CHAPTER IV
CHAPTER - IV

DATA COLLECTION AND ANALYSIS

Before going to discuss the subject matter of the present chapter, let us have a retrospect of the discussion made in the previous chapters.

Our concern is to examine the relationship between certain child rearing variables and creativity. For this purpose the Chapter-I was devoted to discuss the various important and relevant concepts of creativity and child rearing. We were able to infer through critical analysis that child rearing as significant variables of home environment might be related to child's various development including creativity. A detail review of available research literature in the relevant area was made in the Chapter-II. A significant research gap was found. It was observed that some important child rearing variables like parental perception of child's development, some important parental behaviour with child, certain characteristics of parents and child either have not been given proper attention or completely ignored in relation to child's creative development. This enabled the researcher to locate the exact problem of research. Discussions followed in
Chapter-III on the various concepts related to the variables and we selected an appropriate design for our investigation. In the last phase of Chapter-III hypotheses of the study were formed following the factorial design. Therefore we are now in a position to discuss regarding collection of data and its analysis which is the subject matter of the present chapter. But before going to discuss each and every aspect of this chapter we shall first mention the major sections of this chapter for systematic discussion. The broad sections are as given below:

4.1 TOOLS USED FOR DIFFERENT MEASUREMENTS
4.2 SAMPLING
4.3 TEST ADMINISTRATION ON THE CHILDREN
4.4 SCORING AND SELECTION OF THE CHILDREN
4.5 INTERVIEWING THE PARENTS
4.6 SCORING AND RECORDING THE DATA
4.7 ANALYSIS

4.1 TOOLS USED FOR DIFFERENT MEASUREMENTS

For the purpose of sampling as it will be revealed in the subsequent sections, two types of instruments were used to measure creativity and intelligence of the children whose parents were included in the
sample of the study. Besides this, an interview schedule was used for the parents seeking structured and categorized information about variables mainly pertaining to the child rearing. Now, there are some tests which have been developed in India and abroad to be used to measure creativity and intelligence. We shall first discuss some important tests which might be used to measure creativity in order to justify our selection of test of creative ability.

4.1.1 Creativity

One of the important tasks which the present problem involves is the identification of high and low creative groups by appropriate test of creativity. So we tried to find out a standard creativity test suitable for the present purpose.

4.1.1.1 Guilford Test of Creative Thinking

Guilford (1950) rejects the prevailing theory that intelligence is a single monolithic ability and at the view that creative talents are something outside the realm of intelligence. Factors contributing to creative thinking ability, according to Guilford's SI model are
particularlly related to divergent production category. Guilford defined it as a set of factors of intellectual ability that pertain primarily to information retrieval and with their tests which call for a number of varied responses to each test item. He believes that redefinition ability which is in convergent production category of the structure of intellect and sensitivity to probl which falls in the evaluation category are also important for creativity.

According to SI Model there are 24 cells for divergent production abilities. Guilford (Singh, 1981) have developed numerous tests for assessing creative behaviour. These are:

1) Sensitivity to problem;
2) Figural spontaneity;
3) Figural adaptive flexibility;
4) Word fluency;
5) Expressional fluency;
6) Ideational fluency;
7) Semantic spontaneous fluency;
8) Associational fluency;
9) Originality;
10) Semantic elaboration;
xi) Figural redefinition;

xii) Symbolic redefinition and

xiii) Semantic redefinition

Guilford (Singh, 1981) has provided much data about the validity of the divergent productive tests. He suggests that there are many abilities that contribute to creative production and may fall outside of these divergent productions. So the selection of tests for assessing creative functioning is very crucial. The duty of the investigator is that he should scrutinise the nature of the exercise problems with great care and should use the apparently most relevant test instrument for this purpose. According to Guilford (1970) the logical analysis in terms of the structure of intellect categories seems fruitful.

The test developed by Guilford has been used throughout the world, but could not avoid criticism. Taylor and Holland (Singh, 1981) record that special aptitude tests like the Guilford Battery which is a measure of creative ability have had only modest success. Evidence for the validity of such tests is still incomplete. Delias and Gaier (1970) report that although these measuring devices have some face validity the controversy is that of the construct validity. Whether
or not these divergent production abilities are responsible for creative production is a question to be answered. In order to demonstrate this the creative abilities scores from instruments assessing divergent thinking have been related to other indices of creative performance. The results, as Dellas and Gaier maintain, are contradictory and far from being conclusive.

4.1.1.2 TORRANCE
TESTS OF
CREATIVE
THINKING

Torrance (1966) and his associates developed numerous tests for measuring creativity. Torrance (1966) has developed his tests in the manner that the tests are related to his definition of creative thinking. According to him (Torrance, 1969) creative thinking is the process of sensing gaps in knowledge, identifying the missing elements, forming hypotheses, testing and retesting these hypotheses and communicating the results.

Torrance initially relied upon the Guilford's model of intellect. But he modified the test of Guilford in order to make it more exciting and relatively simple for the child to grapple successfully.
Torrance developed figural and non-figural forms of creative thinking tests. The list of these tests, description of their content, administration, validity and reliability data have been given in detail in the books Rewarding Creative Behaviour (1965), Torrance Tests of Creative Thinking (1966) and Guiding Creative Talent (1969).

Torrance tests are quite simple and elicit responses from subjects in a play way manner. The tests have been described below. The verbal forms A and B contain seven sub-tests in the form of activities which require the subject to:

i) Ask questions about an ambiguous picture.

ii) Guess causes of the action in the same picture.

iii) Guess consequences of the action in the picture.

iv) Think of ideas for improving a stuffed toy monkey or elephant.

v) Ask unusual questions about cardboard boxes or tin cans.

vi) List unusual uses for cardboard boxes or tin cans.

vii) Predict consequences of an unprobable event (clouds had strings attached to them which hang down to earth)
The figural forms A and B contain three sub-tests which require the subject to draw picture that elaborate upon:

i) a single brightly coloured form,
ii) 10 incomplete line drawings,
iii) 36 identical circles.

4.1.1.3 TEST OF PRODUCTIVE THINKING

Bennet and Wesman (Singh, 1981) developed this test of productive thinking with a reliability of .90. In this test the subject is presented with six hypothetical situations out of the range of his experience. The subject is asked for probable consequences. The test is scored for number and quality of responses.

4.1.1.4 PLANAGAN TEST OF INGENUITY

Planagan (1968) reported a test which is a part of the battery of the Aptitude Classification Test and is also included in the Project Talent. This test by Planagan (1968) may be used to measure creativity or inventiveness. Each test item contains a description of a problem situation similar to that might be
encountered in life. Aspect of the solution are given, but the key word or the words which include the critical ideas are left blank, requiring the individual to think of an ingenious solution. The five choices are given in terms of the first and the last letters of the possible right answers, so the individual really develops the solution. This is basically designed for high school students.

Barron (Singh, 1981) finds two defects of this test. Firstly, the test is more appropriate for the measurement of cleverness than that of ingenuity. Secondly, the true creative person may think of a novel situation which is not represented at all among the alternatives and the examinee may find the test extremely irritating.

