CHAPTER-I

INTRODUCTION

➢ Background
➢ The Concept of Teacher Behaviour
➢ The Classroom Communication
➢ Assessing Teacher Behaviour
➢ Interaction Analysis
➢ Flanders System of Interaction Analysis
➢ Assumptions inherent in FIACS
➢ Observation System
➢ The Ground Rules
➢ Preparation of Observation Matrix
➢ Implications of Interaction Analysis
➢ Some Precautions with regard to the Use of Interaction Analysis
➢ Limitations of FIACS
➢ Modifications of FIACS
➢ Teacher Competence
➢ Identification and Measurement of Teacher Competencies
➢ Research in Teacher Effectiveness
➢ Instrument Selection for Measurement
➢ Justification of the Present Study
➢ The Present Study
➢ Statement of the problem
➢ Definition of terms
➢ Objectives of the study
➢ Hypotheses
➢ Delimitation
CHAPTER-I

INTRODUCTION

1.0 BACKGROUND

The strength of any educational system largely depends upon the quality of teachers who sustain it and also the educational planners and administrators who operate the system. The enigma of the measurement of teacher competence arises again and again in the discussions of educators, like an uneasy ghost stubbornly revisiting the seminar table, again and again such discussions trails off into acrimony or futility in the face of the controversy aroused by value judgments inhering the question, "What is the good teacher?" The answer to this question implies two things, firstly what constitutes good teachers and good teaching and secondly how our teachers be enabled to perform their job of teaching in a better way. One the apparent ways of improving teaching is to strive for effective and competent teacher preparation in teacher education institutions.

The large number of studies on teacher effectiveness carried out during the last two decades have made it more and more apparent that a competent teacher is one who possesses a large repertory of strategies and tactics which he can use at will vis-à-vis his pupils in the classroom. And, therefore, he must first acquire an awareness of and control over his own behaviour, which is necessary pre-requisite to teacher competence. Then he can go out into schools and develop his own way of being effective in his own situation. Becoming a fully competent teacher is, then, a life long process rather than a point to be reached.
The role of the teacher at present era of science and technology is changing fast in view of the socio-economic, political and other pressure. The identification of able and efficient teaching personnel constitutes one of the most important educational endeavours. It is no exaggeration to express that the whole educational process revolves round the teacher. Dr. S. Radhakrishnan has rightly remarked, "The teacher acts as a pivot of the transmission of intellectual traditions and technical skills from generation to generation and helps to keep the lamps of civilization burning". The Education commission (1964-66) has pointed out, "of all different factors which influence the quality of education the quality, competence and character of teachers are undoubtedly most significant."

The National Policy on Education (1986) has taken a serious note of the flaws in teacher recruitment and teacher education. The government admits that there have been some lapses in the recruitment of teachers, in teacher training programmes and in-service training facilities. Research studies in this direction also support the view that quantum or number of teachers employed in schools will help in fighting ignorance and scientific backwardness. On the other hand, it is believed that the quality of teachers will enable the country to shake off age-old backwardness, ignorance, illiteracy and lack of scientific technology. It is relevant to mention that in ancient times teachers, although in small number, were actually the 'born' or the 'ideal teachers' but due to phenomenal increase in the enrolment of students at various levels, it becomes imperative to appoint hundreds and thousands of teachers who essentially are drawn from general population. This poses serious challenge to policy planners and practitioners in education in terms
of addressing themselves to gigantic problems of teacher preparation.

Thousands of teachers have been employed all over the country since the country achieved its independence. But, it is unfortunate that most of the teachers have not adjusted themselves to the changing needs of the country and its growing student population. The teachers believe that lack of proper training, low pay scale, inadequate school facilities and lack of motivation among children to benefit from school teaching are some of the impediments that have prevented them from discharging their duties with utmost devotion and dedication. Contrary to this, the parents complain that teachers do not take their responsibilities seriously and they do not pay individual attention to each child. As a result of this the process or education at all levels has become relatively a meaningless exercise.

It is a debatable issue, as to how the country can come out of such an impasse? Educationists, politicians and administrators agree on the basic fact that the deterioration in the quality of education and teacher effectiveness is a serious problem that immediately after independence when thousands of teachers were recruited at different levels, much attention was not paid to the quality of teachers as compared to the number recruited. The second observation is that teaching is not the primary attraction of our young personnel. It is believed that those who do not find employment opportunities in administrative services, medicine, engineering and other lucrative professions, take to teaching only for sustenance. If this is true, then there is no denying the fact that a lot of deadwood has been accumulated in our teaching departments at different levels. If it is true then the country can not afford to surrender its cardinal service of public commitment to
those who are half-heartedly engaged in this profession. Therefore, a beginning has to be made somewhere so that a uniform norm and a yard stick for the employment of teachers is developed. Thus greater attention should be paid towards recruitment of teachers and teacher training.

Teacher's personal qualities, mastery over the subject matter, methodology of teaching and some other pedagogical skills are undoubtedly correlates of effective teaching, but what a teacher does inside the classroom is equally important. Therefore, a classroom is a place where interactional patterns emerge on the basis of 'presage-process-product' dimensions. Thus, analyzing classroom interactional patterns is perhaps that best way to understand what a teacher is?, what he does in the classroom? and what is the resultant impact on the quality of the product? The present study is an attempt to determine the differential interaction patterns of effective and ineffective teachers. This has greater implications for in-service and pre-service teacher training programme. After knowing the general interaction patterns in case of the effective teachers, it will be easier for teacher educators and planners to redirect their teacher training exercise towards accomplishing the desirable interaction patterns inside the classroom.

1.1 THE CONCEPT OF TEACHER BEHAVIOUR

Teaching is a dynamic interplay between the teacher and the nature of pupils. Also teaching is a goal directed activity. Gage has defined teaching as a system of actions intended to produce learning. Thus teacher has to perform various tasks. The more tasks teachers can accomplish the better persons and professionals they are likely to become. Teacher behaviours may, therefore, be
thought of as observable indications of a teacher's ability to perform tasks. But all teachers can not be expected to behave the same way in all situations. Because tasks vary, just as do teacher abilities, the behaviours teachers exhibit may be different from situation to situation. The number of universally effective behaviours, if there are any, is small indeed. Ryans is quite correct when he defines teacher behaviour as the behaviour or activities, of persons as they go about doing whatever is required of teachers, particularly those activities which are concerned with the guidance or direction of the learning of others.

Ryans has developed two assumptions necessary for a theory of teacher behaviour. The first assumption trusts the teacher behavioural as a function of situation factors and characteristics of individual teachers. This assumption seems to generate the following sub-assumptions:-

- Teacher behaviour is characterized by some degree of consistency.
- Teacher behaviour is characterized by a limited number of responses.
- Teacher behaviour is always probable rather than certain.
- Teacher behaviour is a function of personal characteristics of individual teachers.
- Teacher behaviour is a function of general features of the situations in which it takes place, and
- Teacher behaviour is a function of specific situations in which it takes place

The second assumption takes the teacher behaviour to be observable and appears to have the following sub-assumptions.
Teacher behaviours are distinguishable.

Teacher behaviour is measurable and classifiable both qualitatively and quantitatively.

Teacher behaviour gets revealed through overt behaviour

Teacher behaviours, their nature, genesis and cultivation, their identification and their evaluation, constitute the core concern not only of teacher training institutions and school systems, but also of society at large that depends on teacher to a very great extent for the propagation of accumulated knowledge and culture values.

1.2 THE CLASSROOM COMMUNICATION

The teaching learning situation has been viewed by different persons differently. The complexities of teaching and learning and their interrelationship, however, make asking the right research questions, let alone finding answers, an almost overwhelming undertaking. Research on teaching, according to Mitzel (1960) and Dunkin and Biddle (1974), has investigated four types of variables in order to understand and thus encourage effective teaching. These are discussed below:

- Presage Variables- those characteristics that teachers carry with them to the classroom.
- Characteristics such as age, sex, training experience, and various personality traits such as motivation or intelligence.
- Context Variables- these are the conditions to which teachers must adapt. Context variables include pupil characteristics such as age, sex, social class or abilities as well as characteristics of the school and community in which teaching and learning are embedded.
• Process Variables - These are human transactions that occur in the classroom during the course of teaching and learning. They may include all observable behaviours of teachers and pupils directly related to teaching-learning activities as well as other seemingly unrelated observables behaviours of teachers and pupils.

