

CHAPTER-II

REVIEW OF THE PREVIOUS RESEARCHES

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CHAPTER II

REVIEW OF THE PREVIOUS RESEARCHES

II.1 INTRODUCTION

In the previous chapter the significance of the problem is discussed.

This chapter presents an overview of the relevant studies in abroad and India, with a view to gaining insight into the problem.

Researches in the area of Educational Psychology have gained momentum in the last fifty years. The location of these researches was on teacher effectiveness. Teacher's personality, his educational qualifications, age, training, experience, sex and socio-economic condition, these variables, were not found successful in identifying teacher effectiveness. Later on, the researchers tried to find out whether pupils growth in terms of academic achievement was due to the influence of the teacher. The importance of the teacher's influence in shaping the personality of the

students was realised later on. Hence, the shift of focus of research was from teacher effectiveness to teacher behaviour in terms of interaction in the class-room. Since then efforts in this area enabled one to identify certain class-room behaviour of teachers and the productive behaviour of their pupils.

The review of the researches has been organised in the following manner.

(A) Studies conducted abroad

- (i) A brief review of other reviews on the subject
- (ii) Process-product studies
- (iii) Presage-process studies

(B) Studies conducted in India

- (i) Survey studies
- (ii) Experimental studies

II.2 STUDIES CONDUCTED ABROAD

2.1 A brief review of other reviews on the subject

Research on teacher effectiveness is one of the most researched area in educational research. As a matter of fact, the quantity of research on the subject

has been so profuse that even the bibliographies have become unwieldy. Because of non-availability of many research reports, it is not possible to cover all the studies in this review. Moreover, the present study draws from and contributes to the emerging teacher effectiveness research employing class-room observation to measure the change in teaching behaviour or acts, and its effects on pupils achievement. Hence, studies falling outside this area are not of much importance for the present study. This section includes an overview of the area of teacher effectiveness as viewed by various reviewers from time to time. The reviews of the specific studies are in other sections.

THE FIRST STAGE

Till date, little success was achieved by research efforts in the area of teacher effectiveness. Therefore, a series of research reviews on the subject are pestilenced by pessimism. The results of researchers were inconsistent, inconclusive, and not only discouraging but disappointing too.

Morsh and Wilder (1954), while reviewing quantitative studies on teacher effectiveness, failed to

discover even a single, specific observable teacher act whose frequency of occurrence was "invariably and significantly" related to pupils' outcomes. Mitzel (1960) pointed out the absence of acceptable criteria of teacher effectiveness. Orleans and others (1952) found the knowledge of criteria of teacher effectiveness and the means to measure them still missing, despite the large number of studies that have been made. Fattu (1962) lamented the lack of meaningful measurement of commonly agreed upon teacher effectiveness using predictor or criterion variables had reached a dead end. Johnson (1955) found a wide margin of error in evaluation and prediction of teacher effectiveness, despite the overwhelming attention of research workers it has attracted. Medley and Mitzel (1963) considered much of this work on teacher effectiveness as irrelevant either because valid criteria of teacher effectiveness was not used or because objective measures of teacher behaviour were not taken.

Salient reasons attributed to the prevalent pessimism by different reviewers may be summarized as follows:

1: Absence of adequate conceptual framework

(Smith, 1962; Ryans, 1960; 1963; Biddle, 1964, 1967; Soar, 1964; Gage, 1967; and Turner, 1971)

2. Absence of agreement on Teacher competence
(Orleans and others, 1952; Johnson, 1955; Medley and Mitzel, 1963; Biddle, 1964)
3. Lack of objectives and reliable tools to assess teaching behaviour
(Ackerman, 1954; Howsam, 1960; Medley and Mitzel, 1963; Biddle, 1964; Soar, 1964)
4. In sufficient methodology
(Orleans and others, 1952; Ryans, 1960; Medley and Mitzel, 1963; Gage, 1967; Biddle, 1964, 1967; and Rosenshine, 1971)
5. Complexity of the problem
(almost all the reviewers)

THE SECOND STAGE OF HOPE

Knowing the limitations of research on teacher effectiveness and the need to achieve the emerging challenge of teaching effectively, concentrated attempts are made to solve the complicated problem. It seems that the suggestion made by Ackerman (1954), and Medley and Mitzel (1963) about the development of reliable and objective tools to observe, record and analyze teaching behaviour was well taken. Due to the

growing consciousness about the suggestion, the period of last fifteen years is full of optimism.

Amidon and Simon (1965) reviewed studies on teacher-pupil interaction and the tools used for its measurement.

Flanders and Simon (1969), reviewing research on teacher effectiveness from 1960 to 1966, showing significant positive relationship between teachers' and use of ideas and opinions expressed by pupils, on one side and pupils achievement, attitudes and other variables on the other.

Rosenshine and Furst (1971) found the process-product studies to be fruitful in developing some of the best variables on relationship between teacher behaviour and student achievement. The reviewers also pointed out the limitation of the work and giving directions to the future workers to direct their efforts.

Jangira (1971) reviewing studies in India; also supports the optimism and makes a plea for well designed studies.

CONCLUSION

The reviews of ^{the} research on teacher effectiveness started with pessimism, but during the last fifteen years, it shows the signs of optimism. The reviews also stressed the need for more serious efforts and to further the frontiers of teacher effectiveness.

2.2 Process-product studies

This section includes reviews of both correlational as well as experimental studies. The studies are relating teacher behaviour to pupils outcomes using systematic class-room observation. The studies covering pupils outcome other than academic achievement have also been included.

EARLIER PERIOD

H.H. Anderson and his associates (1939, 1945, 1946) carried out studies relating ^{to} teacher contacts and pupil behaviour. They designed two separate observation tools - one ~~to~~ assess teacher behaviour along "dominative-integrative" climate dimension - and the other to assess pupils' behaviour. The children^s,

behaviour was consistent with the kind of personality the teacher displayed in the class-room. Their finding highly pertinent to the hypothesis is that, the main direction of influence in the class-room is from the teacher to the pupil. They also concluded that reliable patterns of teacher and pupil behaviour in the class-room can be obtained through categorization of their overt behaviour. The findings as summarized by Flanders (1964) are:

First the dominative and integrative contacts of the teacher set a pattern of behaviour that spreads through the class-room. Second, when a teacher has a high proportion of integrative contacts, pupils show more spontaneity and initiative, voluntary social contribution, and acts of problem solving. Third, when a teacher has high proportion of dominative contacts, the pupils are more easily distracted from school work and show more compliance.

