CHAPTER TWO

A REVIEW OF RELATED STUDIES

1. INTRODUCTION

This chapter includes a review of several studies made regarding classroom behaviour of teachers and pupils. Such a review will help the researcher to develop insights into the nature of the problem and the types of variables he may have to deal with. Further it will help the researcher to build up strategies to tackle newer aspects of the problem.

Many studies have been conducted in India and abroad on topics related to teachers, pupils, classroom teaching, teacher behaviour and so on. Social, Psychological, sociometric variables have been studied in the context of classrooms, teachers and pupils. However in reviewing such studies, it is necessary to bear in mind the differences that may exist between classrooms in different countries. It is a well known fact that
teachers and schools differ considerably in organisation, methods of instruction, curriculum and so on.

The following sections present a brief outline of (a) some of the early attempts made to observe teachers at work and the development of tools for observing the behaviour of teachers, (b) a few significant studies conducted particularly in U.S.A. and U.K., which may have some bearing on the present investigation and (c) a few selected studies made in India.

2. **SYSTEM FOR OBSERVING CLASSROOM BEHAVIOUR OF TEACHERS**

1. It was in late 1930's that researchers in education became interested in analysing classroom interaction. H.H. Anderson\(^1\) developed a reliable technique for the measurement of domination and of socially integrative behaviour in teacher's contacts with children. He made use of a twenty category system of observation, 8 denoting dominative contacts and denoting integrative contacts. The subjects were 55 kindergartens children attending in three groups of 23, 21 and 11. The study reports high inter-observer reliability ranging from 0.77 to 0.96. The frequencies of dominative contacts ranged between 3.2 to 24.9 contacts per hour; the integrative contacts ranged from 0.7 to 10.7 contacts per hour. The domination-integration ratios for children ranged from 0.6 to 4.6. The child who had

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the lowest number of contacts per hour with the teacher had the highest D-I ratio.

ii. Anderson, continued this study further along with Joseph. E. Brewer and others. Anderson and Brewer\(^1\) developed 26 teacher behaviour categories and 29 children behaviour categories by which both teacher's and pupil's verbal and non-verbal behaviour might be categorised. Teacher behaviour was divided into two-integrative and dominative and the authors demonstrated that children's behaviour were consistent with the kind of personality the teacher displayed in the classroom.

iii. Ronald Lippitt\(^2\) organised four clubs of five boys each and gave each club successive experiences with an 'autocratic' and 'democratic' leader during three consecutive six-week periods. His data led to the conclusion that (a) different leadership styles produced different social climates and resulted in different group and individual behaviour, (b) conversation categories differentiated leader behaviour techniques more adequately than social-behaviour categories, (c) Autocratic leadership elicited either an aggressive rebelliousness towards the leader or an apathetic submission to the leader and (d) leadership style was the primary factor in producing climatological differences and club personnel was of secondary importance.

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1. Amidon, op. cit. 49
2. Ibid. 48-49
iv. Starting from the sound recordings of teachers verbal behaviour in regular classroom sessions, John Withall found that the behaviours tended to fall into 25 types, which he could finally reduce to 7 categories. He could also identify more than one continuum embedded in the seven categories. The climate could be (a) Problem centred-person centred (b) objectivity-subjectivity and (c) learner centred-teacher centred. His study of the development of a technique for the measurement of social-emotional climate in the classroom proceeds on the hypotheses that (a) it is a group phenomenon, (b) Teachers' behaviour is the most important single factor in creating climate in the classroom and (c) Teachers' verbal behaviour is a representative sample of his/her total behaviour.

v. Morris L. Cogan has attempted to link preclusive, conjunctive and inclusive behaviour of teachers with two categories of pupil productivity—amount of required work and amount of self-initiated work. The sample used included 18 teachers of English, 11 of arithmetic and 4 of science and 987 eighth-grade pupils.

The results indicated that there was strong evidence to show that in the individual pupil's perception, the teacher's conjunctive and inclusive behaviours were positively related to the pupils score on required and self-initiated work. The study also indicated that whereas an individual pupil tended to perceive different teachers differently, the group seemed to be in substantial agreement about the behaviours of the same teacher and about the amount of work done for that teacher.

vi. Bales' interaction process categories\(^1\) was primarily designed to observe and understand group process of problem solving. It includes 12 observational categories which could be combined suitably to study (a) Social-emotional areas including positive and negative reactions, (b) Task areas including questioning and attempted answers, and (c) dimensions of orientation, evaluation, control, decision, tension management and integration. Apparently a lot of evaluative observation is required on the part of the observer using these categories. Yet the categories are comprehensive and provide valuable data for judging and analysing group processes.

vii. Flanders Interaction Analysis categories (FIAC)\(^2\) assumes that the verbal behaviour of an individual is an adequate sample of his total behaviour. It includes ten categories of

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behaviour, showing indirect influence of the teacher, direct influence of the teacher, student talk and silence period. Trained observers code the teachers' verbal behaviour either through direct observation or through the recordings. The observations are made at the rate of approximately one record per 3 seconds. They are then cast into a 10 x 10 matrix, which highlights the characteristics of the observed teacher. Another line of analysis concentrates on calculating I/D or i/d or T/S ratios bringing out whether the teacher is more indirect or direct in his influence, whether the teacher is more dominative than the student and so on.

