CHAPTER III

METHODOLOGY AND PLAN

The review of related studies described in the preceding chapter has shown that in India, very few studies have been conducted, so far, in this area. The present inquiry aims at studying the relationships, if any, between the teacher's communication pattern in classroom and certain perceptual factors of teachers teaching history. In addition inquiry also aims at studying the relationship between communication pattern and some demographic variables. Further an attempt has been made to study the multiple correlation between certain variables and the criterion measures of communication pattern.

Objectives

The major objectives of the study are:

(1)   To enquire into the communication pattern of teachers teaching history in the classes VIII, IX and X of the secondary schools of Greater Bombay and to find its relationship with certain demographic factors

(2)   To study the relationship of the teacher's instructional roles as perceived by himself and his classroom behaviour

(3)   To study the relationship between teacher's instructional goals perception and his classroom behaviour

(4)   To study the relationship between teachers'communication
        pattern in the classroom and his perceptions of the
        teaching profession

(5)   To study the relationship between teacher's classroom
        behaviour and his perceptions of students

(6)   To study the relationship between teacher's classroom
        behaviour and his self perception

(7)   To explore the possibility of developing a regression
        equation to predict teacher communication pattern based
        on perceptual and other factors.

Variables Studied

In the present inquiry a large number of variables have
been studied. These variables could be classified into three
groups. Group I includes variables connected with the teacher
classroom behaviour giving rise to communication patterns. The
various measures of the communication pattern are described
elsewhere in this chapter. Group II comprises of variables in
the perceptual field viz., teacher's self perceptions,
instructional roles perceptions, instructional goals perceptions,
teaching profession perceptions and student perceptions.
Group III comprises of demographic variables viz., teacher's
age, sex, academic qualifications, professional qualifications,
major subject at graduation and methods offered at the time of
professional training.

In order to study prediction multiple correlation is used. indirect/direct (i/d), Indirect/Direct (I/D), Teacher Response Ratio (TRR), and Teacher Question Ratio (TQR) are taken as the measures of communication pattern but as far as prediction of communication pattern is concerned teacher/student talk (T/S), teacher talk (TT) and studenttalk (ST) are added.

Hypotheses

The investigator has led to theformulation of the following hypotheses:

(1)   There is no significant relationship between the teachers' age and their communication pattern.

(2)   There is no significant relationship between the teachers' sexand their communication pattern.

(3)   There is no significant relationship between the teachers' academic qualifications and their communication pattern.

(4)   There is no significant relationship between the teachers' recency of training and their communication pattern.

(5)   There is no significant relationship between the teachers' experience of teaching and their communication pattern.

(6)   The teachers from different types of schools do not differ from each other with regards to their communication pattern in the classroom.

(7)   The graduate teachers do not differ from post graduate teachers in their communication pattern in the classroom.

(8)   The teachers having degree in professional education do not differ from the teachers having certificate with regards to their communication pattern.

(9)   The teachers having history as a subject at graduate level do not differ from the teachers who did not had it at their graduate level in connection with their communication pattern.

(10)   The teachers having history as teaching method do not differ from those who did not had history as the teaching method with regards to their communication pattern.

(11)   There is no significant relationship between the self perceptions of the teachers and their communication pattern.

(12)   There is no significant relationship between the teachers' instructional roles perceptions and their communication pattern.

(13)   There is no significant relationship between the teachers' perceptions of teaching profession and their communication pattern.

(14)   There is no significant relationship between the
        teachers' perceptions of their instructional goals
        and their communication pattern.

(15)   There is no significant relationship between the
        teachers' perceptions of students and their
        communication patterns.

Research Tools

Review of the related study has shown that large number
of observational category system to study teacher classroom
behaviour has been developed. The investigator selected an
existing system viz., Flanders Interaction Analysis Category
System (FIACS) rather than developing a new one. The main
consideration in selecting this system is the case with which it
can be used in Indian classrooms. It does not require the
sophisticated gadgets to record. The Centre of Advanced Study
in Education, M.S. University of Baroda, has been using this
system for a number of years. The investigator also has used
this system in one research study.