The autocratic-democratic concept presented by Lewin and his associates (Reprinted 1967) was another precursor of Flander's concept. Their earlier studies on patterns of aggressive behaviour on experimentally created social climate is another good work. The

experiment involved authoritarian, democratic, and laissez-faire leadership in clubs formed of the children. As the club meetings progressed, the authoritarian club members developed a pattern of aggressive domination over one another, and their relation to the leader assumed that of submission or of persistent demands for attention. The interactions in the democratic club were found to be more spontaneous, more fact minded, and friendly. The work represents one of the pioneering and most significant attempts to observe and control the climate variable in group situation. The findings provide sound basis to use categorization of teachers' verbal behaviour as a major technique in such studies.

From the article of Withall (1967), the extracts of some of the work are reported as under:

Withall (1949) was one of the early researchers in class-room climate. He measured class-room interaction with the help of category system that classified teacher verbal statements. The categories used by Withall are in many ways similar to those developed by Flanders (1965). The findings of Withall's work revealed that class-room climate could be assessed

and categorized.

Perkins (1961) using Withall's technique found that group of teachers engenders greater learning about child growth and development in integrative type of climate than in dominative type.

Muriel and Wright (1959) attempted to identify behaviours related to pupil achievement. Amidon and Flanders (1961) have reported findings of a study in which teacher effectiveness was studied in terms of achievement in Mathematics of junior high school students.

TOWARDS THE TARGET

Flanders (1965, 1969, 1970) conducted a number of studies involving different grades and different subjects to find out the relationship between teacher influence and pupil achievement and attitudes. According to Flanders the conclusions can be summarised as under:

..."Six out of seven projects, it appears that when class-room interaction patterns indicate that pupils have opportunity to express their ideas, and when these ideas are incorporated

into learning activities, the pupils learn more and develop more positive attitudes towards the teacher and the learning activities." (Flanders, 1970, p.401)

Morrison (1966) found significant evidence supporting the relationship for positive pupil attitude scores, as well as adjusted achievement gain scores of language usage, social study skill and Arithmetic Computation and problem solving.

Nelson (1964) found identical support in a study of learning linguistic skill.

Lashier (1967), supported the above relationship, in a study to find out relationship between verbal behaviour of student-teachers, and achievement and constructive attitudes of eight grade pupils during a six week period of instruction devoted to Biological Sciences curriculum.

Furst (1967) used Flanders Interaction Analysis to reanalyse the class-room data which were analysed previously by researchers using Bellack's cognitive categories. Fifteen teachers and 345 students in seven high schools in the metropolitan New York area~~d~~ was the sample of this study. The classes under

constrasting teaching treatments have all other facilities. Similar, such as the unit under study, the tests, the text-bboks and the number of teaching days. Students were pretested and posttested on a knowledge text. The conclusions are, as under:

"The teachers of the high achieving group tended to be more indirect than direct. Teachers of the low achieving group tended to use more direct than indirect influence. The teachers of average group tended to minimise affective behaviours, concentrating on lecturing." (Furst, 1967, p.24)

Herman (1967) in a study, on three groups of fifth grade children in social studies period, to determine the specific kinds and time lengths of activities. The three groups of children were - above average, average and below average. The study also attempted to assess the teacher-pupil verbal behaviour. It was found that the teachers of the above average group were indirect; the teachers of average group were nearly neutral; and the teachers of below average group were direct in verbal patterns.

Schantz (1967) studied 24 girls and 37 boys. He studied the effect of teacher influence on verbal

recall of high and low ability pupils. The author concluded:

.... "if both groups were assumed to be comparable on the pretest their learning increments were greater as measured by both tests through mean scores following indirect methods." (Schantz, 1967, p.46)

Amidon and Giammetteo (1965) studied 33 superior teachers as judged by supervisors and administrators and compared them with 120 randomly selected average teachers. The superior teachers were found to be more indirect than the average group.

Pankratz (1967) studied 5 'high' and 5 'low' teachers of high school physics, from a sample of 30, by using principal's rating, pupils attitude inventory and "teacher situation-reaction test". Using Flanders Interaction Analysis categories, it was found that the teachers classified as more effective, made more use of the ideas and opinions expressed by pupils at 0.1 level of significance, than the less effective teachers.

Weber (1968) found, pupils with teachers using indirect behaviour in the class-room, scoring higher

on verbal creativity than pupils with teachers using direct behaviour.

Coats (1966) reanalysed the relationship between pupils' attitudes and achievement scores versus various measures which can be derived from a 10 x 10 matrix based on Flanders categories. Carrying out stepwise linear regression on the data reported earlier by Flanders (1965) and Morrison (1966) found the accurate predictions of the posttest class average scores from the pretest averages. This further supports the relationship.

Johns (1968) conducted a study to find out relationship between teacher influence and level of thought provoking questions asked by the pupils. The study reports a positive relationship. Parakh (1965) and Dohl (1966) supports the finding.

Cogan (1956) found that the students were 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.

Miller (1966) in an experiment with four teachers, each teaching four lessons in a "responsive manner" and a "directive manner", found that students in "responsive" teaching viewed the lessons more favourably

and exhibited. Significantly higher levels of thinking than the students in directive teaching.

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

Cogan (1956) pointed out that there is relationship between the way a teacher is perceived by his students and the amount of self-initiated work reported as done by the pupils.

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

Gage (1965), after reviewing the research literature on education done prior to 1965, presented five global characteristics of teacher that appeared to be the components of effective teaching. This include:
(1) warmth (2) cognitive organization (3) indirect-

ness (4) orderliness and (5) problem solving ability.

CONCLUSION

The relationship between teacher acceptance and use of pupil ideas as product-variables is supported by many studies. This means that the Glass-room Behaviour Training proposed in the present study should take into account the teaching behaviour patterns based on these findings.

2.3 Presage-process studies

Studies linking teaching process to teacher characteristics and formative experiences are included in this section of presage-process studies. The research linking training experience of teachers and their teaching behaviour, is the focus of this section. As far as possible, the research projects pertaining to pre-service and in-service, have been covered in this review.

Prescott and his associates (1938) have made valuable contributions in research on teacher effectiveness and the like, recognizing the emotional aspect

of learning process.

Maslow (1943) stated that teaching behaviour can be thought of as a part of chain of events that occur in the class-room. This type of thinking creates an orientation towards behaviour and the concepts involved there-in lend themselves to analyse teaching acts. In class-rooms which are above average in positive attitudes and content achievement, the teacher-pupil interaction exhibits a somewhat greater orientation towards pupils ideas and pupil initiation.