4.1.1.5 WALLACH AND KOGAN MEASURES

Wallach and Kogan (Singh, 1981) tests represent a sharp departure from the tests developed by Guilford and Torrance. On the basis of theoretical analysis, they suggest that assessment context should be different from Guilford-Torrance approach. Wallach and Kogan (1965) comment that the method of administration of divergent thinking tests could have important effects.
on scores. They like to use relaxed and game-like individual test. Wallach and Kogan (Singh, 1981) developed four association type tests. The two of which are known as 'uses' and 'similarities' and the other two measures call as "pattern meanings and "Line-meanings". The first two types of tests involve verbal stimulus material and the next two types involve visual stimulus materials. Responses are scored for uniqueness and number of responses given by the subject. Internal consistency of high degree has been found in the tests and the tests are considered as relatively independent of intelligence. Almost all the reported spearman-Brown reliabilities ranged between .80 and .93.

4.1.1.6 REMOTE ASSOCIATION TEST (RAT)

Mednick (1962) and Mednick et al (1964) developed this test for assessing creativity. The items of the test were so designed that require the subject to form associative elements into new combinations by providing connective links. Here, the test situation is so contrived that the combinations must be either useful or meet specified criteria imposed by the experimenter. Evidently, the structure of the test is dictated by the associative conception. In this case, the experimenter provides stimulus items from two mutually distinct
realities and requires the subject to "draw a spark from their juxta-position". That is, the stimulus elements represented in the creativity tests have to be drawn from mutually remote associate clusters so that the subjects would be needed to elicit connecting links combining them and meeting the specified requirements. The contention of this test have been supported by many investigators (Mendelssohn and Griswold, 1966; Stratton, 1972).

The RAT in its present form consists of 30 items containing sets of three words or triads requiring the individual to bring about a link among the three mutually disparate words. The time limit is 40 minutes and the score is the number right.

In spite of wide applicability, high reliability, RAT has not been unequivocally accepted as an appropriate test for assessing creativity.

Mednick et al (1964) have generally obtained positive results against a wide range of criterion measures. But others (Andrews, 1965, Karlins, 1967) have shown the failure of the RAT to correlate with reasonable criterion performances.
It has already been mentioned that RAT items were specially designed to meet certain specified requirements. Therefore, the characteristics of these items themselves to certain influences. It has been pointed out, for example, that the performance on the RAT can be facilitated by prior prompting with any of the most dominant association to RAT answer. Freedman (1965) has reported that increased score on the RAT could be obtained by training in the giving of free associations to stimulus word. Datta (1964) has shown that success of performance on the RAT depends on familiarity with cultural idioms and colloquialisms. Hood (1969) has demonstrated that the difficulty of the RAT items are related to the cultural availability of correct RAT item response to the stimulus triads composing the test. All these limitations of RAT pointed out by those investigators has been acknowledged by Mednick (1969).

Finally another serious charge may be levelled against RAT. It is observed from the description of test that to solve the problem the individual is required to arrive at the single correct answer which has already been known to and selected by the experimenter. This necessarily assumes that the subject's creative process could be assessed by his ability or tendency to choose
the 'creative' product that has been predetermined. This method of requiring the individual to look for a single particular answer can be said to limit the level of creativity which can be demonstrated by the RAT and it defeats the very purpose of associational flexibility. The single right answer approach of the RAT is also artificial, leading to a convergent mode of thinking. It may be mentioned, therefore, that the RAT is not an adequate test of the associational dimension of creativity.

There are some other tests which may be used to measure creativity. For example, Purdue Creativity Test developed by Lawshe and Harris (Singh, 1981). Purdue Creativity Test has been developed mainly for assessing creativity in engineering and so is not useful for our research.

4.1.1.7 PASSI'S TESTS OF CREATIVITY

Passi (1971, 1978) developed six tests of creativity which are designed for measuring creativity at the higher secondary stage. The tests are as follows:

(i) The seeing problems test; (ii) The unusual uses test; (iii) The consequences test; (iv) The test of inquisitiveness; (v) The square puzzle test and (vi) The blocks
test of creativity. The blocks test of creativity can be administered individually. The Test-retest reliability of these tests are .68, .97, .71, .74, .91 and .83 respectively. The concurrent validity coefficients of the total creativity scores with creativity (things done on your own), non verbal intelligence, and scholastic achievement are .46, .27, .38 and .35 respectively.

4.1.1.8 MEHDI'S TESTS OF CREATIVE THINKING

Mehdi (1973) developed a total battery of tests which include both non-verbal and verbal tests. The non-verbal tests are prepared to measure the individual's ability to deal with figural content in a creative manner. The three types of activities namely, picture construction, picture completion and triangles and ellipses are used to measure figural creativity.

The test-retest reliability coefficients of factor scores and also total creativity scores are considerably high ranging from .932 to .947. The validity coefficients against the teacher's rating for each factor (elaboration and originality) and total creativity scores are .346, .329 and .385 respectively. This test is meant to measure creative talent at all stages of education except pre-primary primary.
Mehdi's verbal test of creativity contains four sub-tests. These are: consequence test, unusual uses test, similarity test and product improvement test. The reliability coefficients for both the factor scores (fluency, flexibility, originality and total creativity scores) are considerably high ranging from .896 to .959. The validity coefficients against the teacher rating for fluency, flexibility and originality and total creativity score factors were found to be .40, .32, .34 and .39. Mehdi's Test of creativity has been widely used by many Indian researchers.

4.1.1.9 ARORA'S TEST OF CREATIVE THINKING

Arora's (1974) Test contains seven activities namely, giving arguments, asking questions, unusual uses, guessing causes, guessing consequences, guessing improvements and constructing sentences. The split half reliability coefficient of the test was worked out to be .84. The content and construct validity of the test was established rationally through critical examination and professional judgement. This test was developed by Arora (1974) for measuring the creative ability among the teacher trainees and therefore, not useful for our purpose.
4.1.1.10 SELECTION OF THE TEST OF CREATIVITY

Considering the overall superiority of Torrance's test at first it was decided to use it for the present investigation. As a trial, about 10 children were given the test in Suri, a district town of West Bengal, where the part of the project was conducted. The results were discouraging. The ambiguous picture in the Torrance's test appeared to be too ambiguous to the children of the area. The activity, ask questions about the causes did not work at all.

Therefore, keeping the structure of the test in mind, several pictures were drawn, other activity situations were changed and a figural item was included. These were administered to a group of children for a tryout and on the basis of the results, the following activities were included:

1) Ask questions about picture.
2) Guess consequences of the picture.
3) Suggest ideas for making a toy elephant more charming.
4) Uncommon uses for a shoe box.
5) Imagine if you could swim high in the air.
6) Circles to be converted into some picture, design or pattern.
Reliability was determined by internal consistency (Cronbach's alpha) and the test was validated against Torrance's test of creative thinking on a small adult population. The scores were for Fluency, Flexibility, Originality and Total creativity. For determining the scores the following criteria were used:

Fluency — Number of meaningful responses in each activity.

Flexibility — Number of times the testee produced new directions of ideas or departure from the preceding idea.

Originality — A norm was developed, on the basis of counting the frequency of a response or idea and the one which was given by 1% or lesser number of testees was taken as original.

