# CHAPTER II

## PREVIOUS RESEARCHES

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For any kind of study in the field of knowledge, the research worker needs an adequate familiarity with the library and the many sources of information. A very effective research for specialised knowledge will be possible only with the help of related literature. Therefore, an investigator must know what somes are available in his field of enquiry and be acquainted with up-to-date information about what has been thought and done in the particular area from which he intends to take up a problem for research.
In the present investigation, when the previous researches are analysed, it has been found out that research studies in the area of educational psychology have gained momentum since the thirties. Moreover, the focus of attention of these researches was on teacher effectiveness. Subsequently, the researchers attempted to identify whether pupils' growth in terms of academic achievement was due to the influence of the teacher. The importance of teachers in shaping the personality of students had been realized gradually. The American Educational Research Association (1952, 1953) stated that teacher effectiveness must ultimately be defined in terms of effects on pupils. Hence, the shift of focus of research was from teacher effectiveness to teacher behaviour and classroom processes in terms of interaction in the classroom. Since then the research endeavour in this area enabled one to study certain classroom behaviour of teachers and the productive behaviour of their pupils.

To identify the "classroom climate" and its impact on teaching learning process, many studies had been undertaken by Hopkin (1941), Lewin (1948), Bovard and Everett (1951). Further, there have been studies like those of Anderson (1939), Lewin, Lippitt and White (1939), Withall (1949) and Flanders (1965) which throw ideas on the aspects of the influence of contrasting climates in the classroom. Likewise, studies by Flanders (1951), Cantor (1951), Perkins (1950) and others have emphasised the need
for a conducive climate for effective learning and healthy classroom interaction. They recommended a type of indirect teacher behaviour which could generate such a climate.

1. **STUDIES ON SOCIAL - EDUCATIONAL CLIMATE IN THE CLASSROOM**

   (a) **Classroom Climate**

   It is a widely accepted fact that harmonious living in a human society basically requires a kind of school experience for children which emphasis social values. This has generally been taken to mean that school situation, especially in the classroom, must be modelled along democratic principles. Hence, this general position has important implications for classroom teaching. With this idea in mind, Hopkin (1941) developed his theory of democratic interaction. The whole idea is that the classroom situation should be by an atmosphere of democratic interaction. However, the classroom situation has been interpreted in different ways by different educationists. The terms like 'classroom dynamics', 'Classroom Climate', and 'Classroom inter-personal relations' have been coined by different educationists for understanding classroom situation. The concept of classroom climate or psychological atmosphere has been used by many researchers besides Anderson (1939) and Lippitt (1943) in the area of psychology and education. Prescott (1938), Lewin (1948) and Rogers (1967), for example, have made considerable use of the concept.
The term 'Classroom Climate' refers to the generalised attitudes towards the teacher and the class that the pupils share in common, in spite of individual differences. Further, proper attitudes will develop from the classroom social interaction. Pupils develop some common expectation regarding teacher behaviour and also collective attitudes towards their own class through the participation of classroom activities. These expectations influence the social atmosphere that appears to be markedly distinct and fairly stable, if once established. Thus 'Classroom Climate' refers to those qualities that consistently predominate in most teacher-pupil contacts. Therefore, the study of teacher behaviour through interaction analysis becomes a study of classroom climate, as well. (Flanders, 1970).

Lewin (1948), in his discussions on his explorations of group life and interpersonal relations, uses the concept of group dynamics. The phrase 'classroom dynamics' is the ornamental term of the concept of classroom interaction.

The classroom interaction analysis is a technique which facilitates capturing qualitative and quantitative dimensions of teacher-student verbal behaviour in the classroom. This technique has its limitation - i.e., it does not measure everything that goes on in the classroom. Interaction Analysis is concerned with only the verbal communication between the teacher
and the students. Ned Flanders (1966) developed this technique out of a social-psychological theory, designed to test the effects of social-emotional climate of the classroom, communication on student attitudes and learning. In fact, classroom teaching is a social interaction. The teaching acts produce reciprocal contacts between the teacher and students, and this interchange is called teaching. According to Bovard and Everett (1951) the social interaction in the classroom will influence the individual students' perception, feelings and interpersonal relations.

(b) Interpersonal Relations:

Some earlier researches have revealed that good personal relations in the classroom depend on the ability of the teacher to relate in some wholesome fashion to students, accepting them emotionally and being capable of understanding their problems and appreciating their aspirations. There are two important dimensions involved in such relations; one is the degree of rapport that exists between the teacher and students and the other is, the nature of the relations among the students themselves at least while they are in the classroom. Moreover, it has been revealed that a good climate for learning in the classroom depends on the type of social relations of the students. This means, not only is acceptance of a student by his teacher necessary for his adjustment and learning, but also to a certain extent, acceptance from his peers.
Prescott and his associates, (1938) have made valuable contributions in research on teacher effectiveness and the like, recognising the emotional aspects of the learning process.

Anderson's (1939) classic study in which he assessed the integrative and dominitive behaviour of teachers in their contacts with children stimulated further studies in this area of research. Anderson describes teachers' classroom behaviour as: (i) socially integrative behaviour and (ii) dominitive behaviour. 'Socially integrative behaviour' is the term to designate behaviour leading to oneness or commonness of purpose despite individual differences. It is a behaviour of flexibility. It is both, an expression of growth in the person using it, and a stimulus to grow in others.