Description of FIACS

According to Flanders system ten different kinds of
events are denoted by the numbers one to ten. Of these, seven are
what teachers do, two are what pupils do, and the tenth represents
the occurrence of a silence or confusion in the classroom. The
FIACS is given on pages 49 and 50

A summary of categories, with brief definitions for use
of the observer is given below:

Categories for Interaction Analysis

T E A C H E R T A L K	INDIRECT INFLUENCE	1. * ACCEPTS FEELING: accepts and clarifies the feeling tone of the students in a nonthreatening manner. Feelings may be positive or negative. Predicting or recalling feelings are included.
		2. * PRAISES OR ENCOURAGES: praises or encourages student action or behaviour. Jokes that release tension, not at the expense of another individual, nodding head or saying "um hm?" or "go on" are included.
		3. * ACCEPTS OR USES IDEAS OF STUDENT: clarifying, building, or developing ideas suggested by a student. As a teacher brings more of his own ideas into play, shift to category five.
		4. * ASKS QUESTIONS: asking a question about content or procedure with the intent that a student answers.
	DIRECT INFLUENCE	5. * LECTURING: giving facts or opinions about content or procedure; expressing his own ideas, asking theoretical questions.
		6. * GIVING DIRECTIONS: directions, commands, or orders to which a student is expected to comply.
		7. * CRITICIZING OR JUSTIFYING AUTHORITY: statements intended to change student behaviour from nonacceptable to acceptable pattern; bawling someone out; stating why the teacher is doing what he is doing; extreme self reference.

STUDENT TALK	8. * STUDENT TALK — RESPONSE: a student makes a predictable response to teacher. Teacher initiates the contact or solicits student statement and sets limits to what the student says. 9. * STUDENT TALK — INITIATION: talk by a student which they initiate. Unpredictable statements in response to teacher. Shift from 8 to 9 as the student introduces own ideas.
SILENCE OR CONFUSION	10. * SILENCE OR CONFUSION: pauses, short periods of silence and periods of confusion in which communication cannot be understood by the observer.

* There is no scale implied by these numbers. Each number is classificatory; it designates a particular kind of communication event. To write these numbers down during observation is to enumerate, not to judge a position on a scale.
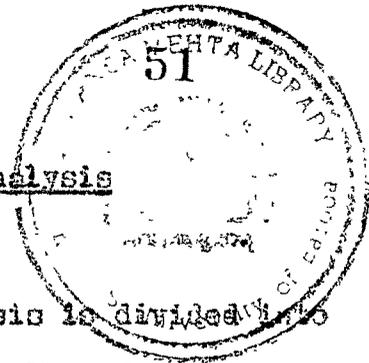
Detailed Description of Flanders Interaction Analysis
Category System:

Flanders system of interaction analysis is divided into
three major sections. Teacher talk, student talk and confusion
or silence. Teacher talk is further classified as either direct
or indirect. The interaction that takes place in the classroom
is categorized in one of the three major sections. FIACS
includes all possible events which can be classified, and can be
coded at constant rate throughout the observation.

The two major sections of teacher talk and student
talk are further divided to make verbal behaviour more meaningful.

Teacher Talk is divided into indirect influence and
direct influence. Indirect influence consists of soliciting the
opinions or ideas of the pupils, applying or enlarging on the
opinions of ideas of the pupils, praising or encouraging the
participation of pupils, or clarifying and accepting the feelings
of pupils, which is further divided into categories. Indirect
influence is reflected in four categories (1) accepting feelings
(2) praising or encouraging (3) accepting ideas (4) and asking
questions. Indirect influence encourages participation by the
student and increases his freedom of action. Direct influence
consists of stating the teacher's own opinions or ideas,
directing the pupils's action, criticizing his behaviour or
justifying the teacher's authority or use of that authority.

Direct influence is represented by three categories (5) lecturing, (6) giving directions (7) criticizing or justifying authority. Direct influence increases the active control of the teacher and often stimulates compliance. Direct influence tends to increase teacher participation and to establish restraints on student behaviour. The net effect is less freedom of action for the students. Student talk is divided into two categories (i) responding to teacher and (ii) initiating talk.

Description of Categories

Category I : Acceptance of feeling :

The teacher accepts feelings when he says he understands the feeling of children. The children have the right to feel the way they feel for which there is no punishment. Feelings may be negative or positive. The statements that recall past feeling, refer to enjoyable or unhappy feelings that are present or prediction of happy or sad events in future is also included in this category.