The test may be found in the Appendix A and the exact figures of reliability and validity will be presented in the subsequent chapter on Results and Discussion.
Many investigators have tried to find out the relationship between intelligence and creativity. The exact nature of relationship between intelligence and creativity is a highly controversial matter still now. But it is commonly found that there is no high correlation between intelligence and creativity. On the contrary it is also observed that correlation between intelligence and creativity is not low enough to the extent of no relation. In a very simple manner it may be stated that there is a moderate type of relationship between intelligence and creativity. In other words to be creative a certain minimum level of intelligence is required. Mackinnon (1962) observes that above a certain level there is no significant relationship between intelligence and creativity. Taylor (1964) and Vernon (1964) also support this viewpoint by saying that above a critical I.Q. level creativity and intelligence become independent of each other. Dacey and Madaus (1971) also substantiate the above viewpoint.

Now a question naturally may arise that when children are divided into two extreme groups i.e. high creative group and least creative group according to their scores they obtain in creativity test, what role may be
played by their intelligence. Are the differences between two creativity groups affected by the difference of their intelligence? Or in other words, whether the measured differences between the two creativity groups in respect of their test performance is actually due to intelligence and not due to creativity.

It is important to partial out the effect of intelligence, not in the manner of equating the groups, but by eliminating the low intelligent children from the groups, so that one can attribute the difference, if there is any, to creativity alone and not to their intelligence.

For this reason administration of an intelligence test among the children was deemed necessary. Now there are so many tests by which intelligence can be measured. Out of these tests some common and important tests of intelligence which have been found to be used by most of the investigators will be discussed below in order to justify a test of intelligence suitable for our purpose.
4.1.2.1 RAVEN'S PROGRESSIVE MATRICES TEST

This test was developed by J.C. Raven in 1937 and revised in the year of 1977.

There are two forms of this test -- (1) Standard Progressive Matrices Test and (2) Color Progressive Matrices Test for children.

Standard Progressive Matrices Test

In this test there are 60 problems divided into 5 sets and each set consists of 12 problems. The problems have been arranged in all the five sets from very simple to extremely difficult. The intellectual capacity of an individual can be measured with the help of this matrices during the test time by summing up the total score obtained by him out of the problems presented. Norms are provided in terms of percentile rank.

This test is claimed to be appropriate for assessing intellectual ability of all the age groups. But it should be noted that in spite of its wide applicability, the test has some limitation because of its
incapacity to measure accurately the intellectual development of those like young children, mentally disturbed subjects and very old people.

In this test subject is asked to solve the problems as per their own speed without making any interval since beginning to end of the scale. And as the order of the problems included in this test provides the standard training in the method of working therefore, this test can be used an individual or as a group test.

Reliability of SPM have been reported by many investigators and adduced by Raven, Court and Raven (1977). The reported reliability co-efficients in terms of internal consistency range from 0.60 to 0.98 on sample size from 296 to 5000. Test retest reliability of SPM have been reported to range from 0.55 to 0.93. Correlations of SPM scores with concurrent intelligence measures have been reported to range from 0.3 to 0.86 and those with concurrent achievement measures were also reported in the same manual (Raven, Court and Raven, 1977).
So it is found from the above description that despite of adequate reliability, high validity and wide applicability, S P M is not a suitable test for the present purpose. This test, as mentioned earlier, is basically meant for adults. But as we intended to assess the intelligence of young children aged approximately from 10 to 12, this test was not workable for the present purpose. Secondly, as the test takes too much time for its administration, the children in this region being less acquainted with the test situation find it difficult to concentrate for a long period.

Raven's
Color
Progressive
Matrices
Test

This test is applicable to children aged below 13. C P M also can be administered individually as well as group wise. This test also include 60 items divided into 5 sets and each set consists of twelve problems grading from very simple to extremely difficult.

C P M is known as power test i.e. the test has no time limit. The subject is asked to solve problems as per their time required.
This test is meant for children. So the difficulty which was related to SPM does not arise here. But as this test is regarded as untimed capacity test, one has to allow unlimited time to the subjects for solving their problems. In fact, considering various circumstantial hazards, it is almost impossible from practical point of view. Besides this large scale group administration of the CPM is difficult.

Therefore, in spite of the wide applicability, high reliability as well as validity of Raven's Progressive Matrices Test, it was not a suitable test for our present purpose.

4.1.2.2 CATTELL'S
CULTURE-FAIR
INTELLIGENCE
TEST

Culture-fair Intelligence Test is recognised as one of the best tools for assessing intelligence. CFI T consists of 3 scales. Out of these three scales, the first scale cannot be taken for our study, as it is designed for the children of age group 4 to 8. In the scales 2 and 3, there are 4 sub-tests in each scale and the total number of items included in those scales are 46 to 50 respectively. In each scale, out of the 4 sub-tests, the first one is an incomplete progressive series,
in which the subject is asked to complete it out of the five alternatives presented before him and the number of items in this test are 12 and 13 for scale 2 and 3 respectively.

The second sub-test is the classification in which the subject has to point out the odd one which do not belong to the class formed by other four figures presented before him. The scale 3 is slightly different from the scale 2, as in the scale 3 the subject has to select two figures which are in some respect different from the other 3 figures. Both the scales 2 and 3 in this test have 14 items.

In the third sub-test the subject is asked to complete the matrices correctly out of the five responses given in the right hand side of each row. Number of items included in this test are 12 and 13 respectively.

In the final sub-test, the subject is asked to select the correct conditions (or topology) which duplicates the conditions presented in the left box, out of the five conditions given in the right hand side of each row. Number of items included in this test are 8 and 10 respectively.
C F I T is known as Speed-test. Subject in this test is directed to perform each item within schedule time. The time allotted for each test are 3 min., 4 min., 3 min., and 2.5 min., respectively. So total time allotted for performing the test is 12.5 minutes.

Reliability of C F I T have been reported by many investigators. It appears from the reports that the average reliability in terms of consistency over items calculated by a variety of methods including split half and appropriate internal consistency formulas on samples consisting of 3999 males and females was .87 for the full test (A+B) and only .76 for the form A. Average reliability in terms of consistency over parts have been reported across samples consisting of 832 males and females to be .80 (full test A+B) and .67 (A form only). Average reliability in terms of consistency over time have been reported across samples consisting of 650 males and females to be .84 (full test A+B) and .73 (for A form only) (Cattell, 1973).

Validity of this test has been assessed in two ways, viz. concept validity and concrete validity (Cattell, 1973). It was reported that the average concept validity across samples of 600 males and females was .85 for forms A+B and for the A form was .81. Again, the
average concrete validities across samples of 523 males and females were .77 on the total score obtained in the A+B form, while that on the A form was .70.

Roy (1986) used this test in this region and found that the children faced difficulty in taking the test due to (i) non-acquaintance with such abstract figures, (ii) inability of strict adherence to time limit and (iii) low achievement motivation. As a result they scored unusually low. Therefore, the idea of using this test for the present study was dropped.

A few other tests either developed or adopted in India and standardized in the different parts of the country were examined and none was found suitable due to some difficulty or other.

4.1.2.3 CHAKRABARTI GROUP TEST OF VERBAL INTELLIGENCE

This test was developed by Chakrabarti (1976) to measure the general ability of the children in the age group 9 - 12 years. It consists of four sub-tests each consisting of 10 items. The sub-tests are (i) Verbal odd-man-out, (ii) Verbal analogy, (iii) Verbal series and
(iv) Arrangement of sentences (Comprehension). Within each sub-test, items were arranged in the increasing order of difficulty. It was a power-test but usually the respondents would take about 16 minutes to complete the test. The first three sub-tests were of multiple choice type and ostensibly the last one was open ended.

