CHAPTER -III

METHODOLOGY

3.1 Introduction

The term methodology refers to the processes and procedures one adopts while carrying out a study in order to achieve the particular objectives specified. With regard to the present study the objectives have already been specified in Chapter I. Methodology is concerned with how one goes about actually conducting research. What particular procedure one might employ in a given investigation will, however, depend upon the nature and the objectives of the study. The method adopted in the present study are explained in this chapter.

3.2 The Design

The present investigation was an intervention study and the approach was developmental in nature. The study aimed at evaluating changes on the same sample of subjects as a result of the intervention strategies employed. Therefore, the time-series design was considered most apt for the purposes of the present study. Kratochwill (1978) recommends the time series paradigm for the evaluation of changes in single-subject researches. The time series researches are represented as "the presence of a periodic measurement process on some group or individual and an introduction of an experimental change into the time series of measurement, the results of which are

indicated by a discontinuity in the measurements recorded in the time-series" (Campbell and Stanley, 1966, p.37). The hallmark of time-series designs is the study of individuals or groups using time as a variable.

Experimentation was ruled out for the purposes of the present study on two accounts: one, unavailability of equivalent groups for experimentation and control purposes, and two, experimentation and the methods that would be adopted to get matched groups would interfere with the normal setting of the school and would, therefore, destroy and large applicability of the study. The present investigation was an attempt to see if the quality of classroom life and student growth could be enhanced without changing the normal structures and schedules of the classroom within the given setting of the school.

The basic outline of the design may be summarized as follows:

$$\underbrace{O_1 \quad O_2 \quad O_3}_{\text{Baseline data}} \quad \ldots \quad I \quad \underbrace{O_4 \quad O_5 \quad O_6}_{\text{intervention effects}}$$

O = Observation
I = Intervention

Figure 1 : Basic outline of the design of the study

The dots in the above outline indicate that while measurements for most of the dependent variables were made thrice after the intervention to determine the intervention effects, there were more than three observations on two variables and only two observations in case of another variable. These are explained in detail under the section on instruments.

The observations were repeated with an interval of four full weeks, except in case of observation number 5 where the interval was 13 weeks due to the intervening summer vacation and late starting of academic year that year.

3.3 The Sample

The subjects for the present study comprised all the students of one of the sections of Standard IX of the Convent of Jesus and Mary School, Baroda, in the year 1983-84. The Convent school is popularly rated to be the number one school for girls in Baroda. Though a girls' school, it admits upto 15% boys into the school. It is run by a Private Management and is government aided. It is an English Medium school and prepares students for the Gujarat State Secondary School Examination. The study continued for a year and a half, and therefore, it followed the students into standard X in the year 1984-85. There were fifty two students when the study began, but as there were four failures and a transfer at the end of the first year, only 47 students were considered while reporting the study. Out of the total of 47 students, 41 were girls and 6 were boys.

The choice of the particular school for the study was made because of the Principal's appreciation for the kind of study proposed and her willingness to provide all the necessary facilities, especially getting the support of the teachers dealing with the particular class. The choice of the class was made by the principal herself. There were ten teachers in all teaching the experimental class, two teachers, one dealing with Physical Education, and the other teaching Arts and Crafts could not be included in the study as they could not participate in the orientation training given to the participating teachers during the intervention phase of the study. Thus, there were eight teachers who participated in the study.

3.4 Interventions

The present study dealt with organizing the experimental class along a humanistic orientation as well as determining the effectiveness of such a stance on the criterion variables already specified under objectives in Chapter I. In order to bring about a humanistic orientation, both the participating teachers as well as the students were given orientation training during the intervention phase of the study.

3.4.1 Intervention for Teachers

The intervention for teachers consisted of the following inputs :

(a) Egan's model of human relations training: the model is an experiential training and aims at cultivating the following interpersonal attitudes and skills:

i) attending
ii) listening
iii) empathy I
iv) respect
v) genuineness
vi) concreteness
vii) empathy II
viii) self-disclosure
ix) confrontation
x) immediacy
xi) problem solving

(b) Training in select concepts of Transactional Analysis

i) ego states
ii) transactions
iii) strokes

(c) Training in the facilitative use of questioning skills.

(d) Training in the use of "I - messages" and the avoidance of "you- messages".

The purpose of the training given to the participating teachers was to develop in them attitudes of acceptance of students and to enable them to invite them (students) to better performance and to embody facilitative teaching skills. The training was spread over two months, meeting twice a week for an hour and a half per session (two consecutive class periods).