Some of the more specific indicators of integrative behaviour are occasions on which the teacher: (i) extends invitation (as apposed to use of order or pressure, or command), (ii) helps the child to advance or refine a problem, (iii) offers approval, and (iv) admits own responsibility, ignorance or incapacity (Anderson, 1946).

The term dominitive behaviour was chosen to designate behaviour of a person who is inflexible, rigid, deterministic, one who disregards the desires, judgements, purposes, values and welfare of others, who, when himself in conflict has the answers.
Examples are the use of force, commands, threats, shame, blame, attacks against the personal status of another. Domination is the technique of autocracy or dictatorship, it is believed to obstruct the growth processes in others. It is the antithesis of the scientific attitudes and the open mind (Anderson, 1939). He demonstrated that children's behaviour was consistent with the kind of personality the teacher displayed in the classroom. His finding is highly pertinent to the hypothesis that the main direction of influence in the classroom is from the teacher to the pupil. He also concluded from his study that reliable patterns of teacher and pupil behaviour in the classroom can be obtained through categorization of their overt behaviour.

The autocratic - democratic concept presented by Lewin, Lippitt and White (1939) was another precursor of Flanders' concept. They report results of an intensive study of the effects of leader behaviour on a group of children. Their research discusses, however, findings on group climate obtained in a setting other than the formal classroom situation, but the inherent hypotheses are intrinsically the same as those tested by Anderson.

In his study, Lippitt (1940) organised four clubs of five boys each, and gave each club 'autocratic' and 'democratic' leaders for three consecutive six week periods. Each club was headed by several leaders. Their leadership styles differed
with successive groups, keeping a specific criteria in mind. Social interaction between group members and leaders was recorded by observers of each club.

The major conclusions of Lippitt's study were as follows:

- Different leadership styles produced different social climates and resulted in different group and individual behaviour.

- Conversation categories differentiated leader behaviour techniques more adequately than social behaviour categories.

- Autocratic leadership elicited either an aggressive rebelliousness towards the leader or an apathetic submission to the leader.

- Leadership style was the primary factor in producing climatological differences and club personnel were of secondary importance.

Lippitt's work represents one of the pioneering and most significant attempts to observe and control the climate variable in a group situation. His findings provide sound basis to use categorisation of teachers' verbal behaviour as a major technique in such studies.

Withall (1949) was one of the early researchers in classroom climate who measured classroom interaction by means of a category system that classified teacher verbal statements. The categories used by Withall are in many ways similar to those developed by Flanders (1965). The results of Withall's work
revealed that classroom climate could be assessed and categorised.

Withall brought forth a simple classification of the teachers' verbal statements into seven categories and produced an index of teachers' behaviour almost identical to the integrative-dominative (I-D) ratio as interpreted by Anderson et al. (1949). Perkins (1951) incorporated the techniques developed by Withall and found that greater learning about child growth and development occurred when group discussion was free to focus on that topic; groups with an integrative type of leader were able to do this more frequently than were groups led by a dominative type leader.

Flanders (1965) claims that the 'indirect' influence stimulated student participation while the 'direct' influence tended to increase teacher participation and restraints on students' behaviour.

Cogan (1956) found students as reported doing more assigned and extra school work when they perceived the teacher's behaviour as falling into the integrative pattern rather than the dominative pattern.

The work of Anderson et al. and Cogan presents evidence that a desirable climate results in more learning, although additional evidence is needed to confirm this. The interpretation
of these results is cautioned because there is no single pattern of teacher behaviour that is continually maintained in the classroom, and that there are situations in which an integrative teacher behaviour pattern is less appropriate than a dominative pattern. Furthermore, it is possible that identical acts by the teacher may in one situation be perceived by pupils as dominative and in another situation as integrative.

(d) **Classroom Climate and Learning**: Eversince 1900, researchers in this period have attempted to evaluate teaching performance without much success. Morsh and Willer (1954) conducted their review of these researchers from 1900 to 1952 and stated:

"No single, specific observable teacher act has yet been found whose frequency or percent of occurrence is invariably and significantly correlated with student achievement. There seems to be some suggestions, however, that (a) questions based on student interest and experience, rather than assigned subject matter, (b) the extent to which the instructor challenges the students to support ideas, and (c) the amount of spontaneous student discussion, may be related to student gains." (Flanders, 1970, P.6)

Since 1952 the search to find teaching acts which are significantly and consistently correlated with positive pupil
attitudes and content achievement adjusted for initial ability, have been much more successful. The progress in this area was possible, for the most part, because of the development of systems for analysing classroom events. (Flanders, 1970)

Teachers are in constant contact with pupils for six hours. It is in the classroom that patterns of thinking should be set, attitudes should be shaped, and participation influence the growth and independence, and self direction. Teaching behaviour is the most potent, simple and controllable factor that can alter learning opportunities in the classroom. (Flanders, 1970)

The meagre information on classroom interaction tends more to support than to deny Cantor's opinion. He was rightly concerned about the way teachers use their authority, arbitrarily, that independence is considered to be an evil to be punished and that dependence on others and conformity to outside pressures become the accustomed response to a new experience. Cantor was the first to suggest a primitive theory about how teachers should alter their behaviour in a predictable sequence during a cycle in teaching. The sequence suggests a definite shift in the role of the teacher.