The test was tried out on a sample of 400 school children of both sexes. The items were meticulously screened in stages and the difficulty value and discriminating power were appropriately determined. Split half reliability was found to be .79. Retest reliability after a lapse of 6 months on 40 children was found to be .88. Internal consistency in terms of K-R formula 20 was found to be .71. The test was validated against NCERT Test of General Ability on a sample of 151 children of both sexes. The validity coefficient was .66.

In all respect this test was found most suitable for the children concerned and it was decided to use this test. A specimen of the test has been annexed in the Appendix B.
4.1.3  Parents' Interview Schedule

4.1.3.1  DEVELOPMENT

It may be recalled that the major thrust of the present investigation is directed towards parental child rearing behaviour, some of their characteristics and certain characteristics of their children. Collection of information in these areas necessitated finding out of an interview schedule to be used with the parents seeking structured and categorized information.

It is observed that there is no such interview schedule which may be used for seeking structured and categorized parental information in detail, which we needed for our investigation and as enunciated in the previous chapter. So an interview schedule in the form of a questionnaire for the parents was prepared.

First, a long list of information about what to be wanted from parents at the time of interview was prepared on the basis of planning of the study, available literature, expert opinions and informal, unstructured interviews with about 20 parents. The intent was to begin with a comprehensive interview schedule and then to pare it down.
After preparing a draft in the above mentioned manner the same was examined carefully and sent to two experts requiring their suggestive comments.

In the next phase the information thus obtained was converted to questions. A response format was also decided beforehand.

Next, an editorial revision was done by the author himself to make necessary changes in the language, response format and arrangement of the items etc.

After preparing thus the questionnaire was tried out on 25 pairs of parents to verify the applicability in the practical field. The basic purposes of try out were to identify:

1) difficulty of language reported by the parents
2) any ambiguity in the item itself
3) difficulty in response format

It was found that language of the schedule seemed to some low educated parents to be slightly difficult. It was also observed at the time of try out that some items did not work at all on the given response format.
Again fathers were in trouble to give response properly on the information about early motor and physical development of the child and the like. Further, in some categories response endorsement was high though in others it was almost nil.

On the basis of revision in the try out the schedule took its final form to be used for survey proper. In the next section items of the interview schedule will be explained. The interview schedule in its final form has been shown in the Appendix-C.

The reliability and validity of the information schedule will be discussed after the description given below.

4.1.3.2 DESCRIPTION OF THE ITEMS

Now we shall discuss the items which have been included in the interview schedule in order to justify their inclusion in relation to creative development and to judge their relevance to the variables mentioned earlier.

Before explaining the specific objectives of the items included in the questionnaire, major approaches
to child rearing variables as it is conceived for the present investigation are given below:

1. Parents' characteristics
2. Characteristics of children
3. Father's evaluative perception of child's development and activities
4. Mother's evaluative perception of child's development and activities
5. Treatments by the mother to the child
6. Treatments by the father to the child
7. Parental attitude and conception regarding responsibility, parental role, goal of child development and of the environment
8. Interaction of the treatments in the form of (i) conformity as well as (ii) antagonism between the two parents

4.1.3.3 SPECIFIC OBJECTIVES
OF THE ITEMS IN THE PARENTAL INTERVIEW SCHEDULE

Many of the items, mentioned below, were in fact cluster of items put under one serial number.

Item 1: This item sought the information about name of the parents and their address. Obviously these were necessary for identification.

Other information was about some of the parental characteristics like period of marriage, age,
occupation and education of parents.

Information about the parents' education was sought directly requiring them to mention their educational qualification with an ultimate view to categorize them as high, average and low in respect of the level of education. Regarding parental occupation information was wanted under five broad categories like service, business etc.

Item 2: In this item information was wanted about each and every child in the family concerning ordinal position, education, age, hobbies and co-curricular activities. The purpose was to know the number of children, age-gap between two consecutive children, ordinal position of the child concerned, overall educational climate in the family, overall interest pattern prevailing in the family on two categories viz., stereotyped or potentially creative.

Items 3 and 4: In these items some information about parental leisure time activities and interest pattern were wanted. For this purpose activities like gossiping, reading of books, planning and thinking about children, drawing, painting and many others were included in the questionnaire. Parents were asked to select one or more
activities described in the questionnaire or others in which they usually remain engaged in their leisure time and the activities they like most. The ultimate aim was to categorize those activities as stereotyped and potentially creative.

Item 5: This item sought information about feeding practices of mother. For this purpose two types of information were wanted. Firstly, about the type of feeding behaviour and secondly the determiners of adopting a particular feeding behaviour ultimately to be categorized into social, physical and psychological causes.

Item 6: This item wanted information about early developmental trend of the child. Mothers were asked to report about their early child rearing practices like giving solid food and protein food and child's physical and motor development. Responses concerning physical and motor development afterwards were categorized into slow, average and fast on the basis of available norms.

Item 7: This item was included with a view to know the child's dependence on parents in regard to his early motor development, not in the manner of training which is essential for many motor developments. By dependence,
here, it was meant to denote the unnecessary help and interference given to the child by the parents.

Item 8: This item sought information about child's early ailments in the form of type, time and duration of diseases with a view to know its impact on early motor and physical development of the child, as it is known that early physical and motor development are largely hindered by certain diseases (Hurlock, 1978). This item is a supplementary one to the item No. 6.

Items 9 and 10: In these items mothers were asked to report about child's early language development and their evaluation about this development on five point rating category ranging from very fast to very slow.

It should be noted here that items from 5 to 10 were presented only to mothers on the assumption that mothers are more concerned than fathers about the very early development of the child. It was also found from a trial, as it has been mentioned earlier, that fathers had difficulties in reporting many of the facts under these items.

Item 11: This item sought information about parental evaluative perception of their child's intellectual
development on five point rating category ranging from very intelligent to very dull. It should be noticed that one specific instance in support of parental evaluation of their child's intellectual development was wanted in order to verify the objective basis of the response given by the parents, and refrain them from giving very casual evaluation.

Item 12 : In this item information was wanted about parental perception of child's certain emotional development. This is related to questions like parental perception of child's anger, fear, excitement and anxiety. Parents were asked to report the frequency and intensity of all the above mentioned emotions categorized under five point rating.

Item 13 : This item sought information about parental perception of certain important child's characteristics through daily behaviours. For example, parents were asked to report about child's selectiveness in regard to food and dress, relationship with other siblings, manner (whether systematic or irregular) of performing daily activities, sense of responsibility and behaviour under common stress. All the questions were to be answered on five point rating category.
Item 14: This item sought information about nature of parental interference to child's activities. For this purpose some specific activities were given in the questionnaire. For example, whether parents help their child in keeping his own material, selecting friends and supervising extracurricular activities etc. with an ultimate view to categorize these information as maximum interference, moderate interference and minimum interference.

Items 15 to 22: In these items the information about parental punishment to child were wanted in detail. Firstly, it was intended to know the kind of punishment generally used by the parents. Information relating to kind of parental punishment were ultimately categorized into three viz. physical, verbal and social punishment.

Further, in the next items information about frequency and intensity of punishment given by parents to child in treating his misbehaviour were wanted.

Reaction to punishment was sought on five point rating category ranging from highly adverse reaction to highly favourable reaction.
As causes of punishment many were mentioned like bad academic proficiency, inattentiveness, hostile behaviour, restlessness etc. which were ultimately categorized into three namely, cognitive control, behavioural control and both.

