CHAPTER IV

PRESENTATION AND ANALYSIS OF THE SOCIOMETRIC DATA

In this chapter sociomatrises and sociograms based on the sociometric questionnaire (which was given to the students to sort out categories of the students i.e., populars, above average, average, below average, neglectees, isolates and rejectees) have been given. Out of the six categories referred to above only four were taken up for the present investigation, since these categories represented the extreme and known overlapping classes of students on the basis of their sociometric status.

4.1 Analysis Of Sociomatrises

4.1.1 Sociomatrix: When a sociometric test has been administered to a classroom group, the resulting data include the list of choices each pupil has made on each sociometric criterion. The sociometric data consist of choices given by each student on each sociometric criterion. The data are used and organised in a manner that the results are usefully and economically obtained. A twofold table called the 'Sociomatrix' is regarded as a convenient way of organizing the sociometric results. Tabulating the data into matrix table is usually the first step in analysing sociometric results. Sociomatrix is merely a twofold table which reveals the choices each pupil has given and received.
4.1.1.1 Constructing the Sociomatrix

The sociomatrix has been constructed taking in view the following steps :-

- A large sheet of squared paper which contained at least ten squares more (both vertically and horizontally) than the number of students in the class.

- On the left hand margin down in the rows the names of all the students according to roll number have been written.

- The roll numbers of students have been written in the columns in the same order as in the rows, across the top margin of the table.

- A diagonal line joining the upper left hand corner and the lower right hand corner of the matrix has been drawn. The line passes through the squares that contain no choices because students do not choose themselves on the sociometric tool. The diagonal helps in knowing the mutual choices.

- At the bottom, rows have been used for summarising information on the choices received from the other students.
4.1.1.2 Tabulating the Data

First of all completed questionnaires are arranged in serial order, beginning with roll number 1. Then they are tabulated one by one. The choices are recorded in the first row meant for roll number 1, by entering in the vertical column which indicates that such and such roll number has been chosen as the first choice on criterion I, again as the first choice on criteria II & III. Then second choice on criteria I, II & III. Then again third choice on criteria I, II & III. Then the rejection of roll number 1 is indicated by placing a 'X' in the column. Thus looking across the table from roll number 1 to last, the choices and rejections will be readily apparent. The use of symbol 'X' for rejection prevents confusion with positive choices. The squares of students who are not chosen at all by their classmates are left blank. The sample sociomatrix has been given in figure 4.1.
Three Criteria, Three Choices & One Rejection

Fig. 4.1

Sociomatrix

Total choices
Category
Rejections received
1.1.3 Basis Of Analysing the Data

The sociomatrix provides a wide range of information which can be readily obtained from it.

(I) SOCIO METRIC STATUS SCORES

The choices received by a student are obtained by counting each entry made in each student's vertical column as one, regardless of whether the choice is given as 1, 2, or 3. Their totals are entered in the row labelled 'Totals on each criterion' at the bottom of the matrix table. Summing the three totals in each column the (overall) 'Sociometric status scores' is obtained. This is entered in the row 'Totals combined'.

(II) SOCIO METRIC CATEGORIES

The students are then classified into six sociometric categories - Popular, Above Average, Average, Below Average, Neglectee and Isolate, based on the sociometric status score they received. The method of classifying them into the six sociometric categories is given in Table 4.1 based on Bronfenbrenner's (1945) fixed frame of reference. Bronfenbrenner worked out critical sociometric status scores for varying numbers of choices with up to three sociometric criteria. In the sociometric analysis of the data given in Table 4.1, three criteria and three sociometric choices were used. The lower limit which identifies neglectee, was three or less choices; the upper limit, which identified popular was fifteen or more choices. The average, or expected number of choices, was nine. Thus the students could be classified into the following different sociometric categories based on the choices they received on the sociometric questionnaire.
The critical raw status scores, given in table 4.1, are applicable to any group which consists of not less than ten and not more than fifty members. And this quality of the 'fixed frame of reference' permits a comparison of the distribution of students in different sociometric categories of different classes of a school directly even though the size of the class is different. No doubt, it is assumed that the criteria employed and the number of choices allotted for each criterion remained the same for all classes. Further the values of upper and lower limits of the 'fixed frame of reference' are statistically significant at the .03 and .02 level. It allows one to say with reasonable degree of confidence that students categorised as populars and neglectees have been placed in the proper sociometric category.