About conformity and creativity in the classroom, Maslow (1943) and Combs (1962) State:
"Experiences which inhibit the individual's freedom to be and to express his deeper self reduce his ability to be creative. Creativity is not learned from restraint. It is a product of the lowering or removal of barriers. It is a matter of being different, of daring to change, of venturing forth ..... Conformity and creativity are essentially antithetical what produces one tends to destroy other."
(Flanders, 1970, Pp. 15)

An analysis of current average classroom interaction reveals a high degree of teacher domination in setting learning tasks and in thinking through problems so that pupils ideas and initiative remain under-developed. Consequently, teachers and pupils rarely experience thoughtful, shared inquiry. In classrooms that are above average in positive pupil attitudes and content achievement, the teacher-pupil interaction exhibits a somewhat greater orientations towards pupil ideas and pupil initiation. In spite of these differences in contrasting classrooms, most teachers claim that they want to be attentive to the pupils and their ideas.

Jenkins (1951) printed out the interdependent nature of the pupil-teacher relationship by assessing that learning will be more effective not only when the pupils' emotional needs are met in the classroom, but also when learners are made aware of their part in helping fulfil some of the teacher's emotional needs in the classroom. Perkins (1951) supported Jenkin's view.
The studies by Rehage (1948), though in a different direction, more or less substantiate findings of a democratic teacher being effective.

Clidwell (1951) found that a denial of feeling by the leader was accompanied by a reduction of leader effectiveness whereas the acceptance of feelings increased his effectiveness.

Mckeachy (1951) points out that more learning takes place when there is less anxiety and if constructive learning activities are provided. He further added that there is greater interaction and spontaneity in the group-centered class.

Jensen (1955) formulated a rationale for assessing the social structure of the classroom which sums up one aspect of the methods of analysing classroom interaction. Like Thelen (1959), he emphasised the close interdependence of personal needs and group needs and that unless individuals relate effectively to one another in a class, the achievement or social problems cannot be dealt with.

Perkins (1950) revealed that children tend to be conscious of a warm acceptance by the teacher and to express greatest fondness for the democratic teacher. To him, again, the role of classroom climate is crucial to the learning process.
Cogan's (1956) concept of teacher behaviour is slightly different from others. Cogan did not directly observe the behaviour of teachers and students, but instead analysed the perceptions that students had in conceptualising the teacher as 'inclusive, preclusive or conjunctive'. He pointed out that there is a relationship between the way a teacher is perceived by his students and the amount of self-initiated work reported as done by the pupils. Cogan's work also helped Flanders develop a theoretical basis for conceptualising the relationship between teacher influence and the behaviour and attitudes of pupils.

Cage and Suci (1951) sought to determine the accuracy of the teachers' perceptions of pupils' dynamic interactions of teachers. They found that pupil favourableness to teachers depended on the accuracy of teachers' social perception of pupils.

Flanders (1969), in his review of different studies on teacher effectiveness has pointed out the support these research studies give to the indirect influence teacher who makes use of the ideas and opinions of his students. Thus Flanders states, "It can now be stated with high confidence that the percent of teacher statements that make use of ideas and opinions previously expressed by pupils is directly related to average class scores on attitude scales of teacher attractiveness, liking the class, etc., as well as to average achievement scores adjusted for initial ability."
In various studies, as pointed out earlier, different terminology has been used for the same behaviour patterns. They were, for Anderson et al. (1939) 'dominative Vs integrative', for Lippitt and White (1939) 'authoritarian Vs laissez-faire, for Withall (1949), Flanders (1961) and Perkins (1950) 'teacher-centred Vs student centred' and for Cogan (1956) 'exclusive Vs inclusive'. Later on Flanders (1965) introduced his nomenclature - 'direct Vs indirect' teacher behaviour.

Classroom climate helps to identify clearly the two teacher behaviour patterns. Studies cited do not suggest that there is a single pattern of teacher behaviour that should be continually maintained in the classroom. Teaching experience does support the situation where dominative teacher behaviour is appropriate. The works of Anderson et al. (1940), and Cogan (1956) provide evidence that a desirable climate results in more learning although further evidence is needed to confirm the aforesaid conclusion. Flanders (1967) has also suggested that at times direct influence is appropriate and at other times, indirect influence.

All these studies listed above indicate directly or indirectly, that the teacher behaviour in the classroom determines to a great extent how much impact the teacher is going to have on his students and in what direction. These studies also suggest that democratic or integrative teachers produce students
with comparatively high achievement and good personality characteristics than teacher showing authoritarian or domnative behaviour.

2. TEACHING PATTERNS USING INTERACTION ANALYSIS TECHNIQUES

Teaching is, in fact, more than talking. But in the normal classroom situation it is found that the predominant instructional behaviour of the teacher is 'talk'. More than eighty percent of classroom instructional time is found spent in talk either by the teacher or by the pupils. Various techniques are used for recording and analysing the spontaneous classroom verbal behaviour of teachers and students.

Amidon and Flanders (1967), describe such a system which allows observers and teachers to explain, summarise, analyse and draw conclusions about teaching from data gathered by using the system. Flanders (1960) has successfully practiced techniques for training reliable classroom observers and has also laid down a procedure for estimating inter-observer reliability.