• Product Variables - These represent outcomes of teaching as measured in terms of immediate pupil growth or long term pupil effects.

1.3 ASSESSING TEACHER BEHAVIOUR

The complexity of the spontaneous behaviour of the teacher makes the study of classroom teaching-learning a bit difficult. An accurate description of what happens in the classroom is not easy to obtain. Since we may be interested in evaluating teachers abilities to perform various tasks, systematic examination should provide overt indications of teachers needs and abilities as they are revealed in their work with students. Such an information may be further useful to make teachers more aware of their own behaviour and those of their students. The scientific mode of enquiry has centered on the systematic observations of the phenomenon. The works of Withal (1949), Flanders and Amidon (1960) Medley and Mitzel (1948) and Galloway (1968) have pioneered the utilization of systematized approaches in the study of the children in the classroom in the united states and around the world. Systematic observation is an accepted method of organizing observed teaching acts in a manner which allows any trained person, who follows the stipulated procedures, to observe, record and analyze interactions with the assurance that others viewing in the same situation would agree to great extent, with his recorded sequence of behaviours.
1.4 INTERACTION ANALYSIS

The word interaction analysis refers to any technique for studying the chain of classroom events in such a fashion that event is taken into consideration. The major concern of interaction analysis is the influence pattern of the teacher. The teacher behaviour may be exhibited as either verbal or nonverbal or both. Any system of interaction analysis is essentially a process of encoding and decoding i.e., encoding provides recording of the classroom events in a meaningful manner and decoding helps arranging the data in a useful display followed by analysis and interpretations. Interaction analysis is closely associated with the name of Flanders, whose masterful combination of known with new has led many to refer him as the 'Father' of interaction analysis. Flanders system is concerned only with the verbal behaviour in the classroom. It is a category system having ten categories. One may question Flanders restriction of coverage in the ten categories of teacher behaviour thus chosen. It is a simple matter of criticism. Suggesting the means to obviate these criticism is much more difficult, however, Stones and Morris (1977) assert that the method offers considerable scope for the analytical appraisal of the teacher's classroom behaviour even if it does only focus on very broad aspects of verbal behaviour. Flanders represents an out-spoken defense of behaviour observation combined with the use of categorical checklist. He presents evidence to show that different patterns of interaction are obtained for teachers of varying abilities, subject matter and national contexts. Therefore, Flanders work seems to present a simple yet powerful method for studying teacher behaviour and should provide a wealth of evidence relating to matters of competence.
1.5 FLANDERS SYSTEM OF INTERACTION ANALYSIS

Flanders and his associates developed a classroom observational system at the University of Minnesota between 1955 and 1960. An attempt has been made to categorize all forms and facets of verbal behaviour to be found in the classroom. Flanders system investigates the verbal behaviour of a teacher and students in a classroom setting in order to enhance understanding and thus improve teaching behaviour (Amidon and Flanders, 1971). The Flanders system is composed of ten categories of verbal behaviour. These are divided into three major sections: Teacher Talk, Pupil Talk and silence or confusion.

The first main section sub-divided into two: indirect and direct teacher talk. This classification gives central attention to the amount of freedom that teacher grants to the students. In a given situation, therefore, a teacher has a choice. Indirect teacher statements are those that give students greater opportunity to respond or maximize students' freedom of action. They include the following verbal behaviour; accepting feelings (category 1), praising or encouraging (category 2), indicating an acceptance of students ideas by paraphrasing, restating, or summarizing what they have said (category 3), and asking questions (category 4). In contrary to indirect teacher talk, direct teacher statements are those which tend to restrict or minimize students freedom of action. They include lecturing (category 5), giving directions for student compliance (category 6), and criticizing or justifying authority (category 7), by telling students, in effect, to change their behaviour. These first seven categories are used when teacher is talking. The teacher's choice conscious or unconscious depends upon many factors. It emanates from his perception of the situations and the goals of the particular learning situations.
The second main section is divided into only two categories. Pupil Talk-response (category 8) and Pupil initiation (category 9). Pupil talk-response includes students response to teacher's questions that may be narrow or convergent. Pupil talk-initiation category is meant for verbal behaviour, which may be an expression of a student's own opinions, ideas and inquisitiveness. This type of behaviour may occur as a result of broad or divergent questions.

The third section is composed of a single category of silence/confusion (category 10); this includes all behaviours not covered above, along-with silence and garbled classroom communication.

**Table-1**

**Summary of Flanders Interaction Analysis**

| Teacher Talk | Indirect Influence | 1. Accepts feelings  
|              |                  | 2. Praises or encourages  
|              |                  | 3. Accepts or uses pupil ideas  
|              |                  | 4. Asks questions  
|              | Direct Influence | 5. Lecturing  
|              |                  | 6. Giving Directions  
|              |                  | 7. Criticising or justifying authority  
| Pupil Talk   |                  | 8. Pupil talk-response  
|              |                  | 9. Pupil talk Initiation  
|              |                  | 10. Silence or Confusion  |
1.6 ASSUMPTIONS INHERENT IN FLANDERS SYSTEMS OF INTERACTION ANALYSIS

Assumptions inherent in Flander System of interaction analysis are:

- In a normal classroom situation, it is verbal communication which is predominant. Probabilities are, in any school classroom better than 60 percent that one would hear some one talking (Flanders, 1965).

- Verbal behaviour can be observed with higher reliability than most non-verbal behaviour and also it can reasonably serve as an adequate sample of the total behaviour in the classroom.

- The teacher exerts a great deal of influence on the pupils. Pupils behaviour is affected to a great extent by the type of teacher behaviour exhibited (Anderson et al. 1946). In other words teachers classroom behaviour in particular exerts a crucial influence on pupils (Flanders, 1960).

- Changing teacher classroom behaviour through feedback is possible (Flanders, 1963) though the amount and nature of change will require research (Flanders, 1963, 1968). The implication is that teachers can control their verbal participation in the classroom and use it as a psychological force in classroom management.

1.7 OBSERVATION PROCEDURE

Flanders system of interaction analysis is employed by a trained observer. Whether he/she is using a live classroom or a tape recording of his observations, it is desirable to take about five
minutes to get acclimatized to the classroom situation and start recording. This recording is called encoding process. It is done by noting down every three seconds the category number of the interaction, he/she has just observed. The observer records these numbers in a sequence in a column. Twenty numbers per minute would thus be recorded. Therefore, at the end of a period of time several long columns may be obtained. It is important to keep the tempo as steady as possible, but it is even more crucial to be accurate, marginal notes may also be mentioned, which may be useful in explaining the classroom events. Once an observer memorizes the categories and practises them on transcripts of dialogue and live examples, the system becomes fairly automatic. Flanders suggests that 6 to 10 hours of practice to an observer can equip him in making appropriate judgments easily and consistently.

1.8 THE GROUND RULES

In order to overcome complexity of problems involved in categorization, several ground rules have been established. These rules are helpful in obtaining consistency in observing classrooms in different subject areas and grade levels.

Rule 1. When not certain to which two or more categories a statement belongs, choose the category that was numerically far from category 5.

Rule 2. If the primary tone of teacher's behaviour has been consistently direct or consistently indirect, don't shift into opposite classification unless a clear indication of shift is given by the teacher.
Rule 3. The observer must not be concerned with his own biases or teacher's intent.

Rules 4. If more than one category occurs during the three seconds interval, then all categories used in that interval should be recorded. Therefore, record each change in category. If no change occurs within three seconds, repeat that category number.