Items 23 to 25: In these items information was wanted about reward given by the parents to the child. Firstly, parents were asked to report whether they regularly give rewards to the child or not. Secondly, information regarding causes of giving reward like academic proficiency, proficiency in extracurricular activities, drawing and painting etc. were included. Responses was wanted on five point rating category.

Information regarding kind of rewards was also wanted. The kind of rewards like cash, gift, verbal praise etc. were mentioned in the questionnaire with an ultimate view to categorize them into three namely, reward in kind, verbal and non-verbal.

Item 26: In this item information was sought to know the child's engagement in various domestic activities. For this purpose many activities were mentioned in the questionnaire with an ultimate view to categorize them
as extreme, moderate and low involvement in respect of the number of activities done by the child.

Items 27 and 28: These items sought to measure parental concept of their role and responsibility in child rearing. Questions were presented on five point rating category.

Item 29: In this item information was wanted about parental concept of the level of control to be exercised on the children on five point rating category ranging from extreme control to no control.

Item 30: This item sought information about parental conception of goal of child development. Parents were asked to select one answer out of five alternatives given in the questionnaire. All the items under serial numbers 27-30 were taken together to measure parental attitude towards child rearing.

Items 31 to 34: Finally, these items intended to know about parental perception of home environment, social environment, economic environment and academic environment. Information was wanted on five point rating category ranging from highly favourable to highly unfavourable.
4.1.3.4 RELIABILITY AND VALIDITY OF THE SCHEDULE

Although the questionnaire used for seeking information about child rearing variables was predominantly an interview schedule but a major part of it has been used like psychological scales as it is commonly found in the rating scales. As a matter of fact, the question of reliability and validity had to be duly considered. Naturally, part of the questionnaire which was meant for purely objective information e.g. number of children, parental occupation etc. was eliminated for the reliability and validity studies. The purpose of reliability study was to determine how much consistency does the questionnaire show on repeated use with the same population. With this objective in view, the questionnaire was applied to a small group of parents at an interval of three months and retest reliability was determined separately for the items or groups of items wherever necessary. The result of this study will be reported in the chapter of result and discussion.

Validity was judged by the method of content validity which was obtained by expert rating and opinion.
4.2 SAMPLING

Sampling is a procedure by which we select a small segment out of the total class of population in such a way that it may represent the entire population. So the conclusion drawn from the sample may be generalised to the whole class of population from which the sample has been drawn.

There are various types of sampling techniques which may be described briefly as follows:

4.2.1 Random Sampling

This is one of the very common techniques to be used in the case of sampling. In case of random sampling there is equal possibility of every individual to be chosen as a selected case for investigation. In this method, the process of selection are independent of one another.

According to Cochran (1972) Random Sampling can be categorized under three sub-groups, viz.
(1) Simple, (ii) Limited and (iii) Multistage.

Simple random sampling may be described as a technique in which every member of the class of popula-
tion has the equal possibility of being included in the sample.

Limited random sampling can be divided into two categories: (i) Stratified sampling and (ii) Cluster sampling.

4.2.1.1 STRATIFIED SAMPLING

This is also called quota or controlled sampling. In this method the entire class of population has to be divided according to their own stratum. Then random selection is made out of the previously identified particular stratum. For example, male and female and social class categories. Selected number of cases from each stratum may not correspond to the share accounted for by this stratum in the basic population; but if it does correspond to that share then we can speak of a proportional sample. The advantage of stratified sampling over a pure random sampling is that it results in an increase in accuracy which is all the more substantial the more homogenous the strata are and are more clearly they are separated from each other. Sampling within a stratum may, however, follow the purely random process.
Cluster sampling signifies to such grouping already present in the population which should be as non-homogenous as possible, e.g. school classes, houses and towns. This method of sampling appears to be as less accurate than that of the pure random sampling, and unlike the stratified sampling, there exist a lack of homogeneity in the composition of clusters. Cluster sampling method may be characterized by low sampling costs.

**Biased Sampling**

In a biased sample there is every possibility of systematic error. Certain types of cases which has been selected for investigation by this technique may have advantages over others in being selected. In biased sampling, the nature of samples mostly depend upon the own decision of the examiner and as such individual being chosen for investigation may differ from one to another. In biased sampling no systematic order is followed. Therefore, it is very important for an ideal scientific researcher to be cautious so that the possibility of biased sampling may be prevented in the study.
In order to identify any selected sample as biased, it is essential to have thorough knowledge about the conditions under which the data of that investigation is collected. Moreover, to define population of an investigation more accurately, the knowledge of conditions seems to be necessary.

4.2.3. **Purposive Sampling**

Purposive sampling refers to the arbitrary selection of the sample out of the larger population, as there is evidence that each of the individual of any population may be the very representative of the total population. Although this technique seems to the quite convenient, yet one thing must be kept in mind that while doing sampling by this method, prior information should have to be collected about the population characteristics.

4.2.4 **Incidental Sampling**

Incidental sampling or which is termed as accidental sampling is applied to those sample which are taken for investigation simply because they are easily or readily available. For example, several
psychological studies have used students of beginning psychology courses as their samples.

4.2.5 Sample of the Present Investigation

Population Characteristics: For adopting any particular sampling technique, it is essential at first to explain the characteristics of the population which seem to be appropriate for the investigation.

It may be recalled that the present study concentrated primarily on parental interview regarding child rearing behaviour. But the selection of parents was done on the basis of the characteristics of children. By using creativity test two groups of children were identified namely, high creative and low creative children and then parents of those children were interviewed.

So our task here is to explain the characteristics of children. The basic characteristics of population selected for the present investigation are grade, age, sex and locality.

Grade: For our present investigation students of grade-V have been selected as subjects for the following reasons.
It is very interesting to note that the development of creative potential do not follow the same course of development as other intellectual abilities. We cannot say that creative ability increases up to certain age and then declines, what we can say in case of other intellectual abilities like intelligence. Various investigations on creative development expressed that there was no consistent increase of creative potential with increase in age but with fluctuations (Raina, 1984). So the question of grade or age of subject in relation to creative development seems to be very much important and to be considered carefully.

Firstly, our aim was to work with children, and not with adults. Because comparatively adults got much more attention as subjects of psychological study as because adults are easier to handle (Hurlock, 1978). Further, our study is related to home environment and as effect of home environment is greater on children than adults, we decided to take children as our subjects.

Now for many reasons we decided to concentrate on late childhood period. We have selected particularly students of grade V as our subjects of study for the following reasons.
Ligon (1957) observed that age between 10 to 12 years are very much significant. It is the best time to explore child's potentials.

Again Torrance (Raina, 1984) found that there were clear periods of decline rather than growth at about ages five, nine, thirteen and seventeen years. Particularly he observed that the decline is acute in fourth grade. So as subjects, children of fourth grade have not been considered. Torrance (Raina, 1984) also observed that in fifth and sixth grade, there was again an increase in creative activity.

So considering all these matters it was decided to take students of fifth grade as our subjects of study.