3.4.2 Intervention for Students

While the training for the participating teachers was going on, intervention for students was also held. The intervention for students was held in two phases and consisted of training them in the following areas mentioned under each phase.

(a) Phase one : Group building

Using group dynamic exercises, an attempt was made to enhance group cohesion, interpersonal relations, self-and other-acceptance and cooperation. The training was held in groups of students. Each group met for four consecutive days twice, and the duration of each day's session was two hours. The intervention for students also went on for two months. Each group had a total of sixteen hours of training. The training focused on self understanding and acceptance, understanding and acceptance of others and cooperation. This was achieved by training them in:

i) Developing classroom cohesiveness through group dynamic exercises;
ii) Transactional Analytic concepts of ego states, transactions and strokes;
iii) Interpersonal skills like listening, empathy, and respect.

(b) Phase two : Cooperative Classroom Management

Students and the class teacher were involved in drawing up classroom rules and the teacher supported the students to live by them. This was done to ensure that no one infringed on the rights of others and everyone could meet their needs.

The material developed for the intervention for teachers and students may be found in Chapter IV.

3.5 Instruments

In order to ascertain the effectiveness of the humanistic orientation in fostering student growth on the variables specified in Chapter I, it was necessary to use suitable measuring devices. In the present study, the following measurement tools were used for data collection. The necessary particulars regarding each are provided under each instrument.

1. Academic Performance (AP)
2. Rosenberg Self-esteem Scale (RSES)
3. Passi Tests of Creativity (PTC)
4. School Attitude Measure (SAM)
5. Teacher Relationship Perception Inventory (TRPI)
6. Ohio Social Acceptance Scale (OSAS)
7. Cooperation-Competition Disposition Inventory (CCDI)
8. Classroom Participant Observation Schedule (CPOS)
9. Interview Schedule for Students (ISS)
10. Case-Studies.

3.5.1 Academic Performance (AP)

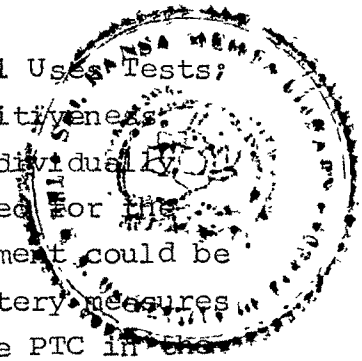
Better performance in academic subjects should be one of the major impacts of an intervention strategy in the classroom. Student academic achievement in the form of percentages of marks obtained in the various tests of standard VIII, IX and X were taken as criteria for academic achievement in the present investigation.

3.5.2 Rosenberg Self-Esteem Scale (RSES)

Students' self-esteem was measured by this scale. The scale measures the self-acceptance aspect of self-esteem. It was developed by Rosenberg (1965) for use with high school students. It is a short scale of ten statements, compressed into six scales. It is easy to administer. The items are answered on a four-point scale from 'strongly agree' to 'strongly disagree', but they are scored only as agreement or disagreement, following Guttman Scaling. It has a test-retest correlation coefficient of 0.85 over two weeks and Guttman Scale reproducibility co-efficient of 0.92. The maximum score on the scale is 6, representing high self-esteem and the lowest score is zero, representing low self-esteem. The scale is appended under Appendix I-A.

3.5.3 Passi Tests of Creativity (PTC)

Students' creativity was measured by Passi Tests of Creativity (Passi, 1979). It was developed for measuring creativity in high school and higher secondary school children. The PTC consists of a battery of six tests, both verbal and nonverbal. The test has a test-retest, raliability, co-efficient of 0.92 over a two-week period and a concurrent validity of 0.46. The first four tests are group administered and verbal.



They are: the Seeing Problems Tests; the Unusual Uses Tests; the Consequences Tests; and the Tests of Inquisitiveness. The last two tests are performance tests and individually administered. Only the first four tests are used for the purposes of the present study. Such an arrangement could be defended as the individual tests of the PTC battery measures different aspects of creativity. The use of the PTC in the present investigation was to discover any growth in creativity on the given instrument as a result of intervention. The test as used in the study is appended under Appendix I - B.

