CHAPTER 3

METHOD

The method used to test the hypotheses in connection with the present study could be discussed conveniently under four sections, namely, (1) The sample, (2) The tools, (3) Data collection procedure, and (4) Statistical techniques.

3.1. THE SAMPLE

The subjects for the present study consisted of adolescent children of 13-15 years, studying in the IX standard of the different types of schools of Ernakulam district, Kerala. Educational psychologists and counsellors have observed that academic pressures mount up at the time when the children come to standard IX and standard X. Therefore, it was decided to focus the study on adolescents within an age range of 13-15 years. The study was confined to just one standard, that is, standard IX of the three year higher secondary school stage, with a view to exercise some control over the age of the children as well as to minimise practical difficulties in the administration of the tools.

The validity of any field of study will be based on the sampling technique used for the purpose. In the present study, the sampling
procedure, namely, stratified proportionate random sampling was used to get a more representative and unbiased sample from a less homogenous population consisting of different strata of schools. In view of the fact that the children coming from the different strata of schools differed widely with respect to the variables of the study, it was decided to select proportionate samples from all the different types /strata of schools.

The method of selecting the children included in the sample was as follows. The Ernakulam district, Kerala, is divided into four educational sub-districts. For the study, samples were selected from a population of schools of two educational sub-districts, namely, the Ernakulam educational sub-district (within the city corporation limit) and the Tripunithura educational sub-district (a suburb of Ernakulam). The list of names of schools of both the sub-districts were obtained from the District Educational Officer (DEO). The list of schools coming under the private-unaided category was obtained from the office of the Ernakulam private schools organisation.

The different types and number of schools coming under the two educational sub-districts were: (1) Government schools, \((N=21)\), (2) Private-aided schools, \((N=28)\), (3) Private-unaided schools, \((N=14)\), and (4) Kendriya Vidyalaya/Central schools, \((N=1)\).
The government and private-aided schools are affiliated to the Department of Education, Kerala state and are following the Secondary School Leaving Certificate (SSLC) syllabus. The private-unaided schools are affiliated to the Central Board of Secondary Education (CBSE) and are following the syllabus prescribed by the CBSE. The Kendriya vidhyalaya is affiliated to the Department of Education of the Central Government.

A proportionate sample of schools were selected from all the category of schools except the kendriya vidhyalaya. The only one kendriya vidhyalaya was excluded because permission could not be obtained for covering the students for this study. The remaining three types of schools formed the strata from which a proportionate number, that is, 25 percent of schools were drawn at random. The schools were selected from each stratum using the table of random numbers. Some of the schools selected were co-educational schools, mainly the private-unaided schools; others were either girls’ schools or boys’ schools. Thus, the sample comprised of adolescents from 15 schools, consisting of five government schools, seven private-aided schools and three private-unaided schools. The technique of stratified proportionate random sampling enabled to get a proportionate number of randomly selected schools from all the three strata of schools.
There were several divisions of standard IX in each school and hence one division was randomly selected by taking lots and this formed the second stage of random sampling. A personal-data questionnaire was then distributed among all students of the randomly selected division of the standard IX. These questionnaires helped to select children hailing from intact nuclear families, with both parents residing with them, and those who are free of major physical handicaps and chronic illnesses. This kind of preliminary screening enabled to eliminate the influence of all these factors on the extent of pressure exerted for achievement in studies.

A split-up of the sample based on types of schools, number and sex of the children are given in Table 1.

<table>
<thead>
<tr>
<th>Type of School</th>
<th>Number of children</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Boys</td>
<td>Girls</td>
</tr>
<tr>
<td>Government school (n=5)</td>
<td>31</td>
<td>69</td>
</tr>
<tr>
<td>Private-aided school (n=7)</td>
<td>80</td>
<td>138</td>
</tr>
<tr>
<td>Private-unaided school (n=3)</td>
<td>44</td>
<td>36</td>
</tr>
<tr>
<td>Total (n=15)</td>
<td>155</td>
<td>243</td>
</tr>
</tbody>
</table>
Table 1 shows that a total of 398 adolescent children of IX standard were selected from five government schools, seven private-aided schools and three private-unaided schools with a total size of 155 boys and 243 girls. The sample size of the children of government schools were 100 with 31 boys and 69 girls. The sample size of the children of private-aided schools were 218 with 80 boys and 138 girls. The sample size of the children of private-unaided schools included 80 children with 44 boys and 36 girls.