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.

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

Flanders (1960) developed the most sophisticated technique for observing 'climate'. It is so unique

that it preserves a certain amount of information. Findings of Flanders' (1970) study is that, teachers who use more direct influence do not vary their behaviour in different situations as much as the 'direct' teachers do.

Class-room Interaction Analysis is concerned with the verbal communication between the teacher and the students. It is a technique which facilitates capturing qualitative and quantitative dimensions of teacher-student verbal behaviour in the class-room. Flanders (1966) develops this techniques, out of social-psychological theory, designed to test the effects of social-emotional climate of the class-room communication on student attitudes and learning. In fact, class-room teaching is a social interaction.

In fact, teaching is, more than talking. But in the normal class-room situation it is found that the predominant instructional behaviour of the teacher is 'talk'. Talk, either by the teacher or by the pupil in the class-room, consumes more than eighty percent of the class-room instructional time. Various techniques are used for recording and analysing the

verbal behaviours. Amidon and Flanders (1967) describe that, this system allows observer and teachers to explain, summarise, analyse and draws conclusions about the teaching data gathered. Flanders (1960) has successfully practised techniques for training reliable class-room observers and has also laid down a procedure for estimating inter-observer reliability.

Flanders (1963) investigated the effects of experienced teachers teaching how to analyse their teaching behaviours using interaction analysis, in an in-service project. The purpose of the project was two-fold: (1) to increase the flexibility of teacher influence and (2) to increase the use of those teacher behaviours which support pupil participation in class-room learning. The two in-service programmes were separately administered. The hypothesis was that a teacher would gain most from in-service training when his style of teaching was consistent with the one used by the trainer. The formal training period was thirty hours. On the basis of interaction analysis feedback was provided to one training programme and was found to be more effective in producing change in most of the teachers than the other.

Amidon and Powell (1966) conducted an experiment with four groups of fifteen student-teachers in each group. The treatment given to each group was as follows:

- (1) Group first had interaction analysis and seminar and was supervised by a teacher trained in interaction analysis.
- (2) Group second had interaction analysis and seminar and was supervised by a teacher not trained in interaction analysis.
- (3) Group third had learning theory and seminar but was supervised by a teacher trained in interaction analysis.
- (4) Group fourth had learning theory and was supervised by a teacher trained in learning theory.

The findings of the above experiment were as follows:

- (1) The student-teachers who knew interaction analysis talked less, were more indirect in behaviours, were more indirect in their interaction patterns and used more indirect influence, than those of the other groups untrained in interaction analysis.
- (2) The student-teachers whose supervisors learnt interaction analysis used less direct influence than their counterparts.

Moskowitz (1967) on a similar design as Amidon and Powell (1966), studied attitudes of the supervising teachers. The cooperating teachers and the student-teachers received thirty hours and sixty hours training in interaction analysis respectively. Attitudes of the student-teachers were assessed by different tests. The findings were as follows:

- (1) The trained cooperating teachers and trained student-teachers used significantly more indirect teaching patterns than untrained teachers.
- (2) The trained student-teachers used significantly more indirect teaching patterns than their untrained cooperating teachers.
- (3) There were no significant differences between the teaching patterns of untrained student-teachers and their trained cooperating teachers.
- (4) The untrained student-teachers whose cooperating teachers were trained, were more indirect than the untrained student-teachers whose cooperating teachers were also untrained.
- (5) No significant differences were noted between the attitudes of the trained and untrained cooperating teachers towards their student-teachers.

Zahn (1966) conducted a similar study about the change in the attitudes of student-teachers. He used interaction analysis as means of supervision of student-teachers. He concluded that the method of instruction and supervision used by the supervisors affects the attitudes of student-teachers positively.

Simon (1967) observed no significant differences in the group of student-teachers trained in interaction analysis, when they teach in their preferred classes.

Kirk (1967) and Simon and others (1966) support the training in interaction analysis as means of developing indirect teacher influence. They report that student-teachers trained in interaction analysis tend to be more accepting, more student initiated talk, less critical, less directive, and less silence and confusion than the student-teachers trained in learning theory alone.

Lohman, Ober and Hough (1967) conducted a control group experiment on 30 student-teachers each. The experimental group was trained in interaction analysis prior to student-teaching and the control group was not given such a training. They found that the student-

teachers of the experimental group used more indirect and less direct teacher behaviours than the control group teachers in student-teaching and continued the same behaviour even 4 to 12 months after their training.

Hough and Ober (1967) conducted an experiment of two years' duration, having five different treatments involving various combinations of methods of teaching, human relations skills and the analysis of class-room behaviours were planned, on course revision and evaluation. Subjects to whom, the treatment in interaction analysis were taught, were found to use, significantly more verbal behaviours related to higher achievement and more positive student attitudes towards their teachers and school.

Hanny (1967) reported that pre-service teachers who were highly dogmatic as measured by Dogmatic Scale and who received "less desirable" scores on the Teaching Reaction Test can be taught interaction analysis, and that they were able to use this system to control their behaviour, and used desirable behaviours that affect class-room climate.

Davidson (1968) in an experiment provided feedback based on interaction analysis to a group of teachers. He found that the treatment enabled the teachers to modify their influence in the class-room such that children's critical thinking developed and a corresponding fall in non-productive thinking was observed.

Wood and others (1969) reported that using 'Reciprocal Category System of Interaction Analysis' and 'Micro-simulated teaching experiences' be the most effective organizational pattern of the methods and student teaching block.

Wright, Nuthall and Lawrance (1970) in a study on shaping class-room verbal behaviour of teachers, reported that when the student-teachers were provided opportunity to observe lessons, to learn interaction analysis, and received feedback through micro-teaching, they understood and used the teaching strategies better.

Holcomb (1971) improved attitudes of the student-teachers through kinescopic observation of their teaching behaviours and providing feedback on the same.

CONCLUSION

Many studies discussed above report effective use of feedback based on interaction analysis, singly or combined with simulated teaching skills training or micro-training, to modify the behaviour of the pre-service or in-service teachers in the desired direction. This means that the Glass-room Behaviour Training suggested for the present study should take into account the logical basis provided by the research efforts reviewed above.

Now the studies conducted in India will be discussed.

II.3 STUDIES CONDUCTED IN INDIA

In this country educational research is still in its infancy stage. Class-room research is yet in its embryonic state. Buch (1974) rightly states that:

"Studies using systematic observation of class-room behaviour of teachers have been conspicuous by their absence for a long time and the few studies conducted in recent years can be counted on one's fingure tips. It has been a comparatively neglected area in education. Neither any

attention appears to have been given to this area nor any agency supported this kind of venture will the beginning of the seventies. The neglect of research on teaching and teacher behaviour may be attributed to the complexity of the problem, absence of adequate tools of observation and the high cost involved in observational studies."