3.5.4 School Attitude Measure (SAM)

The following objectives : motivation for schooling, academic self-concept, both performance-based and reference - based, sense of control over performance, and instructional mastery were measured by the sub-scales of School Attitude Measure. It is a self-report survey instrument developed by Lowrence J. Dolan and Marci Morrow Enos (1980) to provide evaluation of students' affective response to their school experience. To understand better the performance of students in school, it is useful to examine their perceptions of themselves as competent learners. The affective domain is related to students' attitudes, interests and emotional responses. Based on their experiences in school, students develop both negative and positive affective responses. toward the many dimensions of school life. These affective responses lead to the crucial perceptions that students form of themselves as learners. These affective responses can be as important for school success as cognitive ability.

The School Attitude Measure Comprises five subscales. They are:

(a) Subscale A : Motivation for Schooling.

It consists of seventeen (17) items and is concerned with the effect of students' reactions to past school experience upon their motivation in school. The way students have come to feel about their total school experience can influence how hard they want to work in school, how highly they value school, and how much they want to pursue further schooling.

(b) Subscale B : Academic Self-Concept: Performance-Based.

The scale items are concerned with the Students' confidence in their academic abilities and their feelings about their school performance. Students' feelings about their academic abilities can contribute to their success or lack of success in school. The subscale consists of seventeen (17) items.

(c) Subscale C : Academic Self-Concept: Reference-Based.

The seventeen (17) statements which comprise the subscale are concerned with how students think other people (teachers, family, friends) feel about students' school performance and their ability to succeed academically.

(d) Subscale D : Students' Sense of Control Over Performance

The statements comprising this Subscale are concerned with students' feelings about being able to exercise control over situations that affect them at school, like grades and promotions, and to take responsibility for them.

(e) Subscale E : Students' Instructional Mastery

Unlike the first four subscales which dealt with students' feelings, the items of this subscale ask students to report the state of their actual school skills, like their ability to use school time effectively, persistence in instructional tasks, ability to seek and use feedback from others, and ability to evaluate their own work.

The SAM is available in three levels, for use with students ranging from grades four through twelve. In the present study level II survey was used. It has a total of eightyfive (85) items. Each item is marked on a four-point scale, from 'never agree' to 'always agree'. It reports a test-retest reliability of 0.94, with four weeks apart. SAM is appended under Appendix I - C.

3.5.5 Teacher Relationship Perception Inventory (TRPI)

TRPI measures to what extent students perceive their teachers as being facilitative in their teaching, communicating and relating with them. It consists of twenty eight (28) items. It was adapted by the investigator from the inventory bearing the same name developed by Joe Wittmer and Robert Myrick (1974) of the University of Florida. The items are answered along a four-point scale ranging from 'strongly agree' to 'strongly disagree'. The inventory is appended under Appendix I - D.

3.5.6 Ohio Social Acceptance Scale (OSAS)

This is a sociometric scale developed by the Ohio University Elementary Teachers' Association, published in 1962.

The sociometric technique allows us to obtain a visual picture of the pattern of likes and dislikes, that is, interpersonal relationship, between people in a group. Moreno has been associated with the development of this technique and its application in many researches.

The OSAS is a six-point rating scale used to find out the distance at which each member in a group is accepted or rejected. The criteria for rating are provided separately for the six categories. Category number six which is directed to self was not used in the present study since the purpose was only to see the nature of interpersonal relationship in the classroom group (Sundaralakshmi, 1981). The OSAS is appended to Appendix I - E

3.5.7 Cooperation - Competition Disposition Inventory (CCDI)

This is a 19-item inventory for measuring the cooperation-competition disposition of pre-adolescents and adolescents, prepared by Udai Pereek and Narendra Dixit (1974). The subjects are required to respond on a four-point scale, ranging from applicable to not applicable. The score ranges from 19 to 76, the lower range representing low cooperation and the higher range representing high cooperation. The inventory has a test-retest reliability of 0.59 over two weeks. It is appended to Appendix I - F.

3.5.8 Classroom Participant Observation Schedule (CPOS)

Another tool of data collection employed in this investigation was Participant Observation Schedule of Classroom teaching. Bogdan and Taylor (1975) pointed out that participant observation is "characterized by a period of intense social interaction between the researcher and the subject in the milieu of the latter. During this period, data are unobtrusively and systematically collected" (p.5).

Based on the investigator's initial observations of the classroom and the interventions given to the teachers, an observation schedule was prepared by the investigator to systematize his findings. It consists of dimensions of teacher behaviour that are facilitative in nature, student responses and the investigator's impression of student involvement and cooperation with teaching-learning process in the classroom. The observation schedule is appended to Appendix I - G.