3.2. THE TOOLS

The present study encompasses the following variables: (1) Overall Parental Pressure, (2) Perceived Parental Pressure, (3) Academic interest, (4) Academic Achievement, (5) Self-esteem, (6) Creativity, and (7) Socio-economic status variables. The following tools were used to measure the variables under study.

1. Parental Pressure Inventory (PPI)
2. Perceived Parental Pressure Inventory (PPPI)
3. Academic-Interest Inventory (AII)
4. Self-esteem Inventory
5. Non-verbal Test of Creative thinking
6. Personal Data questionnaire which measures the socio-economic status variable in addition to giving personal data.

The variable academic achievement was measured in terms of the percentage of average marks obtained for the first terminal, second terminal and final examinations of the IX standard.

The tools, namely, Parental Pressure Inventory, Perceived Parental Pressure Inventory, and Academic Interest Inventory are henceforth referred in the abbreviated forms PPI, PPPI, and AII respectively. These three inventories are developed by the investigator in connection with the present study.

3.2.1. Development of Inventories: PPI, PPPI and AII

Parental pressure in studies causing physical and psychological stress and strain on children has become a problem of great concern to educationists and psychologists. No educationist/psychologist is so far known to have developed a tool to measure the nature and extent of parental pressure experienced by today's adolescents. This necessitated the development of a new inventory to measure the pressure exerted by parents for achievement in school and Parental Pressure Inventory (PPI) was therefore constructed.
The tool, namely, Perceived Parental Pressure Inventory (PPPI) was developed by the investigator to get a more accurate and valid measure of parental pressure. Ausbel (1958) has reported that children's reports of their parents' behaviour have been found to be more relevant and useful than those reported by parents themselves, because personality development is influenced more by the attitudes and behaviours of the parents which the child perceives rather than those reported by parents themselves or by observers.

The Academic Interest Inventory (All) was constructed by the investigator to measure the children's interests and attitudes related to studies in general, since the existing interest inventories measure only the children's interest in specific academic subjects like mathematics, their vocational interest, etc.

The different steps followed in the development of the three inventories are given below.

3.2.1.1. Item Preparation

In the first phase of the tools, attempt was made to have a correct conceptualisation of the main variables under study, namely, the parental pressure for achievement in school and academic interest of children. This
was made possible through: (1) An exhaustive review of literature related to the variables, namely, parental pressurisation for studies and children's achievement in school, (2) Discussions with child development experts, school teachers and counsellors, and psychiatrists regarding the problem, and (3) Informal interviews on the problem under study with a good number of IX standard students and their parents.

The proper conceptualisation of variables enabled to prepare a draft for each of the three inventories with a large number of items under each draft-scale. The items were edited and was submitted to child development experts for opinion and criticism and was modified according to their suggestions. Pre-pilot study was conducted using the three-draft scales on a small group of subjects from the same population under study and this enabled to make some more modifications in the draft. The draft-inventories thus prepared contained a pool of items that was item analysed in the next step to get the final form of the inventory.

3.2.1.2. Item Analysis

The purpose of doing item analysis is to select from a pool of items the ones which most effectively obtain the information one wants and to eliminate the less effective items from draft-scale.
In the present study, item analysis of the inventories were done using Likhtert method, as detailed by Edwards (1957). For this purpose, a pilot study was conducted in which the three draft-scales were administered to a representative sample of 300 children of class IX. The children were rank ordered on the basis of the total scores in the draft-scales and the upper and lower one-third of the subjects were selected as the high and the low scoring groups respectively. The t-values of the items in the three draft scales of the high scoring and low scoring groups were computed and were ranked. The details of item analysis of the three inventories are shown in Appendix 1,2 and 3. Those items which showed significant difference between high and low groups were retained in the final form of inventories and the inventories were constructed by listing the retained items.

The PPI consisted of 5 sections and item analysis was done for each section separately. In section-I, all the 10 items were retained, as all the items differentiated between high and low groups significantly. In section II, also, all the 10 items were retained. In section-III, out of the 12 items, 10 were retained. In section-IV, out of 16 items, 15 items were retained. In section-V, out of 15 items, 14 items were retained. Thus by using item analysis, from the 63 items of the draft-scale, 59 items were selected in the
The final form of the scale. The t-values obtained for each of the items of PPI are given in Appendix 1.