Some of the studies that have appeared so far are discussed below.

3.1 Survey studies

There are few earlier studies attempted at surveying the class-room behaviour of teachers using Flanders Interaction Analysis Category System are tabulated below. (Chart-2.1)

CHAPTER-1

STUDIES IN INDIA RELATED TO TEACHER BEHAVIOUR

Survey studies
Experimental studies
(Discuss so elsewhere in this chapter)

Investigator	Year	Sample	Methodology	Tools	Objectives	Major findings
Pareek and Rao	1970	Fifty male and female teachers of the V grade of Primary and Middle Schools of Delhi	Each teacher was observed for three and half hour's duration. Total number of periods observed by eight trained observers was 14 %	FIACS	To study behaviour patterns of teachers of Delhi.	<ul style="list-style-type: none"> - Main teacher talk was that of lecturing (55 % of time) - Main pupils talk was that of pupils response (67 % of time) - Direct influence behaviour of teachers were twice than indirect behaviour. - No sex difference was reported. - I/D ratio was 0.2 percent and i/d ratio was 0.502 %. - Student talk was 21 percent. - Teachers talk was 69 percent. - Silence or confusion was 1/10 of the time. - Sustained lecturing and sustained pupils response was 44.35 % and 12.01 % respectively.
Buch and Santhanum	1970	Five male and six female teachers of English from six English Medium Schools of Baroda, each teacher was teaching English about fifty five in different grades. minutes.	Each teacher was observed for two periods. The total time observed for each teacher was about fifty five minutes.	FIACS	To explore the possibility of using FIACS in Indian schools To explore the class-room behaviours of English teachers.	<ul style="list-style-type: none"> - Women teachers talk was about 75 %. - Men teachers talk was about 82 %. - Student talk in lady teachers classes was 13.292 % while that in the male teachers classes was 10.489 %. - I/D ratio in case of female and male teachers were 0.5 and 0.55 % respectively. - I/D for male and female teachers were 0.18 and 0.175 respectively. - Sustained questioning (4.4) was significant in female teachers. - Sustained confusion (10-10) was 8.086 % and 4.107 % in case of male and female teacher respectively.
Santhanum, Qurashi and Lulla	1970	Nineteen women and Seventeen male teachers of Social Studies from high schools of Baroda.	Each teacher was observed for two periods by trained observers.	FIACS	To investigate the patterns of teacher class-room behaviour. To identify sex difference in relation to class-room behaviour.	<ul style="list-style-type: none"> - Women teachers talk was about 75 %. - Men teachers talk was about 82 %. - Student talk in lady teachers classes was 13.292 % while that in the male teachers classes was 10.489 %. - I/D ratio in case of female and male teachers were 0.5 and 0.55 % respectively. - I/D for male and female teachers were 0.18 and 0.175 respectively. - Sustained questioning (4.4) was significant in female teachers. - Sustained confusion (10-10) was 8.086 % and 4.107 % in case of male and female teacher respectively.

contd....

Investigator	Year	Sample	Methodology	Tools	Objectives	Major findings
Buch and Quraishi	1970	Seventeen male teachers of Social Studies from Gujarati medium schools of Baroda.	Each teacher was observed twice.	FIACS	<p>To study the patterns of classroom behaviour.</p> <p>To study the patterns in relation to age, experience, qualifications and methods of teaching offered at B.Ed. level.</p> <p>To study the efficacy of FIACS in Indian schools.</p>	<ul style="list-style-type: none"> - 82.65 % was of teacher talk. - 10.48 % was of student talk. - 7.38 % for conclusion. - Teachers were very much direct in their behaviour while the direct talk was in the form of questioning. - Little time was devoted to praises and accepting pupils ideas. - Age, experience and qualifications on methods of teaching have certainly an important role in shaping teachers' influence.
Santhanam	1972	One hundred seventy four secondary school teachers of Gujarat state to test age, experience, recency of training, sex and marital status.	Each teacher was observed twice for half an hour duration for each observation.	FIACS	<p>To study the patterns of teacher behaviour in relation to age, recency of training, experience, sex, marital status and subject matter.</p>	<ul style="list-style-type: none"> - I/D and i/d ratios have no correlation with age, recency of training and experience. - Male teachers were more direct than female. - Unmarried teachers were more indirect than married.



MAJOR FINDINGS OF THE SURVEY TYPE STUDIES IN INDIA

It can be seen from the Chart-1 that survey studies can be counted on the finger tips. In India, survey studies started in 1970 only. The studies have surveyed the behaviour patterns of teacher teaching different subjects and at times other variables like age, sex, recency of professional training, experience and marital status etc. The findings revealing the prevailing condition of behaviour patterns of teachers were as follows:

Related to I/D and i/d ratios

Indirect/Direct ratio (I/D) varies from 0.15 to 0.20 while pure indirect/pure direct (i/d) ratio varies from 0.50 to 0.55. The general tendency of teachers' behaviour was more direct than indirect in majority of the teachers. The observation was supported by Pareek and Rao (1970), Buch and Santhanum (1970) and Santhanum, Qurashi and Lulla (1970).

Related to Teacher Talk

Buch and Santhanum (1970), Santhanum, Qurashi and Lulla (1970) and Buch and Qurashi (1970) observed

that the teachers talk was more than 69 percent and was maximum upto 82.6 percent.

Related to Pupils Talk

Pupils talk varying ^{from} 10.40 percent to 21.00 percent was observed - means that less than $\frac{1}{4}$ of the time was utilized by pupils was reported by the studies. Buch and Santhanum (1970), Santhanum, Qurashi and Lulla (1970) and Buch and Qurashi (1970).

Related to Silence or Confusion

Buch and Santhanum (1970), Santhanum, Qurashi and Lulla (1970) and Buch and Qurashi (1970) have observed that confusion- percentages ranges from 4.1 to 10.0.

Related to Cells 5-5

Sustained lecturing (5-5) occupied 44.35 % and 55.00 % in Buch and Santhanum (1970) and Pareek and Rao (1970) respectively.

Related to other variables

Pareek and Rao (1970) observed no difference in the behaviours of the teachers of both the sexes while Santhanum (1972) found males were more direct than female teachers.