It is evident that the teachers' classroom verbal behaviour creates a particular type of social - emotional climate in the classroom which has direct effect on the attitude and behaviour of pupils. This leads to the question whether there is any relationship between teacher verbal behaviour and teaching effectiveness.
Amidon and Flanders (1961) have reported findings of a study in which teacher effectiveness was studied in terms of achievement of junior high school students in mathematics.

Major findings of Flanders' (1964) have supported the hypothesis that the students of teachers who are indirect and flexible in their teaching style have more positive attitudes towards school and their teachers and achieve more than students of teachers who use a more direct teaching style.

Anderson and Brewer (1946) developed a method for observing pupil and teacher, simultaneously. Here teacher behaviour was not classified as dominative or integrative, but was used to detect possible effects of teacher behaviour on pupils.

Hughes and her associates (1959) developed a set of categories for the classification of teacher behaviour. Though these categories are similar to Withall's they are not restricted to verbal behaviour. Hughes concluded teachers' behaviour patterns are stable through time, that is, the number of controlling acts exhibited by a given teacher in different situations. However, this is inconsistent with the findings reported by Medley and Mitzel (1958) and Mitzel and Rabinowitz (1963). According to them the variation in teachers' behaviour from observation to observation provided a major source of variability.
Medley and Mitzel (1956, 1958, 1959) developed an instrument called OSCAR (Observation Schedule and Record) for use in a follow-up study of teacher education graduates. OSCAR was designed to provide quantitative data regarding behaviour of beginning teachers so that the behaviour could be correlated with a number of other variables. It was evolved by modifying and combining items constructed by Cornell, Lindwall and Saupe (1952) and Withall (1949).

3. RESEARCH LINKING PROCESS AND PRODUCT VARIABLES

Gage (1965) after reviewing the research literature on education done prior to 1965, presented five global characteristics of teachers that appeared to be the components of effective teaching. These include: (1) Warmth, (2) Cognitive organisation (3) indirectness (4) orderliness and (5) problem-solving ability.

Flanders (1956) consistently found relationship between process and product variables in four of his studies conducted on about fifty one teachers. In these studies teachers' making use of the ideas expressed by students was related to constructive pupil attitudes as well as student achievement. The process variables in all these studies were obtained by having a classroom observer code verbal communication into a set of categories at a nearly constant rate. Morrison (1966) found significant evidence supporting the same relationship for positive pupil attitude scores, as well as adjusted achievement
gain scores of language usage, social study skills and arithmetic computation and problem solving. She observed thirty, sixth-grade teachers related from fifteen different school districts.

Lashier (1965) found statistically significant support for the same relationship in eighth grade science classrooms involving 239 pupils and 10 teachers. Nelson (1964) found similar support in a study of the learning of linguistic skills.

A small study involving six high school English teachers near Detroit was conducted by Johns in 1966. He concluded that the pupils exposed to a teacher who made more use of their ideas and opinion, not only had more positive attitude but was found to be more interested in asking thought provoking questions during class discussions. Similar results were obtained by Parakh (1965) in New York and Dool (1966) in California.

In 1967, PanKratz located five 'high' and five 'low' teachers of high school physics, from a sample of thirty teachers. He used principal ratings, 'class average of pupil attitude inventory' and a 'teachers situation - reaction test', completed by each teacher. An observer coded verbal interaction for six class periods by a system developed by Hough (1967).
who expanded Flanders' ten categories. Five teachers were found to be more effective by three records and they made more use of the ideas and opinions expressed by pupils at the 0.01 level of confidence, than the five less effective teachers.

All the studies revealed that no two teachers can have the same style of teaching. Every teacher has his own natural actions and accounts which are revealed while teaching. In all the above studies, teachers with different natural styles were given different treatments. They were taught role playing. They practised it and finally produced two patterns of teacher behaviour in order to create contrasting treatments. In one treatment the ideas and opinions expressed by pupils were accepted and entertained into the classroom discussions, and in the other treatments this pattern was minimized. Differences in the treatment is confirmed from the systematic coding of verbal interaction analysis. The same process–product relationships mentioned earlier was supported by the series of experiments in this study. Amidon and Flanders (1961) used this design to show that not all pupils, but only classified as 'dependent' by their scores on a special scale, learned more principles of geometry when their ideas were made use of.

Schantz (1963), in a study of sixty one, fourth-grade children found the same support for the relationship of process–product variables from the similar treatment differences. The product variable was verified by analysis of coded verbal interaction.
Filson (1957) showed that when the behaviour patterns of role-playing teachers made more use of pupils' ideas and opinions, there was less 'dependence on the teachers'. The task in the Filson experiment was to make judgements about the form of music being heard.

Flanders and others (1963) showed similar differences during an in-service training project for classroom teachers. In this study, adult pupils developed perceptions of greater independence and self direction during the five weeks of a nine-week in-service programme, indicating that such perceptions probably develop in a cumulative fashion. Adult pupils exposed to an instructor who reacted more often to their ideas and opinions saw themselves as becoming more independent and had higher measures of work output compared with those having the contrasting treatment. To quantify classroom interaction in order to provide process variables, some systematic classroom observation was employed in all the above cited studies.