Rules 5. For silence longer than three seconds, record 10 for every three seconds.

1.9 PREPARATION OF OBSERVATION MATRIX

Constructing an interaction matrix from raw data from the recorded sequence of events is relatively simple and straightforward. The method consists of entering the sequence of numbers into ten by ten matrix (10 raw by 10 column table). Each number is entered in the form of sequence pairs, being used twice, firstly as the first number and secondly as second number. The rows of matrix represent the first number in the pair and the columns represent the second. In this way overlapping pairs of observations are entered in appropriate cells of the matrix. The data should begin and end in silence i.e., category 10. If 10 is not mentioned in the beginning and at end, the observer may add it both ends. The following example will clarify the procedure of matrix preparation.
The first sequence pair, 10-5 would be tallied in the cell located at the intersection of 10th row and 5th column, the next pair 5-4 will be tallied in the cell located at the intersection of 5th row and 4th column, and so on so forth. Each pair of numbers overlaps with the previous pair and each except the first and the last is used twice. The procedure is illustrated in the following Table-1.2.

<table>
<thead>
<tr>
<th>Cat.</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>/</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td>/</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td>/</td>
<td>//</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td>/</td>
<td>/</td>
<td>/</td>
<td>/</td>
<td>/</td>
<td></td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>/</td>
<td></td>
<td></td>
<td>/</td>
<td></td>
<td>/</td>
<td></td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td>/</td>
<td>/</td>
<td></td>
<td>/</td>
<td></td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td>/</td>
<td>/</td>
<td></td>
<td>/</td>
<td></td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>/</td>
<td>/</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>16</td>
</tr>
<tr>
<td>%</td>
<td>0</td>
<td>6.25</td>
<td>6.25</td>
<td>12.5</td>
<td>18.75</td>
<td>18.75</td>
<td>12.5</td>
<td>12.5</td>
<td>0</td>
<td>12.5</td>
<td></td>
</tr>
</tbody>
</table>
The matrix table may be developed in such a way that the rows and columns for categories are proportionately sized e.g., row and column for category 5 may be kept biggest, rows and columns for categories 4,6 and 8 may be relatively smaller and for the rest of the categories still small. The total in rows and columns should be identical. It will provide as the first check. A separate matrix is prepared for each specific lesson or major activity. Matrices are more meaningful when they represent a single type of activity of work. It is also possible to pool the matrices. Matrices are pooled cell wise. There will be 100 cells in a 10x10 matrix. The pooled matrix is called the master matrix or mileage matrix. These are required when the nature of classroom interaction of a particular type of teachers is the subject of our study. If two or more observations of a teacher have been taken for lessons in a particular subject, pooled matrix of these two or more lessons may depict the data of individual's aggregate performance.

1.10 IMPLICATIONS OF INTERACTION ANALYSIS

Flanders interaction analysis system has following implications:

- By concentrating upon Flanders system students obtain detailed in sight into the rationale of a tool for analyzing classroom interactions.

- It brings to bear an analytic approach to understanding what in fact goes on the classroom.

- Flanders systems being the most useful from the points of view of direct practical instruction and self instruction in the classroom techniques, has significance for teachers training in practical situations.
• It is hoped that students can practise and learn new teaching behaviours (implied in Flanders system) and thereby overcome the limitations of traditional teaching practice.

• It is also hoped that once the student teachers understand how to study their own teaching and are able to get an insight into their own classroom performance, they will improve.

• It could provide idea for other different instruments designed to do specific jobs different from, for which the Flanders instrument was designed.

• Flanders systems of interaction analysis can be used for research in verbal interaction for pre-service and in-service education of teachers.

• Being a potential tool of feedback, it helps in acquiring desirable patterns of teaching.

• This system devotes a great deal of attention to teacher talk (Seven of the Ten categories), especially provides for looming indirect and direct nature of the teachers verbal behaviour.

1.11 SOME PRECAUTIONS WITH REGARD TO THE USE OF INTERACTION ANALYSIS

There are some precautions that can be taken with regard to interaction analysis, they are as follows:

First, no interaction analysis data should be collected unless the person is familiar with the entire process, knows its limitations.

Second, the questions to be answered by inspecting the matrix should be developed before the observation takes place.
Third, value judgments about good and bad teaching behaviour are to be investigated so that cause and effect relationships can be discovered.

Fourth, a certain amount of defensive behaviour is likely to be present at the initial consultation; it is something like listening to a tape recording for the first time.

Fifth, a consultation based on two observations or at least two matrices help eliminate value judgement or at least control them. Comparison between the matrices is more likely to lead to principles.

1.12 LIMITATIONS OF FLANDERS INTERACTION ANALYSIS SYSTEM

- The system does not describe the totality of the classroom activity. Some behaviour is always overlooked and who is to say that the unrecorded aspects of the teaching act are more important than those recorded.

- Efforts to describe teaching are often interpreted as evaluation of the teaching act of the teacher while descriptions may be used as a basis evaluation, judgement can be made only after additional value assumptions are identified and applied to the data.

- The system of interaction analysis is content free. It is concerned, primarily with social skills of classroom management as expressed through verbal communication.

- It is costly and cumbersome and requires some form of automation in collecting and analyzing the raw data. It is not a finished research tool.
• Much of the inferential power of this system of interaction analysis comes from Tabulating the data as sequence pairs is an 10x10 matrix. This is a time consuming process.

• Once the high cost of tedious tabulation (Electric Computers) is under control, but the problem of training reliable observers and maintaining their reliability will still remain.

• Its potential as a research tool for a wide application to problems is yet to be explored.

• The system devotes little attention to student talk and focuses a great deal of attention on direct/indirect nature of Teacher's performance. It is considered a great drawback of Flanders System.

1.13 MODIFICATIONS OF FLANDERS SYSTEM OF INTERACTION ANALYSIS

Although Flanders system of interaction analysis (FIAS) has been most widely used and occupies the place of one of the most popular techniques for observing classroom interaction. Many later tools developed abroad are simple modifications of Flander's system. However, Indian researchers have rarely attempted to develop a tool of their own to effectively quantify classroom communication. Besides the attempts of Verma and Ansari (1975), and Deva (1978), Vasishtha and Agarwal (1979) have developed an observational system based on flanders model which is known as Regional College of Education Ajmer System of Interaction Analysis (RCEASIA).

1.14 TEACHER COMPETENCE

The debate about competence based teacher education is in its early stages and is hampered by lack of conceptual clarity.
When the discussion and debate about an issue is littered with analogies, it is a sure sign that it is problematic. Competence, as it relates to professional education, is just such an issue. Educators and trainers are only in the early stages of developing a language to explore the meaning and implications of the word. It is the intention here to take part in that exploration.

A major contention is that conceptions of competence must pay particular regard to thinking. In considering the changing role of professionals in general, and teachers in particular, the conclusion is reached that intelligent reflective thinking is an increasingly important necessity, demanded by an ever more complex society. There follows a review of current concepts of intelligence, which have an increasingly broad spectrum which encourages the view that competence must be a broad-based entity. The possible significance of metacognition is considered next because there are indications that it may be a key to better thinking. The latter stages shift from thinking to feeling through the contention that competence is not solely the product of cognitive processes. Thinking is inextricably linked to feeling and any attempt to develop competence must give due consideration to supporting teachers emotionally in their learning, especially as they endeavour to change behaviour. Finally it will be argued that competence is developed through experiential learning cycles and that in this process explicit attention must be given to the development of the learning skills which are integral to experiential learning. These learning skills will include not only analytical and creative thinking, but also those which attend to feelings.

The present desire to assess the competence of both practising, newly qualified and trainee teachers has a number of origins, but at its heart is the continuing national political obsession
to identify and eradicate the causes of the relative decline of the British economy, The hunt was on in earnest from 1976, the year of prime Minister Callaghan's 'Great Debate' speech at Ruskin College, Oxford. The trail becomes confused and messy in places, but the cumulative causation process has featured the need for performance indicators to activate a market in the choice of schools by parents. The introduction of the National Curriculum and a back to basics' thrust from Kenneth Clark, when secretary of state for Education.