This system has two major advantages. First is its compact nature. It is, therefore, easy to memorize the categories. Secondly the system is comprehensive and easy to follow. Observers can be trained quite easily in this system and that helps in getting highly reliable data. The FIAC has also been used widely and many studies in India have been based on this system.

viii. The Reciprocal Category System (RCS)\(^1\) was developed by Ober in 1967. This system gives equal weightage to student behaviour as well as teacher behaviour in as much as it includes equal number of categories describing student and teacher behaviour. A single digit code (1 to 9) is used to

denote teacher behaviour and a two digit code (11 to 19) is used to denote student behaviour. The procedure of observation follows almost the same lines as FIAC. This system can be used to study such contrasts as warm-cool, accepts-corrects, elicits-initiates, direct response-divergent response, teacher centered-student centered shades of behaviour.

ix. Amidon and Elizabeth Hunter have extended the FIAC to develop the Verbal Interaction Category System (VICS).¹ This system contains five major categories for analysing classroom verbal behaviour. They are: (i) Teacher initiated talk, (ii) Teacher response, (iii) Pupil response, (iv) Pupil initiated talk and (v) other. It includes 17 categories of behaviour in all. The authors identify seven major teaching activities-motivating, planning, informing, leading discussion, disciplining, counselling and evaluating and they recommend VICS to study these activities in classroom situations.

x. Bently and Miller have developed the Equivalent Talk Categories (ETC)² to include five basic functions of the teacher-learning process-presenting, questioning, responding, reacting and structuring. Similar to the RCS, the system is reciprocal in nature, using a single digit code (0-9) for

² Ober et.al. op.cit. 87-137
teacher behaviour and a double digit code (10-19) for corresponding student behaviour.

The significant feature of the ETC is its concentration "on the quality of content and strategical maneuvers to accomplish increased attention to more complex cognitive levels of intellectual activity." The ETC is a process oriented system with emphasis on sequence and level of cognitive activity.

Hough and Duncan's Observational System for Interaction Analysis (OSIA)\(^1\) is more elaborate in the sense it tries to include both verbal and non-verbal behaviour of teachers and students.

The authors claim that OSIA has two characteristics of inclusiveness and mutually exclusive categories. There are 17 categories of teacher behaviour and 17 corresponding categories of student behaviour. The types of behaviour include (a) substantive, (b) appraisal, (c) Managerial, (d) Silence and (e) other types.

The record produced by OSIA is detailed, highly descriptive and includes almost all kinds of classroom behaviour in its fold.

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Edmund Amidon and Elizabeth Hunter have tried to make a more flexible system out of FIAC. The modified system retains the basic ten categories of FIAC and goes on to expand some of them so that more data may be collected from classrooms, leading to better discrimination and deeper insight into the teachers' observed behaviour. The modified system contains 24 categories, but it can be compressed into a 13 category system or a 16 category system or into the basic 10 category system.

From the fore-going description of several systems of observational categories, a few basic features can be highlighted. All the systems seem to have a common hypothesis that the teacher is the most important person in the classroom and the direction of influence is from the teacher to the pupil. Second, the systems seem to be based on the assumption that the observed classroom behaviour is representative of teacher's natural behaviour. Third, classroom climate can be studied effectively by studying this behaviour. Fourth, the authors are not fully decided as to the part played by the pupils in the development of classroom climate. Only two of the twelve categories give equal importance to teacher behaviour as well as student behaviour. Fifth, except OSIA, almost all systems do not take care of the non-verbal behaviour of the teacher. Last, each system seems to stem from a unique type

of theoretical analysis in the sense that it emphasizes a particular way of looking at the teaching-learning process. This diversity is understandable because classroom is a complex situation. In the next section, a few selected studies relating to classrooms are reviewed.

3. REVIEW OF SELECTED STUDIES CONDUCTED A-BROAD.

In this section a few studies made in United States of America and United Kingdom relating to classroom are briefly reviewed. They indicate the broad spectrum of variables which have been considered by several authors and also throws light on the methodology followed by them. They are useful in giving insights as to the nature of the variables and tools for measuring them. Most of the studies reviewed here pertain to teachers, pupils and classrooms. No attempt has been made to exhaust all the studies in the field. A few recent ones have been selected on the basis of the apparent relationship they might have with the present investigation.

1. Frank Costin's test of teacher-centered Vs student centered dichotomy consists of 30 statements describing various kinds of classroom behaviour. 201 college students responded to each statement anonymously, on a five point scale, to show how frequently they thought the behaviour occurred.

