Chapter 3
Methodology of the present research

This chapter discusses in detail the methods followed to investigate the problem mentioned in chapter 1 and 2.

3.1 Variables

A concept which can take on different quantitative values is called variables. In psychological researches qualitative phenomena are also qualified on the basis of the presence or absence of the concerning attributes. There are several dependent and independent variables in this research which were discussed in Chapter 1 and are being further specified below.

3.1.1 Parental Involvement

The term parental involvement specifically means the role of parents in both their children’s academic achievement and socio-emotional development between parents and schools. Active parental participation as well as belief regarding a child’s development in academic and non-academic activities are the specific points.

Present study accepted Hoover’s (1996) model of parental involvement which depicts three dimensions along which parental participation vary. Those are parental belief, efficacy and opportunity. There are also four categories suggested by Hickman and others (1992), namely guidance, dictation, interference and support. In the present research each category has been judged from two perspectives after Hoover, i.e. belief and efficacy.

Belief about what the parents are supposed to do in their children’s education and appears to establish the basic range of activities that parents consider important, necessary and permissible for their children.
Parent’s sense of *efficacy* for helping their children succeed in school focuses on the extent to which parents think that through their involvement they can exert positive influence on their children’s educational outcomes.

Opportunity for involvement refer to parents’ perception that the child and school want them to be involved.

As this study tries to identify the active participation of the parents in any circumstance. The third dimension, namely, *opportunity* has been excluded.

Now the four categories of involvement may be defined as follows:-
*Guidance* means active participation on the part of the child and overall supervision from the part of the parent mutually with a view to achieve either a real or an imaginary goal. Inspiration comes from the parents.

*Dictation* in its truest sense of the term refers to turn the parents as decision maker and students as passive follower, as in the case of authoritarian parents.

*Interference* refers to direct involvement on the part of the parents. Here both the parents and the child are active participant. But the child’s decision, actions or even intentions are questioned and modified by the parents.

*Support* makes the child decision maker and free to act according to their abilities and aptitudes. Still they are followed through by their parents.

All these four categories combined with the dimensions are variables of parental involvement.

Thus the variables in parental involvement are –
*Belief* about *guidance* and *efficacy* in *guidance*,
*Belief* about *dictation* and *efficacy* in *dictation*,
*Belief* about *interference* and *efficacy* in *interference*,

(32)
Belief about support and efficacy in support.

3.1.2 Home Environment
Home Environment means immediate experiences gained by the child from family. It has got structural aspects, socio-economic status aspect and behavioural aspect. All these aspects are the sources of experience of the child. In fact Home Environment is one of the most important factors of parent involvement in child's proper development. Here we accounted seven factors of home environment. Those include emotional life of parents, sociability, social status, intellectual and cultural environment, discipline and control, economic and religious status.

3.1.3 Socio Economic Status
The index of socio-economic status includes family income, living standard and space enjoyed in a home by each and every member of the family, nature of profession, cultural outlook, all modern amenities enjoyed by a family etc. It is also related to children's academic outcomes.

3.1.4 Achievement
Achievement is the subject specific knowledge gained by the student after getting specific training or teaching with specified period of time. Achievement signifies the total progress of behaviour on the part of the child / student. But when one intends to study achievement at different age or grade levels, it becomes difficult to compare with one another because of the subjects and their contents vary so widely that these appear to be completely independent of one another. The present research problem, as it will be evident from the sample intends to compare the three grade levels I, V and IX. Therefore, two basic aspects of achievement have been chosen as variables i.e. numerical achievement and language achievement.

3.1.5 Grade Level
Age or grade level is another important variable in parental research. Nature of parental involvement changes with age both of children and of their parents. In this research problem, in this research programme three grade levels were considered. Formal elementary education
begins at Class I. It signifies starting point of formal school based cognitive training. It is assumed that parents of these children are more confused due to inexperience about their role and efficacy in their child’s education. Therefore involvement at this stage may be characterised by a conflict between parental nurturance and fulfilment of school and social developmental needs. This is the reason behind selecting grade-I as one of the levels.

By the time a child reaches grade V, he is already accustomed not only with the school system but also to bring about a reconciliation between school and societal condition and parental demands. This is a stage of transition from primary to secondary level. Now the parental belief regarding their child and about involvement has been stabilised, all the school subjects have been introduced and this is the period of late childhood (10+) and advent of puberty. Children enjoy relatively greater autonomy so that parental involvement may take a new pattern.