Category 2 : Praise or encouragement :

In this category teacher's praise or encouragement to the pupils is included. Teacher praises students which communicates the feelings of approval by the teacher, a single word like 'good', 'fine', or 'right' is used for praise. Sometimes it is in a statement like "I like what you are doing".

The repetition of the students answer is also a form of praise. 'Continue', 'go ahead', 'go on' are the expressions for encouragement. Jokes releasing tension but not at the expense of others is also included in this category. A distinction between categories 2 and 1 is that in the first teacher approval is also added.

Category 3 : Accepting Ideas:

The category includes only the acceptance of student's ideas, and not the expressed emotions. When a teacher considers a student's idea, it is category three. The teacher's question based on the student's idea is also category three.

Category 4 : Asking question:

The teacher asks questions to which an answer is expected from the pupils. A rhetorical question is not categorized as a question. Questions that are meant to be answered are of various types. Open ended questions are easy to recognize which gives more freedom to student participation. Flanders says:

> "Teacher questions can be coded in anyone
> of the seven teacher categories; in
> category one if they are objective,
> non-threatening inquiries involving
> attitudes or emotions and designate the
> feeling or emotion; in category two if
> they are intended to praise; in three if they
> are based on ideas previously expressed by
> pupils; in five if they are categorical and
> no answer is expected; in six if they are
> direction; and in seven if they are critical,
> or designed to catch pupils who are day
> dreaming". (Flanders, 1970, p.45).

Category 5 : Lectures:

Lecturing includes expressing opinion, stating facts, giving information and ideas. Usually information given through a lecture is fairly extended in time but it may be interspersed with children's comments, asking questions, encouragement or praise. Category five is the one, most frequently used in classroom.

Category 6 : Giving Directions:

This category is used for statement which are intended to produce compliance when the teacher says, "Will all of you stand up?" "Sheela, go to the board and do the sum", he is giving direction and command.

Category 7 : Criticizing or Justifying Authority:

This category is also used when the student's compliance would take the form of an observable act. A statement or criticism is one that is designed to change student behaviour from nonacceptable to acceptable "I do not like what you are doing. Do something else". Included in this category is self-justification why he is doing what he is doing. Other statements that fall in this category are those of self-reference, categories six and seven are used to indicate close supervision and direction by the teacher.

Category 8 : Student response:

Anything that the student says that is clearly in response to initiation by the teacher belongs to category eight.

Category 9 : Student Initiation:

If the student without prompting, wants to ask a question or makes a statement, category nine is used. Statements in response to broad teacher questions which give students an opportunity to express their own opinion or ideas on the topic are classified as category nine. Voluntary embellishment or enlargement of a topic, expression through independent judgement, creativity and highest mental processes are the examples of category nine.

One of the weaknesses of the Flanders Interaction Analysis Category System (FIACS) is that category nine is the only code symbol which can be used for off-target remarks by pupils, counter dependent statements and resistance to compliance. That is both co-operative and non-cooperative initiation falls into the same category.

Category 10 : Silence or Confusion:

This category includes everything that cannot be included in the other categories. Periods of confusion in communication when it is difficult to determine who is talking

are classified in this category. Absence of interaction through a time pause of silence is also categorised here.

While using this tool, the use of ground rules (Appendix A) is a must. These help the observer to remain consistent in the observation.

Observer Training and Reliability

The investigator has been a trained observer. She had attended a course at the Centre of Advanced Study in Education, M.S. University, Baroda. This training consisted of observation in schools, followed by discussions. By the end of the training period, inter-observer reliability using Scott's coefficient correlation was consistently above 0.85.

A thorough knowledge of ten categories and the ground rules which serve as guide lines at coding stage is important.

The Procedure of Observation

The observer sits in the classroom in the best position so that he can hear and see the participants. At the end of each three second period, he decides which of a prescribed set of numbered categories best represents the communication events just completed. He then codes the category number and continues at a rate of about twenty to twentyfive observations per minute, keeping his tempo as steady as possible. The observation notes are merely a sequence of numbers written in a column, top to bottom, so that the original sequence of events is preserved. These

numbers, afterwards, be entered in the form of tallies on a ten by ten matrix.

(2) Scales to Measure Perceptions

Not very many tools exist; but a set of perception scale is developed by Patted (1975) in The Centre of Advanced Study in Education, M.S. University, Baroda. These scales are selected for use in present investigation. The investigator has used the scales in their original form (Appendix B). Details are given below.