After factor-analysis of the responses 20 out of the 30 statements were selected to form a new "Survey of classroom behaviour" which was administered on a sample of 425 additional college students. The factor analysis of the latter's responses yielded four factors which were identified as follows: (i) student involvement, (ii) Teacher support, (iii) Negative affect, (iv) teacher control.

ii. Thomas V. Busse et al. conducted an experimental study to investigate the influence of enriching the classroom environment on the cognitive and perceptual development of Negro pre-school children. Their findings show that the enrichment significantly altered the classroom environment. Signs of alternation were present in both the cognitive and perceptual development of children. No differences were evident in verbal ability or auditory perception. There was no interaction effect between the amount of teacher encouragement and whether or not a classroom was enriched. The teachers from the experimental and the control groups did not differ in their effectiveness.

iii. Joseph A. Cobb has tried to investigate the relationship between discrete classroom behaviours and academic achievement, using a sample of 120 fourth grade children from


two schools. Classrooms were observed for a period of 9 consecutive days by trained observers. Out of the 14 categories of behaviours used, only 8 observable behaviours had stability co-efficients above 0.50 and they were used in the final analysis. Achievement was measured using the Stanford Achievement tests. The results indicated that Attention (Pupils doing what is appropriate in an academic situation) and Positive Talk to Peers (Pupils talk to peers about academic material) correlate well with academic achievement, in both the schools. The behaviours like self-stimulation, compliance (i.e. pupil does what teacher requests) and out of chair (i.e. pupil goes out of his seat and not engaged in academic work) also have significant effect on achievement.

iv. Kevin Marjorie Banks has studied the relationship between mental abilities and environment and social class. His scale includes eight environmental forces: Press for (i) achievement, (ii) activity, (iii) intellectuality, (iv) independence, (v) English, (vi) Ethlanguage, (i.e. language other than English, spoken at home), (vii) father dominance and (viii) mother dominance. The author concludes that the environment measure accounted for more of the variance in the ability scores than did a set of social status indicators and family structure variables.

Leonard L. Barid has asked students to form a general, overall impression of the capabilities of their teachers and rate them on a four point scale in the following areas: ability as teachers; knowledge of subject matter; ability as counsellors or advisers; ability to stimulate students to do reading in the field beyond class work; and ability to make their subject interesting. Other similar measurements were obtained to judge 'sense of progress', 'general college satisfaction' and 'college achievements'.

The results show that the students' descriptions of their instructors' teaching styles were significantly (if not strongly) related to their ratings of their instructors' capability, their own sense of progress and their own satisfaction with college. Specially, the generalist index and to a lesser extent, the researcher index had consistently positive relations with students' reactions. The results from relating the indices to grades also suggested that teaching styles may be an important variable in elevating or depressing student achievement, possibly through their power to involve the student.

Edmund T. Emmer and Robert F. Peck have made a comparative study of five classroom observation instruments to identify the dimensions of classrooms behaviour.

The five observation systems were: (1) the Fuller Affective Interaction Records (FAIR), (2) The Observation Schedule and Record, form 5 (OScAR5) developed by Medley et al., (3) The cognitive components system (CCS), (4) The Coping Analysis Schedule for Educational Setting (CASE) and (5) The Brophy-Good Dyadic Observation System. Observations were made on a total of 138 occasions in 28 fifth and eighth grade classrooms. A factor analysis of the results yielded the following eleven dimensions: (1) Teacher initiated problem solving; (2) Restrictive Versus expansive teaching; (3) Pupil presentation of ideas; (4) Negative affect; (5) Teacher presentation versus pupil recitation; (6) Divergent versus convergent evaluative teacher behaviour; (7) Teacher controlling behaviour; (8) Teacher support of correct response; (9) Self-referent pupil questions; (10) Teacher openness and (11) Pupil unresponsiveness.

vii. Good, Sikes and Brophy,¹ using Brophy-Good Dyadic Interaction Observation System, found that Students initiated more contacts with female teachers and had more total response opportunities in their classrooms. Female teachers more often praised students following correct responses, but they more often failed to give feed back following incorrect answers. Male teachers were much more likely to stay with a student by providing an additional response opportunity when

he failed to respond, answered incorrectly or gave a partially satisfactory response. When students misbehaved, female teachers were more likely to simply warn them about their behaviour, when men teachers were more likely to criticise them more intensively.

There was no support for the hypothesis that teachers are biased toward students of their own sex. Interaction between sex of teacher and sex of student was by far the weakest of the seven types of effects studied. Sex bias was not a factor affecting teacher-student interaction in these classrooms.

viii. Trickett and Moos\(^1\) have developed a Classroom Environment Scale (CES) to study the social environment of Junior High and high school classrooms. The final form of the scale consists of 9 sub-scales (dimensions) with 10 items in each dimension. The nine sub-scales are: (1) Involvement (2) Affiliation (3) Support (4) Task-orientation (5) Competition (6) Order and Organisation (7) Rule clarity (8) Teacher control (9) Innovation.

The results of their study showed that all the scales had acceptable internal consistency. The inter-correlation matrix showed moderately correlated clusters. However the

authors argue that the nine sub-scales measure distinct dimensions of the psycho-social environment of the high school classrooms.

ix. Herbert\(^1\) has used the Social Behaviour Rating Scale to make a factor analysis of teachers' ratings of classroom behaviour. The scale consists of 49 items. The sample consisted of 141 boys, spread over 17 schools and 14 teachers. The author suggests a five factor model. The five factors are: conduct problems, competence, social extraversion to adults, personality problems and social extraversion towards children.

x. Denne Boydell's\(^2\) study indicated that talking to children privately one at a time was far and away the most popular teaching method. Approximately three-quarters of the teachers' conversation was work-oriented and only a quarter was directly concerned with the substantiative content of children's activities. And even then most of the substantiative contact was of a low cognitive order, consisting of questions answered by recalling facts and factual teacher statements. Higher level cognitive contributions involving ideas, explanations or problems only accounted for about one-tenth of

the teacher's total conversation. The rest of the time was mostly consumed by comments which told the child what to do or how to do it and evaluative remarks about the child's work.

xi. Houston and Pilliner\(^1\) classified the verbal teaching style of 44 teachers in Physics classes and found that their teaching style varied across a broad spectrum from open-ended to expository (based upon Flanders I/D ratios).