3.5.9 Interview Schedule for Students

In order to get more firsthand information of the way the students experienced their classroom life, their teachers and of themselves as learners, the students were interviewed. For this purpose the investigator prepared an interview schedule. In order to provide the students ample scope to express their opinions freely, the interview schedule prepared was a semi-structured one. The interview schedule is appended to Appendix I - H.

3.5.10 Case Studies

The present study may be considered as a case study of a classroom, how the various aspects that make up the classroom undergo changes as a result of the intervention strategies carried out in it. Yet, what happens to the individual students in the class is a matter of conjecture. To remedy this lacuna in knowledge, six case studies, three representing students who showed the maximum gain on some of the variables studied, and three comprising students who did not record any appreciable change for the good, were undertaken. These case studies are included in Chapter V.

3.6 Triangulation as the Approach to Measurement

The present study makes use of both quantitative as well as qualitative techniques of measurement. The investigator is aware of the pitfalls of both the approaches, taken separately, as a genuine measure of dependent variables. Therefore, he has adopted 'triangulation' approach to measurement in the present study.

Denzin (1978: p.291) defines Triangulation as "the combination of methodologies in the study of the same phenomenon". It is a form of research methodology that is convergent and multimethod. It views both the qualitative and quantitative methods as complementary and not as opposites (Harris and Bell, 1986; Jick, 1979; Webb et al. 1966).

Triangulation is an extension of the geographical analogy to researches in education. In Geography, triangulation is the process of mapping out and explaining more fully. In order to map out part of the countryside, certain triangulation points have been established from which others are viewed in three directions. The approach of evaluation from different perspectives is the basis of triangulation. The purpose is to reduce the distortion produced by evaluating in one context by one method. The principle is that multiple viewpoints allow for greater accuracy.

One obvious method of triangulation is to use different information-collecting techniques like rating scales, observations, interviews, etc. together. The rationale for this approach is that ideas that emerge from

two or more techniques have more reliability than those from only one. It allows for validation across methods and thus ensures that the variance reflected is that of the trait being studied and not of the method. This agreement between methods enhances the belief that the results are not a methodological artifact.

Thus, in the present study, administration of rating scales and inventories are supplemented by direct observation as well as by the personal reporting by the subjects in the interview.

3.7 Procedural Details

The study was conducted in three phases: pre-intervention phase, intervention phase, and post-intervention phase. During the pre-intervention phase the investigator ascertained the status of the variables by collecting data three times with a time period of four weeks apart. However, observation of the classroom teaching of the eight participating teachers was done five times and four term tests conducted by the school were taken for criterion of academic achievement. The procedures of data collection are described in the next section.

Right from the start of the pre-intervention phase to the end of the post-intervention phase, the investigator was a part of the class. On the first day, the principal took him to the class and introduced him to the students saying that he was a researcher in Education and that he wanted to study teaching-learning processes and other aspects of classroom life. She also told them that he would spend a lot of time

with them in the classroom that year and a part of the following year, and that his presence was a privilege to them as well as to the school. They would have a lot of time to interact with him and learn from him. She then asked them to welcome him as their very special guest.

The principal also asked the investigator to speak to the students on the purpose of his study. He told the students that he wanted to learn what conditions in the classroom made teaching and learning an enjoyable experience for both the students and the teachers. Learning needs not be the tedious affair that it might be for most of them. He told them that he looked forward to be with them, to learn from them and requested them to consider him as another member of the class. He expressed his intention to get to know each one of them, their interests and the kind of difficulties they faced in the class. He told them that he hoped that all of them together - the students, the teachers and the investigator himself, would make the classroom life and experience a truly learning and enjoyable experience.

Right from the first day onwards, the investigator sat in the class with the students. He normally used to occupy one of the back-row seats from where he could observe all the students and make notes without distracting the class.

The investigator used to be with the class throughout the day on most days all through the investigation period. During the first three weeks of the pre-intervention phase, he familiarized himself with the students by interacting with them informally during the free periods and during recess time. He also worked out a plan as to what aspects of the classroom behaviour and interactions of both teachers and students he

wanted to observe. During this period he developed the Classroom Participant Observation Schedule. He also used the time to get to know each of the eight participating teachers. During the fourth week he administered the different data gathering instruments and repeated them twice with a time gap of four weeks apart.

During the intervention phase, the investigator conducted the various training strategies specified earlier to both the participating teachers and the students. During the post-intervention phase, he repeated the procedures adopted in the first phase to ascertain the effectiveness of the intervention strategies.

