Method of the Study
Chapter - III

METHOD OF THE STUDY

In the preceding chapters, the problem, related studies and tools were discussed. The present chapter is devoted to the method and procedure employed in the study. It includes the sample, design, tools used, procedure of the study and statistical techniques used for the analysis of data.

3.1 SAMPLE

The sample of the study was selected at three levels:

i) The schools sample
ii) The students sample
iii) The teachers sample

3.1.1 The schools sample

Four schools were selected from urban setting of Chandigarh U.T. Since one of the independent variable was “Types of Schools” viz: Residential and Non-Residential, hence the school sample was not drawn randomly. The list of schools of union territory of Chandigarh was procured from the D.E.O’s office and those residential schools were identified which were affiliated to CBSE. Out of the list of Residential schools, two schools were selected randomly i.e. Jawahar Navodaya Vidyalaya, Sector - 25 and Shivalik Public School, Mohali. One of these schools was Central Government managed and one was privately managed.

For selecting Non-Residential Schools, out of the list of schools, two schools were selected. One of which should have been managed by Central Government Board. Hence out of Kendriya Vidyalayas of Chandigarh, Kendriya Vidyalaya, Sector-31 was picked up randomly. This formed one pair of Residential/Non-Residential schools managed by the same organisation.

The second residential school was Shivalik Public Residential School, Mohali, hence another privately managed Non-Residential School was required to make the second pair of Residential/Non-Residential Schools. For this purpose, Shivalik Public School, Sector 41-B (Non-Residential) was selected.

Hence all the four schools chosen for the present study constitute the school sample. The specifications of school sample have been given below in table 3.1.
Method of the Study

Table 3.1
School-wise distribution of the sample

<table>
<thead>
<tr>
<th>Types of schools</th>
<th>Government Schools</th>
<th>Private Schools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>Jawahar Navodaya Vidyalaya, Sector-25, Chandigarh.</td>
<td>Shivalik Public Residential School, Mohali</td>
</tr>
</tbody>
</table>

3.1.2 The students sample

The study was conducted on a sample of 400 students of class IXth both boys and girls from four selected schools of Chandigarh. At least two intact sections of IX grade were taken from each of these schools. The distribution of students in the four schools has been given in the Table 3.2.

Table 3.2
Student-wise break up of the sample

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Name of the school</th>
<th>Type of School</th>
<th>Initially selected sample</th>
<th>No. of students left at the final stage of collecting data</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Jawahar Navodaya Vidyalaya, Sector-25, Chandigarh</td>
<td>Residential</td>
<td>100</td>
<td>64</td>
</tr>
<tr>
<td>2</td>
<td>Shivalik Public School, Mohali</td>
<td>Residential</td>
<td>100</td>
<td>68</td>
</tr>
<tr>
<td>3</td>
<td>Kendriya Vidyalaya, Sec-31 Chandigarh.</td>
<td>Non-Residential</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>4</td>
<td>Shivalik Public School, Sector-41, Chandigarh.</td>
<td>Non-Residential</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td>400</td>
<td>332</td>
</tr>
</tbody>
</table>

All the tools were got filled by these students. The initial sample consisted of 400 students but at the final stage only 332 students were left, rest had dropped out at one or the other stage. Hence this incomplete data was not used for the final analysis.

3.1.3 The teachers sample

From the four selected schools teachers teaching class IX including males and females were selected for the sample. These teachers were required to give their own ratings and for all the students who were participating in the study. So 40 teachers from the same selected schools were included in the sample. The school-wise distribution of teachers sample has been given in the Table 3.3.
Table 3.3
Teachers - wise distribution of the Sample

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Name of the School</th>
<th>Type of School</th>
<th>No. of teachers initially selected</th>
<th>No. of teachers left at the final stage of collecting data</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Jawahar Navodaya Vidyalaya, Sector-25, Chandigarh</td>
<td>Residential</td>
<td>10</td>
<td>8</td>
</tr>
<tr>
<td>2</td>
<td>Shivalik Public School, Mohali</td>
<td>Residential</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>3</td>
<td>Kendriya Vidyalaya, Sector-31, Chandigarh</td>
<td>Non-Residential</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>4</td>
<td>Shivalik Public School, Sector 41, Chandigarh</td>
<td>Non-Residential</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>40</td>
<td>35</td>
</tr>
</tbody>
</table>

All the tools were got filled by these teachers. The initial sample consisted of 40 teachers but at the final stage only 35 teachers were left, rest had dropped out, who did not respond on scales properly.