The t-values relating to the items of PPPI are given in Appendix 2. All the items except one showed significant t-values. Thus from a pool of 31 items, 30 items were retained in the final scale.

The t-values relating to the items of AII are shown in Appendix 3. All the items except one showed significant t-value and hence 35 items were retained in the final scale.

3.2.1.3. Reliability and Validity

The major objectives of item analysis are the improvement of total score reliability or of total score validity, or both (Koul, 1988).

The reliability of the tests was estimated using the method of internal consistency reliability analysis. The PPI had five sections and the reliability coefficients were calculated for each section separately. Reliability coefficients obtained for the tests constructed by the investigator using a sample of 200 children are shown in Table 2.
Table 2. Internal Consistency Reliability Coefficients of the Newly Constructed Tests

<table>
<thead>
<tr>
<th>Test</th>
<th>Reliability coefficients</th>
<th>Guttman Split-half</th>
<th>Cronbach's Alpha</th>
<th>Spearman-Brown Split-half</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. PPI</td>
<td>Section-I</td>
<td>.78</td>
<td>.81</td>
<td>.78</td>
</tr>
<tr>
<td></td>
<td>Section-II</td>
<td>.88</td>
<td>.87</td>
<td>.89</td>
</tr>
<tr>
<td></td>
<td>Section-III</td>
<td>.61</td>
<td>.70</td>
<td>.64</td>
</tr>
<tr>
<td></td>
<td>Section-IV</td>
<td>.87</td>
<td>.90</td>
<td>.87</td>
</tr>
<tr>
<td></td>
<td>Section-V</td>
<td>.69</td>
<td>.79</td>
<td>.70</td>
</tr>
<tr>
<td>2. PPPI</td>
<td></td>
<td>.56</td>
<td>.86</td>
<td>.56</td>
</tr>
<tr>
<td>3. AII</td>
<td></td>
<td>.78</td>
<td>.88</td>
<td>.79</td>
</tr>
</tbody>
</table>

Table 2 shows the internal consistency reliability coefficients namely Guttman split-half, Cronbach's alpha and Spearman-Brown split-half coefficients of the three newly constructed tools, PPI, PPPI and AII.

As may be seen from the table, for section I of PPI, the Guttman split-half coefficient is 0.78, Cronbach's alpha is 0.81 and Spearman-Brown split-half coefficient is 0.78. For section II, the Guttman split-half coefficient is 0.88, Cronbach's alpha is 0.87 and Spearman-Brown split-half coefficient is 0.89. For section III, the Guttman split-half coefficient is 0.61, Cronbach's alpha is 0.70 and the Spearman-Brown split-half 0.64. For
section IV, the Guttman split-half coefficient is 0.87, Cronbach's alpha is 0.90 and the Spearman-Brown split-half coefficient is 0.87. For section-V, the Guttman split-half coefficient is 0.69, the Cronbach's alpha is 0.79 and the Spearman-Brown coefficient is 0.70. The values of these reliability coefficients are indicative of good reliability for the PPI.

The PPPI has a value of 0.56 as Guttman split-half coefficient, 0.86 as Cronbach's alpha and a value of 0.56 as the Spearman-Brown split-half coefficient. These values show good reliability of PPPI.

The All has a value of 0.78 as the Guttman split-half coefficient, a value of 0.88 as the Cronbach's alpha and a value of 0.79 as the Spearman-Brown split-half coefficient. These values of reliability coefficients are indicative of the good reliability of the inventory.

Evidence regarding the validity of the inventories lies in procedures adopted for developing them. The items in all the three inventories were meticulously prepared after a thorough review of literature on related topics. The alarming rise in the stress-related problems of the high school students in Kerala due to academic pressures is a problem of great concern and hence while studying such a problem, the investigator acquired first hand knowledge about it by making informal interviews with a good
number of adolescents and their parents. Also the investigator discussed the various aspects of the problem with different school teachers, student counsellors and psychiatrists. Child development experts were consulted to scrutinise the selected items and to make judgements. Thus the investigator was able to make sure that all the relevant content areas were adequately represented in the scale. Therefore, each of the newly constructed scales can claim for content validity.

The PPI and PPPI can claim to have good concurrent validity which is a form of criterion-related validity. This is established by the fact that a significant correlation coefficient of .62 was obtained between OPP (measured using PPI) and PPP (measured using PPPI). Both the inventories measure parental pressure but from two sources, as reported by parents as well as their adolescent children.