Age: Today the age of admission in school is fixed. So like the past the possibility of children at different ages in the same class is almost nil. Parents of today are also very conscious about the time of admission in school. As a result the age of the students reading in the same class is almost same. Age range of the children reading in class V is from 10+ to 11+ years.
Sex: There is no consensus on the role of sex in creativity. Because with regard to the sex differences in creativity researchers came to diverse conclusions. Some researchers in India as well as abroad reported that males are superior in creativity to the females (Kelley, 1965; Prakash, 1979; Strauss & Strauss, 1968; Torrance and Aliotti, 1969; Gagneja, 1972; Dhir, 1973). Again another group of investigators declared girls significantly superior to boys (Ogletree, 1968; Soloman, 1968; Bowers, 1971; Burgess, 1971; Cacha, 1971; Goyal, 1973; Hussain and Hussain, 1975). Some researchers found that there was no sex difference at all (Burns, 1969; Nelson, 1970; Kloss, 1972; Ward and Cox, 1974). Due to this anomaly it is very difficult to know the real role played by sex in creativity.

It may be recalled that we have planned our study on the difference between two groups viz. high creative group and low creative group on the basis of scores they obtained in creativity test. Therefore, in order to partial out the sex effect female children were excluded from our study and only the male children were taken as subjects. So the subjects of our study are the male children reading in Class V whose age range is from 10+ to 11+ years.
Locality: The sample of the study was drawn from the schools of Burdwan and Suri, the two district towns of West Bengal. So far urban characteristics are concerned the two towns differ little with each other. Both are district towns, both are inhabited by agriculture land holders and have a large proportion of people employed by the Government, both are old towns developing gradually, the life in both the towns are easy and not so stimulating and competitive in comparison to the metropolis like Calcutta or an industrial town like Durgapur. There was no reason, however, to select such a life pattern for this study. But since it involved a long interview with the parents, familiarity of the people was necessary to some extent.

So at the first instance the sample of the study was drawn from the male children reading in Class V (age range 10+ to 11+ years) in the schools of Burdwan and Suri, the two district towns of West Bengal. Towards this objective the following steps were taken.

4.3 TEST ADMINISTRATION TO THE CHILDREN

4.3.1 Selection of the School

There are basically three types of schools in West Bengal -- (1) primary schools, which generally span
from Class I to IV, (ii) secondary schools, which range
from Class V to X and (iii) higher secondary schools,
which impart lessons from Class V to XII. It should be
noted that in some primary schools Class V is also
included.

Primary schools which impart lessons from
Class I to IV were eliminated, because our subjects were
students of Class V. At first it was thought to take
those primary schools in which Class V was included, but
ultimately were eliminated because it was expected that
many underachievers might study in those schools. Most of
the secondary and higher secondary schools of the two
towns were selected.

In order to obtain an even distribution of
children, the towns of Burdwan and Suri were roughly
divided into four zones: East, West, North and South.
Schools were selected from each zone as far as practica-
ble equally. All the schools were boys' schools and were
accepted by the local people as of average reputation.
Total 13 schools, 5 from Suri and 8 from Burdwan were
selected for testing. The number of schools, in each
zone are shown in table 4.1 given below:
Table 4.1 Showing the zonal distribution of schools

<table>
<thead>
<tr>
<th>Zone</th>
<th>Burdwan</th>
<th>Suri</th>
</tr>
</thead>
<tbody>
<tr>
<td>East</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>West</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>North</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>South</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>8</td>
<td>5</td>
</tr>
</tbody>
</table>

4.3.2 Arrangements For Testing

In schools initial contact was made by the author himself with Head of the institution explaining him the purpose of the study and then a date was set up for testing the students.

The first problem was to select students for testing. In some schools students were divided into two sections -- A and B. In some schools, again, there were three sections viz. A, B and C. The average number of students in each section was about 50.

It should be noted that the principle of dividing the students into different sections is not so in every school. For example, in some schools students are admitted first in section 'A' and then in 'B' and so
on according to the serial number in the admission register. Some schools take their own students first in 'A' section and students from other schools get admitted in other sections. Further, some schools divide students into different sections according to order of merit.

As we did not take all the students of Class V of a school, we had to select students for our testing. Considering that no one method had been taken for dividing sections, we selected 15 to 16 students from each section for testing. This method of selecting students from each section was also convenient for schools and to the author. Because as very small portion were taken from each section, classes were not disturbed much. On the other hand if any one section was selected for testing, there was every possibility of providing scope of various extraneous factors to creep in.

But there was also a difficult problem in the case of selecting some students from each section. Because in that case a separate room was needed for testing. But it was very difficult to get a separate class-room for testing in most of the schools. The problem was solved by taking library room or meeting hall or by testing students on Sundays.
Students were mentally prepared to sit for the test as they were curious and also informed beforehand about the time of the test. The problem was that some students of Class V who were not taken for testing and also the students of classes other than V asked the author whether they would be selected for testing. They were managed by saying that they might be tested on other days if so needed. In spite of that some over-curious students tried to observe what was happening behind the door by peeping through the hole of the door. Some students also tried to create disturbance. The problem was solved primarily by the kind cooperation of teachers of the schools.

Normally the test was conducted among students before tiffin-break of the schools so that the children may concentrate on the tests with full energy. The two tests viz. intelligence test and creativity test were administered to the students. The intelligence test was taken first. Before starting the test students were directed to take their seats in such a way so that they could not get the scope of consulting others.

4.3.3 Testing Programme and Testing

After completion of sitting arrangement students were informed that they might get something as reward for
their good cooperation after the end of the tests.
Effort was also made to establish a good rapport with
the students. After that test booklets for intelligence
test were given to the students and asked not to open
the test booklets until they were told to do so. Students
were asked to read carefully the instructions printed
on the front page of the test booklet. After completion
of five minutes, the time given for reading instructions,
further general instructions were given to the students
orally in the following manner:

"Dear little friends, the present test is to
a great extent different from school examina-
tions. This test will measure how quickly you
can solve some simple problems. Like other
school examinations prior preparation for the
present test is not necessary. So do not be
afraid that you are not prepared for the test.
You just try to follow me very sincerely in
every step and read the instructions carefully
and then you will be able to write answers
properly.

The present test has been divided into four
parts. Remember that you have to complete the
answers of each part within specified time.
So do not waste time by too much thinking
after one question or by any other means."
Beside the above mentioned general instructions, instructions also were given for each part. The time limit for each part was five minutes. So total time for the whole test was twenty minutes. Twenty minutes were also spent for giving instructions. Ten minutes were taken for distributing and collecting booklets. So total fifty minutes were required to complete the test.

It should be noted that author did not face much difficulty from the students at the time of testing. Few students sometimes tried to consult or create disturbance. However, they were controlled properly.

After taking the test of intelligence students were allowed a rest for fifteen minutes. After that the second test, viz., the test of creativity, was presented. In a few cases creativity test was taken in the next day due to sudden break of the schools.

Like the first test students were again directed to take their seats quietly. Answersheets were distributed one by one. After distributing answersheets general instructions were given to the students.

Instructions were planned beforehand so that every student might get the same instructions. This was important because difference of instructions had signi-
ficant impact on tests. The general instructions for creativity test was given in the following manner:

"Dear little friends, the present test is significantly different from your school examinations. In case of school examinations you retain answers and reproduce them from your memory according to questions. As this test is different from school examinations, prior preparation for this test is not necessary. So do not get afraid that you are not prepared. For writing answers you have to read the instructions printed on the pages of test booklet and to be attentive to my words.