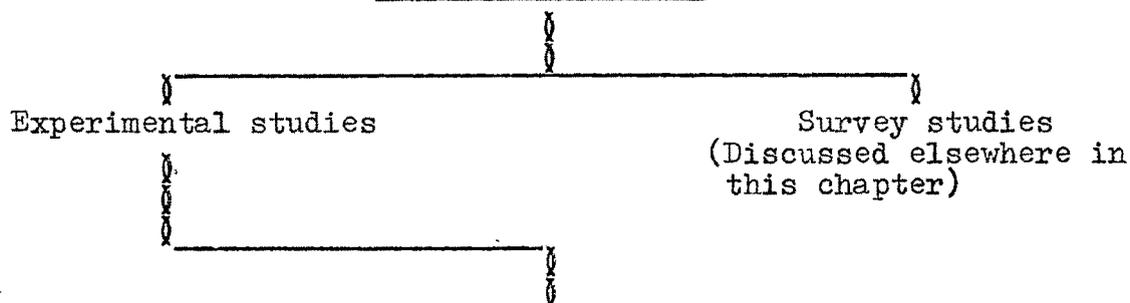
Buch and Qurashi (1970) observed differences in the patterns of behaviour related to variables like age, experience and qualifications, while Santhanum (1972) observed no correlation between patterns of behaviour and age, recency of professional training and experience. Santhanum (1972) also observed that married teachers were more direct than unmarried teachers.

3.2 EXPERIMENTAL STUDIES

Now the experimental studies conducted in India will be glanced through a chart-2.2.

CHART 2.2

STUDIES IN INDIA



Investigator	Year	Major findings
Mehta	1969	All the studies have reported higher achievements in follow-up studies of the experimental group.
Mehta and Kanade	1969	
Mehta and Dandia	1970	
Pareek and Rao	1971	Pupils having more intelligence, high initiative, highly impulsive, less need-persistent and more ego-defensive were found well adjusted in the classes taught by teachers with high I/D ratios. A reverse trend was observed when the content controlled i/d ratio was used.
Pareek and Rao	1971	The teachers of the experimental group have modified their class-room behaviour patterns from direct to indirect and maintained consistently.
Roy B.	1970	In all the four feedback strategies percentage of improvement was fairly high (about 60 %). Pupils' observations and teachers' self-rating feedback were most important things in the teaching learning situations.

contd...

Chart-22 contd....

Investigator	Year	Major findings
Mitra	1971	Pupil tendency is positive towards teachers who use indirect influence but it is not significant.
Nath	1971	The experimental group, after training talked less, had higher i/d ratios and higher pupils initiative than the control group.
Quraishi	1972	The relation between teachers' verbal behaviour in the class-room and their personality traits and attitudes was nominal. Teachers' attitude correlated significantly (at 0.05 level) with I/D and i/d ratios. Teacher behaviour accepting pupils' ideas could not be predicted significantly by personality and attitude.
Sharma	1972	Pattern involving narrow questions was found to be more effective with respect to knowledge objectives. Pattern involving narration showed low attainment in comprehension objective. Pattern involving narrow question is the most effective pattern for comprehension objective. Pattern involving open question did not affect the application objective.
Jangira	1972	Class-room behaviour training did change the class-room interaction patterns of student-teachers. The student-teachers with class-room behaviour training scored significantly higher on class-room interaction variables.

contd....

Chart-2:2contd....

Investigator	Year	Major findings
		The pupils under the trained student teacher scored higher on adjustment, class-room trust and dependency, but was not significant on adjustment to home and peers.
Pangotra	1972	<p>FIACS can be an effective feedback mechanism.</p> <p>The teachers of experimental group praised or encouraged pupils action more than the control group.</p> <p>Pupils ideas were more accepted than giving directions or commands by teacher in experimental group.</p> <p>Pupils response and initiation were praised and accepted more by experimental group teachers.</p> <p>Questioning was more and lecturing was less in the experimental group teachers.</p>
Lulla	1973	<p>Experimental group teachers were more indirect and the pupils under the group scored higher on achievement test.</p> <p>The use of accepting ideas, praises and accepting feeling stimulate the learner to participate more actively.</p>
Desai	1970	<p>The pupils showed a very clear preference and liking for indirect influence of teachers which lead them to their involvement.</p> <p>The teachers' behaviour can be modified with the help of FIACS.</p> <p>As a result of modified behaviour of the teachers the significant gain of 15 percent of marks in school subjects by the pupils was observed.</p>

contd....

Chart-22contd....

Investigator	Year	Major findings
Patel Y.	1973	<p>Indirect teacher influence (I/D and i/d ratios) has favourable effect on motivation and class-room organization and also on the attitudes towards teacher.</p> <p>When i/d ratio (without content emphasis) is taken into consideration, indirect teachers have favourable influence on personal anxiety of their pupils, on the development of independent behaviour among their pupils and on the class-room climate.</p>
Singh	1974	<p>Student teachers trained through micro-teaching, significantly (at 0.01 level) change their verbal teaching behaviour in the class-room.</p> <p>Student teachers trained in FIACS changed their verbal teaching behaviour in the class-room significantly at 0.01 level.</p> <p>Student teacher trained through micro-teaching change their verbal behaviour in class-room significantly at 0.01 level, better compared to the student teachers trained in FIACS.</p>

MAJOR FINDINGS OF THE EXPERIMENTAL STUDIES IN INDIA

The Chart-22 reveals that very few studies having an experimental nature were conducted. The experimental type of studies got momentum in the later part of the decade. The studies have selected different variables for the varification. The studies were conducted in the normal conditions of class-room situations, hence their findings are more applicable for the improvement of different areas in education. The findings are summarised in the following lines:

Related to Teacher Behaviour

The training in FIACS has served as a good feedback tool in modifying the teacher behaviour to indirect patterns. The finding is supported by Roy B. (1970), Desai (1970), Mitra (1971), Nath (1971), Jangira (1972), Pangotra (1972) and Lulla (1973).

Quraishi (1972) observed:

"Teacher behaviour has feeble relation^{ship} with teachers' personality and attitudes".

Related to Categories

The use of praises (Category-2) and accepting pupils' ideas (Category-3) by teachers increased by training in FIACS and it also increased pupils' responses and initiation (Categories-8,9). The same has been supported by Jangira (1972), Pangotra (1972) and Lulla (1973).

The teachers questioning behaviour (Category-4) increased and lecturing (Category-5) decreased after training, Pangotra (1972). Sharma (1972) studied different types of questioning on pupils' outcome relating to comprehension and application objective.