3.2.2. Parental Pressure Inventory (PPI)

The variable parental pressure is multidimensional because it is possible that there exist some amount of variation in the strategy adopted by parents in pressurising children in academic matters. Accordingly, the parents' inventory for measuring the academic pressure was constructed with 59 items under five sections and are described below.
Section I - Parental expectations for children's academic excellence: This section consisted of 10 statements against which two alternatives (Yes or No) were provided as responses.

Section II - Parental anxiety over children's studies: This section consisted of 10 items against which three alternatives (Always, Sometimes, and Never) were provided as responses.

Section III - Parental attitudes towards studies: This section consisted of 10 items. Two alternatives (Yes and No) were provided against each statement.

Section IV - Parental control over children's studies: This section consisted of 15 items, against which three alternative responses (Always, Sometimes and Never) were listed.

Section V - Parental control over children's extracurricular activities: This section consisted of 14 items against which three alternative responses (Always, Sometimes, and Never) were provided.

The items of the inventory as well as the instructions were printed both in Malayalam and English. The purpose of the study, the need to
give honest responses, and the instructions for answering were printed at
the beginning (vide, Appendix-4).

3.2.2.1. Scoring Pattern

The scoring was done in such a way that higher score indicated
greater pressure for academic excellence. Each section was scored
separately and the scores of all the sections were added to get the measure
of overall parental pressure (OPP).

Section I: All the 10 items were indicative of expressing higher parental
expectation over their children's studies and were given a score of one
and zero, for the responses 'Yes' and 'No' respectively. Higher score
showed higher parental expectations.

Section II: All the items were revealing parents' anxiety over children's
studies and were given scores of two, one and zero for the responses
'Always', 'Sometimes', and 'Never' respectively. Higher scores showed
higher levels of parental anxiety.

Section III: The items revealing unfavourable attitude towards studies
(favouring control over children's studies) were given scores of one and
zero for the responses 'Yes' and 'No' respectively. The items showing
favourable attitude towards studies were reverse scored. Higher scores in
this section indicated, unfavourable, restrictive attitude towards studies.
Section IV: All the items indicated more parental control over children's studies and were given scores of two, one and zero for the responses 'Always', 'Sometimes' and 'Never' respectively. Higher score indicated more parental control over children's studies.

Section V: The negatively worded items (indicating more control over extra-curricular activities) were given scores of two, one and zero for the responses 'Always', 'Sometimes', and 'Never' respectively and those positive items (indicating less control) were inversely scored. Thus a higher score in this section indicated more control over children's extra-curricular activities. Scoring key for PPI is given in Appendix- 4(a).

3.2.3. Perceived Parental Pressure Inventory (PPPI)

The inventory deals with the children's report of the pressure exerted by parents. The items of the PPPI was constructed based on parents' inventory (PPI), including a number of items of the former except that of the section III, parental attitude towards studies. This section was not included because children's report of the parental attitudes may not give reliable and valid data. The items were worded in such a way as to elicit responses from children, which would reveal the perceived parental pressure. Therefore, the variable perceived parental pressure was measured in terms of children's perception of parental aspirations and
parental anxiety and parental control over studies and extra-curricular activities.

The final version of inventory consisted of 30 items, 12 of which were indicating no pressure for studies and 18 items showing pressure exerted by the parents. Three alternative responses (Always, Sometimes, Never) were provided against each statement. The subjects had to read each item, and put a tick mark against each in the appropriate space. The items were printed both in Malayalam and English (vide, Appendix- 5).

3.2.3.1. Scoring

The scoring was done in such a way that higher score indicated higher perceived parental pressure. The scores of the responses were zero, one and two for the response categories, 'Always', 'Sometimes', and 'Never' for the positively worded items (those items revealing low perceived pressure) and two, one and zero for the same response categories for the negatively worded items (those items revealing high perceived pressure). The sum of the scores for all the items constituted the total score for perceived parental pressure variable. The scoring key is given in Appendix- 5(a).
3.2.4. **The Academic Interest Inventory** (All)

The Academic Interest inventory constructed by the investigator consisted of items that reveal children's attitude towards education in general, the importance of their studies in particular, their interest in studies, and the stress related their studies and examination.