Pupils taught in an open-ended style achieved the more complex cognitive educational objectives more readily than did those taught in either of the other two styles—interactive and expository. The effect of teaching style was not distinct on the attitudes of pupils regarding significance of Physics and interest and enthusiasm in Physics. On the whole, the 'open-ended' procedure was the most successful in developing favourable attitudes towards Physics.

xii. Based on the responses of 1,258 primary school teachers, Bennett and Jordan\(^2\) have attempted to identify twelve teaching styles. They prefer to describe the styles rather than label them by fixed names. At one end of the style are teachers who favour integration of subject matter; allow pupils

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choice of work, choice of seating; prefer assessment in all its forms and so on. The other end includes teachers who never favour integrated approach; teach subjects separately by class teaching and individual work; curb every movement of the pupils and so on.

xiii. James D. Mc Kinney et.al. have used multiple regression procedures to investigate the relationship between classroom behaviour and academic achievement. The findings of this study lend support to the assumption that overt classroom behaviour is an important determinant of academic progress and suggest that the analysis of classroom behaviour pattern not only contributes to an understanding of the child's present progress but also predicts his progress later in the school year. The child who is attentive, independent and task oriented in his interaction with peers is more likely to succeed academically than the child who is distractable, dependent and passive in peer-group activities.

xiv. Bacchus' study indicates that age of the teacher influences his attitude towards pupils. Most teachers seem to criticise the pupils' intellectual capacity.


Using the classroom climate questionnaire Walberg and Anderson derived 18 subscores and correlated them with individual learning. The eighteen subscores were grouped under three clusters as follows:

(a) **Structure Aspects**:
- Co-action; Subservient; Strict control; speech constraint
- Isomorphism; Democratic; Stratified; Egalitarian Organisation;
- Goal direction; Disorganised; Formality; Good diversity.

(b) **Affective Aspects**:
- Syntality; class intimacy; Alienation; Group status
- Synergism; Satisfaction; Friction; Personal Intimacy.

(c) **Miscellaneous**:
- Social heterogeniety, interest heterogeniety.

The results of the study indicated that isomorphism, organisation and Synergism predicted learning variables more frequently than co-action and syntality.

Ellin Datta, Schaefer and Davis collected data from 12 teachers describing the classroom behaviour of 153, 7th grade students and derived three factors: (a) Positive Talk orientation, (b) Verbal aggression, and (3) Introversion-extroversion.

2. Lois Ellin Datta, Earl Schaefer and Malcolm Davis (1968). *Sex and Scholastic aptitude as variables in teacher ratings of the adjustment of classroom behaviour of Negro and other*
These studies indicate the broad spectrum of variables that have been considered in different studies conducted abroad. The next section contains reviews of a few selected studies made in India.

4. REVIEW OF SELECTED STUDIES CONDUCTED IN INDIA.

(1) Prayag Mehta’s manual\(^1\) on understanding classroom behaviour is a comprehensive booklet containing interesting information. It shows a blending of theoretical studies and the practical conditions of the classroom. The author discusses the class as a group, bringing out how the group is formed, the authority exercised by the teacher over the group and how it is bound by the fixed curriculum, textbooks and goals. The chapter on classroom interaction is stimulating and discusses about the dominative and integrative climate. He points out that a study of interactions may be helpful in understanding (a) Pupil involvement (b) Awareness of the goal (c) Independent work and (d) Indirect influence. The booklet deals with simple measures of understanding classroom learning process, the teachers’ role as a leader, innovations in classroom teaching and so on.

Ahluwalia and Bhargava\textsuperscript{1} report that the social acceptance of a pupil has a multiplicity of determinants. The three most frequent reasons given by acceptors for accepting classmates were (a) Good habits (b) Studiousness and (c) Proficiency in games. Moderate correlations were found between sociometric status and (a) mental ability (0.31) and (b) academic achievement (0.27). Different classroom settings were found to have varying patterns of group structure.

Motilal Sharma,\textsuperscript{2} using OCDQ, has found that the organisational climate does not differ between Government and Private Secondary Schools. His sample includes 34 Government and 22 private schools from Churu District of Rajasthan. He also found that organisational climate was significantly related to students' achievement. 'Open' and 'autonomous' climates were found to have significantly high achievement index and they are conducive for higher achievement.