Quraishi (1972) has observed that teacher's personality and attitude has no relation to accepting ideas of pupils (Category-3).

Related to Academic Achievement

Teachers indirect behaviour resulted in higher academic achievement by pupils. This observation was supported by Mehta (1969), Mehta and Dandia (1970),

Mehta and Kanade (1969), Desai (1970) and Lulla (1973).

Related to Mental Health

That pupils are more adjusted under the teachers having high I/D ratio was observed by Pareek and Rao (1971). That pupils under teachers who were trained in FIACS scored higher on class-room ~~that~~ trust and dependency was observed by Jangira (1972).

Jangira (1972) also observed that pupils under trained teachers (In FIACS) scored higher on adjustment to school, teacher and general adjustment, but it was not significant in adjustment to home and peers.

Now the experimental studies conducted in India (mentioned above) will be discussed in detail.

3.2. Experimental studies

Very few studies have appeared in India on this aspect. The studies were experimental in nature, having pretest posttest control group design. The

studies were related to training, feedback and patterns of teachers class-room behaviour as presage variables.

In India, studies relating to process-product variables are few. Mehta and his associates used training in class-room interaction analysis in their "Laboratory in Achievement Motivation" programme, attempted to increase the motivational level of teachers, and to help them developing suitable class-room instructional behaviours with a view to developing effective influence strategies as well as to create friendly climate in the class-room.

Mehta (1969), Mehta and Kanade (1969) and Mehta and Dandia (1970), reported higher achievement in follow up studies of the experimental groups. The experiments are limited from the view point of interaction analysis.

Pareek and Rao (1971) in a study on Motivation Training for Mental Health, attempted to find out the association between the verbal class-room behaviour of teachers and a few dimensions of students Mental Health. The indirect-direct influence ratio

of both types revealed two different and opposite associations. A higher percentage of students who are well adjusted, more intelligent, high initiative taking, highly impulsive, less need-persistent and more ego-defensive in their reactions to frustrations was 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 ratio was used.

Pareek and Rao (1971) studied V grade teachers of Delhi, to modify their class-room interaction patterns by providing 10 day training in interaction analysis. The teachers of experimental and control groups were observed before and after training. Upto a period of 6 months after training, observations were collected. The teachers of the experimental group, reported to have modified their class-room behaviour patterns from direct to indirect and maintained them consistently.

Roy B. (1970) "Changing teacher behaviour ~~through~~ through feedback".

The major objectives of the study were as follows:

- (i) To study some model class-room behaviours to use them for feedback.
- (ii) To try out most effective feedback strategy for changing teachers behaviour.

The sample consisted 54 male and female teachers of social studies of elementary mathematics, general science and languages like Hindi, English and Sanskrit of VI grade from 16 middle schools of Bikaner (Rajasthan).

The methodology adopted for the study was:

- (i) FIACS was used as feedback from external observer.
- (ii) Questionnaires for teachers selfrating, teachers peerrating and pupils observations of the learning observations were prepared.
- (iii) Feedback proformas were prepared to send to teachers.

The study revealed the following major findings:

- (i) The percentage of improvement was fairly high (about 60 percent) in all four feedback strategies.
- (ii) Some teachers did not change.
- (iii) Pupils observations and selfrating were in the first two positions, while external observations and peers ratings were in the last two positions.

- (iv) In teaching-learning process pupils observations and teacher rating feedback were important.
- (v) Teachers who were conscious of likes and dislikes of pupils and who retrospected or inretrospected the teaching learning situation, had better chances of being successful in their profession.
- (vi) The observations and peer-rating data did not helped more in professional growth.

Mitra (1970-71) in seventeen schools of Jabalpur, observed 78 teachers teaching different subjects, using Flanders Interaction Analysis Category System. He also administered attitude questionnaire to the students under the charge of these teachers. He reports a positive tendency on the part of the pupils, of the teachers who use indirect influence, but it is not significant.

Nath (1971) using Flanders Interaction Analysis Category System, conducted an experiment to study the effect of feedback based on interaction analysis. The experiment was conducted on 24 women B.Ed. trainees. Pretraining and posttraining observations were colle-

cted. The study reported that the experimental group, after training in interaction analysis talked less, had higher i/d ratios, and higher pupil initiation, than the control group.

Quraishi (1972) "Personality, attitudes and class-room behaviour of teachers".

The following were the objectives for the study:

- (i) To study the relationship between four dimensions of teacher behaviour, viz. proportion of indirect behaviour to direct behaviour (I/D), proportion of motivating behaviour to controlling behaviour (i/d), proportion of teacher behaviour to student behaviour (T/S) and teacher behaviour of accepting students ideas plus one dimension of students initiation with certain personality traits and attitudes of teachers.
- (ii) To predict the above mentioned five behaviour dimensions on the basis of personality traits and attitudes.
- (iii) To study the effect of personality on proportion of I/D ratio.

The sample of the study consisted of 200 teachers drawn from twenty one secondary schools.

Flanders Interaction Category System was used for observing teachers' class-room verbal behaviour and Thrustone Temperament Schedule was employed to assess personality traits and attitude scales constructed by Wandt, Glassey, and Patel were adopted to measure attitude.

For analysing the data Pearson's product moment correlation technique, stepwise regression analysis and t-test technique were used.

The following were the major findings of the study:

- (i) Teachers' verbal behaviour in the class-room was related in a small measure to their personality and attitudes.
- (ii) Teachers' attitude towards democratic class-room procedures correlated significantly (at .05 level) with I/D and i/d ratios. The coefficient of correlation with I/D ratio was .15 and with i/d ratio .17.
- (iii) The correlation coefficient of reflective trait with I/D ratio was =0.16. (Significant at .05 level).

- (iv) Sociable trait was significantly (.05 level) related to student initiation. The correlation between the two variables was $r = .15$.
- (v) Reflective trait and attitude towards democratic class-room procedures were found to be the best predictors of I/D ratio - which was predicted to the extent of 4 %.
- (vi) In the prediction of i/d ratio, attitude towards democratic class-room procedures, reflective trait, attitude towards management and sociable trait were found to be the best predictors. They predicted i/d ratio to the extent of 8 %.
- (vii) Teacher behaviour of accepting students' ideas could not be predicted significantly by any of the predictor variables.
- (viii) Sociable trait was found to be the best predictor of student initiation to the extent of 2.25 %.
- (ix) T/S ratio could not be predicted significantly by any of the fifteen predictor variables.
- (x) Direct and indirect teachers did not differ significantly from each other on the seven personality traits, implying that personality does not affect teacher behaviour.