The inventory consisted of 35 items, both positively and negatively worded ones. The first 15 items had three response categories, namely, 'Agree', 'Undecided' and 'Disagree', and for the rest of the items, the responses listed were 'Always', 'Sometimes', and 'Never'. The subjects had to read each statement or item and put a tick mark (✓) in the appropriate response against each item. The sum of the scores of all the items gave the measure of academic interest of children (vide, Appendix-6).

**3.2.4.1. Scoring**

The scoring was done in such a way that higher score indicated better academic interest. The scores of the responses were two, one and zero for the responses: (a) Agree/Always, (b) Undecided/Sometimes, and (c) Disagree/Never for the positively worded items. The scores were in the reverse order for the negatively worded items. The sum of the scores
of all the different items constituted the total score on the scale. The scoring key is given in Appendix- 6(a).

3.2.5. Self-esteem Inventory

This is a standardised instrument developed by Thomas and Sanandaraj (1985) to measure the general self-esteem of the adolescent children of Kerala. The inventory made use of the self-report method, all the items being in the form of self-evaluative and/or self-descriptive statements. The items were expected to tap self-evaluation of the subjects from a wide variety of behavioural domains including academic, social, emotional, familial and physical aspects.

The test contained 25 items with 12 positively worded and 13 negatively worded items arranged in a random order. Each item had five response categories, namely, A, B, C, D, and E. (A) denotes 'Strongly agree', (B) denotes 'Agree', (C) denotes 'Undecided', (D) denotes 'Disagree', and (E) denotes 'Strongly Disagree'. The respondent had to put a tick (✓) mark in any one of the categories, according to his choice. The items were printed both in Malayalam and English (vide Appendix - 7).
3.2.5.1. Scoring

For scoring, a weight of five, four, three, two and one were given to categories (A), (B), (C), (D) and (E) respectively for the positive items. The scores were in the reverse order for the negative items. The total count obtained in each category was taken and was multiplied by its respective weights. The scores for the separate categories were then summed up to obtain the self-esteem score of the individual. The maximum score was 125 and minimum score 25.

3.2.5.2. Reliability and Validity

The authors administered the inventory on 100 subjects (55 male and 45 female, class IX students) and the split-half reliability coefficient calculated was 0.95, after correction using Spearman-Brown prophecy formula. The re-test reliability obtained on a sample of 120 secondary school subjects was 0.90. The above values indicate that the inventory is a reliable instrument for measuring the self-esteem of secondary school pupils. As the inventory was modelled after a few well known inventories meant for measuring self-esteem (Coopersmith, 1967) it may be said to possess content validity. In addition to this, validity is determined empirically with the help of self-esteem scores obtained by means of a
teacher-rating technique developed by Coopersmith (1967). This was adopted with slight modification and the 'Behavioural Esteem' scores obtained on 53, IX grade students were correlated with self-esteem Inventory. The correlation coefficient of 0.41 obtained was significant at 0.01 level. The inventory can thus be called a valid tool for measuring self-esteem.

3.2.6. Creativity Test

The Non-verbal Test of Creative Thinking developed by Mehdi (1985) was used to measure the children's ability to deal with figural content in a creative manner. The children were also asked to provide a suitable title to the picture they were creating and the titles were scored for verbal creativity. Three types of activity were used for measuring creativity: (1) Picture Construction, (2) Picture Completion, and (3) Triangles and Ellipses.

The Picture Construction activity presented the children with two simple geometrical figures, a semi-circle and a rhomb and required them to construct an elaborate and original picture with an interesting and unusual title. The children were given 10 minutes to complete the first activity. The second activity, named, Incomplete Figures Activity
consisted of 10 line drawings which could be made into meaningful pictures of different objects. Each item was scored for verbal and non-verbal, elaboration and originality. The children were given 15 minutes for completing the 10 items. The third activity, namely, Triangles and Ellipses provided the children, with seven triangles and seven ellipses and they were asked to construct different meaningful pictures based on the two given stimuli. A total time of 10 minutes was given for this activity (vide Appendix - 8). In all the three activities, the titles as well as the pictures were scored for elaboration and originality.

3.2.6.1. Reliability and Validity

The test re-test reliability found out by Mehdi (1985) for the factor elaboration was 0.93 and that of the factor originality was 0.95. The test retest reliability coefficient of the total creativity score was 0.95. The validity coefficients against the teacher ratings for the factors elaboration, originality and the total creativity scores were 0.35, 0.34, and 0.39 respectively.