In the search for scapegoats, being able to describe the performance of teachers, simply, becomes especially important. It is seductive to believe that their performance in the classroom can be observed and on the evidence of behaviour, they can be classified as exemplary or blameworthy. There are numerous examples of checklists used in local authorities, teacher training institutions and schools involved in mentoring student teachers which attempt to grade component parts of the teaching performance. This behaviourist construct of competence rests, according to Norris (1991) 'on a description of behaviour (sometimes referred to as arrangements) in a form that is capable of demonstration and observation.

If one required inspiration for the process of listing behaviours, one would need to look no further than the elaborate checklists of teacher behaviour developed by American states, and researchers, both to elicit relationships between teacher characteristics and pupil learning and to encourage the diffusion of the characteristics. Perhaps the most magnificent but futile achievement was The Florida Catalog of Teacher Competencies listing 1276 competencies (Dodl, 1973).
As Whitry and Willmott (1991) have pointed out there are advantages of a move towards a competence based approach to initial teacher education. They quote Tuxworth’s (1982) call ‘to remove some of the mystique and restrictions that surround teacher education, and they go further to argue that competence based approaches can be justified as giving students clear targets of achievement and explicit evidence of their progress, enabling schools to share an understanding of the function of placements and giving employers a clear idea of what to expect. It is to be hoped and expected that new school partnership PGCE courses will, at least, achieve this explicitness, as it is a minimum requirement for effective communication between the partners.

The foundation in 1986 of the National Council for Vocational Qualifications (NCVQ) was the embodiment of the political desire to create a better trained work-force to compete with our European neighbours. NCVQ has been charged to equate performance in trades and professions, to five levels, via criterion-referenced competence assessment. Level 3 is equivalent to 2'A' levels, level 4 to an honours degree and level 5 to postgraduate qualifications. Because a lead body for teaching is in the offing there is a harder edge to the current debate about competence. Until recently teacher trainers have been nervous of a baldly behaviourist approach to teacher competence (see for example Norris, 1991), but a recent speech by an Employment Department training advisor suggests that NCVQ have learned from the experience of moving into professional education. Current notions of competence in teaching within NCVQ and the Employment Department are reportedly much more complex that original models at lower NVQ levels and it is accepted that competence, whatever it is, cannot be assessed from performance alone (Durrant, 1992).
NCVQ (1989) procedure demands that statements of competence 'must be based on an analysis of occupational roles within the area of competence to which it relates.' The role of teacher becomes a central issue therefore. Schon's concept of a reflective practitioner (1983) has been highly influential in the rhetoric of teacher education in the last decade. There are few departments which would not claim to be producing reflecting teachers, but in reality the criteria set by the Council for the Accreditation of Teacher Education (GATE) (DES, 1989) have been a far more powerful force for course modelling, which has tended to focus more on course content than process.

One of Schon's arguments concerns in the failure of professional education and practice in an increasingly complex, society. Traditionally schools of professional education have concentrated on the teaching of the tenets of knowledge and practices of the particular profession. Thus equipped the graduates have gone forth to practise, applying the rules and models in a process Schon describes as technical rationality. However, this comfortable arrangement has become unhinged because the problems presenting themselves are increasingly complex, frequently with a values dimension and unyielding to professional formulae. This theme of the changing professional has been developed in Britain by Elliot (1991), whose analysis is based on experience researching into the training of police (in six countries) and doctors.

Elliot argues that in advanced 'modern' societies the needs of human beings have become more complex and professions have had to adjust. As the boundaries between different professions become more blurred, different groups have to collaborate in the performance of their roles. This is not hard to describe in the case of
teachers as their pastoral role has expanded to bring them into contact with the police, social workers and health workers. The growth of education business partnerships, work experience, teacher placements in business and the work-related curriculum have demanded joint ventures. Changes in school management have brought new perspectives to the management of money, resources and people and brought the marketing of schools to the fore.

Elliot summarizes the new professional images as incorporating the following changes:

1. Collaboration with clients (individuals, groups, communities) in identifying, clarifying and resolving their problems;

2. The importance of communication and empathy with clients as a means of understand situations from their point of view;

3. A new emphasis on the holistic understanding of situations as a basis for professional practice, rather than an understanding exclusively in terms of a particular set of specialist categories.


If this is a reasonable description of the changing nature of the professional role of teachers, and the work of Poppleton and Riseborough (1990) does support it, then it presents a resounding challenge to teacher educators. Elliot argues that this broader role, which calls into play a wide spectrum of skills and qualities, demands a reflective practitioner model of competence acquisition through which can be generated the ability to act intelligently in
novel situations. This draws upon the ability to understand situations holistically, tactfulness in communication, exercising initiative in proposing, implementing and evaluating problem solutions and the capacity to take risks in the face of uncertainty. Whilst this was not presented as a comprehensive or highly coherent list, it indicates the breadth of quality demanded and the need for ambition, innovation and clarity in developing teacher education courses. The danger lying in wait is illustrated by the evidence of the effect of school-based postgraduate training programmes in New Zealand (Munro, 1989). Students absorbed the norms of traditional school cultures through prolonged and early exposure and came to regard the higher education components, representing a different culture, as irrelevant. New school based programmes will need a stronger rationale than we have traditionally elaborated. As students spend more time in schools under the supervision of school based mentors, so it becomes increasingly important that the rationale and processes of the course are shared explicitly with all involved.

If professional competence is related to the ability to act intelligently in novel situations, then in seeking to develop competence it should repay the effort to consider the nature of intelligence and intelligent thinking. Intelligence is, of course, another problematic concept and to design courses directly around theories of intelligence to develop competence, would deserve the description of the blind leading the blind. Nonetheless theories of intelligence can illuminate thinking and debate about the nature and development of competence.

It is difficult any longer to sustain unitary concepts of intelligence, to conceive of it as one undifferentiated commodity. Theories which depict intelligence as multifaceted have drawn and
held attention. Strenberg's (1977) triarchic theory of intelligence seeks to 'understand intelligence in terms of three distinct but related aspects; the internal world of the individual, the external work of the individual, and the experience of the individual.' Sternberg is at pains to emphasize that he is not seeking to deny theories based in psychometry, cognitive and cross-cultural psychology but to provide an overarching theory. Sternberg (1987) describes three students, Alice, Barbara and Celia. Alice excelled in her Yale degree while the emphasis was on critical, analytical abilities, but the shine faded when the emphasis shifted to creative, synthetic abilities. Barbara excelled in research though generating and following through ideas, drawing upon her synthesizing abilities. Finally Celia proved to be outstanding because she assessed and adapted to the changing demands of the course. She was 'street smart'. In Sternberg's triarchic theory Alice excelled in internal aspects of intelligence. Barbara in experiential and Celia in the external aspect. All three were intelligent but in different ways.

Gardner's theory of multiple intelligence recognizes, similarly, that intelligence has many faces. He identifies linguistic, mathematical/logical, spatial, bodily kinesthetic and more controversially intrapersonal and interpersonal intelligence. Here is recognition that the ability to read cues about people and handle them sensitively is qualities to rank alongside those traditionally measured by IQ tests. Furthermore, interpersonal intelligence includes notions of motivation, a vital ingredient in any conception of competence.

This broader view of intelligence coincides with the results of the practical orientation of the work of McBer and Company (Spencer, 1983). In the early 1970s this consultancy was asked by the USA State Department for assistance in selecting Junior
Foreign Service Officers. Traditionally they had been selected through a 'liberal arts' examination. Apart from discriminating against the less privileged, the test scores correlated negatively with ratings of job performance (McClelland & Dailey 1973). Using a technique generically termed behavioural event interview (McGlllland, 1976) and developed from critical incident method (Flangan, 1954), the superior performers were distinguished by non-verbal empathy (the ability to 'hear' what a foreigner was really staying), speed in learning the political network and positive expectations (a strong belief in the dignity and worth of others, even under stress). Whilst speed in learning political networks bears some relation to traditional views of intelligence, empathy and positive expectations have strong undertones of inter and intrapersonal traits.