Sharma S. (1972) "Relationship between patterns of teacher class-room behaviour and pupils' attainment in terms of instructional objectives".

The major objective of the study was to find out the relative effectiveness of four different patterns of teacher class-room behaviour viz. (1) narration, (2) open questions, (3) narrow questions, (4) narrow question with feedback upon pupils attainment in terms of instructional objectives of knowledge, comprehension and application.

The following hypotheses were tested:

- (i) There will be no difference in the pupil attainment in terms of knowledge objective, when the pupils are taught through any of the four patterns.
- (ii) When the pupils are taught through pattern one, there will be relatively low attainment in terms of comprehension and application objectives than of the students taught through the other three patterns.
- (iii) When pupils are taught through pattern second the pupil attainment will be comparatively high in terms of application objective.

Three female teachers of the same age and experience trained to produce four patterns of behaviour and 416 boys and 557 girls of 48 classes of grade VII of Municipal Corporation Schools of Baroda city, provided the sample for the study. A pre-test and post-test design with four replications was used to see the effect of four treatments applied by three teachers.

A unit on "Aryans" from the course content of grade VIII was taught during all the treatments.

The FIACS was used for the purpose of training the teachers to produce the desired patterns.

The Desai-Bhatt verbal group test of intelligence was used for finding out the IQ of the pupils.

The achievement test in History for grade VII constructed and standardised by Jhaveri was used for pre-test.

The post treatment attainment test was constructed on the basis of three instructional objectives.

Special lesson plans were prepared for the four selected patterns of the teacher behaviour.

For analysing and interpreting the data descriptive statistics, product moment correlations, three way analysis of variance and analysis of covariance were used.

The findings of the study were:

- (i) Pattern third (involving narrow questions) was found to be more effective as compared to the other three patterns with respect to pupil attainment in terms of knowledge objective.
- (ii) Though pattern one (involving narration) showed comparatively low pupil attainment in terms of comprehension objective, none of the patterns showed any differential effect on pupil attainment in terms of comprehension objective.
- (iii) Pattern three (involving narrow question) was found to be most effective pattern as regards the pupil attainment in terms of comprehension objective.
- (iv) Pattern second (involving open question) did not show any effect upon pupil attainment in terms of application objective rather none of the patterns produced any differential effect in achieving this objective.

Jangira N.K. (1972) "Class-room behaviour training of teachers and its relationship with some selected measures of pupils' criteria of teachers effectiveness".

The following were the hypotheses of the study:

- (i) Student teacher with class-room behaviour training, at the end of their student-teaching experience will score higher on class-room interaction variables than the student teachers on conventional programme of student teaching.
- (ii) The student teachers with class-room behaviour training will score higher on class-room interaction variables than the control group.
- (iii) The pupils under the student teachers who are trained in FIACS will score higher on Pre-Adolescent Adjustment Scale, Pre-Adolescent Class-room Trust Schedule.

Twenty student-teachers and 398 pupils in their classes provided sample for the study in Assam.

Pre-test post-test control group design in two phases. Fourteen variables were controlled. Ten

experimental group teachers were provided with an eight weeks training in FIACS, while the control group teachers (ten student teachers) carried on with conventional programme of student-teaching. Pre-training and post-training observations were collected and analysed by using 2 x 2 covariance analysis technique. During the second stage of the experiment pre-test and post-test score of pupils under two groups of student teachers on PAAS, PADS and PACTS were collected and analysed by 2 x 2 covariance analysis technique.

The following were the major findings of the study:

- (i) The Class-room Behaviour Training did change the class-room interaction patterns.
- (ii) The student teachers having training scored significantly higher on seven class-room interaction variables than the control group but scored significantly lower on four variables.
- (iii) The experimental group teachers sustained significantly the differences on class-room interaction patterns even after twenty six weeks.

- (iv) The experimental group pupils scored significantly higher on adjustment to school, teacher, general adjustment, dependency and class-room trust than the control group.
- (v) The pupils under the experimental group teachers scored higher on adjustment to home and peers than the control group but the differences were not significant.

Pangotra N.N. (1972) "A study of the effects of feedback from different sources on the class-room behaviours of student-teachers using technique of interaction analysis".

The objectives of the study were as follows:

- (i) To study the class-room verbal behaviour of B.Ed. student-teachers.
- (ii) To study, to what extent the feedback of FIACS can modify and improve teaching behaviour in the desired direction.

The sample of the study consisted of 48 unmarried female student teachers from College of Education for Women, Panjab. FIACS was used as a tool.

The method of inquiry adopted a pre-test and post-test design to compare the effects of different forms of feedback.

The major findings were as follows:

- (i) FIACS can be an effective feedback mechanism.
- (ii) Student teachers with FIACS feedback scored significantly in the desired direction.
- (iii) Some changes were found in certain patterns.
- (iv) The treatment group teachers encouraged, accepted pupils idea more than control group.
- (v) The treatment group was more indirect in behaviour than the control group.
- (vi) The supervisor engaged in feedback to the student teachers played significant role in modifying the teaching behaviour.

Lulla T.P. (1973) "An investigation into the effects of teacher's class-room behaviour on pupils' achievement".

The study intends to study the effects of the behaviour patterns of teachers on their outcomes in terms of academic achievement of the pupils. The kind of learning is based on the type of teacher behaviour existing in the class-room. The study also attempts to find out the type of teacher behaviour in the class-room and its effect on pupils growth in terms of academic achievements. It means that this study concentrates on the effects of a process variable on a product variable in terms of achievement.

The sample of teachers selected for the study was drawn from 86 schools of the Municipal Corporation School of Baroda city. The experiment was confined to grade VII of these schools. Selected units and instructional material was provided to the teachers of the experimental group.

The study was experimental in nature having 4 weeks duration. The experiment consisted of pre-test post-test as well as experimental and control group. The experiment was conducted in real class-room settings. Laboratory conditions were not created

with a view that the findings might be more useful to the practitioners. For the experiment, teachers with direct teaching behaviour were selected in order to increase indirect teaching behaviour through proper training with the help of FIACS. Observers were also trained and inter-observer reliability using Scott's coefficient of correlation was above 0.85.

The following tools were used in the study:

- (i) Flanders Interaction Analysis Category System was used for observation of teachers class-room behaviour.
- (ii) Desai-Bhatt group test of intelligence was used for equating the groups.
- (iii) Pre and post tests of achievement were also used for measuring the achievements in Geography. The tests were standardized. The reliability of the pre-test was 0.89 and that of post-test was 0.87 by K.R formula.