Class IX is marked by beginning of the last lap of secondary stage and therefore is vital as a developmental stage as well as educational stage. With the attainment of full cognitive development, students now have an identity of their own. They want more autonomy and are more self-conscious. Students at this stage are highly influenced by peer group and parents become anxious about anything and everything of their wards. It is assumed that parental involvement now takes a new turn incorporating into it all the belief and efficacy of involvement may well centre around the above mentioned considerations. The degree and pattern of involvement may play a vital role in the life of children which is likely to influence the academic performance.

3.1.6 Parental Age Difference

Parental age levels can only be treated separately if the age is directly taken into account. But the parental age difference may be taken as a variable because all other variables accounted before may be related to this difference. It is also assumed that parental age difference influences the involvement level as well as home environment. This assumption is based on the issue of congruence between the parents due to the extent of age difference. This variable

(34)
has been used to categorize the sample into two groups, namely, parents with high age difference and parents with low age difference.

3.1.7 Sex
Parental sex and child's sex both are considered as of much importance in this study. There is confirmed gender difference in approach of cross culture research. For example, Stevenson and Stigler (1992) highlighted for more active involvement of Asian mothers in their children's education. Parental expectations and aspirations vary according to these variables which affect the degree and pattern of involvement. Like many other societies Indian parents put much of their expectation on male children set higher goals for them and therefore, may display more interest in their schools and studies. Thus for them male children need greater support and guidance, where female children more dictation and interference.

3.2 Tools
3.2.1 Parental Involvement Scale
The research literatures always indicate that parent involvement in children's education appears to be associated with a range of positive outcome. Still there are very few comprehensive scale to measure parental involvement in child's academic and developmental life. As Fantuzzo and Tighe (2000) pointed out the limitations of prior involvement studies are - "Parental involvement is represented typically by small sets of survey items that fail to delineate the multiple ways in which parents can be involved in their children’s education" (P368). There are problems regarding involvement and development connection issues. Some of the scales identified dimensions of involvement (Epstein 1997). Grolnick and Slowiaczek (1994) studied multidimensionality of involvement and relation of each dimension with educational outcome. Fantuzzo developed a valid multivariate scale of family involvement for urban students in pre-school, kindergarten and first grade. FIQ (Family Involvement Questionnaire) is a rating scale that asks primary care providers of young children to indicate the nature and extent of their involvement in their children’s early educational experience. The objective parent study is to explore the relationship between dimensions of involvement (biological father and mother) and educational outcomes. It is a multilevel, multidimensional research. Due to inadequacy of previous research tool (Involvement questionnaire) in Indian...
social situation and the grade levels the researcher attempted to develop a new Parent Involvement Scale.

The steps involved in this work are described below.

3.2.1.1 Item Writing
The first step is Item Writing. Item selection was done on some specific areas, viz. involvement regarding school education, development of knowledge, in emotional development, in social development and in other motivational and economic spheres. Items were selected in the form of multiple choice type questionnaire. There were four responses against each statement (SA, A, D, SD).

In the initial stage the items were selected considering the dimensions at random. For example, perception on school and its efficacy, belief in their children’s ability, confidence on their own efficacy as guidance – cultural, economic, emotional, social and motivational affairs. Total sixty three statements were selected for pretryout.

3.2.1.2 Pretryout
During this stage, parents of fifty school children i.e. fifty mothers and fifty fathers were randomly selected from different schools. There were variation in child sex (Boys and Girls), variation in grade level (grade I – X ), variation in socioeconomic strata (lower, middle, rich). The responses were collected for all the sixty three statements. Another important aspect is that all the families were particularly of two parents. The responses were given by father and mother separately and independently for the same child on the same statements.

After pretryout it was noticed that about thirteen items had stereotyped responses. Otherwise the parents were enthusiastic in giving response. They tried out to point out their own belief and efficacy level through these statements. From pretryout stage fifty items were selected for tryout stage.
3.2.1.3 Try out

In the try out stage parents of hundred school children (i.e. one hundred fathers and one hundred mothers) were selected on random basis like pre try out stage. The responses were collected in the same manner.

The responses were scored according to the scoring key prepared earlier. The scoring key involved the weightage to be given to each response which usually was in the order 4,3,2,1 or strongly agree, agree, disagree and strong disagree or the reverse for negative statements. Again one point must be mentioned here that there were several items where the order of responses were at random and there were order of responses like 4,2,1,3 or 4,1,3,2 or 4,1,2,3, etc. This was carefully done to avoid any stereotype in response endorsement or impression management. A specimen of the questionnaire and scoring key has been annexed with this dissertation in the Appendix A.