Using Flanders Interaction Analysis categories, Buch and Santhanam\textsuperscript{3} studied 11 teachers of English teaching in six English Medium schools in Baroda. Five of them were male.

\begin{itemize}
\item \textsuperscript{1} Ahluwalia, S.P. and P.N. Bhargava (1968). \textit{Human Relationship in the classroom: A Study in Sociometry.} Journal of Educational Research and Extension, 4:4, 136-144
\item \textsuperscript{3} Buch and Santhanam (1970). \textit{The Classroom Verbal Behaviour of selected teachers in Baroda Secondary Schools.} Buch and Santhanam (Ed.) in Communication in \textit{Ethic Classrooms, Baroda:}
teachers. The results indicated the following: (1) About 69% of the time, the teacher talked. (ii) About 21% of the time, the student talked. (iii) One fifth of the teacher talk was indirect \( (i/d = 0.2) \). (iv) One tenth of the total time was spent on silence/confusion. (v) About 10% of all teacher-talk has been indirect reaction to student talk while as much as 31% of all student talk was immediately following teacher talk. (vi) The pattern of communication seem to be extended lecture-questioning-extended student response-lecture.

(5) Buch and Quraishi\(^1\) observed 17 male teachers teaching in 10 Gujarathi medium schools in Baroda. Their results indicated that most teachers were dominant and direct in their influence, teacher-talk was nearly eight times greater than student talk, most of the indirect talk was in the form of asking questions, and very little amount of time was spent either on praising or encouraging students or on criticism or justification of authority or on student initiation.

(6) M.R. Santhanam, Quraishi and Lulla\(^2\) studied the patterns of influence of social studies teachers in Baroda schools. The sample observed composed of 19 women and 17 men teachers. The results indicated the following: (a) The


communication events were relatively faster in the case of men teachers than with men teachers. (b) Shifts in the pattern of communication were less frequent in the case of women than with men. (c) The results indicated that there was significant difference between the patterns of influence of men and women teachers.

(7) Udai Pareek and Venkateswara Rao\(^1\) studied 50 fifth grade teachers of Delhi. Repeated observations (3 per teacher) yielded 147 sets of data for analysis. The results indicated that the teachers talked for about 50% of the total available time; about 14% of the time was wasted in silence or confusion and about 31% of the time was spent by student-talk. About 67% of the periods indicated that the teachers were highly direct in their influence (I/D between 0 and 0.50) – this included about 48% of the teachers. Teacher-student talk ratios (T/S) were also high (between 1.00 and 10.00 in 69% of the periods). The study clearly indicates that the pattern of behaviour is highly teacher dominated with stress on teacher talk.

(8) Mohan Mathew\(^2\) has studied the teacher behaviour of 37 teachers of class 4, 50 teachers of class 6, 55 teachers of class 8 and 40 teachers of class 9. The teachers

were observed each for a period of 45 mts. by trained observers
who rated the teachers on authoritarian traits. The content of
classroom discussions was analysed for authoritarian tendencies.
An adapted version of MTAI was used to measure the attitude of
teachers towards teaching, discipline etc. A 25-item sentence
completion test was used to test the unconscious attitudes of
teachers towards parents, religion, early experience and vocation.
The results indicated: Restricting freedom of movement in the
class, ridicule and scolding, abusing and addressing children
in a mean way, threatening and administering corporal punishments
and supressing creative responses of pupils are some of forms
through which authoritarian teachers expressed themselves. The
primary school teachers were more authoritative than the high
school teachers in their actual behaviour. More experienced
teachers were more authoritarian than the less experienced
teachers. Men teachers were more authoritarian than women
teachers.

(9) Vishaw Vijay Upmanyā⁠¹ had made a study of the relationship
between Socio-metric Status of the pupil and his
scholastic achievement, using a sample of 85 subjects studying
in standard VIII from two schools. Three categories of students,
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correlation 0.33 was regarded low and not statistically significant. Comparison of group means indicated that the difference between the mean scores of achievement was significant at 0.01 level for populars and neglectees. The difference between the populars and the rejectees was significant at 0.05 level. The author also noted that students with similar achievement tended to form a clique. There was hardly any clique of low achievers.

(10) Agyajit Singh's \(^1\) critical article under the caption 'Socio-emotional climate of a Classroom' deals with the various factors which affect the classroom climate. The author emphasises (a) Teacher-pupil relationships, (b) What do pupils like about teachers, (c) Relationships among pupils, (d) Social interaction in the classroom, (e) Social needs (f) Socio-metric acceptance and rejection (g) School-staff relationships and so on. The author has high-lighted the multi-dimensional nature of the classroom climate.

(10) Buch and Santhanam \(^2\) observed 16 men and 16 women teachers and compared their pattern of behaviour using Darwin's Likelihood ratio criterion test along with t-tests. Significant differences were noted between male and female teachers in respect of (a) their capacity to generate student talk (b) their questioning ratio and (c) their content emphasis.

Gautam asked the pupils to choose their three classmates in a preferential order with whom they would like to witness a movie, study in the library, and go on picnic. From these preferences, a preliminary list of over-preferred and under-preferred pupils was prepared on the basis of a statistical frame work provided by Bronfenbrenner (1943). Then, for the pupils in these extreme groups, teachers' ratings were obtained on a three point scale; and only those pupils who secured high and low preferences respectively on both socio-metric technique and teachers rating scale formed the final sample. Thus out of a class of 238, 20 pupils were found to be over-chosen and 12 under-chosen.