### Table 4.1

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<tr>
<th>Category</th>
<th>Number of Choices Received</th>
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<td>Popular</td>
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After presenting the data collected through various tools, sociomatrices have been shown here from fig. 4.2 to 4.16.
Fig. 4.2 SOCIOMATRIX OF IX B (DEV RAJ GIRLS HIGHER SECONDARY SCHOOL, MAI HIRAN GATE, JULLUNDER CITY).
Fig. 4.3 SOCIOMATRIX OF IX C (LABHU RAM DOABA, HIGHER SECONDARY SCHOOL, JULLUNDUR CITY).
Fig. 4.4 SOCIOMATRIX OF I.X.A (LYALPUR KHALSA HIGHER SECONDARY SCHOOL, AMBEDKAR CHOWK, JULLUNDUR CITY).
Fig. 4.5. SOCIOMATRIX OF I-XA (GOVT. GIRLS HIGH SCHOOL, BHARGO CAMP, JULLUNDUR CITY).
Fig. 4.6  SOCIOMATRIX OF IX B (GOVT. GIRLS HIGH SCHOO
BHARGO CAMP, JULLUNDUR CITY).
Fig. 4.7 Sociomatrix of IX A (Govt. Model Higher Secondary School for Boys, Ladowali Road, Jullundur City).
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<th>BA = BELOW AVERAGE</th>
<th>I = ISOLATE</th>
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TOTALS: 210 0 9 0 8 3 5 9 6 17 23 20 5 25 3 19 16 8 5 7 2 3 9 2 7 9 11 6

SOCIOMATRIX OF IXF (GOVT. MODEL HIGHER SECONDARY SCHOOL, LADOWALI ROAD, JULLUNDUR CITY).
Fig. 4.9 SOCIOMATRIX OF IX A (DOABA KHALSA MODEL HIGH SCHOOL, LADOWALI ROAD, JULLUNDUR CITY)
Fig. 4.10  SOCIOMATRIX OF IX B (DOABA KHALSA MODEL HIGH SCHOOL, \nLADOWALI ROAD, JULLUNDUR CITY).
Fig. 4.11 SOCIOMATRIX OF IXA (S.D.A.S. HIGHER SECONDARY SCHOOL FOR BOYS, PATEL CHOWK, JULLUNDUR CITY).
Fig. 4.12: Sociomatrix of IX B (Govt. Girls High School, Adarsh Nagar, Jullundur City)
SOCIOMATRIX OF IX D (GOVT. GIRLS HIGH SCHOOL, ADARSH NAGAR, JULLUNDUR CITY)
Fig. 4.14 SOCIOMATRIX OF IXA (GOVT. GIRLS HIGHER SECONDARY SCHOOL, NEHRU GARDEN, JULLUNDUR CITY).
Fig. 4.15: Sociomatrix of IX B (Govt. Girls Higher Secondary School, Nehru Garden, Jullundur City)
4.2 Analysis of Choices: Sociogram

4.2.1 Group Structure Sociogram:

Sociogram is the oldest, the best known and the most striking method of presenting the sociometric results vividly in useful ways. It displays the information tabulated in sociomatrix pictorially. It is a picture of underlying social structure of group. Its purpose is to discover group structure and the relation of a group member to the group as a whole. A code is first decided upon to identify different classes of members forming the group. A triangle (△) represents a boy and a circle (○) represents a girl. A code is decided as follows:

1 Here 1 is the roll number of the student and
15 15 is the number of choices received.

Sociogram has been found most useful and convenient for depicting the social structure of an entire group, each member's status in it and the predominant relationships among the group members. The credit of designing the sociogram goes to Northway (1940). It consists of four concentric circles. Northway (1940) placed 'populars' in the centre of the target and the isolates in the outside circle. Other group members were placed between these extremes according to the number of choices received by them. The sociogram has been refined and improved by others. Bronfenbrenner (1944) suggested the use of his fixed frame of reference for
identifying the position and the values of concentric circles in the sociogram. It makes the sociometric categories, represented by the concentric circles, comparable from group to group. The drawing of concentric squares is more convenient than the drawing of concentric circles because squared papers (suggested for sociomatrix are easily available and compass is also not required).