After tabulating the responses item-wise for each respondent separately for mothers and fathers, the whole set of data was subjected to item analysis.

3.2.1.4 Item Analysis

On the basis of responses item-item correlation matrix was prepared as the first step of item analysis.

Cluster analysis (Fracture, 1976) was done to identify cluster of items that may measure the same attribute. It is a simple form of correlational analysis, useful technique in itself and can also be used to gain further understanding of the purposes and nature of factor analysis. One of the differences between cluster analysis and factor analysis is that in the former each variable as a unit usually is placed in a cluster, where as in the latter, different portions of the variance of a variable may be assigned to different factors. In other words, cluster analysis is a process of classification which served a more significant purpose for the present study due to obvious reasons.
In this case cluster analysis is justifiable because the number and name of subscales of the questionnaire were derived from the theoretical models for which the researcher could hardly gather any early empirical evidence.

As the preliminary stage of standardisation cluster analysis is thus thought to be beneficial to group the items.

Four clusters were identified through cluster analysis as given below:

a) Guidance,
b) Dictation,
c) Interference,
d) Support.

Each cluster was divided into two categories according to nature of the item, namely belief and efficacy. The third dimension as identified Hoover (opportunity) was not significant rather this part go partly with belief and partly with efficacy.

The details of the cluster analysis are in Table 3.1:

Item-Item correlation table is annexed in Appendix B.

**Table 3.1 Classification of items under different subscales of parental involvement**

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Item Serial Nos. under the dimensions of</th>
<th>No. of Items</th>
<th>Total</th>
<th>B Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Belief Efficacy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Guidance</td>
<td>11, 21, 43</td>
<td>1, 6, 26, 29, 30, 33</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Dictation</td>
<td>8, 28, 32, 48, 50</td>
<td>22, 23, 24, 26, 44, 41</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Interference</td>
<td>9, 14, 16, 38, 40, 47</td>
<td>10, 15, 19, 20, 27, 29</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Support</td>
<td>2, 3, 4, 5, 12, 13, 37</td>
<td>7, 17, 18, 25, 31, 34,</td>
<td>7</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td></td>
<td>35, 42, 45, 46, 49</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>21</td>
<td>29</td>
<td>50</td>
</tr>
</tbody>
</table>
Table 3.2 Mean SD for each Cluster

<table>
<thead>
<tr>
<th>Cluster - I</th>
<th>Cluster - II</th>
<th>Cluster - III</th>
<th>Cluster - IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Father</td>
<td>Mother</td>
<td>Father</td>
<td>Mother</td>
</tr>
<tr>
<td>Mean</td>
<td>2.94</td>
<td>3.09</td>
<td>2.56</td>
</tr>
<tr>
<td>SD</td>
<td>0.27</td>
<td>0.217</td>
<td>0.34</td>
</tr>
</tbody>
</table>

Reliability
Reliability at this stage was estimated by K-R Formula – 21, in terms of internal consistency. The reason for adopting this method is retesting the parents was not feasible and not also the splitting of questionnaire. The respective coefficient is 0.90 for mothers and 0.93 for fathers.

Validity
Validity of the scale is estimated through inter cluster and cluster vs total score correlation. The cluster-cluster correlations are very poor which proves mutual exclusiveness of the cluster. Significant correlations of the cluster with total score are satisfactory. The correlations are given below in table 3.3.

Table 3.3 Inter correlation of the subscales for parental involvement

<table>
<thead>
<tr>
<th></th>
<th>Cluster - I</th>
<th>Cluster - II</th>
<th>Cluster - III</th>
<th>Cluster - IV</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cluster - I</td>
<td>0.005</td>
<td>0.09</td>
<td>0.18</td>
<td>0.47</td>
<td></td>
</tr>
<tr>
<td>Cluster - II</td>
<td></td>
<td>0.21</td>
<td>0.067</td>
<td>0.55</td>
<td></td>
</tr>
<tr>
<td>Cluster - III</td>
<td></td>
<td></td>
<td>0.14</td>
<td>0.53</td>
<td></td>
</tr>
<tr>
<td>Cluster - IV</td>
<td></td>
<td></td>
<td></td>
<td>0.58</td>
<td></td>
</tr>
</tbody>
</table>
3.2.2 Home Environment

Home Environment is one of the central focus in human development. So there are also several dimensions of measurement. Magnuson (1995) argues the total process of environment development relations cannot be understood by studying one aspect after another in isolation from other simultaneously operating elements, it will be useful to know the general frequency with which full array of elements tend to occur.