3.2.6.2. Scoring

The scoring scheme given by Mehdi (1985) was followed, but the original as well as the revised scoring guides for originality weights of the
non-verbal responses given by him were found inappropriate for scoring originality of non-verbal content, because the investigator found a number of new responses, not mentioned in the scoring guide, which had to be scored for originality. It was also found that some very common non-verbal responses given by the subjects had to be given high scores for originality, if they are scored using Mehdi's scoring guide. Hence for the present study, the investigator worked out originality weights for the new non-verbal responses using 200 subjects from the sample under study, using the scoring scheme given by author. The scoring guide thus prepared was used for scoring originality in the non-verbal area. New responses not mentioned in the scoring guide are scored for originality later, based on the scoring scheme given in the test-manual. The newly developed scoring guide for scoring the originality responses in the non-verbal area are detailed in Appendix- 8(a). The procedure for scoring of the originality and elaboration responses of the non-verbal and verbal creativity given by Mehdi is elaborate and hence, it is also detailed in the Appendix- 8(a).

3.2.7. Personal Data Questionnaire

The questionnaire consisted of 17 items and was used to elicit personal information of the respondents like name, age, sex, religion,
school and home address, type of family, birth order, whether both parents are staying with the child, whether they suffer from chronic illness or disability and whether the mother is employed or not. The same questionnaire also revealed information regarding the socio-economic variables like father's and mother's education, father's and mother's occupation and the average monthly income of the family from all sources (vide, Appendix-9).

In this study, the measure for the socio-economic status variable of children was obtained by adding the scores awarded to father's and mother's education, father's and mother's occupation, and the average monthly income of the family from all sources.

3.2.7.1. Scoring

The socio-economic variables like father's and mother's education and occupation were scored based on the weightage given in the SES scale by Srivastava (1978). There were eight categories of items which relate to parental education. The item of occupation relates to the primary occupation of the parent and there are seven categories of items within this variable. The scores were allotted to each category of items of parental education and occupation. The scoring of the socio-economic
variables is detailed in Appendix- 10. The variable, average monthly income was scored based on the classification of income groups by the Greater Cochin Development Authority (GCDA) 1991, Kochi, Kerala.

3.3. DATA COLLECTION PROCEDURE

The preliminary step of the data collection process includes making a work plan for administering the tools to the concerned sample, and getting permission from concerned authorities for carrying out the investigation.

The authorities of the schools selected for the study were contacted, permission obtained and the time was fixed up to conduct the investigation in each school. Each school had different sections for standard IX and one section from each school was selected by drawing lots. The schools were visited again and the students of the section selected were contacted during class hours allotted earlier for the purpose. Rapport was established by explaining briefly the purpose of the study. The students were given assurance that their responses will be kept strictly confidential. The students were first asked to fill the Personal-data questionnaire. The All was distributed next and after completion, the PPPI and Self-esteem inventory were distributed and the students were
asked to work on it. Lot of open-ended time was allotted for filling up the inventories. The investigator sought the help of the class-leader in distributing the questionnaires. She also cleared the doubts raised by the students during the administering session.

The creativity test booklets were administered next. The children were properly motivated to take the test, but the word test was never mentioned during the session. It was presented as a set of interesting tasks. Printed general instructions were explained to them. The children were asked to create original and elaborate pictures and to give suitable titles for all the pictures they are creating. Instructions for activity I were explained pointing to the example given on the booklet. A time of 5 minutes was given for completing each figure of activity I. At the end of 10 minutes, the children were asked to put down their pens/pencils and to open the page for activity II. Instructions for activity II were then explained to them with the help of the example shown in the booklet and a time of 15 minutes was allotted for activity II. The investigator, then asked the students to open the page for activity III and work for the next 15 minutes. An extra time of 5 minutes was allowed at the end, so that any incomplete item could be completed.
PPI was the last tool to be administered. Since it was not feasible to meet the parents of all the children, and collect the data personally, the investigator with assistance from the class teacher directed the students to hand over the inventories to their parents. The parent who was more involved in their studies was asked to fill up the inventories. In order to ensure confidentiality, envelops were provided along with the inventories and the parents were requested to seal the envelops after enclosing the duly filled inventories and send it back through their wards within a period of time of 3-4 days. However, few parents who could not read and understand properly were contacted in person and the required information was collected.