4.2.2 **Drawing and Plotting the Sociogram.**

The target diagram (choices sociogram) as shown in fig. 4.17 is constructed in view of the following steps:

- On a large piece of squared paper four concentric squares are drawn at equal distances apart.

- A vertical line through the centre of the diagram is drawn to provide separate space for the boys and girls. If the school is not co-educational the vertical line is not required. The numbers along this line below each square are written to indicate the choice levels for each of the concentric squares. The choice levels for the concentric squares are obtained from values given by Bronfenbrenner (1944) in table 4.1. Thus for three choices and three criteria students receiving fifteen or more choices on the sociometric questionnaire (populars) are placed in the small square in the centre of the diagram. Next, the above average category students are placed in the first gallery. The below average category students and the neglectees are then placed in their proper places, that is in the second and third galleries - corresponding to the number of choices they received. Lastly, the isolates are placed on the side of the outermost square.
Isolates '0' Choice

Note: (1) Right half is the portion for the boys.
(2) Left half is the portion for the girls.
(3) △ stands for boys.
(4) ○ stands for girls.
(5) The numerator represents the roll number of the student.
(6) The denominator represents the number of choices received by a student.

The sociograms for different classes drawn separately have been presented in Fig.4.18 to Fig.4.32.
Fig. 4.18 CHOICES SOCIОGRAM OF IX B (DEV RAJ GIRLS HIGHER SECONDARY SCHOOL, MAI HIRAN GATE, JULLUNDUR CITY).
Fig. 4.19 CHOICES SOCIOGRAM OF IX C (LABHU RAM DOABA HIGHER SECONDARY SCHOOL, JULLUNDUR CITY).
Fig. 4.20 CHOICES SOCIOGRAM OF IX A (LYALLPUR KHALSA HIGHER SECONDARY SCHOOL, AMBEDKAR CHOWK, JULLUNDUR CITY).
Fig. 4.21  CHOICES SOCIOGRAM OF IXA (GOVT. GIRLS HIGH SCHOOL, BHARGO CAMP, JULLUNDUR CITY).
Fig. 4.22 CHOICES SOCIOGRAM OF IX B (GOVT. GIRLS HIGH SCHOOL, BHARGO CAMP, JULLUNDUR CITY).
Fig. 4.23 CHOICES SOCIOGRAM OF IX A (GOVT. MODEL HIGHER SECONDARY SCHOOL FOR BOYS, LADOWALI ROAD, JULLUNDUR CITY).
Fig. 4.24 CHOICES SOCIOGRAM OF IX F (GOVT. MODEL HIGHER SECONDARY FOR BOYS, LADOWALI ROAD, JULLUNDUR CITY).
Fig. 4.25 CHOICES SOCIOGRAM OF IX A (DOABA KHALSA MODEL HIGH SCHOOL, LADOWALI ROAD, JULLUNDUR CITY).
Fig. 4.26 CHOICES SOCIOMETRY OF IX B (DOABA KHALSA MODEL HIGH SCHOOL, LADOWALI ROAD, JULLUNDUR CITY).
Fig. 4.27 CHOICES SOCIOGRAM OF IX A (S.D.A.S. HIGHER SECONDARY SCHOOL FOR BOYS, PATEL CHOWK, JULLUNDUR CITY).
Fig. 4.28 CHOICES SOCIOGRAM OF IX B (GOVT. GIRLS HIGH SCHOOL, ADARSH NAGAR, JULLUNDUR CITY).
ISOLATES ZERO CHOICE
NEGLECTEES 0-3 CHOICES
BELOW AVERAGES 4-8 CHOICES
AVERAGES 9 CHOICES
ABOVE AVERAGES 10-14 CHOICES
POPULARS 15 & MORE CHOICES

NUMERATOR REPRESENTS THE ROLL NO.
DENOMINATOR REPRESENTS THE CHOICES RECEIVED.