The most important matter which you must remember is that there is no fixed right answer for any question of the test. So you have much freedom to give the answers in your own way. Basically your imagination is required for writing answers. So try to imagine, do not be afraid to imagine. Do not try to copy from your friends, because what you think as right answer yourself is the right answer.

Remember that the present test has six parts. You have to complete each part within specified time. So do not waste
time unnecessarily. Hope, you will be able to write answers better than your friends and be rewarded."

The creativity test was divided into six parts. Five minutes were given to complete each part. So total time allotted for the whole test was 30 minutes. Twenty minutes were spent for giving instructions. Other activities like distributing pictures, answersheets and collecting them again took almost 20 minutes. As promised, each student was rewarded with a colourful pencil.

4.4 SCORING AND SELECTION OF THE CHILDREN

The scores on the creativity test were determined by standard procedure. In brief, the procedure was as follows:

(1) Fluency -- 1 score for every significant response in each creativity.

(2) Flexibility -- 1 score for each significant departure of ideas from the response immediately preceding.

(3) Originality -- A significant response which was given by less than 1% of the children tested (N = 500 in this test) was considered to be highly original and a score of 2 was allotted for such a response. Some other
responses which were given by more than 1% children but less than 2% were considered to be original and a score of 1 was allotted for each of these responses.

Total fluency, flexibility and originality scores were determined for all the activities and for each child. Total creativity score obtained by each child was also determined by the addition of fluency, flexibility and originality scores. A frequency distribution of the 500 total creativity scores was prepared. Initially the top 25% and the bottom 25% of the children were marked as the high creative and low creative group respectively. The parents of these children comprised of the actual sample of this study. But owing to a number of reasons as it will be explained in the next section, a few couples were to be dropped and some others were to be included.

4.5 INTERVIEWING THE PARENTS

4.5.1 Contact

Initial contact was made by the author and his wife Gopa Mukhopadhyay. Sometimes contact was made over phone. In each case we visited the home introducing ourselves as research workers and explained the purpose
of the study to the parents. Normally we visited the home on Sundays and other holidays so that parents might provide necessary time for the interview. Wherever possible we interviewed the parents on the first contact, otherwise, the interview was taken on an appointed day and time.

4.5.2 Interviewing

We wanted to interview fathers and mothers separately and at a time so that they could not influence each other's evaluation or attitude. Fathers were interviewed by the author, while mothers were interviewed by the wife of the author. We were able to interview fathers and mothers separately in almost all cases. In five cases it was not possible to interview them in a separate room. Since we wanted the interview to be independent, we had to arrange a time when both the parents might be available in a relaxing condition. But in spite of our best effort we were not able to interview both father and mother at a time in three cases because of consecutive absence of one. Nevertheless, it may be assured that interviews with the parents were independent and free from mutual influence.
Except in eleven cases, we were able to interview the parents according to the schedule prepared beforehand. Among the eleven cases two families denied to give the interview indirectly, address of two families could not be traced out and in seven families either father or mother was absent. Whenever it occurred that we selected a family where father or mother was absent due to death or some other reasons, we excluded that family. In all the above mentioned eleven cases substitutes were selected.

The time required to interview a couple took more than one hour, therefore, it was not possible for them to interview more than four couples in a day. Since Sundays, sometime Saturdays and other holidays could be utilised for the interview purpose, it was not possible to have more than seven days in a month. Thus it took more than 10 months to complete the parental interview.

Altogether 231 (113 from the low creative group and 118 from the high creative group) couples were interviewed. But the 52 were to be dropped due to the fact that they could not provide reliable information sought from them. 20 of them were from the high creative group and 32 from the low creative group. As a result the lower limit of the creativity score for the high creativity group and the upper limit of the creativity score for the low creative group was slightly relaxed and 19 re couples in
the low creative group and 2 more couples in the high creative group were included from the borderline. In this way ultimately, after a little further screening the complete interview schedule of 200 fathers and 200 mothers, 100 each from the low and the high creativity groups were retained for final analysis.

4.6 SCORING AND RECORDING THE DATA

Parental responses as obtained through the interview schedule have been dichotomised into categories and in some cases given scores. The manner of categorizing and scoring of the responses have been given below in accordance with the exact variables or items. The categories and scores were recorded in the form of tables in large sheet the details of which are given below.

4.6.1 Parental Age and Period of Marriage

These were recorded in the form of scores as it was stated by the respondents in years.

4.6.2 Parental Sex

Responses of the fathers and the mothers were recorded separately but with the same code number so that
the parents of a particular child and their responses could be identified whenever necessary.

4.6.3 Parental Education

The level of parental education were divided into three categories, namely, high, average and low in a manner mentioned below:

Table 4.2 - Three levels of parental education used for scoring

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>graduation level and above</td>
<td>3</td>
</tr>
</tbody>
</table>
| Average | education from secondary level to below the gradua-
  | tion level                                     | 2     |
| Low     | education up to below the secondary level        | 1     |

4.6.4 Parental Occupation

Firstly effort was made to classify parents on the basis of their occupation into five namely, unemployed, service holders, teachers, businessmen and professionals. But as the number of mothers having employment were very few, they were simply divided into employed and unemployed. On the other hand fathers were
divided into four categories namely, service holders, businessmen, professional and teachers. There were no father without any occupation.

4.6.5 Ordinal Position

On the basis of ordinal position the following 4 categories were considered for analysis:

1) First and only child
2) Second child
3) Third child and
4) Fourth and subsequent positions

As the number of parents having children more than 4 were few, it was not considered wise to have more than 4 categories in the ordinal position.

4.6.6 Number of Children

Responses regarding number of children were recorded for analysis into three categories namely, male child, female child and total number of children.

4.6.7 Male - female Proportion

In connection with male-female proportion four categories were found. These were -- (1) female nil
(2) male more than female (3) female more than male and (4) male equal to female.

4.6.8 Level of Education

The level of education in the family was explained in the Chapter-III and recorded as high average and low in the following way:

Table 4.3 - Three levels of education in family as used for scoring

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>All the children/completed or continuing education</td>
<td>3</td>
</tr>
<tr>
<td>Average</td>
<td>Most of the/one of the two children either completed or continuing education</td>
<td>2</td>
</tr>
<tr>
<td>Low</td>
<td>Only the child in question is continuing education</td>
<td>1</td>
</tr>
</tbody>
</table>

4.6.9 Leisure Time Activities of the Parents
And Child's Interest Pattern

On the basis of leisure time activities, hobbies and interest pattern parents and children were divided respectively into two categories namely, stereotyped and creative in the following manner:
Table 4.4 - The two categories of parental and children's interest patterns

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creative</td>
<td>Parents/children engaged in such activities which may satisfy their imaginativeness or innovativeness</td>
</tr>
<tr>
<td>Stereotype</td>
<td>Parents/children engaged in such activities which are routine work and where there is no scope of satisfying imaginativeness or innovativeness</td>
</tr>
</tbody>
</table>

4.6.10 Feeding

Responses from mothers only were taken to know the child's feeding practice and causes of adopting a particular feeding practice. But as the responses were not much differentiated, they were not taken into account for analysis.

4.6.11 Early Physical and Motor Development

On the basis of early physical and motor development children were divided into advanced, normal and retarded. Responses in this regard were obtained from mothers only and recorded in the following manner:
Table 4.5 - The three categories of children's early physical and motor development

<table>
<thead>
<tr>
<th>Category</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced</td>
<td>3</td>
</tr>
<tr>
<td>Normal</td>
<td>2</td>
</tr>
<tr>
<td>Retarded</td>
<td>1</td>
</tr>
</tbody>
</table>

It should be mentioned that the scores were given separately for all the areas of physical and motor development and then total scores were determined.