Home environment measures generally contain cause, not effect indicators. That means the indications of particular environmental dimensions are selected not because they are assumed to reflect some specific underlying cause but because they are presumed to produce a particular effect (Bollen and Lennox, 1991).

Home is one of the most widely used broad scale measures of home environment (Caldwell and Bradley, 1984). There are four versions of HOME and each version has undergone a rather extensive norming and standardisation process and has acquired considerable validation as applied in a wide array of studies throughout the world (Bradley 1994).

As the home environment vary with the socio-cultural background, so this study may not relate any scale prepared on the basis of homes in United States. Here the Home Environment scale prepared by Sharma (1975) used with some moderated approach. This scale is comprised of seventy seven multiple choice type items on seven measures. All these measures are reflected in parent child relation.

The following dimensions were considered for family as per Sharma (1975).

Emotional Life

Emotional life interaction is evidenced through reciprocal feelings of joy, fear, love or hate and communicated by the family members in daily life.

Discipline and Control

The student directly or indirectly is under pressure to confirm to certain standard of conduct.
Sociability / Social weaning
The role of parents in transferring the learners’/students’ interest and abilities is likely to be very wholesome or obstructive bringing to its wake innumerable difficulties and problems for the child.

Social Status
The social status of the family refers to the liberty with which a member in the family prefers to the liberty with which a child is permitted to approach other members in the family.

Intellectual and Cultural activities / environment
This deals with the role of the family in transmitting intellectual and cultural information of the child, ways through which this transference is made and the facilities the children get.

Economic aspect
The occupation of parents and the income of the family that influences the characters of reading and aims.

Religion and conviction in GOD / Religious Status
All children are influenced by religious beliefs, ideas and practices prevalent in their families.

Chornbach reliability for the whole battery of test was estimated to be 0.85 and was considered to be high.

However the original scale (Sharma 1975) was prepared to access the Home Environment as perceived by the learner. For the present purpose language of the original scale was slightly changed, keeping the contents unaltered so that the Home Environment can be assessed from the parents’ point of view. A copy of the scale used is annexed in Appendix C.
3.2.3 Socio Economic Status Scale

The index of Socio Economic Status includes family income, educational level of the family members, nature of profession cultural outlook of the family and participation in social affairs etc. These always vary with ethno-socio-cultural background.

Here the Socio-Economical Status scale (Kuppuswamy 1985) is used with some specific modifications. The measures included

(a) Fathers’ and Mothers’ occupational status,
(b) Fathers’ and Mothers’ educational status,
(c) Description about house,
(d) Vehicle possessed by the family,
(e) Home appliances owned by the family,
(f) Number of helpers in the household,
(g) Detail about subscription of daily magazines or newspapers,
(h) Expenditure on private tuition,
(i) Number of NRI siblings,
(j) Detail about membership in an institution or club.

The scale is given in Appendix D.

Another measure was of SES directly asked to the parents about their Socio Economic Level.

3.2.4 Achievement

It has been already stated that subject specific knowledge is considered as achievement of the student. There are two types of achievements tests: Standardised and Teacher-made. Achievement was recorded in two areas namely numerical skill and language from the examination marks obtained by the students of grade IV and IX in their school examinations.

But a separate measure of achievement was used for grade I in which the achievement in these two areas was rated by their respective teachers in a given format. The reason behind this procedure was that the children of grade I were yet to appear in any examination. The details of the schedule of rating in achievement is given in the Appendix E.
3.3 Sample
To clarify the term sample first we have to throw light upon the concept of population. Best and Khan (1989) defined population as any group of individuals that have one or more characteristics in common that is of interest to the researcher. The population may be all the individuals of a particular type. All the guardians of secondary school students may be a population.

A sample is a small proportion of the population selected for observation and analysis. By observing the characteristics of the sample, one can make certain inferences about the characteristics of the population from which it is drawn. Samples are not selected haphazardly they are chosen in a systematically random way, so that chances or the operation of probability can be utilised.

There are chiefly two types of sampling – Probability and Non-probability.

Probability Sampling
Probability sampling is also known as “random sampling” or “chance sampling”, under this sampling design, every item of the universe has an equal chance of inclusion in the sample.

Non Probability Sample
Non probability samples are those that use whatever subjects are available, rather than following specific subject selection process. Some non probability sampling procedures may produce samples that do not accurately reflect the characteristics of a population of interest. Educational researches because of administrative limitation in randomly selecting and assigning individuals to experimental and control groups after use available classes as samples. The status of groups may be equated by statistical means as the analysis of co-variance.

