number of studies (Mann, 1980; Sharma, 1982; Hazlett, 1983; Shake, 1984) have reported correlation between attitudes and various aspects of teaching. A warm, sympathetic, friendly and understanding teacher is more likely to have a positive influence on students as compared to the one who is cold, unfriendly and autocratic. Moreover, research studies show that positive attitude towards teaching has positive relationship with indirect teaching behaviour of a teacher. For example, significant correlation between extended indirect influence and progressive educational attitude was recorded in the study conducted by Girvetz (1975).

Although insignificant relationship between attitude and teaching performance was observed (Ilyas, 1983; and Butter, 1984), yet, by and large, the empirical evidence is conclusive to indicate teacher attitude as having significant impact on teaching performance.
2.7. Emergence of the Present Problem

Personal observation of teachers in Ethiopian schools, including reviewing of many studies on teaching in Ethiopia (e.g. Wilcox, 1983), has led the present investigator to conclude that teaching in Ethiopia is heavily stereotyped. Fixed pattern of lecture, recitation, and drill predominate. A formal classroom atmosphere prevails and there appears to be general lack of teacher empathy and warmth. But, many current programmes in the fields of science and humanities are inquiry oriented. Student-oriented models are preferred to teacher-oriented ones. The teacher's intended role in such a model is to create and facilitate conducive learning environment in the classroom.

In order to change the pattern of teaching practice adopted by the Ethiopian teachers to a pattern of teaching behaviour suitable for inquiry, identification of the existing pattern is required through empirical research. Various research undertakings have identified a host of teacher behaviours that are clearly related to student achievement and to teaching effectiveness. These studies in addition to assessing those observable teacher behaviours, will seek to particularize some of the personal characteristics of the teacher-trainees.
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The underlying assumption from which the present problem generated was formulated by Ryans (1960), in the proposition that teacher behaviour is a resultant of certain situational factors and certain organismic conditions and their interactions — or simply that behaviour is a function of certain environmental influences and learned and unlearned characteristics of the individual teacher. Accordingly, in the present study, teacher verbal behaviour is studied and its relations to some learned and unlearned characteristics of individual teacher are determined.

2.8 Statement of the Problem

The present research problem may specifically be stated as "CLASSROOM VERBAL BEHAVIOUR OF TEACHER-TRAINEES IN ETHIOPIA IN RELATION TO THEIR INTELLIGENCE, SELF-CONCEPT AND ATTITUDE TOWARDS TEACHING".

2.9 Objectives of The Study

2.9.1 General Objectives

The research work has progressed considering two major and general objectives:

i) To study the salient features or patterns of classroom verbal behaviour of science teacher-trainees of Addis Ababa University.
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2.9.2 Specific Objectives

The study is designed considering the following specific objectives:

i) To identify the major classroom verbal behaviour components of which science teaching is based at the ninth grade level by the teacher-trainees of Addis Ababa University.

ii) To compare male and female science teacher-trainees with respect to certain dimensions of classroom verbal behaviour.

iii) To study the effect of intelligence upon certain dimensions of classroom verbal behaviour of the science teacher-trainees.

iv) To explore the extent of the impact of self-concept of the science teacher-trainees upon their classroom verbal behaviour.

v) To investigate the nature of the effect of attitude towards teaching upon classroom verbal behaviour of the science teacher-trainees.

vi) To study the nature of the interaction effect of intelligence and self-concept upon classroom verbal behaviour.

vii) To explore the conjoint effect of intelligence and attitude towards teaching upon classroom verbal behaviour of science teacher-trainees.

viii) To study the combined effect of self-concept and attitude towards teaching upon the classroom verbal behaviour of science teacher-trainees.
To explore the extent of the interactive effect of intelligence, self-concept and attitude towards teaching upon classroom verbal behaviour of the science teacher-trainees.

2.10 Hypotheses

i) (a) The classroom verbal behaviour of science teacher-trainees of Addis Ababa University will be more of direct nature as measured by FIAT.

(b) The science teacher-trainees will place strong emphasis on subject-matter than on issues of motivation and discipline.

ii) There will be a significant difference between the classroom verbal behaviour of male and female science teacher-trainees.

iii) Science teacher-trainees of high intelligence will significantly differ from science teacher-trainees of low intelligence in their classroom verbal behaviour.

iii) (a) Science teacher-trainees of high self-concept will not be significantly more indirect in their teaching behaviour than those trainees of low self-concept.

(b) There will be no significant difference between groups of high and low self-concept of the science teacher-trainees in the amount of Teacher Talk.

iv) Science teacher-trainees possessing favourable attitude towards teaching will be more indirect in their teaching behaviour than trainees possessing unfavourable attitude towards teaching.

Interactional Hypotheses

(a) First Order

v) The interaction effect of levels of intelligence and levels of self-concept on TT, PT, SC, I/D and ITT will
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vi) There will be no significant interaction between the levels of intelligence and the types of attitude towards teaching.

vii) The interaction between levels of self-concept and types of attitude towards teaching on classroom verbal behaviour will be significant.

(b) Second Order

viii) The interaction effect involving levels of intelligence, levels of self-concept and types of attitude towards teaching on classroom verbal behaviour of the science teacher-trainees will not be significant.

2.11 Limitation Of The Present Study

The present study was limited in that the study of the classroom verbal behaviour and its relationship with intelligence, self-concept, and attitude towards teaching has been conducted only on a sample of graduating class science teacher-trainees (both boys and girls) being trained at Addis Ababa University during 1988-89 and 1989-90 academic year. Furthermore, the study of the science teacher-trainees' classroom behaviour was limited in that only those aspects of their verbal behaviour were taken which were included in the Flanders Interaction Analysis Category System (Flanders, 1970).

Eventhough, a variety of measurements of intelligence, self-
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concept and attitude towards teaching are available, in the present investigation, measurement of intelligence was limited to those abilities alone, measurement of which was possible through the non-verbal test of Raven's Standard Progressive Matrices, Sets A, B, C, D, and E (Raven's 1964). The study of self-concept was limited to those dimensions and cumulative scores which are covered by Deo's (1971) revised Personality Word List and the measurement of attitude towards teaching was limited to those dimensions which are covered in the Teacher Attitude Inventory developed by Ahluwalia (1978) and adapted to the Ethiopian conditions by the investigator.

2.12 Operational Definitions Of The Terms Used

i) Classroom Verbal Behaviour

Classroom verbal behaviour was operationally defined as that behaviour which is confined to those patterns of verbal behaviour which are reflected in the interaction between the teacher and pupils inside the class and which are the result of accepting feelings, praising, using students ideas, questioning, lecturing, directing and criticizing by the teacher on the one hand and responding and initiating on the part of the pupils on
the other, objective record of which is possible with the Flanders’ Interaction Analysis Technique.

ii) Intelligence

Intelligence was operationally defined as the ability to think and reason out in abstract terms and to deal with complex problems as indicated by the total raw scores in the Raven’s Standard Progressive Matrices Test.

iii) Self Concept

In the present study, self-concept was operationally defined as the totality of attitudes, judgements, beliefs and values that the individual teacher-trainee holds concerning what kind of person he is. It is his perceived self as measured by the Deo-revised Personality Word List.

iv) Attitude Towards Teaching

Attitude Towards Teaching of teacher-trainees was operationally defined in the present study as a mental state of an individual teacher-trainee which tends to respond for or against teaching as a profession, or situation with affection and feelings of likes and dislikes as measured by the adapted version of the Teacher Attitude Inventory of Ahluwalia.