The results indicate that age and socio-economic status are not so closely related to socio-metric status in class as intelligence, achievement and other personality patterns. The rejectees (under-chosen) have lower achievement and intelligence, are more aggressive, sensitive and emotional and suffer from mental conflict, anxiety and frustration.

Nardev Trivedi administered a questionnaire on 296 teachers and 490 students to study the factors related to effective teaching in secondary schools. 54% of the teachers and 53% of the students responded. The analysis of these


responses indicated that the following factors were considered to be very essential for effective teaching by the respective groups.

(a) By Teachers:

Using teaching aids, using examples and illustrations, motivation, good physical conditions in the classroom, improved supervision, impartial attitude of teachers, good physical health of teachers and impressive speech of teachers.

(b) By Students:

Use of examples, motivation, congenial atmosphere in the classroom, good physical conditions, distribution of classroom responsibility in advance, reasonable assignment, good physical health of the teacher, advance flexible planning, understanding the needs of the students.

(14) Narendra Nath\textsuperscript{1} has found that training in interaction analysis improves certain aspects of the behaviour of student teachers. In an experiment, the author found improvement in 'Student talk', considerable rise in i/d ratio and I/D ratio. The training also had a marked influence on Pupil Initiative Ratio.

(15) R.A. Sharma\textsuperscript{2} used six predictor variables - aptitude, age, academic grades, teaching experience, sex and socio-

\begin{itemize}
  \item \textsuperscript{1} Narendra Nath (1971). \textit{A Study of the effect of training in Interaction Analysis on the behaviour of student teachers}. Journal of Educational Research and Extension, 8:2, 83-90
  \item \textsuperscript{2} Sharma, R.A. (1971). \textit{Relationship between predictors and Teacher effectiveness at Elementary Level}. Indian Educational Review, 6:2, 214-219
\end{itemize}
economic status — to predict teaching effectiveness based on three criterion variables — classroom teaching rating, personality rating and the final marks of the training course. The subjects were 700 student teachers from elementary teacher education institutions from Utter Pradesh. The investigator found that Academic grades and teaching experience had significant relationship with teacher effectiveness. Sex, age and socio-economic factors showed no relationship.

(16) Udai Pareek and Venkateswara Rao\(^1\) have also concluded that training in and feed back through PIAC significantly modifies the behaviour of teachers. Experimenting with nine teachers, they found that teachers trained in PIAC tended to use more and more of categories 2, 3, and 4 (Praising students, using their ideas and questioning). Training also increased the I/D, i/d ratios. Students exposed to such trained teachers were also found to show more self-initiated talk.

(17) Yashu Mehta\(^2\) has used PIAC to study the classroom influence of Teacher's teaching history. Fifteen teachers were observed teaching History and the results indicate:

i. The nature of influence pattern is very much direct.

ii. Most of the indirect talk was in the form of questions.

iii. Teacher talk is nearly 7 times greater than student talk.

iv. Practically no time was spent in developing students ideas.

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2. Yashu Mehta, (1971). *Classroom Influence of Teachers' teaching*
The I/D ratio was 0.136, i/d ratio was 0.292, Teacher talk 81.04%, Student talk 13.40%, Silence 5.56%.

Biswanath Roy\textsuperscript{1} investigated the differences in teacher behaviour patterns in teaching different materials and the role of sex in the behaviour pattern. The sample consists of 43 teachers (32 male and 11 female). Of them, 19 teachers taught Languages, 7 taught general science, 12 taught Social studies and 5 taught Mathematics. Language teachers included those teaching English, Hindi and Sanskrit. The author concludes that there are significant differences between the teacher behaviour patterns in the different subject matter areas. The results also indicate that the sex has a role in the teacher's behaviour.

The time spent on Lecturing varies from subject to subject. Similar variations were also noted in I/D ratio, and T/S ratio. The following table summaries the findings.

\begin{table}[h]
\centering
\begin{tabular}{|c|c|c|c|}
\hline
Subject & Languages & Social Studies & General Science & Mathematics \\
\hline
Lecture & 38.40\% & 63.20\% & 66.30\% & 28.70\% \\
I/D ratio & 0.28 & 0.15 & 0.11 & 0.70 \\
T/S ratio & 2.10 & 4.90 & 5.50 & 1.50 \\
\hline
\end{tabular}
\end{table}

Buch and Santhanam have made an exploratory study to find out the type of association between the "Drill" and 'Creative Inquiry' patterns in classroom communication episodes in six subject matter areas. Using Flander's Interaction analysis categories, a sequence of 4 - 8 - 4 - 8 - 4 - 8 .... may be interpreted to mean a 'drill' pattern and a sequence of 9 - 3 - 9 - 3 - 9 - 3 .... may be indicative of the creative inquiry pattern of behaviour.

On the basis of observations made on 32 teachers from the city of Madras, the authors conclude that there is no significant correlation between these two patterns of classroom behaviour, in any of the six school subjects.

Earlier studies by the same authors indicate that the relative incidence of categories 9 and 3 is quite small (0.51% and 1.21%). Similarly Student Response category occurs more often than Student talk - initiation (17.91% and 3.25%). Hence the authors plead for further detailed research on the theme.