A sample made up of those who volunteer to participate in a study may represent a biased sample. Volunteers are not representative of a total population.
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**Sample Size**

Before the second decade of the 20th Century statisticians believed that samples should be relatively large so that the normal probability table could be used to estimate sampling error. Several practical observations about sample sizes are (a) the larger the sample, the smaller the sampling error, (b) survey types studies should have larger samples than needed in experimental studies, (c) when sample groups are to be subdivided into smaller groups to be compared, the researcher initially should select large enough samples so that the subgroups are of adequate size for his or her purpose, (d) subject availability and cost factors are legitimate considerations in determining appropriate sample size.

More important than size is the care with which the sample is selected. The ideal method is random selection, letting chance or the laws of probability determine which members of the population are to be selected.

Samples are selected in this study on random basis. Firstly, different schools were selected mainly from urban area of District Howrah and Kolkata in West Bengal. Schools were chosen on the basis of probable socio-economic status of the enrolled students. Selection of samples were restricted to middle SES as ensured by the scores in Kuppuswamy scale. The stratification was done on the basis of (a) child sex, (b) medium of instruction, (c) examination of authority (external), (d) nature of administration (Private, Public, Missionary). All these stratifications were taken to represent the total population i.e. all types of schools existing in Howrah and Kolkata urban areas. Researcher needed total 300 students and their 600 parents in all (data were taken exclusively from two parent family) but name and address of at least 400 students were collected from those schools, because during final data collection there were probability of refusal from many of the guardians.

In order to make the number of students in each category equal few valid cases were also omitted.
Table 3.4 Distribution of children & their parents in the sample
(grade wise & sex wise)

<table>
<thead>
<tr>
<th>Grade</th>
<th>Male Children</th>
<th>Father</th>
<th>Mother</th>
<th>Female Children</th>
<th>Father</th>
<th>Mother</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>100</td>
</tr>
<tr>
<td>II</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>100</td>
</tr>
<tr>
<td>IX</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>100</td>
</tr>
<tr>
<td>TOTAL</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>300</td>
</tr>
</tbody>
</table>

3.4 Data Collection

While deciding about the method of data collection to be used for the study, the researcher should keep in mind two types of data, Primary and Secondary. The primary data are those which are collected afresh and for the first time and thus happen to be original in character. The secondary on the other hand, are those which have already been collected by someone else and which have already been passed through the statistical process.

Present research has adopted the method of Data Collection – through specially prepared questionnaire (as mentioned under research tool) unlike common questionnaire method, the responses were collected through direct contact. This direct contact with the parents of the children raises the reliability of the data. Though it was very time consuming and expensive, data were collected by home visit after prior appointment over telephone. Responses from the couples were obtained separately but simultaneously.

3.5 Research Design

In present research factorial design was used to study the various mean differences and interaction effects. Also correlation design was used to study the multivariate relationship between home environment and parent involvement.
3.6 Hypotheses

The following Hypothesis were drawn for the present study:

**H:1** Mean scores in parental involvement along all the eight dimensions will vary due to parental sex (father and mother), child sex (boys and girls), grade (I, V and IX) and parental age difference (high and low).

**H:2** Mean score in the perception of home environment along all the seven dimensions will vary due to parental sex (father and mother), child sex (boys and girls), grade (I, V and IX) and parental age difference (high and low).

**H:3** Mean score in the perception of home environment along all the seven dimensions will not differed due to parental sex (father and mother).

**H:4** Home environment as perceived by the parents along all the seven dimensions will vary between high and low achieving children.

**H:5** Parental involvement along all the eight dimensions will vary between high and low achieving children.

**H:6** Factors of parenting involvement will be positively correlated with the factors of home environment.

**H:7** Nature of home environment will determine the nature of parental involvement and therefore parental involvement as dependant variable can be predicted by the factors of home environment.

3.7 Analysis of Data

The data after collection has to be processed and analysed in accordance with the outline laid down for the purpose at the time of developing the research plan. The first two stages of analysis i.e. scoring and tabulation were done manually.

Two types of statistical analysis were done for the present research, univariate descriptive analysis and multivariate analysis. Means and Standard Divisions were calculated for all the subgroups and for all the scores. Coefficient of correlations were calculated to find the relationship among different variables and each dimension. ANOVA was conducted to study the Mean difference and interaction effects. Regression analysis was done to predict the effect of home environment on parental involvement.