Fig. 4.29 CHOICES SOCIOGRAM OF IX D (GOVT. GIRLS HIGH SCHOOL, ADARSH NAGAR, JULLUNDUR CITY).
Fig. 4.30 CHOICES SOCIOGRAM OF IX A (GOVT. GIRLS HIGHER SECONDARY SCHOOL, NEHRU GARDEN, JULLUNDUR CITY).
Fig. 4.31 CHOICES SOCIОGRAM OF IX B (GOVT. GIRLS HIGHER SECONDARY SCHOOL, NEHRU GARDEN, JULLUNDUR CITY).
Fig. 4.32

CHOICES SOCIOLUM OF IX D (GOVT. GIRLS HIGHER SECONDARY SCHOOL, NEHRU GARDEN, JULLUNDUR CITY).
4.3 Rejectees' Sociograms.

The rejectees' sociograms depict the clear picture of rejections each student received and from whom he has received. Not only this, it also clarifies the mutual rejections received by the pupils. The circle (〇) represents a girl candidate and the triangle (△) represents a boy candidate. In the circles or in a triangles the roll number of the students have been written and arrow (→) depicts to whom the rejection has been given. The double arrow (←→) represents the mutual rejections. These sociograms have been presented in Fig.4.33 to Fig.4.47.
Fig. 4.33 REJECTEES’ SOCIOGRAM OF IX B (DEV RAJ GIRLS HIGHER SECONDARY SCHOOL, MAI HIRAN GATE, JULLUNDUR CITY).
Fig. 4.34 REJECTEES' SOCIOGRAM OF IXC (LABHU RAM DOABA HIGHER SECONDARY SCHOOL, JULLUNDUR CITY).
Fig. 4.35 REJECTEES' SOCIOGRAM OF IX A (LYALLPUR KHALSA HIGHER SECONDARY SCHOOL, AMBEDKAR CHOWK, JULLUNDER CITY).
Fig. 4.36 REJECTEE'S SOCIОGRAM OF IXA (GOVT. GIRLS HIGH SCHOOL, BHARGO CAMP, JULLUNDUR CITY).
Fig. 4.37 REJECTEES' SOCIOGRAM OF IX B (GOVT. GIRLS HIGH SCHOOL, BHARGO CAMP, JULLUNDUR CITY).
Fig. 4.38 REJECTEES’ SOCI Diagram of IX A (GOVT. MODEL HIGHER SECONDARY SCHOOL, BOYS, LADOWALI ROAD, JULLUNDUR CITY).
Fig. 4.39 REJECTEES' SOCIOMGRAM OF IX F (GOVT. MODEL HIGHER SECONDARY SCHOOL FOR BOYS, LADOWALI ROAD, JULLUNDUR CITY).
Fig. 4.41 REJECTEES' SOCIOGRAM OF IX B (DOABA KHALSA MODEL HIGH SCHOOL, LADOWALI ROAD, JULLUNDUR CITY).
Fig. 4.42  REJECTEES' SOCIOGRAM OF I X A (S.D.A.S. HIGHER SECONDARY SCHOOL, PATEL CHOWK, JULLUNDUR CITY).
Fig. 4.43 REJECTEES' SOCIОGRAM OF IX B (GOVT. GIRLS HIGH SCHOOL, ADARSH NAGAR, JULLUNDUR CITY).
Fig. 4.44 REJECTEES' SOCIOMETRIC GRAPHS (GOVT. GIRLS HIGH SCHOOL, ADARSH NAGAR, JULLUNDUR CITY)
Fig. 4.45  REJECTEES’ SOCIOGRAM OF IX A (GOVT. GIRLS HIGHER SECONDARY SCHOOL, NEHRU GARDEN, JULLUNDUR CITY).
Fig. 4.46 REJECTEE'S SOCIOGRAM OF IX B (GOVT. GIRLS HIGHER SECONDARY SCHOOL, NEHRU GARDEN, JULLUNDUR CITY)
Fig. 4.47  REJECTEES' SOCIOGRAM OF IX D (GOVT. GIRLS HIGHER SECONDARY SCHOOL, NEHRU GARDEN, JULLUNDUR CITY).