Cogan (1963) administered a questionnaire to 987 junior high school pupils in 33 classes. From the analysis of this data, the support for the process-product relationship was found significant statistically. The questionnaire provided three different scores - (1) for the pupils' perceptions that their ideas are accepted and acknowledged in the classroom; (2) how much assigned work was completed, and (3) how much extra work
(work not assigned regularly) was completed. (1) and (2) showed positive relationships and (1) and (3) also supported the positive relationships and (1) and (3) who supported the same relationships if one is accepting pupils' perception as valid measures of teacher behaviour. Teacher behaviour is a process variable. As teacher behaviour was not observed by any form of systematic observation of interaction, this is open to question. The scores from the pupils' support for their assignments is clearly a product variable.

Miller (1964) experimentally created contrasting treatments on the original work of Hughes (1959) on responsive-directive dimensions. The pupils of responsive teachers were found having significantly more positive attitudes and used higher levels of thinking than those in the classes given opposite treatment.

Three studies in the same area could not provide support to the same relationships cited in the above studies. Snider (1965), studying classroom interaction in high school physics classes, did not find supportive evidence. Teachers hardly accepted and used pupils' ideas and it appeared that there was very little cultivation of inquiry even in laboratory sessions. There may be possibility of less variation among classroom processes to provide enough contrast treatments to test process-product relationship. Guggenheim (1961) used the Wrightstone (1935) Teacher-Pupil Rapport Scale to identify eleven most
'integrative' and the eleven most 'dominative' classes among fifty, third-grade classes. Pupil achievement of the matched groups showed insignificant differences resulting from the treatment.

Hoover (1963) created 'teacher-centred', 'pupil-centered' and 'group-centered' classroom climates by role-playing. Teachers intentionally adopted different behaviour. He failed to find significant differences on the Purdue Rating Scale, which was scored by pupils to produce an attitude product variable.

Several researchers investigated the use of teacher 'Praised' statements, a type of teacher behaviour which is usually positively correlated with the use of pupil ideas and opinion, and its effect on product variables. Reed (1961, 1962) found statistically significant positive correlations between certain types of teacher behaviour as perceived by pupils. Process variables prescribed by pupils were 'warmth', 'demand' and use of 'intrinsic motivation' and 'pupil interest in science' was the product variable. A thousand and forty five pupils of thirty eight classes of ninth-grade general science were involved in his sample. Dolins and others (1960) decided from their experiment that varying degree of teacher praise in classroom helped pupils to adjust in the class rather than having any effect on achievement. This experiment was carried out in fourth-grade arithmetic classes.
Coats (1966) reanalysed the relationships between pupils' attitude and achievement scores versus various measures which can be derived from a 10 x 10 matrix based on Flanders' categories. His stepwise linear regression analysis was based on sixty-two classes reported earlier by Flanders (1965) and Morrison (1966). These classes consisted of thirty, sixth-grade classes, sixteen seventh-grade core classes and sixteen eighth-grade Mathematics classes. In the first phase of his study he found that the sixty-two class averages in pre-achievement had the correlation of +0.92 with post-achievement and that the correlation of each group was +0.99, +0.8, and +0.92 respectively. Similar correlations for the pupil attitude variable were +0.87, +0.69 and +0.73 respectively. The same correlation was +0.78 for all sixty-two classes. Pre-test averages can be used to get accurate prediction of post-test class averages.

The second phase of his study was to predict final class averages from the analysis of systematic observation of classroom communication. Initial score was purposely ignored. In such analysis, the predictors included several variables which either represent or are correlated with the teacher making use of ideas and opinions expressed by pupils. With regard to achievement, process variables combined to show correlations of +0.67 for the sixth-grade, +0.9 for the seventh-grade and +0.7
for the eighth-grade; for all sixty-two classes this correlation was +0.45. The variation among the first three correlations may reflect the test used to measure achievement. National standardised test was administered to the sixth-grade pupils and their performance could have been affected by watching television or living in a home where children are encouraged to read. The highest correlation in seventh-grade, made use of a test especially designed to measure the objectives of a two-week unit of study about New Zealand. Test performance would have been least affected by outside experiences. In the eighth-grade Mathematics classes, a two-week unit which was not taught before ninth-grade, was taught, but the scores of a few of the brighter pupils might have been influenced by experiences outside the classroom. The overall correlation is low and is not unexpected, as the behaviours of teachers correlated with achievement would differ because of self-contained sixth-grade elementary class, a two-hour combined English-Social Studies class, and a single-hour Mathematics course were taught in typical fashion. Process-Product relationship is supported and is prominent in all the four correlation relationship analysed. The same predictions for attitudes were sixth-grade, +0.63; seventh-grade, +0.77 and eighth-grade, +0.74. For all sixty-two classes it was +0.53. These are the highest prediction co-efficients of process-product variables in which pupil achievement and pupil attitude scores are included.
Furst (1967) reanalysed the original data (Bellack et al. 1965) by contrasting the classroom discourse in the high school classes which scored highest and lowest on achievement. This study analysed the classroom discourse by the Flanders' categories and the system developed by Bellack and others. The classes under contrasting teaching treatments had all other facilities similar, such as the unit under study. The high achieving classes differed from the low achieving classes by having more responsive teacher behaviour, less teacher talk, and more extended pupil talk, just as has been found in similar studies which involved the Flanders' categories. In terms of Bellack's categories, the same contrast involved more variety of substantive-logical processes, moderate amounts of teacher structure of the learning activities and moderate pace of teaching cycles. It is evident from both the category systems that the teacher influence was more flexible in the high achieving classes.