Sharma, R.A. has attempted to correlate teaching aptitude with the classroom verbal behaviour of the teacher. The results indicated that the aptitude test scores were significantly associated with (a) the indirect influence of the teacher (I/D ratio), and (b) Pupil talk. The sex factor was related significantly with both teacher aptitude and teacher behaviour.

(21) Sharma, M.L. and Santhanam have tried to study the relationship between organisational climate as measured by OCDQ and the teacher behaviour as measured by i/d and I/D ratios of Flanders. The only significant difference was noticed when a comparison was made between teachers from 'closed' and 'controlled' schools. The other differences were found to be not statistically significant. Their findings tend to establish that the organisational climate of the schools does not affect the teachers' classroom behaviour in any significant manner.

(22) Anand, S.P.'s study of 20 classrooms from higher secondary schools of Delhi indicates that there is lack of personal teacher-pupil relationship in almost all the schools. Women teachers and girls lay more emphasis on the behaviour of each other, while men teachers lay more emphasis on the studies of students. Boys are more particular about the teaching skill of teachers. Men teachers like students with good academic achievement and dislike those who are poor. Students who are liked by their class fellows are also liked by their teachers.

(23) Girija Mubayi and Motilal Sharma made an exploratory survey of the organisational climate of tribal schools of South Gujarat. Using the Organisational Climate Descriptive Questionnaire (OCDQ) they could classify the schools as having

(i) Open (ii) Autonomous (iii) Controlled (iv) Familiar
(v) Paternal and (vi) closed climates. The sample comprised
of 23 schools and involved 121 teacher respondents. The results
indicated the following distribution:

1. Open 5, (21.74%)
2. Autonomous 2, (8.69%)
3. Controlled 2, (8.69%)
4. Familiar 3, (13.04%)
5. Paternal 3, (13.04%) and
6. Closed 8, (34.78%).

The authors also noted that the more open the climate, the
higher was the pupil's achievement - in general.

(24) Goyal, R.P. has made a study of creativity and school
climate using a sample of 300 boys selected from three
schools. Three experts in the field helped in the selection of
the schools to be included in the study.

One of the schools selected was an urban model school
which was designated as a 'high creative school'. The environment
in this school was relatively 'open' and 'responsive'.

The other school designated as an 'average creativity
school' was a traditional urban school. It was considered
representative of the type where creativity neither finds a
favourable nor an unfavourable climate.

   exploratory Study. Journal of Psychological Researches,
   17:2, 77-80
The third was a rural high school. It was thought to be a 'closed' type of school where conformity receives the greater emphasis. This school was, for the purpose of the study, designated as a 'low creative school'.

On the basis of the results on a test of creativity evolved by the author, the following effects came to light. Creative potentialities unmask themselves in an 'open system' of education and flourish in a 'responsive' and 'stimulating' environment. The death knell to creativity is rung in a school where the environment is surcharged by conformity, rigidity, strict obedience, and traditionalism.

(25) Santhanam has studied a random sample of 32 teachers from the schools in Madras city. Each teacher was observed twice for spells of 30 minutes each. The observations were made using FIAC. The I/D and i/d ratios were calculated and analysed. The results indicate that I/D ratios differed significantly between subjects and between teachers. The results were the same with i/d ratios.

Teachers differ significantly in their behaviour patterns (both I/D and i/d) when the subject taught by them is altered, in respect of the following subject pairs - (i) Tamil - Mathematics

(Article based on the Ph.D. work of the first author)
(ii) English - Geography (iii) Mathematics - History

Only I/D ratios were found to be significant in the following cases:
(i) Tamil - English (ii) Tamil - History (iii) English - History

Only i/d ratios were found to be significant in the English-Mathematics comparison.

(26) Singh, S.K.¹ has made a study of the relationship between teaching attitude and the verbal behaviour of 500 B.Ed. students. The adopted Hindi version of Minnesota Teacher Attitude Inventory was used for measuring the teacher attitude and Flunders Interaction Analysis Categories for studying the verbal behaviour. The investigator found that there was significant relationship between classroom verbal behaviour and teaching attitudes. Indirect Teacher Talk, Pupil Talk, I/D ratio, Teacher Question Ratio, Teacher Response Ratio were positively correlated with teacher attitude, - the correlations were above 0.52 and statistically significant. Direct teacher talk, silence or confusion, content cross ratio, vicious circle, pupil steady state ratio were negatively correlated with teacher attitude.

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(27) Vishaw Vijay Upmanyu repeated an earlier study conducted by him to investigate the relationship between Socio-metric Status and Scholastic achievement using a new sample of 71 students from classes 10 and 11. (The earlier study was on a sample of 85 students from class 8). The present study includes 40 boys and 31 girls. The results indicate that while the populars and the rejectees differ significantly in their scholastic achievement, the comparisons between populars and isolates or Rejectees and isolates were not significant. The co-efficient of correlation between socio-metric status and scholastic achievement was found to be 0.36.