As research on intelligence progresses from its concentration on information processing onwards, explanation of how people behave in practical settings, so its potential relevance for professional education increases. Theories of multiple intelligence encourage a view, rooted in common sense, that professionals will have different profiles of competence. Whilst it will still be logical to argue that some students are better than others, in many instances it would have to be accepted that better is not as apposite a description as different. Thus one generates a very particular challenge for professional education, that of increasing ability to work effectively with others. If the professional role of teachers is increasingly one of cooperation within and beyond the profession, then there is a need to address this issue.

There has been a long and at times fruitless debate about the potential of teaching thinking skills. Convincing evidence has been scarce. In a review of the evaluative evidence centered on the most
popular intervention programmes, Sternberg and Banda (1986) concluded that the studies were seriously flawed, for example, because outcomes measures were of a testimonial nature or so closely linked to the instruments that they were favoured. However reviewing the experience of thinking skills approach can provide some useful pointers to the consideration of the importance of cognition in developing competence.

Lipman's Philosophy for Children (1980) programme depends for its force on the development of critical thinking skills. Lipman argues that critical thinking must be a form of enquiry and that enquiry is a self-correcting practice. The programme is built around novels, which are written to stimulate and excite and act as case studies to investigate the reasoning processes and moral dilemmas faced by the characters and to reach conclusions about the distinguishing characteristics of better and poorer thinking. Because the stories are value-laden, Lipman maintains that the critical thinking developed takes special circumstances into account when applying rules to cases. The element of judgement has a strong resonance for the reflective practitioner model proposed by Schon (1983). Critical thinking is applied or practical reasoning in novel situations. The anecdotal and circumstantial evidence for the success of Lipman's approach is strong, even if research evidence is thinner.

There is more impressive evidence of the effect of a curriculum-rooted thinking skills approach in Britain in the CASE (Cognitive Acceleration in Science Education) project. The two-year programme for pupils in years 7, 8 or 9 has had a significant effect on GCSE results not only in Science, but in English and Maths as well (Adey et al., 1990). The programme is based on the Piagetian of cognitive development and is built around three major concept-
cognitive conflicts, Bridging and metacognition. Cognitive conflict occurs when students generate evidence that contradicts their previously established concepts. Bridging is the attempt to link generalizations is strategies arrived at in the CASE lessons to other topics in science, other curriculum areas, or indeed everyday life to lay the foundations of transferability. Finally metacognition is the term carried by Flavell (1977) to describe an individual's conscious awareness of his or her own thinking processes.

Metacognition deserves some further discussion. It had long been argued that. Teachers are not able to articulate what it is that they do in carrying through a successful lesson: a conclusion which does not support the importance of metacognition. However Campione et al. (1982) demonstrated that adults and high achieving children were more able than low achieving pupils to talk about techniques of learning and problem solving, Furthermore Tobin and Fraser (1988) in a study of Science and Maths teachers reached this conclusion about exemplary teachers: 'they believed that students created their own knowledge as a result of active engagement in learning tasks they had a range of teaching strategies that could be used without a great deal of conscious thought. Those teachers thought and talked about teaching approaches and were receptive to ideas for change. Despite the reference to without conscious thought' they are describing a cohort of effective teachers who can discuss strategies and who think about teaching approaches, demonstrating a well-developed level of conscious thought.

Corno (1989) in experimental studies has found evidence for the effectiveness of metacognitive approaches by teachers who model' expert' processes for their pupils. The teacher asks the class, for example 'How would I tackle this problem?: What would I need to know before starting?:' Where would I find the necessary
information?:' How would I start?:' What would I do then?:' What would I do if I got stuck?:' How would I know if I had completed if satisfactorily?:' These are questions that tit comfortably on the lips of starting teachers as they engage in the planning of lessons and teaching sequences and it is important that the asking of these questions becomes habitualised, either of themselves or of their peers and mentors.

Numerous writers have attempted a hierarchy of thinking skills, Giilbert Ryle (1949) differentiated between knowing that and knowing how. Annert (1959) draws a distinction between transfer and transferable skills and associates transfer skills with metacognitive skills. Within the context of his triarchic theory of intelligence Sternberg describes meta-components as high order or executive processes and executive and knowledge acquisition components. Pearson (1984) distinguishes between habitual skill knowledge and intelligent skill knowledge, and Resnick and Bell (1976), Butterfield (1977) and Kirby (1984) all make reference to variously named high and lower order thinking skills. As Blagg (1991) concludes high level control processes are regarded as being responsible for the selection, coordination and sequencing of many lower order skills in order to create purposeful, cognitive strategies.

Nisbet and Shucksmith (1986) have helped to clarify this distinction between strategies and skills by reference to football. Players within a team possess certain skills such as heading, passing, shooting and tackling. In preparing for a match the team can plan strategies by the selection, coordination and sequencing of these skills. A good team, with 'metacognitive' functioning, can monitor and respond to changing situations brought about by the failure of the strategy. The best collection of individual players does not always win if they cannot combine their various skills to good
effect, as demonstrated by Holland and Germany in losing to Denmark in the 1992 European Football Championships.

The binary conceptualization of thinking skills is given some credence by the conclusions in a study of good police patrol officers, which identified four distinguishing characteristics.

1. Competence in assessing the total situation.
2. Self monitoring one's own conduct;
3. Empathizing accurately with the concern of others;
4. Exercising power and authority in a manner consistent with organizational goals and professionals' ethics.

As Norris (1991) points out this list could apply equally well to other professionals. These are close parallels with the work of McClelland and Dailey (1973) described earlier, in the identification of empathetic quality situational assessment and self-awareness as marks of superior performance. There is also some resonance with Gardner's theory of multiple intelligence which highlights the importance of interpersonal qualities. If these characteristics have a generic dimension it strengthens the case for regarding some, at least, as metacognitive.

One of the inadequacies of a behavioural approach to competence, or one based solely one cognitive development, is the failure to recognize the silence of feelings to competence, in teaching, as in other professional domains. Robin Richardson in 'Daring to be a teacher' (1983) quotes a colleague writing to decline an invitation to a conference. I agree with the whole ethos of the meeting and I'm sure it's just the pick-me-up I need... But at the moment I'm afraid I could not bear to hear new ideas of any import - the net result at the moment would be feeling of guilt, incompetence, and relative deprivation. It's a long story, but I feel
frustrated in the job and the only way I feel I'm going is backwards.' It is difficult to imagine a passage with denser reference to strong emotion.

Richardson argues that teaching strategies and skills are allied close to attitudes towards the pupils and oneself. He cites respect for the learners; his (or her) concern for them; his trust in his own feelings; his high self-esteem, docile curiosity, openness to hear new ideas, his preparedness to take risks, self-criticism and respect for opponents. This is a very unwisely bundle to carry into course planning, but it cannot be ignored if competence is to move from a paper list to an operationalised concept.

It is possible to throw some light on this confusion of hot emotion and its importance through the work of psychologist Stanley Rachman. Rachman (1990) has proposed a three-system theory to explain many of the disconcerting research findings about fear. Fear has three recognised components (1) physiological, measured through perspiring, trembling, palpitations or heart rate; (2) behaviour, such as avoidance; and (3) a subjective cognitive component (what we think we now about the fear stimulus). The measures of these components may be reduced by treatment behavioural, psycho-analytical or drug but frequently the components respond at different rates. The conclusion reached is that fear is not a lump, the three components are related to each other, but not perfectly; they are partially independent. So a patient may be able to go on previously avoided underground trains without physical signs of stress and yet still complain of fear. This state is known as desynchronize.