All the studies revised so far were designed to use the score based on the process variable so that the teachers' behaviour can be classified into two or more groups which may facilitate comparisons of their behaviour versus its output. Some studies making use of Flanders' categories have classified some teachers as 'direct' in their influence, and their effects on pupils, adjusted movement are studied and compared. The systematic classroom observation that was made was not with the intention to explain teaching behaviour but to use the data for assigning the particular experimental treatment group on the
basis of teaching patterns. The difference in the educational outcomes was compared by two types of teaching patterns. It is quite natural that teaching patterns vary from situation to situation.

It is quite obvious that different teaching patterns can be just as effective with different types of pupils or in other-words, in different situations. Type of pupils can be identified by different situations. Types of pupils can be identified by different patterns of scores on instruments which assess pupil traits, illustrated by Amidon and Flanders' interest in 'dependent prone' pupils (1961). To adjust teaching patterns from one time period to the next is to introduce the concept of flexibility of teacher influence. If such knowledge supports logical relationships, then the principles of sequential instruction are very easy to handle.

Flanders and his team (1960) have worked on a project related to process-product variables. They have compared the situations in which pupils learn sometimes more or sometimes less. Their method of isolating the situations was not to study the teacher behaviour and administer the achievement test. They assessed spontaneous teacher acts in the classroom by using interaction analysis technique, and isolated teachers having an above-average indirect influence pattern. Teachers having below average indirect influence were less flexible than those having at least average indirect influence. Flexible teachers could be just as direct as the latter teachers in certain situations, but they could be far more indirect in other
situations. There was higher achievement under indirect influence.

Secondly, they predicted certain pattern among the more flexible teachers—(1) teachers would be most indirect while goals were being clarified and new contact material was being introduced; (2) they would be most direct after goals had been clarified, while work was in progress.

Finally, their prediction was that the students of those teachers who were less flexible would learn less, as measured by achievement tests, and vice versa. Thus the classes of high and low achievement were separated.

Their doubt had no place when they found that all types of students learnt more with the teacher having greater flexibility in teaching behaviour. Their second hunch that the Mathematics classes might learn more while working with direct teachers and that Social Study classes would learn more with indirect teacher influence was proved incorrect. No doubt, teacher of Mathematics use time and methods differently than teachers of Social Studies, but students of the more flexible teacher scored higher on the achievement test in both subjects.

Failure to support their prediction that particular types of students work more effectively towards learning goals
with particular types of teacher has not resulted in it being discarded. A series of experts with geometry classes showed significant differences indicating that dependent-prone students learned more than independent-prone students while working with a more indirect teacher. Further experiments may reveal what types of students learn most with direct teachers.

Their data of students' attitudes towards direct and indirect teachers was analysed by factor analysis. The item analysis of the factors in the M.S.A.T. test revealed that different attitudes developed from contacts with different types of teachers, even though these attitudes did not affect achievement in this study.

4. OTHER STUDIES

Medley and Mitzel (1963) support Gage's conclusion that much of the work on teacher effectiveness is not related to either the invalid criteria of teaching effectiveness or because of the lack of objective measures of teacher behaviour. After discussing assumptions underlying collection of classroom observational data and limitations of studies utilizing rating scales they note that more powerful statistical methods will help to identify relationships between behaviour and its effects.
The results of the research on the predictor criteria and teaching effectiveness found by Fattu (1962) and Howsam (1960) showed that the researches had failed to link such characteristics as intelligence, age, experience, cultured background, sex, marital status, scores on attitudes tests, job interests, voice quality and special aptitudes. There were slight positive correlations between scholarship and teaching effectiveness, although no particular group or groups of courses has been shown to be a predictor. It is found that professional knowledge has proved to be a more successful predictor so far as teaching performance is concerned. Howsam reviewed studies using various kinds of rating scales and discussed four kinds used commonly in research (1) Self-ratings, which have proved of little use because of consistent bias towards over-rating; (2) peer-ratings by colleagues, which seem to be based on marginal evidence; (3) student-ratings, which seem to be more consistently and favourably treated in the literature than other ratings, and (4) supervisor administer ratings, which do not show any relation either with ratings of other supervisors or with other extend measures. Supervisors ratings seem to be highly biased and subjective.

Recent researches on teacher effectiveness are independently reviewed by Biddle (1964) and Soar (1964). They conclude that there is a need for agreement about the effects that the
teacher is to produce in order to determine the components of teacher effectiveness. They differentiate between the research component of teacher effectiveness and the criteria component. Research component, according to them, is the relationship between teacher characteristics and behaviour, and desired pupil output. The criteria component measures selection of the devised pupil output components. Both specify the collection of observational data as the most direct method of learning about teaching, and Biddle discusses the practical limitations of this kind of classroom observation.

Smith, B.O. (1962) reviewed four major studies on teacher effectiveness. He declares that the values of these studies lie in their describing what the teacher is doing rather than in trying to name them as autocratic or democratic. He points out that teachers are mixtures of both (autocratic and democratic) teaching behaviours.