3.7.1 Data Collection

During the pre-intervention phase of the study, the investigator administered the different tools of data collection three times, except the Ohio Social Acceptance Scale which was only administered twice. He, however, observed the classroom teaching of each of the participating teachers five times. There was a gap of four full weeks between each test administration.

The tests were administered on any two days of the week in which they were due. The first administration was done on the fourth week from the start of the pre-intervention phase, the second on the eighth week, and the third on the thirteenth week.

For carrying out the test administration two consecutive teaching periods (duration of each period was 40 minutes) on two days of the week were set apart. The teachers

whose classes were given to test administration helped the investigator in administrating them. The students who were absent on these days were administered the tests individually on their return during free periods, or after class. The procedure for administration each time was the same and is, therefore, described here only once. For the sake of timing, the Self-esteem Scale, Passi's Tests of Creativity, and the School Attitude Measure were taken together on one day, and Cooperation-Competition Disposition Inventory, Teacher Relationship Perception Inventory and Ohio Social Acceptance Scale on another day.

3.7.2 Academic Achievement

Percentages of marks obtained by the students in the three term tests of standard VIII and in the first term test of standard IX were taken as criteria for determining academic achievement in the pre-intervention phase of the study. Percentages of marks obtained in the second and third term tests of standard IX and the first and the second term tests of standard X along with those obtained in the Board Examination were considered as measure of academic achievement in the post-intervention phase. The Board Examination was held at the state level, whereas all other tests were conducted by the school.

3.7.3 Rosenberg's Self-Esteem Scale

Cyclostyled copies of the scale were distributed to the students and they were asked to fill in their names and other details required for in the scale. The investigator read aloud the instruction and illustrated the procedure for marking before they were asked to mark the scale. The items were

read together to check if they clearly understood them before they were asked to mark the scale.

3.7.4 The Passi Tests of Creativity

The instructions for the first four tests of creativity and the answer sheets were duplicated separately and a copy of each was given to each student. The students were asked to fill in their names and other details in the answer sheets in the space provided. The general instructions were read and explained and the investigator elicited the students' interest in the test.

Then the instructions for the first test, namely seeing problems Test, were read and explained. The example given in the instruction booklet, using Time Piece as object, was taken up to illustrate the test. The students were told that they would get only eight minutes to answer the test and there were four objects whose defects and problems while using they were to write down. They could write down as many problems as they could within the alloted time. Time for clarification was provided before the start of the test and to make sure that the students understood the procedure. The investigator then gave the names of the four objects, namely shoes, pen, chair and postcard and asked them to write them down against object numbers 1,2,3 and 4 respectively in the answer sheets on pages 1 and 2. When this was done, he asked the students to start the test and started the stop watch. At every two minutes he announced the time and when eight minutes were over he asked them to stop writing.

After the completion of the first test, the students were asked to turn to page three of the instruction booklet for instruction on the second test, namely, the unusual uses

Test. The instructions for answering the test were read and explained. There were eight minutes for completing the test and there were two objects about the unusual uses of which they were to write down. The example given was read and a few more answers were elicited from the students. Then the investigator gave time for clearing any doubt and asked them some questions to make sure they followed what was to be done. The students were then asked to turn to page three of the answer booklet and write down the names of the two objects, Piece of cloth and Bottle, against Object 1 and 2. When everyone was ready, the investigator asked them to begin answering the test and started the stop watch. He announced the time every two minutes and asked them to stop writing when eight minutes were over.

After giving the students five minutes to rest, the investigator asked them to turn to page three of the instruction booklet. He then read and explained the instructions for answering the Consequences Test. He took up the example given in the instruction booklet and elicited a few more answers from the students. When he was certain that all the students had followed the instructions, he asked them to turn to pages three and four of the answer booklet and asked them to write down the four statements in the space provided for in the answer sheet. The statements were: 1) "If human beings start flying like birds", ii) "If all houses start flying", iii) If all people become mad" and iv) "If all females become males". The time allowed was eight minutes. When the students were ready, he asked them to start the test and started the stop watch. An oral indication of the time was given every two minutes and when eight minutes were over, he asked them to stop writing.

The final test on the PTC battery given to the students was the Test of Inquisitiveness. The investigator read and explained to the students the test instructions from the instruction booklet on page 7. He illustrated to them how to ask questions regarding the covered objects on the table by using a book that he had carried to the class. He elicited from them the kind of independent questions they could ask. When he was certain that the students had followed the instructions, he asked them to turn to page six of the answer booklet. There were only six minutes for the test. When the students were ready to begin the test, the investigator uncovered the objects he had kept covered on the table in front. The objects were a metronome and a placard written in capital letters which read: "A FEW CHILDREN CANNOT TOUCH IT". He then set the metronome in motion and asked the students to start writing the questions. He also started the stop watch and gave an oral indication of time every two minutes. When six minutes were over, he asked the students to stop writing.

