CHAPTE R-III
METHODOLOGY

Design of the Study:

To study the effect of home environment on the scholastic achievement of the school-going children, a contrast-group design was undertaken. The subjects of this study consisted of the high-achiever and low-achiever students of different schools of Calcutta and their mothers. The student subjects were selected by following the principles of stratified random sampling technique discussed in a latter section of this chapter. General intelligence of the students was tested by Cattell's Culture-Fair Intelligence Test and their school examination marks were taken as the criterion of scholastic achievement.

An interview schedule was prepared to collect relevant information pertaining to the various aspects of the students' home from the mothers. The mothers of the selected students were interviewed and their responses to these questions provided the data to assess the home background. The mother also answered the adapted version of Parental Attitude Research Instrument to assess her attitude towards child-rearing which would influence the atmosphere of the home and the child's mental make-up, and in turn, would be reflected in his academic achievement.
After data collection, the following statistical analyses were employed to determine the influence of home factors on the academic achievement of the students:

1. Intergroup differences with respect to various independent variables were examined by t-test on two contrast groups \( N = 96 + 96 \) - Study I.

2. a) The relationship between the criterion and different factors was determined by the method of correlations on a fresh sample \( N = 250 \) - Study II.

   b) Finally, using the data of Study II, multiple regression equation was computed to determine the weightage of the significant factors influencing the scholastic achievement.

Sample:

The population for the contrast group study was heterogeneous and the heterogeneity was related to the characteristics to be studied. So, the population was divided into subgroups or strata and random samples were then taken from each stratum. Such sample is known as stratified random sample (Croxton, Cowden & Klein, 1971, p. 27). This type of sampling increases representativeness, allowing the use of smaller number than the simple random sampling, with greater precision and reduced cost in time and money. It is "generally beneficial and easy to apply," (Festinger & Katz, 1970, p. 193).
Eight schools in different areas of Calcutta were taken. The academic standard of these schools were of high to medium grades. In each area two schools were selected.

In order to include a wide area, a list of schools approved by the West Bengal Secondary Board of Education was prepared. Then selections were made by following the random numbers in a systematic way and the required number of schools were obtained.

The subjects consisted of 192 students studying in Class II to Class VII of these selected schools, ranging in ages from 7+ to 12 years. Two high-achievers and two low-achievers from each class were selected for the study on the basis of normalized examination marks of the students which totalled to 192 (8 schools x 6 classes x 4 students per class = 192). Out of the total number, 96 were high-achiever and 96 were low-achiever students. The mothers of these children were interviewed and required to fill in the Parental Attitude Research Instrument (PARI) by Schaefer and Bell (Bose, 1977a).

In order to determine the contribution of each home variable on academic achievement the measuring tools were administered to a fresh sample of 250 school students selected from the same population by following the random sample method (Croxton, Cowden & Klein, 1971, p. 23).
Measuring Instruments for the Variables:

The measuring instruments used for the variables have already been discussed in detail in the previous chapter; hence just a brief mention of them will be made here. They are as follows:

1) Cattell's Culture-Fair Intelligence Test of 'g' Scale - 2, Form A was used to assess the general intelligence of the student subjects.

2) A detailed interview schedule was used to collect information regarding the home environment of the subjects.

3) To study the mother's child-rearing attitude, translated the adapted version (in Bengali) of Schaefer and Bell's Parental Attitude Research Instrument was used.

4) The average of last two examination marks, converted to normalized scores, was taken as the criterion of academic achievement of the student.

In India the school examinations are mainly of essay type, where marks are given on subjective assessment. Hence the reliability of marking is liable to criticisms (Harper, 1976). Moreover, the student subjects for this
study were selected from different schools having different marking standards. So, in order to bring uniformity in the marks, the raw scores were converted to standard scores by normalizing the distribution through conversion. The scores of different curricular subjects were averaged to the same value - i.e., zero and each score was made relative to its own standard deviation. Then the standard scores were summed up to get the total score (Mallick, 1963).

Data Collection:

The first step in data collection procedure was to contact the school authorities for an appointment, convenient to them, for administration of Cattell's Culture-Fair Intelligence Test to the student subjects. The time required for administration and completion of the test was forty-five minutes. Then the marks of last two examinations of the students of the selected classes were obtained from the school record books.

The mothers of the student subjects of both the samples (i.e., for Study I and Study II) were interviewed with the interview schedule and the PARI.

The mothers were interviewed at the subject's home. Visiting the home gave the investigator a general idea of the living condition and an estimate of the family background by
casual talks, wherever possible, with other members of the family present besides the mother, though only the mother's responses provided the actual data for this study. It was also considered that the home situation would provide a more congenial atmosphere for the mother to talk about her opinions and ideas frankly than it would have been in school or any other place.

The interview required about forty-five minutes to one and a half hour, depending upon the willingness of the mothers to talk. The interview was recorded 'n verbatim as far as possible.

As many mothers could not give the time required for both the PARI and the interview schedule at a single session, the PARI was given to them according to their convenience at a separate sitting, if and when necessary. The time required to complete PARI was about one hour.

Method of Computation:

The collected data were scored first for various statistical analyses.

The information regarding the home background of the students obtained by the interview with the mothers were divided
into the following heads:

(a) General information - included father's name, parents' age, address, number of children, and number of family members.

(b) Educational Environment - included the educational level of both parents and average education of the siblings. The score was given according to Kuppuswamy's Socio-Economic Status Scale (Kuppuswamy, 1959).

(c) Income - was taken as the total income of the family from primary and secondary sources and converted to per capita income. It will be referred to as Income hereafter. Children below twelve years of age were counted as half adult person (Fraser, 1959).

(d) Social Background - included father's occupation, domestic help and possessions such as radio, cars etc. Occupation was scored according to Kuppuswamy (1959).

(e) Property - considered whether the present living quarters was rented or owned, ownership of any joint family or single landed property and/or house.

(f) Spatial Environment - included the number of rooms in the house converted to per capita space (according to Fraser (1959) and children below twelve years of age were counted as half adult person), child's study space, play space, whether he shared the room with other or not.
(g) Provision of Facilities - consisted of parents' interest in child's study and school work, help rendered for preparation of school curriculum, supply of school requirements, extracurricular interests of the child, play materials given, encouragement for hobbies.

(h) Parent-Child Relationship - included the items which manifested parental interactions through such activities as story-telling, outings, cinema, selection and interest in child's friends, reward - punishment, tensions in home, frequency of conflicts, parents' leisure-time activities.

The scoring of these variables are given in Appendix 'A'.

For each item of PARI, four points were given for 'strong agreement', three points for 'mild agreement', two points for 'mild disagreement' and one point for 'strong disagreement' (Marshall, 1961). The hundred and fifteen items of the inventory were grouped into twenty-three scales, according to the directions given by Schaefer and Bell (1958). Then the scores for the five factors of PARI were obtained by summing up the scores for the scales included in each composite factor.
Cattell's Culture-Fair Intelligence Test of 'g' Scale - 2, Form A was scored by the scoring stencil.

Study I

After scoring, the data were tabulated separately for high-achiever and low-achiever groups. The means and standard directions were determined and the significance of mean differences was tested by t-test for intelligence, home variables and the five factors of PARI.

Study II

After scoring, the data were tabulated for the entire group. To determine the relationship of the different variables to scholastic achievement, Pearson's product-moment correlation coefficients were calculated. The next step was to complete multiple regression equation by Compuchek to determine the influence of different variables on scholastic achievement. On the basis of the weightages, the contribution of these factors were obtained.

The results will be discussed in the next Chapter.