Scale to Measure Self Perceptions

The scale consisted of 40 items -- 18 positive and 22 negative items describing self. The maximum score was $(18 \times 5 + 22 \times 5) = 200$.

Scale to Measure Instructional Roles Perceptions

The scale consists of 24 items -- statements expressing various perceptions (ideas, feelings and reactions regarding the instructional roles) 22 positive and 2 negative items. The maximum score was $(22 \times 5 + 2 \times 5) = 120$.

Scale to Measure Teaching Profession Perceptions

The scale includes 18 words that express various perceptions regarding the teaching profession. It consists of 9 positive and 9 negative items, maximum score being $(9 \times 5 + 9 \times 5) = 90$.

Scale to Measure Instructional Goals Perceptions

There are 18 positive statements that express various perceptions — ideas and reactions — regarding the instructional goals. Maximum score is (18 x 5) = 90.

Scale to Measure Student Perceptions

The scale is consisted of 36 items which express various perceptions regarding the present day students. It includes 16 positive and 20 negative items, maximum being (16 x 5 + 20 x 5) = 180.

Scoring

Positive items score 5, 4, 3, 2 or 1 and negative items 1, 2, 3, 4 or 5 depending on the response of the teacher's to the item. Sum of the item scores gave the score on the scale.

Reliability and Validity of the tool as reported by the author is given in the following Table.

Table 3.1

Reliability and Validity of the Tool

No.	Perceptions	Coefficient of consistency	Coefficient of stability	Range of validity coefficient
1.	Self	.62	.64	.70 - .80
2.	Instructional Roles	.69	.82	.85 - .90
3.	Teaching Profession	.86	.74	.86 - .93
4.	Instructional Goals	.69	.66	.81 - .83
5.	Student	.77	.87	.88 - .93

(3)   Proforma to obtain information of teachers on their demographic variables under study is given in Appendix C.

Description of the sample

The study has been conducted on teachers teaching history in Gujarati medium secondary schools of Greater Bombay. The teachers for the study were selected from the Gujarati medium secondary schools of Greater Bombay being run by private management and by Bombay Municipal Corporation. The sample was selected by using random sampling technique from postal districts in which the area of Greater Bombay is divided.

The subject to be taught by a teacher is not fixed. It changes from time to time, even within the same academic year. As a result the number of teachers teaching history can not remain static. Therefore, it was not possible to give the total number of teachers teaching history in the secondary schools of Greater Bombay. In some schools the subject was taught by undergraduate trained teachers in classes VIII, IX and X.

Sex

The sample of the study consisted of 36 male and 114 female teachers, thus total being 150. This sample was drawn from 74 schools, the number of the boy's schools 11, girl's school 18 and mixed schools 45. The number of teachers in boy's school was 20 (male 11 + Female 9), in girl's school 38 (male 1 + Female 37), in mixed schools 92 (Male 24 + Female 68).

The number of female teachers was more than the number of male teachers. The number of teachers for observation did not exceed five per school. It varied between one and five. Details of the sample is given in the following Tables.

Table 3.2

Types of schools

	Boys' schools	Girls' schools	Mixed schools	Total
No. of schools	11	18	45	74

Table 3.3.

Sex-wise Number of Teachers

Schools	Male	Female	Total
Boys'	11	9	20
Girls'	1	37	38
Mixed	24	68	92
	36	114	150

<u>Sex-wise Distribution as Regards to Different Variables
Describing the Sample</u>

Following Tables 3.4, 3.5, 3.6 and 3.7 show the
sex-wise frequency distribution of teachers' according to
their age, recency of training, teaching experience and
teaching experience in the subject in years.