3.7.5 School Attitude Measure

Copies of the test were distributed to the students and they were explained the marking procedure. The investigator read through the 85 statements of the inventory with the students to make sure that they understood the items before allowing them to mark the test.

3.7.6 Teacher Relationship Perception Inventory

Eight copies of the inventory were given to each student, one for each of the eight participating teachers. The students were then told to write their names and the name of one of the teachers on each copy of the inventory. They

were then explained how to mark the inventory. In order to make sure that the students understood the statements, the investigator quickly went through them with the students and explained when required. After this, he got the inventory filled in by the students.

3.7.7 Ohio Social Acceptance Scale

The students were given a copy of the instructions, answer sheets and a list containing the names of all the students in the class. They were asked to put their names on the answer sheet in the space provided. Then the investigator told the students that in the particular activity that he was about to give them, they were to separate all their classmates into five categories according to the description given under each category. He then read the description under category number one: 'very, very good friends'. When they were clear about the category description, he asked them to write the names of all those among their classmates whom they consider as their 'very, very good friends' in the answer sheet in the space provided. When they made a choice and wrote the name in the answer sheet, they were to strike off that name in the list so that they did not choose any one student twice.

After allowing the students sufficient time, the investigator read and explained the description of category two choices, and the students made their choices and wrote the names of their classmates in the answer sheet in the space provided. The same procedure was adopted regarding categories three, four and five. The students were instructed not to leave out anyone name from the list.

3.7.8 Co-operation - Competition Disposition Inventory

Cyclostyled copies of the inventory were distributed to the students and they were asked to fill in the general information sought for at the beginning of the inventory. Reading aloud the instructions the investigator explained how to mark the inventory. The individual statements were read together to see if the students understood them, or needed further clarification. When the investigator was sure that everyone had understood the procedure and the items, he asked the students to answer the inventory.

3.7.9 Classroom Participant Observation Schedule

While being a participant observer in the classroom, the investigator made use of the observation schedule he developed for systematizing his observations of teachers and students during teaching periods. The focus of these observations was on how teachers incorporated facilitative attitudes in their teaching and communication with students and how students responded to them, that is, either by cooperating with them and involving themselves in the learning process, or disrupting teaching by acts of indiscipline. He observed five classroom teaching periods of each of the eight participating teachers in the pre-intervention phase and another five in the post-intervention phase. There was a period of two weeks between observations.

3.7.10 Interview Schedule

Once during the pre-intervention phase and once during the post-intervention phase, each student was interviewed individually. The investigator was given a room in the school where he could conduct the interviews in privacy. The

interviews were unstructured. The interview schedule containing the lead questions may be found in Appendix I - H. There was no time limit for the interview. Usually, it ranged from one to one and a half hours. The interviews were held during school hours.

3.7.11 Case Studies

Six students were chosen to study in depth. Their choice was done applying the following criteria: three students from among those who gained a great deal in some criterion measures, namely, self esteem, academic performance, and in the overall judgement of the investigator which he arrived at as a result of his months of observation and interaction during the experimentation period and during the two interviews. Similarly, three other students were identified from among those who did not do well in the above criteria.

These six students were interviewed at length a third time. The interview was entirely open-ended. The lead questions were the same as in the other two interviews. An unstructured interview with the parents of these students were conducted in their homes. The interview schedule prepared for use with the parents may be found under Appendix I - I. Based on all these, the investigator made a brief report on each of these six students. The reports are included in Chapter V.

3.8 Data Analysis

The data thus collected, being both quantitative and qualitative, were subjected to both quantitative and qualitative analyses. The quantitative data were subjected to trend analysis following the method of least squares. Researchers have long

depended on visual inspection to make conclusions from experimental data in time-series experiments (Kratochwill, 1978). The data were transformed into line graphs using means of observations and plotted over different intervention phases. The trend analysis data were supplemented by computation of certain select percentiles of obtained raw scores and t-tests to determine levels of difference among successive data points separated by different time intervals in the series. The qualitative data were summarized under appropriate headings. The sociometric data were converted into sociomatrices and from them classroom cohesiveness index and acceptance level were calculated for the four sociomatrices. A fuller detail of analyses of data and the results are presented in Chapter V.