3.2 TOOLS USED

For the purpose of collecting data following tools were used:

1. The tools for measuring learning environment was developed and validated by the investigator herself. Since learning environment was studied along three dimensions viz:
   a) Academic
   b) Socio-Emotional
   c) Organisational

A separate tool was used to measure each of these dimensions.

a) For Academic Environment following instruments were developed:
   1. A scale for assessment of Teaching - Learning Process developed and validated by the investigator. It was a five point rating scale to be filled up by the teachers.
   3. A check-list of Co-Curricular Activities, developed and validated by the investigator.
   4. A check-list of Material Equipments developed and validated by the investigator.

b) For Socio-Emotional Climate, A scale for Teacher-Taught Relationships was prepared and validated by the investigator. It was a five point rating scale to be filled up by the teachers. It has two parts:
   1. Teacher-taught relational Patterns within the class.
Method of the Study

- Teacher-taught relational Patterns beyond the class.

c) For Organisational Climate, following tools were used:
   - Organisational Climate Description Questionnaire (OCDQ) developed by Halpin and Croft (1963).
   - Job Satisfaction Scale developed and validated by Chandal J.S. (1978).

2. A Scale for Rating Initiative developed and validated by Mehra V. (1986)
3. A Scale for Rating Manners developed and validated by Mehra V. (1986)
5. Academic Achievement Scores (from the school records).

Each of these tools has already been described in details in the preceding chapter.

3.3 DESIGN OF THE STUDY

The present research was designed to study “The learning environment in residential and non-residential schools and its impact on academic achievement, initiative, mannerism and cooperation of high school students.” For the purpose of present investigation ex-post facto design was employed. The main dependent variables were:

i) Academic Achievement
ii) Initiative
iii) Mannerism
iv) Cooperation

The main independent variable was the dimensions of learning environment and a combination of types of schools. The two types of schools (a) Residential and (b) Non-Residential both government and privately managed participated in the study. Learning environment was studied on three dimensions:

a) Academic
b) Socio-Emotional
c) Organisational

Each of these dimensions was exhaustively assessed and as many as seven different tools were used to cover these three dimensions. The description of each of those dimensions has been presented in the layout of the design.

The study was designed to investigate the effect of interplay of these independent variable and sub-variables on the dependent variables i.e. academic achievement, initiative, mannerism and cooperation of students. The lay out of the design has been presented in Fig. 3.1f.
Fig. 3.1f: Interplay of variables and sub-variables related to academic achievement, initiative, mannerism and cooperation.
Method of the Study

The three dimensions of Learning Environment have many sub-dimensions:

Academic Environment focuses around curricular activities, co-curricular activities and material equipments. Curricular Activities viz.: Teaching-Learning Process through teachers perception and scientific observations, Co-curricular Activities like academic activities, social-cultural/national, indoor/outdoor and aesthetic activities and Material Equipments viz.: classroom equipments, library equipments and facilities, and laboratory facilities.

The second dimension of Learning Environment i.e. Socio-Emotional Environment has two sub-variables (i) Teacher-Taught Relational patterns within the class and (ii) Teacher-Taught Relational patterns beyond the class.

In the Organisational Environment, there are two types of sub-variables like organisational climate description of Schools and job satisfaction levels of teachers.

3.4 PROCEDURE OF THE STUDY

The study was conducted in two stages viz: (i) Selection of the sample and (ii) Collection of the data.

Stage I : Selection of the sample:

Procedure of selecting sample of schools, teachers and students has already been described in details under the heading-Sample. After selecting the sample, the second stage of the study started with collection of the data.

Stage II : The collection of data was done in two phases:

Phase I :- Study of learning environment in each of the four selected schools was the most time-consuming job. In the first instance, the investigator contacted the Principals of the selected schools. explained the purpose of her visit and sought permission to collect data in that school. The Principal introduced her to teacher-incharge of class IX and the investigator explained the whole procedure to the teacher incharge. She then invited ten more teachers, who were teaching class IX and requested them to cooperate with the investigator.