Orleans, Jacob and Others (1952) have revealed their thoughts about teacher effectiveness from the large number of studies made. A clear knowledge of the criteria of teacher effectiveness and how to measure and use it has still not been gained. Almost all types of approaches to the problem have proved ineffective. According to Barr (1929) "it is apparent that the identification and definition of teacher competencies
is as yet by no means satisfactory." The ultimate goal of teacher effectiveness is to bring about changes in the behaviour of pupils with the acts of the teacher. Any study of criteria of teacher effectiveness has to discover the relationship between the teacher and pupil. This should be studied with samples of teachers and pupils, with teachers grouped on the continuum of 'autocratic or democratic' and pupils on that of intellectual ability. While the undifferentiated approach may reveal unique patterns of teacher behaviour effective for different categories of pupils. Whatever may be the approach, its output changes in the pupils is of prime importance. Teacher effectiveness is also affected by school environment such as, school programme, educational level of community, physical neighbourhood, etc., To scale all the teachers on the same continuum of 'effectiveness' is erroneous. Now, the prediction is, what kind of teachers will be effective with what kind of pupils for promoting pupil change keeping goals and situations in view. Changes in pupil behaviour are measured by giving them tests. Tests measure the information and skill in school subjects. Measures for ability and other activities are also a must.

It is evident from most studies that teachers are more alike, than different. The less effective teachers are more alike and less flexible (Flanders, 1965) and probably easier to identify than more effective teachers.
So far, no study has investigated how far an already flexible, responsive teacher can move towards the more extreme pattern and still expect an improvement. A curvilinear relationship is expected to identify an optimum balance between teacher response and imitation. It is rightly thought that the most correctly practising teachers could adopt patterns which are more responsive to the ideas and opinions expressed by pupils and realise a gain in both positive attitudes and pupil achievement.

Some studies have revealed rather well that it is possible to identify at least some behaviour which differentiates classroom of teachers of varying levels of effectiveness by the use of objective observational techniques.

The area of classroom behaviour that has received most attention from users of direct observation, and the area in which observation has been applied most, successfully, is that referred to as 'classroom climate'. Earliest attempts to measure classroom behaviour grew out of dissatisfaction with existing methods of supervision and developed in the direction of identifying teacher behaviour.

Flanders (1960) developed the most sophisticated technique for observing 'climate'. It is unique in that it preserves a certain amount of information. Findings of Flanders' (1970) study are that students achievement in
Mathematics and Social Studies is higher in classes of teacher using more indirect influence, that is teachers who use more direct influence do not vary their behaviour in different situation as much as the 'indirect' teachers do.

Muriel Wright (1959) attempted to identify behaviours related to pupil achievement.

The earliest chain of researches that is still continuing was that of Withall (1949). He treated social-emotional climate as a group phenomenon determined primarily by the teachers' total behaviour.

The development of a climate index with demonstrable reliability and validity spotlight researchable issues. How learning and achievement were influenced in classroom by the nature and quality of teacher-pupil interaction, was a crucial question. In 1949, Flanders undertook this investigation. In teacher-centred (TC) situation the behaviour of the teacher tended to support himself first, the problem second and the student third. Consequently, it was difficult for the student to operate efficiently, in the situation and as a result, interpersonal anxieties were created. In a learner-centred (LC) situation, the teachers' behaviour tended to support the student first, the problem second and the teacher third. Hence, the student was able to clarify his position in the interaction and his interpersonal anxiety remained within tolerable limits.
Calvin, Hoffman and Harden's (1957) study indicates that a mere creation of a permissive climate is not a sufficient, though a necessary condition, of more effective teaching and group problem-solving. Their research indicated that permissiveness with individuals of high intelligence yielded better learning than did a traditional teaching-learning situation with bright students or a permissive situation with average students. In fact the permissive situation tended to handicap subjects with average intelligence.

Peterson (1967) concluded from his study on age and teachers' role in the institutional setting that the teachers' role changes as they grow older; morale, and perhaps teaching competence is affected by age and generational conflict; those who make teaching a career want recognition as they grow older, and they have dedicated their lives to other people's children.

McDonald (1959) has explicitly stated the proposition that "the task of the teacher is to organise and arrange the learning environment." In spite of references to learning environment, research in teacher effectiveness has not dealt with environmental manipulation in any comprehensive fashion. An emphasis on the traits and personal social qualities of a teacher is a substitute to the above approach, there by demonstrating significant relationships between teacher qualities and pupil response variables.
According to Turner (1946) there is considerable evidence that the very early years of teaching experience produce the greatest rise in teaching performance. There is, however, little evidence to support the view that for the average teacher teaching performance changed greatly after the third year of experience.

Rosenshine (1971) reviewed forty-two studies which contained variables like (a) teacher use of criticism or disapproval, (b) non-verbal approval, (c) praise, (d) teacher acceptance of pupil ideas (e) combined measures of teacher approval, (f) ratios of teacher approval statements to teacher disapproval statements and (g) teacher warmth. First six variables were considered as low-inference variables and the last one was considered as a high-inference variable. In none of the above categories were there significant results for more than half the studies, but the most consistent trends were for (a) teacher use of criticism, (b) teacher use of student ideas and (c) student or observer ratings on variables which might be considered as measures of teacher warmth.

In India, research in teacher behaviour and in actual classrooms is still in its embryonic stage. A manual on classroom behaviour was prepared by Mehta (1963) and was published by the National Council of Educational Research and Training in 1967. This manual discusses the 'dominative' and 'integrative' teacher behaviour and stresses the role it plays in the development of classroom climate. Further, late in sixties, Mehta organised a number of Indian Laboratories on Achievement Motivation for teacher educators and teachers to raise the level of motivation, training them in goal setting behaviour and helping them to understand and develop suitable classroom instructional behaviour with a view to developing friendly and warm teaching-learning climates.