The analysis of data was done by finding out the t-value, variance and covariance correlations.

The present study has revealed the following major findings from the experiment.

- (i) It was found that the students who were taught by the teachers trained in using indirect behaviour scored higher as compared to their counter parts.
- (ii) Indirect behaviour of the teacher can be increased by giving training which results in better achievement by students.
- (iii) The positive correlations for indirectness ranged from 0.21 to 0.41. The positive correlations for general 'indirectness' ranged from 0.05 to 0.45.
- (iv) The positive correlations for use of praise varied from 0.142 to 0.49.
- (v) The range of positive correlations for use of pupils ideas was 0.05 to 0.40.
- (vi) The investigator has not analysed data in terms of different categories of FIACS and hence not concluded definitely, the effects of a particular category on the achievements of the pupils.
- (vii) The use of category 1,2,3 by teacher may stimulate the learner to participate more actively in the teaching-learning process.

(viii) It is also implied that the use of category 1,2,3 may raise interaction potential of the class-room climate resulting in a free communication and open interaction between the teacher and group of students. It means that indirect influence of the teacher stimulates the learner in learning.

The study suggests several areas of implications on the basis of the results. They are as follows:

- (i) The significant differences in achievement support the teaching method leading to 'indirect' teaching behaviour.
- (ii) Training the observer and maintaining their reliability are two main success points of this system.
- (iii) There are many implications for teacher education programmes.
- (iv) A useful tool for pre-service and in-service education.

Y. Patel (1973) "An inquiry into the relationship between the pupils' attitudes and teacher influence in the class-room". Hypotheses: Teacher Class-room behaviour does not influence:

- (a) pupils' personal anxiety
- (b) pupils' motivation and class-room organisation
- (c) pupils' attitudes towards reward and punishment
- (d) the development of independent behaviour on the part of pupils
- (e) pupils' attitudes towards teacher
- (f) the class-room climate and
- (g) pupils' attitude towards the school

Sample: (a) One hundred teachers teaching History, Geography and languages of VII grade from the primary school run by Ahmedabad Municipal Corporation.

(b) Students studying under the above mentioned teachers.

Tools: (a) FIACS for measuring teacher class-room behaviour.

(b) Attitude scales to measure pupils attitude.

Findings: The following were the major findings of the study:

- (i) Indirect teacher influence (I/D and i/d ratios) has favourable effect on motivation and class-room organi-

zation and also on the attitude towards teachers.

- (ii) Regarding i/d (without content emphasis), indirect teachers have favourable influence on personal anxiety of their pupils, on the development of independent behaviour among their pupils and on the class-room climate.

Singh L.P. (1974) "Interaction analysis, micro-teaching and modification of teacher class-room behaviour".

Hypotheses:

- (i) Student teachers trained by micro-teaching do not differ in their verbal teaching behaviour in the class-room significantly as compared to the student teachers trained by a conventional pattern.
- (ii) Student teachers trained in FIACS do not differ in their verbal teaching behaviour in the class-room significantly as compared to the student teachers trained by traditional way only.
- (iii) Student teachers trained by microteaching do not differ in their verbal teaching behaviour in the class-room significantly as compared to the student teachers trained in FIACS.

Sample: Twenty student teachers from Tilakdhari College, Jaunpur, Gorkhapur, Uttar Pradesh, were selected and out of them 10 student teachers were for the control group while 5 student teachers were for micro-teaching treatment and 5 student teachers were for FIACS group.

Findings: The major findings were:

- (i) Student teachers trained through micro-teaching, significantly (at 0.01 level) changed their verbal teaching behaviour in the class-room.
- (ii) Student teachers trained in FIACS changed their verbal teaching behaviour in the class-room significantly at 0.01 level.
- (iii) Student teachers trained through micro-teaching changed their verbal behaviour in the class-room significantly (at 0.01 level) better compared to the student teachers trained in FIACS.

Desai D.B. (1970): A project - "Achievement Motivation in school pupils" sponsored by National Council of Educational Research and Training, New Delhi, He studied improvement in Teachers' Behaviour,

with a view to changing the school performance.

A sample of twenty teachers from the secondary schools of Kaira district was selected, and was given four day's intensive training in FIACS. Every teacher was observed thrice a week in order to provide proper 'feedback' to him and to the pupils.

The major findings of the study were as follows:

- (i) The teachers' behaviour can be modified with the help of FIACS.
- (ii) The pupils showed a very clear ~~performance~~ preference and liking for indirect influence of teachers which lead them to their involvement.
- (iii) As a result of modified behaviour of the teachers the significant gain of 15 per cent of marks in school subjects by the pupils is observed.

II.4 CONCLUSION

Few studies in class-room interaction have been initiated to understand teaching as it goes on in the class-room are cited above. The studies have also tried to identify effective teaching behaviour

patterns and modify class-room behaviour of teachers accordingly. Combined attempts on teaching and teacher education research is the need of the country to-day.

In this chapter, number of studies were cited which were conducted in India and abroad. In the following lines the high lights of the studies are summarised.

- (1) On an increasing scale, teacher behaviour in the class-room is being studied by researchers in education.
- (2) In evolving class-room climate, teacher class-room behaviour is instrumental.
- (3) The nature of class-room climate depends upon whether the teacher behaviour is autocratic or democratic, dominating or integrating, direct or indirect.
- (4) Different patterns of teacher-pupil interaction is the result of teacher behaviour.
- (5) Teacher behaviour can be analysed, measured and modified.

- (6) Teacher behaviour, class-room interaction and class-room climate are the factors which influence pupils' growth, achievement and attitudes.
- (7) Teachers' indirect behaviour results in increased learning by pupils, under certain conditions.
- (8) Teacher behaviour considerably influence pupils attitude.
- (9) In few studies, teacher class-room behaviour has been used as the predictor variable.
- (10) A series of studies in the area of teacher behaviour and its effect on pupils' growth is needed.
- (11) Experimental studies in the area of teacher class-room behaviour and its relation with pupils growth are on a small sample with short duration.

The investigator is working in the teachers' training college and belongs to teacher education profession. Moreover the investigator is also

interested in the area of teacher behaviour. Keeping in view the results of the previous researches related to teacher behaviour in India and abroad, the investigator is tempted to have the same area for the study. Very few studies of experimental type are conducted in India. To improve the present situations of the class-rooms such studies are badly needed. Experimental studies are useful to improve the educational standard. Hence, the investigator has selected experimental study in the area of teacher behaviour.

The details about the experiment and the tools used are discussed in the next chapter.