It is promising to think of competence as a three-legged animal. The development of competence may be inhibited by affective barriers. In a study of administrators Argyris (1976)
developed an approach in experiential learning which required the participants to question their own assumptions about the way they acted, particularly in relation to others. He and his colleagues were successful in sensitising participants towards their disfunctional behaviour and in identifying what they needed to do to achieve their goals. However, in role plays, they were unable to put the desired new behaviour into practice. In the same vein Jarvinen (1989) describes a training course for nurse trainers in Finland. She found that the students found it very difficult to shift from commitment to detachment, from concrete to abstract, from experience to generalisation that could influence behaviour. Jarvinen identified feelings and emotions as a common barrier.

'Another interesting example of the interplay of cognition, behaviour and feelings is provided by Candy et al. (1985). Long established patterns of behaviour are very difficult to change. When people engage in trying to improve their performance they experience a drop off in that performance, because their habitual skill is disrupted and ruffled by consciousness. It is possible that the learner's attention is divided by observing and performing, or perhaps the very recognition of the need for change undermines. It is during this dive in performance or behaviour, brought about by cognitive engagement, that there is the need for emotional, effective support from tutor, trainer or peers.

Whilst cognitive psychology may have dominated thinking about the acquisition of knowledge and skills, humanistic psychology with its emphasis on holism and the personal experience of and transformation of events by the learner, can support the implementation of a broader definition of competence. The concepts of self and self-esteem are central to a holistic view of competence because they are crucial determining factors in motivation and
through motivation, disposition to action. Maslow (1970) described motivations as a hierarchical structure. Self-actualization depends successively on fulfilling physiological needs, safety, social belonging and finally the respects of others. A self-defined narrow role for a teacher is for some a more comfortable, undemanding role. It reduces risk and supplies security. Attribution theory (Weiner 1956) suggests that motivation depends on the attribution of courses of success or failure to factors within or outside the control of the individual. In developing competence there is the need to shift the locus or control so that success or failure can be seen to be within the control of the learner teacher. There is the need to provide emotional support and a sense of belonging as teachers step beyond the limits of their habitualised behaviour and thinking, which are based so much on past experience. The work of Brewin (1988) can sustain the belief in altering self-efficacy, particularly through peer group support.

Competence is an inclusive concept. There are circumstances when we are certain that we have seen someone in action who is good at what they do. Conversely there are occasions when we are equally certain that we have seen the inept, the incompetent. This certainty breeds the confidence that we can describe the characteristics of competence and through that description begin to define the formula to be copied. Whilst this is not a complete illusion, it ignores the importance of context, the particular set of physical, interpersonal and emotional characteristics that provide the culture or environment for the performance. The inclusion of range statements in descriptions of behavioural competencies is recognition of this problem, but it is not a complete salvation. In relation to professional competence it is often the values dimension that will alter the equation and upset a previous equilibrium,
although failure of knowledge is also possible. In this cloudy atmosphere, without a clear language, it is important that initial teacher education institutions are clear about the principles and assumptions that underlie any framework that they might tag with the word competence.

For Messick (1984) competence is about potential. Performance describes the current performance capability, but competence is what a person can do under ideal circumstances. This places a responsibility on the professional educator, if the premise is accepted, to look beyond assessment procedures and concentrate on competence development. If competence becomes the remit of assessment machinery, about through a record of achievement format, the prospects are not encouraging because the elusive concept will be defined solely through what is easy to assess. It is as well to accept that assessment procedures will be inadequate. In the search for the clarification of difficult concepts it pays to be eclectic. Competence-based approaches to professional education must be experiential and not limited to instruction. An experiential approach should not just be a description but also an ambition and a promise. Courses should be designed to create experiences that are varied and challenging because they provide a richness of evidence to work from. Learning cycles are a powerful medium and planning concept for utilising the potential of experience and establishing a bridge into induction, especially if professional development and even appraisal are founded on an action research model which follows a similar cyclical route.

It has been argued here that one characteristic of competence (if not its definition) is a synchrony between cognition, feelings and behaviour and that diagnosis of poor performance will often reveal a desynchrony. Learning cycles are a natural vehicle for integrating
these components or identifying the disequilibrium. In a learning cycle, behaviour, cognition and feeling will entwine and separate in varying combinations depending on circumstances. Behaviour and feelings may be particularly important during an implementation or action phase, while cognition and feelings might be the more likely partners during a review or reflection phase. Whatever the combination, it is fundamental that the processes at each stage are carefully scaffold. It is commonly assumed that learning just happens as a natural consequence of experience. It is remarkable, in fact, how little is learned from experience on many occasions. Falling back on the analogy of sport, coaching has been revolutionised by the use of video and computer graphics which have enabled performance to be captured and analysed, frame by frame in slow motion. Both in in-service action research and initial teacher education, collection of evidence, not just through sophisticated technologies, can unlock the door to change.

Boud et al. (1985) have put some flesh on the bones of reflection and indicate how it can be developed beyond a headline word. They have described a three stage model for the reflection process:

1. returning to experience;
2. attending to feelings;
3. re-evaluation experience.

In attending to feelings, Heron (1982) suggests that we may be disabled by what he terms an affective barrier. Some students become stuck in a single interpretation if they are unable to overcome particular feelings. The last phase of the Boud et al. Model, re-evaluation of experience, is further divided into association, integration, validation and appropriation. Association
and integration can be regarded as primarily cognitive process, whereby new information is compared with that in long term memory and integrated via existing conceptual schemata or new ones if there is a serious mismatch with present structures. This illustrates a further radical advantage of experiential learnings cycles the creation of cognitive conflict. This Piagetian concept, given substance in the CASE project for pupils, remains a cornerstone for cognitive development. The shock of new insights into teaching and learning which conflict with established views can trigger a substantial change in professional development. It is clear that analytical skills will be a crucial variable in determining the learning to be extracted validation and appropriation are more aligned with affective processes, acting as emotional gatekeepers to the memory. It should be underlined however that cognitive and affective processes will rarely act as independent processes, they will interact continuously.

Creative or synthetic abilities, emphasised in Sternberg's work, will be engaged in the planning or implementation phase of the cycle. There is a job to be done for student teachers in supporting and igniting this process. PGCE students at Newcastle University frequently bemoan their inability to think of fresh ideas for lessons, they feel themselves being sucked into a diet of repetitive activities. In conversation it is apparent that they have been unable to access ideas, resources and techniques that are, in theory, available to them. This is evidence of the difficulty of establishing transferability. It is at this stage of learning cycle that a metacognitive awareness is most at a premium. The ability to step back from the situation, survey the context and consciously draw from one's store of case studies through recognising similarities, will
mark out superior performance, displaying the holism variously apparent in diplomats, police and teachers researched elsewhere.

Competence is to stay, at least for the immediate future, and we have to learn to work with it. It has been a stimulus for teacher educators to review the processes that underpin initial teacher training courses and to move out of the shadow of the CATE criteria. It should promote a connection between initial training and the work on teachers' thinking (see for example Galderhead, 1987). Elliot (1989) has defined competence as 'broad clusters of abilities which are conceptually linked.' Whilst accepting the value of the breadth of this definition, one should add that the links are emotional as well. The development of competence needs a curriculum for the affective and explicit attention to cognitive and metacognitive processes within an experiential framework.

1.15 IDENTIFICATION AND MEASUREMENT OF TEACHER COMPETENCIES

By definition, teacher effectiveness must be measured in terms of changes in pupils. These are attributable to the teacher's help. It is theoretically possible to measure a teacher's effectiveness by measuring how much pupils learn from him or her and making allowance for other influences on pupil learning. In a practical situation, however, such measures of teacher effectiveness lack both reliability and validity to a degree that probably makes them legally indefensible as indicators of individual teacher's competence. The only feasible approach to the assessment of individual teachers seems to be to assess their mastery of ways of behaving on the job which effective teachers have been shown to use. This decision to base on measures of process rather than product creates a problem in specifying the competencies to be used, since the nature of
effective teacher behaviour is not well understood. There are three basic approaches to the solution of this problem:

1.16 RESEARCH IN TEACHER EFFECTIVENESS

This approach is not so sound because of the severe lack of empirically demonstrated relationships between teacher behaviour and teacher effectiveness. Despite hundreds of references to the problem in the literature, only a few teacher characteristics have ever been shown to relate to teacher effectiveness, for too few to serve as a basis for a competency based system.