For studying the Learning Environment, each of the seven tools were administered one by one. For studying the Academic Environment, i.e. curricular activities viz.: teaching-learning process activities as perceived by the teachers and as observed by the investigator.
co-curricular activities, and material equipment, four tools were used. A rating scale specifying teaching-learning activities, as reported by teachers was administrated. Each teacher was approached individually. Though the instructions were given on the scale still the investigator repeated the instructions for these teachers. Each teacher was asked to give rating on each sub-item of the scale. After the teachers had filled up the scales, their time tables were negotiated so that each teacher could be observed in the actual classroom. What goes on in the class or what kind of teaching-learning process prevails in actual classroom teaching, was the main concern of the investigator. The teaching-learning activities as observed by the investigator, were thus identified through Flanders Classroom Interaction Category System. Each of these ten teachers was observed at least twice during his/her classroom interactions and millage interpretation matrices were prepared. The coding and decoding procedures have already been explained in chapter II.

For studying the second sub dimension of Academic Environment, i.e., co-curricular activities viz; academic activities, social/cultural/national, indoor/outdoor and aesthetic activities, a checklist prepared by the investigator was given to the teachers. To study material environment viz: classroom equipments, library equipments and facilities, and laboratory facilities, another checklist was prepared by the investigator. The teachers reported about the physical/material equipments on this checklist. For the hundred percent return, the investigator regularly visited the schools and ensured to collect each of the tools from all the participating teachers.

To study the Socio-Emotional Environment, the second dimension of learning environment in these schools i.e. Student-teacher relational pattern within the class and beyond the class. A scale for Teacher-Taught Relationships having two sub-rating scales of Socio-Emotional Environment prepared by the investigator was given to the teachers to be filled up.

While studying the Organisational Environment, Organisational Climate Description Questionnaire (OCDQ) was administered and for job satisfaction of teachers, Job Satisfaction Scale was used by the investigator. Both the tools were filled up by the teachers.

Hence tools pertaining to the three dimensions of the learning environment were administered during the first phase of the study.
Method of the Study

Phase II: The second phase of the study was a focus around students. Tools pertaining to all the four criterion variables were administered during second phase. For collecting data on students' Academic Achievement, Initiative, Mannerism, and Cooperation, a list of 100 students of class IX of Jawahar Navodaya Vidyalaya, Sector-25 was made and class teachers of these students were contacted.

For measuring the Academic Achievement of these selected students, the scores of previous year's final examinations, unit test scores, and scores of terminal examinations were collected for each child from their respective school records. The investigator herself collected the scores for each child from the school records and converted it onto a common denominator of 100.

For collecting data on rating scales for Initiative and Mannerism, incharge teachers and teachers teaching these selected students were contacted personally by the investigator who gave their ratings on these scales for all the selected students. Each child was rated on each of these variables by at least three teachers. To study the Cooperation variable, Cooperation-Competition Disposition Inventory (CCDI) was used by the investigator. These inventories were got filled up by the selected students. The investigator tried to establish a rapport with all the selected students by asking general questions relating cooperation. All the attempts were made to make the students answer in a relaxed and normal way.

The same sequence was repeated in all the four schools i.e. Shivalik Public School (Residential), Mohali, Shivalik Public Day School, Sector-41/B and Kendriya Vidyalaya, Sector-31 Chandigarh, after completing the data collection in Jawahar Navodaya Vidyalaya, Sector-25, Chandigarh.

3.5 STATISTICAL TECHNIQUES USED

a) The data pertaining to learning environment were analysed through the following statistical techniques:

- Means and Standard Deviations were used wherever required.
- Rating scales were used for collecting data corresponding to Teaching-learning process as perceived by teachers. The data were analysed through non-parametric statistics like $\chi^2$ test.
- For actual classroom interaction analysis different ratios and percentages were computed. t-ratios were used to find their differences.
Method of the Study

- The data procured on checklists were analysed for their correspondence through $\chi^2$ tests.
- The results were analysed through graphic representations also.
- Teacher-Taught Relationships within the class and beyond the class were studied through Trend Analysis separately.
- A two way analysis of variance was employed to analyse data for job-satisfaction of teachers.

b) *The data pertaining to impact of learning environment* were analysed through the following statistical techniques:

- A two way analysis of variance was employed separately for scores of
  - Academic achievement
  - Initiative
  - Mannerism
  - Cooperation
- In each ANOVA, significant F-ratios were followed by t-test.