The investigator had to spend about two hours in each school for the administration of six set of inventories. She had to visit the school a number of times to collect the filled-in parental inventory returned by the students. At the end of the third term of the academic year, after the announcement of the results of the annual examination, the schools were visited again and from the school records, the marks obtained by the children for the three examinations (first terminal, second terminal and annual examinations) were collected, and average marks and the percentages were calculated for each child.
3.4. STATISTICAL TECHNIQUES

The important statistical techniques used in the present investigation to facilitate the analysis and interpretation of the data are presented below.

3.4.1. Correlation

Correlation is the relationship between two or more paired variables, or two or more sets of data. The degree of relationship is measured and represented by the coefficient of correlation. The most often used and the most precise coefficient of correlation is known as the Pearson product-moment coefficient (r). Pearson 'r' was employed in the present study to estimate the relationship between the independent variable, OPP and its components and the dependent variables, namely, PPP, AIInt, AAch, self-esteem and creativity and its dimensions. The same method was used to find out the relationship between OPP, its components and overall SES and its variables and also to study the interrelations among the dependent variables, and between the dependent variables and overall SES and its variables.
3.4.2. **Multiple Regression and Partial Correlation**

Multiple regression analysis may be useful in situations where the investigator has to evaluate the relative importance of a number of independent variables in determining a dependent variable. A univariate analysis using Pearson's correlation coefficient, 'r', reveals the nature and extent of relationship between two variables, when they are taken in pairs, but it fails to take into account both the multiplicity of the independent variables and also the interrelationship among them. Analysis using multiple correlation and regression may be particularly suited in such situations when the intention is to determine the extent to which one variable (dependent variable) is jointly influenced by a group of other variables (independent or predictor variables). Among the different methods of multiple correlation available, the step-wise method was used in the present study as it enabled the estimation of sequential contribution of independent variables in the prediction of variance of the dependent variable. The model employed was $Y = a + b_1 X_1 + b_2 X_2 + b_3 X_3 + \ldots$, where 'a' is a constant and $b_1, b_2, \ldots$ are the regression coefficients, the $X$ values are known as the predictor variable, and the $Y$ values, the predicted variable.

In addition to this, partial correlation between each of the dependent variable (PPP, AInt, AAch, self-esteem, creativity) and each of
the study variables (the independent or predictor variable) was also found out. This provided information about the interrelation between the two, while the effects of other study variables are nullified or partialled out, upon both the variables being correlated (Koul, 1988). In linear regression, it is the correlation between an independent variable and the dependent variable, when the linear effects of the other independent variables have been removed from both the dependent variable and the independent variable. In the present study, partial correlation was used to find the interrelation between each of the dependent variables (PPP, AInt, AAch, self-esteem, and creativity) and each of the independent variables (the predictor variables), when all the other study variables were assumed to be constant.

3.4.3. Analysis of Covariance and Duncan's Multiple Range Test

Analysis of covariance, like partial correlation is a statistical technique that can remove the effect of a confounding variable's influence from a study. Analysis of covariance (ANCOVA) uses the principles of partial correlation with analysis of variance. When the subjects in two or more groups are found to differ on an initial variable, the effects of such a variable is partialled out using analysis of covariance (Best and Kahn, 1992). In the present study, the study variables, namely, OPP and its
components, PPP, AInt, AAch, self-esteem and creativity were compared on the basis of three types of schools. The differences in all the study variables among the school groups may be partly due to school-related factors and also due to the difference in the SES level of the families. Two-way ANOVA design was not found appropriate in the present context because of the nature of the sample. The SES of children coming from three types of schools varied significantly among the groups; but SES level of the sample did not show any change within each group (type of schools). For example, all the subjects of government schools were hailing from low SES levels and all those of private-unaided schools were hailing from high SES levels. Hence, the investigator found the analysis of covariance design, the most appropriate analysis to facilitate the differentiation of the two types of effects (school and SES, the covariate) and also to study the combined effect of both school and SES on all the study variables. Thus, ANCOVA was used in the present study to remove the effect of the confounding variable, that is, SES and to study the main effect of school.

Duncan's multiple range test (Duncan, 1955) was used to find out whether there is significant difference in the study variables (OPP, its components, PPP, AInt, AAch, self-esteem, and creativity, and its dimensions) between the school groups in a pair-wise way.
3.4.4. *t*-Test

The *t*-test was used to compare all the study variables based on gender (boy/girl), mother’s employment (employed or unemployed) and ordinal position in the family (first-born or later-born).