Theory: The theoretical literature contains plenty of advice about what makes an effective teacher, most of which comes from outside the profession itself. Learning psychologists, psychotherapists, philosophers, curriculum developers, and other even less qualified have theories to propose; but none of them are supported by enough hard evidence to justify their use.

Teacher Wisdom: It appears to offer a little more promise. This alternative is to ask the teachers themselves what behaviours are needed to make a teacher effective. While most teachers cannot apply the breadth of knowledge of the researchers or the creative ingenuity of the theoretician, they are in immediate contact with all aspects of the problems as they occur, and may be less likely to overlook or incorrectly weigh the importance of any single aspect. The teacher, moreover, has a stake in the problem of specification. Not only professional advancement but survival depends on how successfully the problem is solved. Teacher's perceptions of what makes a good teacher, then, can be used in drawing up a first set of specifications.

The Competency list: Competency is seen as the ability to cope with a certain class of problems encountered on the job. A teacher
who can deal with problems in a certain area is said to be competent in that area; and a fully competent teacher is one who can cope successfully with any professional problem. A competency list should be prepared through the specification process, the presence or absence of which should be judged likely to be an index of a teachers effectiveness. To ensure comprehensiveness, the list should be organised under headings called "competencies". As each competency is adopted as a part of the definitive set, performance criteria should also be listed. This adds specifies to the definition of the competency and also provides guidelines for the construction and/or selection of the measuring instruments.

1.17 INSTRUMENT SELECTION FOR MEASUREMENT

Researchers have found five instruments to be most effective in measuring competencies. Coping Analysis Schedule for Educational Settings (ASES) (Spaulding, 1970) is designed to measure pupil socialization; Spaulding Teacher Activity Rating Schedule (STARS) (Spaulding, 1974) examines the cognitive instructional strategies of teachers; Observation schedule and Record Form 5, Verbal (OSCAR5V) (Medley, 1955) looks at the verbal behaviour of teachers as perceived by students; Florida Classroom climate and Control System (FLACCS) (Soar, Soar, and Ragosta, 1971) examines the control tactics of teachers as well as their effective behaviours; and the Teacher Practices Observation Record (TPOR) (Brown, 1972) measures the congruency of observed teacher behaviour with Deway's philosophy of experimentalism.

1.18 JUSTIFICATION OF THE PRESENT STUDY

A teacher has to organize and skillfully manipulate conditions for learning so that the children under his care may
make the maximum use of their potentialities. This is not an easy job. The teaching learning process is considered to be one of the most delicate, complex, challenging and significant social process. In the area of School Education the major problem is to influence and improve the classroom instructional process, to have the benefits of new curricula, new textbooks and innovations may bear fruit. For the proper Educational growth of the child the communication skills of the teacher in the classroom have been found to be mainly responsible. The teacher is also expected to direct the pupils in activities out side the classroom in order to bring about necessary changes in their way of thinking and acting.

Whatever may be the effort to change the school practice, ultimately it is teacher's classroom behaviour, which matters. The interaction between the teacher and the pupil creates the climate of freedom or restriction for the pupils in the classroom. Not much attention has been paid towards studying and analyzing the teacher's classroom behaviour. Classroom in a school, as a unit of interaction amongst pupils, and between teacher and pupils, play an important role in the development of the child. Since the teachers exert a great deal of influence on the pupils, his behaviour as an important variable in the dynamics of the classroom, has attracted attention of psychologists and educationists.

The teacher has a great deal of influence on pupils. It has been shown by several studies that through the process of Internationalization of the influence, pupil's behaviour is shaped to a great extent, by the kind of influence the teacher exerts (Amidon and Flanders,1961). The problems which confront those who are concerned with research on Teacher Education involve a quest for more dependable knowledge of teaching behaviour, its elements and their influence. This is the time for those who are interested in
studying the dynamics of classroom instruction and to apply the knowledge to the training of the teachers for the improvement of instruction through modification of their classroom behaviour.

The task of producing a better teacher has generated a great amount of research. For a long this research centered around teacher-characteristics and their relation to pupil learning outcome. The results have been contradictory and inconclusive (Gage, 1963). Consequently the relevance of many teacher-training programmes has been questioned. One of the main criticisms is that student teachers rarely spend much time in actually studying teaching (Shore, 1972). It is now accepted that the training should emphasize teacher's responding to the pupils at the feeling level, encouraging them to express themselves frankly and accepting their ideas. This kind of training is not easy and can certainly not be accomplished through the traditional methods of teacher training (Pareek and Rao, 1970).

There has not been any limit to the innovations and experimentations in the field of teaching. As a result of this new model, new strategies, and new techniques of analyzing teaching behaviour have been developed. Interaction analysis as one of such techniques is a specialized research procedure that provides information about several aspects of teaching. It is an analysis of spontaneous communication between teacher and pupils. Interaction analysis is an observational procedure, a systematic record of spontaneous acts. It can be used as an observation technique for classroom teaching in teacher education programme. It is employed as research tool for analyzing and studying teaching.

The growing interest in classroom interaction analysis in recent years is indicative of the realization that in order to bring significant improvement in our schools. It will be important to find
means of modifying and improving teacher behaviour in both pre-service and in-service education programmes. There is a need to provide teachers with objective information about their teaching, analysis of the effects of their own teaching-behaviour and opportunities to practice revisions they choose to make in their interactions with pupils. These are possible if classroom interaction analysis techniques are employed in our teacher training programme as tools in training as well as tools with which to measure class-room behaviour pattern.

Classroom interaction analysis is also useful for training purposes. It can be used as a major tool in the in-service and pre-service education programme. The trainees can learn interaction analysis and then use the technique to attain individual self-improvement goals. The self-improvement goals or model interaction patterns can be determined on the basis of a comparison of effective and ineffective teachers with reference to Flanders's Interaction Analysis Category Technique.

Interaction analysis technique provides reasonably objective information in terms of interactional patterns, which help the trainee, who is trying to change his own behaviour as well as the trainer who is the Incharge and who may wish to evaluate the trainee's performance for assessing the effectiveness of the programme. Interaction analysis has vast research applications. It has been used in the investigation of the relationships between classroom interactional and teaching acts so as to develop new theories of instruction in certain classroom settings and under given learning-objectives.

During the last decade some educational researchers have been trying to develop concepts in terms of which classroom interaction could be described. Attempts have been made to
analyze interaction process in a classroom. Of the seventy nine such instruments reviewed in a study, forty-seven were used in teaching training (Simon and Boyer 1970), Smith and Meux (1963) attempted to analyze verbal interaction in terms of logical character. Adams (1967) analyzed classroom activities in terms of their structural and functional aspects; Sharma (1972) studied the relationship between patterns of teacher classroom behaviour and pupils attainment in terms of instructional objectives. Hough (1965) reported that ten hours of instructions in classroom interaction analysis significantly increased pre-service teacher ability. Flanders's (1965) found that teachers could become indirect in their teaching style by attending a workshop in which interaction analysis was taught as a technique for analyzing their verbal teaching behaviour. Studies of Hough and Amidon (1964) also supported the view.

Pareek and Rao (1970) found that most of the teaching time was spent in lecturing. No time was spent in praise or in accepting the feelings of the students. Jangira (1971) also found similar results in his investigation. Pareek and Rao (1971) as well as Buch and Santhanam (197) reported that the teachers showed a tendency to ask narrow type of questions and most of teaching time was spent in direct teacher talk. The above findings are also supported by Buch and Quaraishi (1970) who found that science teachers were more direct talkative as compared to teachers teaching humanities. Singh (1978) concluded that interaction analysis group used more praise and encouragement, gave fewer directions and used more teacher response than non-traction analysis group of teachers. Nath (1971) revealed that the experimental group after training in interaction analysis talked less and had higher pupil initiation than the control group. Pareek and Rao (1971) found that due to the
training the experienced group started using more and more praise, accepting ideas and encouraging questions as compared to the control group of teachers.