Pareek and Rao (1970) observed that the main 'teacher talk' category was that of lecturing and that the main 'student-talk' category was that of responding to the teacher. This seemed to be the general pattern of influence behaviour of the fifth grade teachers in Delhi Schools. Buch and Santhanam (1970) studied the predominant patterns of classroom behaviour of teachers teaching English.

Roy (1970) conducted a study on 'Changing Teacher Behaviour through Feed back'. This study was confined to the teachers of social studies, elementary Mathematics, general science and languages of grade sixth of middle schools. The important findings of his study were that the pupils' observation
and teachers' self-rating feedback were most important things in the teaching-learning situation. Those teachers who cared for the likes or the dislikes of the pupils and who introspected or retrospected the teaching-learning situation, had better chances of being successful in their professions.

Research attempts were sporadic in the area of teacher behaviour until 1970. It was in the year 1970, the Centre of Advanced Study in Education, Baroda, took up the area of teacher behaviour as one of its major areas of study. This has resulted in a series of studies on (a) teaching, where the effectiveness of selected classroom behaviour patterns of teachers is investigated and (b) modification of classroom behaviour of teachers, wherein new techniques are tried out to study their effectiveness.

Buch (1970) undertook a study in the area of teacher behaviour under the Co-Operative Project on Productive Teaching, which gives a picture of what goes on in Indian classrooms, particularly in secondary social science and humanity classes.

Pareek and Rao (1971) attempted to find out the association between teachers' classroom interaction (Measured by Flanders' technique) and a few dimensions of student mental health. The indirect-direct influence ratios of both types revealed two different and opposite associations. A higher percentage of students who are well adjusted, more intelligent,
high initiative taking, highly impunitive, less need persistent and more ego-defensive in their reactions to frustrations were found in classes taught by teachers with high I/D ratios as compared to the student taught by teachers with low I/D ratios. However, a reverse trend was observed when the content controlled I/D ratios were used. More percent of students well adjusted, more intelligent, less extra-punitive and intro-punitive but more impunitive were found in classrooms taught by teachers with low i/d ratios as compared to the students taught by teachers with high i/d ratios.

As a 'presage-process' research Quraishi (1972) made a study on "personality, Attitudes and Classroom behaviour of teachers". This study revealed that the teachers' verbal behaviour in the classroom was related in a small measure to their personality and attitudes.

Santhanam (1972) studied the patterns of teacher behaviour in relation to the presage variables, such as, age, recency of training, experiences, sex, marital status of the teacher and also the subject matter taught. His findings pointed out that age, recency of training and experience of the teacher do not affect teacher influence. Whereas, sex, marital status and subjects taught have a positive relationship with teacher influence patterns.
Sharma (1972) conducted an experimental study to understand the effect of four different patterns of classroom behaviour of teachers upon achievement of pupils.

Jangira (1973), in his study arrived at a model to evaluate a part of teacher education programme, namely, student teaching. In this model, the classroom interaction patterns of the teachers were modified in the training institute, and their sustenance was studied in the field when the student teachers became regular professional teachers. These patterns of interaction were also compared with the adjustment of pupils under the charge of teachers under study.

Lulla (1974) studied the influence of teacher behaviour on achievement of pupils. This study has revealed that the pupils who were taught by the teachers trained in using indirect behaviour scored higher, as compared to their counterparts studying under the teachers who were not provided any training. Another implication of this study was that the indirect teacher behaviour may raise the interaction potential of the classroom climate resulting in free communication and open interaction between the teacher and the group of pupils.

Singh (1974) compared the effectiveness of Flanders Interaction Analysis, micro-teaching and conventional approach in student teaching programme. His study revealed that the student teachers who were given the treatment of micro-teaching
showed significantly different classroom verbal behaviour as compared to student teachers of the control group. Moreover, the study highlighted the importance of Flanders Interaction Analysis category system which helped the student teachers to change their verbal behaviour in the classroom.

5. CONCLUSIONS

The above review of studies in the area of teacher classroom behaviour highlight the following:

- Teacher behaviour in the classroom is being studied on an increasing scale by research workers in education.

- Teacher classroom behaviour is instrumental in generating what is known as classroom climate.

- The nature of the classroom climate depends upon whether the teacher behaviour is autocratic or democratic dominating or integrating, direct or indirect.

- Teacher behaviour results in different patterns of teacher pupil interaction.

- Teacher behaviour can be analysed, measured and modified:
  - Teacher behaviour, classroom interaction and classroom climate influence pupils' growth, achievement and attitudes.
  - Under certain conditions, teachers' indirect behaviour results in increased learning by pupils.
  - Teacher behaviour considerably influence pupils' attitudes.
  - Not many studies have been undertaken where teacher classroom behaviour has been used as the predictor variable.
There is need to undertake a series of studies in the area of teacher behaviour and its impact on pupils' growth, and to replicate them.

The few studies undertaken to study teacher classroom behaviour and its relation with pupils' growth are characterised by the small size of the sample and the short duration of the experimentation.

All these considerations led the investigator to undertake an experimental study to inquire into the relationship between teacher behaviour and classroom dynamics.