<u>Table 3.4</u>

Distribution of the Sample According to Age

Years	Male	Female	Total
21 - 25	-	11	11
26 - 30	5	28	33
31 - 35	9	42	51
36 - 40	7	18	25
41 - 45	6	9	15
46 - 50	3	4	7
51 - 55	3	1	4
56 - 60	3	1	4
Total	36	114	150

Table 3.5

Distribution of the Sample According
to Recency of Training in Years

Years	Male	Female	Total
1 — 4	8	26	34
5 — 8	3	25	28
9 — 12	9	38	47
13 — 16	5	18	23
17 — 20	9	5	14
21 — 24	3	1	4
Total	37	113	150

Table 3.6

Distribution of the Sample According to
the Teaching Experience in Years

Years	Male	Female	Total
1 — 5	5	36	41
6 — 10	8	39	47
11 — 15	8	28	36
16 — 20	7	7	14
21 — 25	5	3	8
26 — 30	3	—	3
31 — 35	1	—	1
Total	37	113	150

Table 3.7

Distribution of the Sample According to the Teaching Experience in the Subject

Years	Male	Female	Total
1 - 5	17	60	77
6 - 10	9	33	42
11 - 15	5	11	16
16 - 20	3	3	6
21 - 25	1	-	1
26 - 30	1	-	1
31 - 35	1	-	1
Total	37	107	144 ☉

☉ The teaching experience of six teachers ranged between fifteen days to four months.

Qualifications

All the teachers observed were trained graduates. All teachers except one were B.A. one being B.Sc. in Hom.Sc. Thirteen male teachers and thirteen female teachers graduated with either entire history or with history as one of the subject. Twenty-three male teachers and hundred female teachers were without history as their subject at graduation. Subject wise distribution is shown in the Table 3.9.

Table 3.8

Basic Qualifications of Teachers

Sex	B.A. with History	B.A. without History	B.Sc. Hom. Sc.	Total
M	13	23	–	36
F	13	100	1	114
Total	26	123	1	150

Distribution of sample according to their professional qualifications is shown in Table below.

Table 3.9

Professional Qualifications of Teachers

Sex	Professional Qualifications		Total
	Certificate/ Diploma	Degree	
M	3	33	36
F	4	110	114
Total	7	143	150

Out of 150 teachers only seven teachers were holding either certificate or diploma in professional education. 143 teachers were holding a degree in professional education.

Following Table shows History as a subject at professional qualification of teachers.

Table 3.10

History as a Subject at Professional Qualification

Sex	History as a subject at Professional qualification		Total
	Subject taken	Subject not taken	
M	18	18	36
F	66	48	114
Total	84	66	150

Table reveals that out of 150 teachers sixty-six teachers (M. 18, F. 48) had not taken history as teaching subject at professional qualification.

The Procedure

The investigator with previous appointment observed 150 teachers, teaching history, in Gujarati medium secondary schools. Classes selected were VIII, IX and X. Since there is a marked difference in behaviour pattern at the middle school and the high school stage, the teachers observed were confined to classes VIII, IX and X. The teachers were made to understand that they should teach the subject in their usual way. It was clarified that no special preparation was to be made. At the time of observation, the observer sat in the classroom in the best position from where she could see and hear the participants. The teachers teaching was observed for a duration of 35 to 40 minutes, spreaded over two teaching periods. Though the observation was done for the whole period of 35 minutes, the observation was coded only after the teaching process caught momentum. At the end of each three second period the communication was coded. Marginal notes were made whenever necessary. The observation was done according to Flanders Interaction Analysis Category System (which is described earlier). The interval for observation between two consecutive lessons of the same teacher irrespective of the class varied from two days to two weeks — depending on the convenience of the schools and teachers. While observing the teachers teaching, certain interruptions like a visitor coming to the class, circular brought in the classroom, student

writing on the board or showing the map were considered as 'no verbal interaction' periods and were ignored. Ground rules as shown in appendix helped the observer to remain consistent in the observations.

After the observation of the teachers was completed, the teachers were given the perception scales to be filled in. The following perceptions scale were used.

    (1) Self Perception Scale.

    (2) Teaching Profession Perception Scale.

    (3) Instructional Goals Perception Scale.

    (4) Instructional Roles Perception Scale.

    (5) Student Perception Scale.

Measures of Communication Pattern

The data obtained through observation was recorded in a 10 x 10 matrix. The data is recorded in such a way that certain facts become readily apparent. For example 4, 8, 5, 5, 4, 8, 8, 6 are the classified categories in an observation. It is to be clarified in the following sequence.
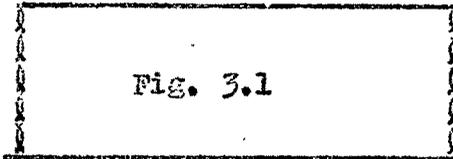
Fig. 3.1

Fig. 3.1

Tabulation of Sequence Pairs in Matrix

10
4
8
3
5
3
4
8
8
8
10

After suffixing and prefixing ten to the series of the categories observed, tally marks were made for each of the two consequtive categories e.g. 10-4, 4-8, 8-5 and so on as follows. The first number of any pair designates the row and the second number designates the column.