Very few studies have been conducted on classroom behaviour of the high and low competency teachers on the basis of interaction analysis. However, some studies have been conducted on classroom behaviour of effective teacher (Balachandran, 1981; Poangotra, 1981; Singh, 1978; Maheshwari, 1976; Koul, 1976; and Debnath, 1971). Balachandra (1981) arrived at the conclusion that the factors of effective teaching from classroom point of view are subject-mastery, intellectual kindling, responsiveness, integrity, communicating ability and motivating concern for students' progress. Pangotra (1981) found that the successful teachers dominate the class discussion and motivation, thereby reducing and discipline-problem to the minimum. Successful teachers soften the use of teacher authority by making it more responsible, understandable and less arbitrary. Singh (1976) observed that effective teachers, unlike the ineffective teachers, are able to stimulate pupils through interesting teaching-techniques. They are clear and thorough in giving directions and can discipline the pupils in quite a dignified manner.

Debnath (1971) concluded that the important correlates of teaching efficiency are knowledge of the subject matter, sincerity in teaching, mastery over method of teaching, mode of exposition, art of questioning and proper use of aids and appliances. Maheshwari (1976) observed that effective teachers use feelings', 'praise', 'use of student's ideas', 'questions', 'student-response and initiation', 'indirect talk' and 'teacher response ratio' whereas ineffective teachers employ lectures, direction and authority, involve more direct talk, silence and confusion.
The findings of the above mentioned studies with respect to classroom behaviour have been inconclusive and limited because of several reasons; chief among them are the diverse nature of criterion measures, inability to secure the representative sampling of teacher cognitive, effective classroom behaviour and non-availability of trained personnel for making observations of interaction patterns.

The destiny of India is being shaped in her class-room (Education Commission, 1966). The emerging shape of the destiny undoubtedly depends on what goes on in the classrooms, and how does it go on? Educational effectiveness is determined by the quality of the teacher pupil transactions in the classrooms. The quality of classroom transactions in their turn depends upon the quality of teachers and their professional preparation. Various commissions and committees on education in general and teacher education in particular have pointed out the inadequacy of teacher education, especially the student teaching programmes (University Education Commission, 1949; Secondary Education Commission, 1953; the International Team on teachers and Curricula in Secondary Schools, 1954; Education Commission, 1966). The major drawback in our student-teachers programmes is that they do not develop necessary teaching skills among the student teachers. Their teaching competence does not improve because of lack of training in teaching skills (Jangira, 1980).

Studies have not revealed conclusive results regarding relationship between teacher classroom questions and student teacher self-concept. Some studies indicate positive relationship between these two variables (Sharma, 1972; Shaida, 1976); while a
few studies indicate non-significant relationship (Roy, 1977). Similar are the findings abroad. Rosenshine (1978, 1981) and Winne (1979) have not found positive relationship between teacher classroom questions and student teacher self-concept; whereas Redfiled (1981) has found that higher level questions have a positive effect on student teacher achievement.

Study of trend reports and abstracts in Buch, 1974, 1979, 1984, 1994, 2000 reveals that a very few studies have been conducted to investigate the effect of training on the teaching competence of teachers trainees. The present study is an attempt in this direction.

1.19 THE PRESENT STUDY

The present study is an attempt to determine the interaction patterns of high and low competency Mathematics teachers. This has greater implications for in-service and pre-service teachers training programme. After knowing the general interaction patterns in case of the competent teachers, it will be easier for teacher educators and planners to redirect their teacher training experiences towards accomplishing the desirable interaction patterns inside the classroom. Teacher's personal qualifies mastery over the subject matter and some other skills are undoubtedly correlates of effective teaching. However, what a teacher does inside the classroom is equally important. Therefore, classroom is a place where interactional patterns emerge on the basis of 'presage-process-product' dimensions. Thus, analyzing classroom interactional patterns is perhaps the best way to understand what a teacher is, what he does in the classroom, and what is the resultant impact on the quality of the product.
1.20 STATEMENT OF THE PROBLEM

The problem formulated for the present study reads as under:

INTERACTIONAL ANALYSIS OF CLASSROOM BEHAVIOUR OF HIGH AND LOW COMPETENCY MATHEMATICS TEACHERS IN THE STATE OF HARYANA.

1.21 DEFINITION OF TERMS

1. Interactional Analysis: For the present study, Interactional Analysis refers to the observation of the following ten categories and fourteen behavioural ratios analysed by Flanders et al. (1970).

Categories:

a) Teacher Talk:

1. Accepts feeling;
2. Praises or encourages;
3. Accepts or uses ideas of pupils;
4. Asks Questions;
5. Lectures;
6. Gives directions;
7. Criticizes or justifies authority.

B) Pupil talk:

8. Pupil talk response;
9. Pupil talk initiation; and

C) Silence:

10. Silence and confusion.
Behavioural Ratios:

1. Teacher Talk;
2. Direct teacher talk
3. Indirect teacher talk
4. Pupil talk
5. Silence
6. Indirect to Direct ratio
7. Pupil initiative ratio
8. Teacher response ratio
9. Teacher Question ratio
10. Content cross ratio
11. Vicious circle
12. Pupil steady-state ratio
13. Instantaneous teacher response ratio

2. Classroom behaviour: For the purpose of present study, classroom behaviour includes both verbal and non-verbal aspects of behaviour of a teacher inside the classroom.

A) Verbal behaviour: Verbal aspect of behaviour consists of the dimensions of teacher talk, pupil talk and silence.

B) Non-verbal behaviour: It refers to the facial expression, gestures, use of silence, tone, voice and spatial relationships.

3. Judgments: Judgments include the decision taken by the teacher in the classroom regarding rewards, punishments, pupil needs, individual difference and pupil control.
4. High and low competency Mathematics teachers: For the present investigation high and low competency Mathematics teachers were operationally defined as under:

   a) High competency Mathematics teacher: The teacher who gets a high score on General Teaching Competency Scale.

   b) Low competency Mathematics teacher: The teacher who gets a low score on General Teaching Competency Scale.

1.22 OBJECTIVES OF THE STUDY

1. To identify the high and low competency teachers on the basis of criterion measures.

2. To compare the teacher-pupil interaction patterns of high and low competency Mathematics teachers on the basis of Flanders Interaction Analysis Category System (FIACS).

3. To compare the non-verbal aspects of classroom behaviour of high and low competency Mathematics teachers.

4. To compare the judgments of high and low competency Mathematics teachers vis-à-vis their pupils.

1.23 HYPOTHESES

1. There was no significant difference in the teacher-pupil interaction patterns of high and low competency Mathematics teachers.

   classroom behaviour of high and low competency Mathematics teachers.
3. There was no significant difference in the judgments of high and low competency Mathematics teachers vis-à-vis their pupils.

1.24 DELIMITATIONS

Due to limitation of time, energy and resources, the present study was delimited to the following aspects.

- The study was delimited to the 600 teachers teaching Mathematics to 11th and 12th class in senior secondary schools of Haryana State besides this the study was also delimited to 6000 students of Senior Secondary Schools.

- The study was delimited to Verbal and Non-Verbal behaviour of high and low competency Mathematics teachers.

- The high and low competency Mathematics teachers were studied for their verbal and non-verbal aspects of teaching behaviour and their judgements with respect to rewards, punishments, pupil needs, individual difference and pupil control. For this observation schedule based on Flanders Interaction Analysis Category System (FIACS), was administered on the teachers of the sample. A checklist was used to get the ratings for the sample teacher on various dimensions of non-verbal teaching behaviour.

- The high and low competency Mathematics teachers were identified on the basis of data obtained with the help of General Teaching Competency Scale by Passi and Lalita.