(28) Rampal Singh has used an environment scale with eight dimensions - Emotional warmth, Fairness, Acceptance, Trustfulness, Adaptability, Status, Emotional Relationship and communication, and a classroom behaviour test with ten dimensions - Aggressive behaviour, paying rapt attention, Manipulating and directing others, Sharing and helping, Negative attention getting, Following directions passively, Physical withdrawal, Respecting the teacher and peers, Responding to internal stimuli and Social interaction - to study the socio-emotional climate of some schools. The sample included 226 students from 18 classes drawn from 8 different schools. The results indicated that pupil achievement

was significantly correlated with all the seven environmental
dimensions except 'communication'. The regression analysis
indicated that the total teacher behaviour was the strongest
independent predictor of achievement.

(29) Sharma, R.A. observed the classes of 96 pupil-teachers,
including 45 language lessons, 35 social studies and 15 science
lessons. FIAC was made use of to observe the behaviour of
teachers. The analysis indicated the following:

Teacher Talk of Social Studies teachers was greater than
language and science teachers. Pupil Talk in Language lessons
seemed high as compared to other lessons. The concent cross
Ratio was greater in the social studies class than in other
lessons. Pupils Initiative ratio was higher in Science lessons.
Silence or confusion was also greater in Science lessons than
in the other two lessons.

(30) Soundararaja Rao, T.R. has made a study of the cohesiveness
of classroom groups using sociometric measurements.

Data were collected from 11 classroom groups comprising of 381
pupils in all. The pupils in the class were asked to mention
three friends from their own class (excluding absentees) whom
they would choose (a) for group study (b) to play with (c) for

1. Sharma, R.A. (1974). Content Variable as determinant of class-
room verbal interaction behaviour. Journal of Educational
Research & Extension, 11:1, 6-11
Journal of Educational Research and Extension, 11:1, 23-30
help in academic study and (d) for company during leisure
time. The classroom cohesive index was calculated using the
formula
\[
\text{Class cohesiveness Index } = \frac{100 \times M}{n \times N}
\]
Where \( N \) is the size of the group,
\( n \) is the number of sub-groups
\( M \) is the size of the largest sub-group.

The results indicated that the index as evolved in the
study not only sorted to study inter-class differences on a
theme but also high-lighted the difference across the four themes.
Kendall's co-efficient of concordance was calculated and F-value
was insignificant indicating that the 11 classes differed widely
in their cohesiveness across the four themes.

(32) Passi, B.K. and Padma. M.S.\(^1\) have tried to summarise
and classify the several studies made at CASE, Baroda.
They could identify three classifications in which the teacher
behaviour was treated as (i) independent variable or (ii) dependent
variable or (iii) in relation to demographic, personality and
attitude variables. They are led to the following conclusions.

Teacher behaviour is positively related to pupil motivation,
classroom organisation, classroom climate, favourable pupil attitude
towards teachers, and pupil achievement.

1. Passi, B.K. and Padma. M.S. (1975). Research on Teaching and
Teacher Behaviour at CASE. Teacher Education 9:4, 10-15
Micro teaching and training in FLAC provide a corrective feed back to the student -teachers who show significant improve-
ment after training in these techniques.

Perception of teacher about himself, teacher attitude
towards democratic classroom procedures and towards classroom
management are positively related to teacher behaviour.

(32) Motilal Sharma¹ studied a stratified sample of 95 schools
to investigate the relationship between school climate
and other variables. His results indicated that the organisational
climate was negatively correlated with faculty age, and faculty
experience. It was not correlated with faculty size, or faculty
stay in the same school, or with Headmasters' experience. It
was significantly and positively correlated with teacher satis-
faction, with Headmaster's effectiveness, and with School effective-
ness. Academic Achievement of pupils seemed to be independent of
the Organisational climate of the school.

5. SUMMARY

In this chapter, an attempt has been made to bring together
and review several studies made regarding classrooms, teacher
behaviour and other related themes.

Systematic observation of the classroom has been accepted
as a valid method of gathering data in many studies. Several
systems of observational categories have been evolved, each system

¹ Motilal Sharma (1975). *School Climate and other variables-
Some relationship studies*. Journal of Education Research &
Extension, 11:3, 150-160
having its own merits and demerits. Mention has been made about Bales' Interaction Process Analysis, Flanders Interaction Analysis Categories, Ober's Reciprocal Category System, Amidon and Hunger's Equivalent Talk categories, Hough and Duncan's Observational System for Interaction analysis and modified version of Flanders categories. Almost all the systems are based on the assumptions that the teacher is the key personnel, that the influence flows from him to the students and that classrooms can be studied effectively by observing the teacher behaviour. A few systems have attempted to give equal importance to student behaviour and teacher behaviour; RCS and ETC are examples of this trend.

The various studies conducted in India and abroad point to the fact that classroom climate is affected by a multitude of variables. It includes environmental variables, variables associated with attitudes of teachers and pupils, variables concerned with socio-metric status of the classroom group and those which are related to teacher-pupil interactions. Sex, age and experience of the teacher, even the subject taught during the period are other elementary variables included in many studies.

This review has helped the investigator to gain insights into the nature of variables that are likely to affect classroom climate. In the next chapter a detailed account of how this was used in the design of the present investigation is presented.