Sample 1

Sample. 1

An Individual Matrix — A Sample

	1	2	3	4	5	6	7	8	9	10	Total
1											
2											
3											
4								II			2
5				I	II						3
6										I	1
7											
8					I	I		I			3
9											
10				I							1
Total				2	3	1		3		1	10

Category ten is used at the beginning and at the end assuming each record began and ended with silence. For each period of observation a separate matrix was prepared. As the same teacher was observed twice two matrices of the same teacher were prepared and then combined into one. Thus there were 150 matrices. Once having prepared the matrices of all the teachers under study following ratios as the measures of communication pattern of teachers were computed with the undermentioned formulas.

(1) Indirect/Direct (I/D) Ratio

It conveys an idea of the teacher's indirect behaviour, the emphasis on subject matter being included. This gives the teacher behaviour in its total settings.

It is calculated by using the formula

$$I/D = \frac{\text{Sum of column totals } 1 + 2 + 3 + 4}{\text{Sum of column totals } 5 + 6 + 7}$$

(2) indirect/direct (i/d) Ratio

The i/d ratio on the other hand, is the indicator of the social — emotional climate as generated by the teacher behaviour. The emphasis on content is excluded. It reflects the indirect behaviour through different angle.

It is calculated by using the following formula

$$i/d = \frac{\text{Sum of column totals } 1 + 2 + 3}{\text{Sum of column totals } 6 + 7}$$

(3) Teacher Response Ratio (TRR)

It is a measure of teacher's tendency to react to the ideas and feelings of the pupils.

It is computed with the undermentioned formula.

$$\text{Teacher Response Ratio} = \frac{\text{Sum of column totals } 1 + 2 + 3 \times 100}{\text{Sum of column totals } 1 + 2 + 3 + 6 + 7}$$

(4) Teacher Question Ratio (TQR)

It is a measure of teacher's tendency to use questions when guiding the more content oriented part of the classroom discussion.

Following formula is used to calculate it.

$$\text{Teacher Question Ratio} = \frac{\text{Sum of column totals } 4 \times 100}{\text{Sum of column totals } 4 + 5}$$

(5) Teacher/Student (T/S)

It indicates the teacher talk over student talk in teaching — learning situation in classroom.

It is calculated by using the following formula

$$T/S = \frac{\text{Sum of column totals } 1+2+3+4+5+6+7}{\text{Sum of column totals } \quad 8+9}$$

(6) Teacher Talk (TT)

It is a measure of teacher's talk while teaching in classroom.

It is computed with the undermentioned formula.

$$TT = \frac{\text{Sum of column totals } 1+2+3+4+5+6+7 \times 100}{\text{Sum of all column totals}}$$

(7) Student Talk (ST)

It is a measure of student's talk while learning in classroom.

Following formula is used to calculate it.

$$ST = \frac{\text{Sum of column totals } 8+9 \times 100}{\text{Sum of all column totals}}$$

Measures of Perceptions

The measures are described on pages 57 and 58.

Statistical Techniques Used

The present study is directed to study the relationship between certain measures of teacher communication pattern in the classroom and his own perceptions as well as certain selected demographic variables. The study further attempts to predict teacher's communication pattern.

The statistical techniques used are:

(1)   Descriptive statistics involving the calculation of the means and standard deviation.

(2)   Finding out Pearson's r between the measures of communication pattern and the scores on perception scales, measures of demographic and certain other variables.

(3) t test to compare the communication pattern of teachers belonging to different school types, sex, etc.

(4)   Multiple correlation (R) to study prediction.

Limitations of the Work

(1)   The study is confined to teachers teaching history in Gujarati medium Bombay Municipal Corporation and Government aided secondary schools of Greater Bombay.

(2)   The study is restricted to the observation of relationship between communication pattern of teachers and only five perceptual factors.

The work of data collection was spread over a period of one year. The processing of the data collected was done through the use of the computer centre of the Physical Research Laboratory (PRL) Ahmedabad.