It should also be mentioned that available norms of physical and motor development were considered to divide children into advanced, normal and retarded.

4.6.12 Early Language Development

Responses about development of language of children were taken from their parents under two items:

1) Different phases of actual language development of children as reported by their parents.

2) Parental perception regarding language development of their children.
Children were divided into advanced, normal and retarded according to the responses given by the parents on both the above mentioned cases in the following manner:

Table 4.6 - The three categories of parental perception of child's language development

<table>
<thead>
<tr>
<th>Category</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced</td>
<td>3</td>
</tr>
<tr>
<td>Normal</td>
<td>2</td>
</tr>
<tr>
<td>Retarded</td>
<td>1</td>
</tr>
</tbody>
</table>

Parents' perception of child's intellectual development

Parents' perception of children's intellectual development were categorized on a five point scale namely, highly intelligent, intelligent, average, slightly dull and dull. The information was recorded in the following manner:
Table 4.7 - Five categories of parental perception of child's intelligence

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highly intelligent</td>
<td>Parents perceive their children as highly intelligent</td>
<td>5</td>
</tr>
<tr>
<td>Intelligent</td>
<td>Parents perceive their children as intelligent</td>
<td>4</td>
</tr>
<tr>
<td>Average</td>
<td>Parents perceive their children as average</td>
<td>3</td>
</tr>
<tr>
<td>Slightly Dull</td>
<td>Parents perceive their children as slightly dull</td>
<td>2</td>
</tr>
<tr>
<td>Dull</td>
<td>Parents perceive their children as dull</td>
<td>1</td>
</tr>
</tbody>
</table>

4.6.14 Parents perception of Child's Emotional Development

Parent's perception were sought regarding the frequency and intensity of different emotional behaviours on a five point rating category. The manner of recording information regarding frequency and intensity of emotions of children reported by their parents have been given below:
Table 4.8 - Five categories of parental perception of emotional behaviour as used for scoring

<table>
<thead>
<tr>
<th>Frequency of a particular emotional expression</th>
<th>Intensity with which an emotion is expressed</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highly frequent</td>
<td>Very severe</td>
<td>5</td>
</tr>
<tr>
<td>Frequent</td>
<td>Severe</td>
<td>4</td>
</tr>
<tr>
<td>Occasional</td>
<td>Moderate</td>
<td>3</td>
</tr>
<tr>
<td>Rare</td>
<td>Mild</td>
<td>2</td>
</tr>
<tr>
<td>Very rare</td>
<td>Very mild</td>
<td>1</td>
</tr>
</tbody>
</table>

4.6.15 Child’s Behaviour Under Common Stress

Parental perception of their child's behaviour under common stress was recorded on a five-point rating category namely, highly tolerant, tolerant, moderate, less tolerant, very least tolerant. Information was recorded for analysis in the following manner:

Table 4.9 - Five categories of parental perception of stress tolerance

<table>
<thead>
<tr>
<th>Category</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>High tolerant</td>
<td>5</td>
</tr>
<tr>
<td>Tolerant</td>
<td>4</td>
</tr>
<tr>
<td>Moderate</td>
<td>3</td>
</tr>
<tr>
<td>Less tolerant</td>
<td>2</td>
</tr>
<tr>
<td>Least tolerant</td>
<td>1</td>
</tr>
</tbody>
</table>
Appropriate explanation was provided to the parents by the investigator at the time of data collection in order to maintain uniformity in the parental assessment.

4.6.16 Child's Daily Behaviour

It may be recalled that information were sought from parents regarding their perception of child's daily behaviour separately for different behaviour areas namely, child's choice of food and dress, sibling relationship, discipline in daily activities and sense of responsibility. The categories in which information for each behaviour area were recorded for analysis have been given below one by one:

4.6.16.1 CHOICE OF FOOD AND DRESS

Table 4.10 - Five categories of parental perception of child's choice

<table>
<thead>
<tr>
<th>Category</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highly Fastidious</td>
<td>1</td>
</tr>
<tr>
<td>Fastidious</td>
<td>2</td>
</tr>
<tr>
<td>Moderate</td>
<td>3</td>
</tr>
<tr>
<td>Careless</td>
<td>4</td>
</tr>
<tr>
<td>Very Careless</td>
<td>5</td>
</tr>
</tbody>
</table>
### Relationship with Siblings

Table 4.11 - Five categories of parental perception of child's relationship with siblings

<table>
<thead>
<tr>
<th>Category</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hostile</td>
<td>1</td>
</tr>
<tr>
<td>Slightly Hostile</td>
<td>2</td>
</tr>
<tr>
<td>Co-existent</td>
<td>3</td>
</tr>
<tr>
<td>Congenial</td>
<td>4</td>
</tr>
<tr>
<td>Highly Congenial</td>
<td>5</td>
</tr>
</tbody>
</table>

### Discipline in Daily Activities

Table 4.12 - Five categories of parental perception of discipline in child's daily activities

<table>
<thead>
<tr>
<th>Category</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highly disciplined</td>
<td>5</td>
</tr>
<tr>
<td>Disciplined</td>
<td>4</td>
</tr>
<tr>
<td>Moderate</td>
<td>3</td>
</tr>
<tr>
<td>Irregular</td>
<td>2</td>
</tr>
<tr>
<td>Very Irregular</td>
<td>1</td>
</tr>
</tbody>
</table>
Table 4.13 - Five categories of parental perception of child's sense of responsibility

<table>
<thead>
<tr>
<th>Category</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highly responsible</td>
<td>5</td>
</tr>
<tr>
<td>Responsible</td>
<td>4</td>
</tr>
<tr>
<td>Moderate</td>
<td>3</td>
</tr>
<tr>
<td>Irresponsible</td>
<td>2</td>
</tr>
<tr>
<td>Highly irresponsible</td>
<td>1</td>
</tr>
</tbody>
</table>

4.6.17 Parental Interference

Information was wanted from parents about their nature of interference in child's activities. For this purpose some activities like keeping the child's own materials, selecting friends, supervising extracurricular activities etc. were included in the interview schedule with an ultimate view to categorize them as maximum interference, moderate interference and minimum interference. Information was recorded for analysis in the following manner:
Table 4.14 - Three categories of parental interference as used for scoring

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum</td>
<td>Interference in almost all activities</td>
<td>3</td>
</tr>
<tr>
<td>Moderate</td>
<td>Interference in two or three activities</td>
<td>2</td>
</tr>
<tr>
<td>Minimum</td>
<td>Rare interference</td>
<td>1</td>
</tr>
</tbody>
</table>

4.6.18 Punishment

Information was sought about frequency and intensity of punishment given to the children on a five point rating category namely, severe and frequent, severe and occasional, moderate and frequent, moderate and occasional, mild and occasional. It may be recalled here that information from parents were wanted about various types of punishment like physical, verbal, social etc. But as the response endorsement in the case of punishment other than verbal and physical were very few, they were not considered ultimately for analysis. So the parental responses about physical and verbal punishment given to the children were finally recorded in the following manner:
Table 4.15 - Six categories of parental punishment as used for scoring

<table>
<thead>
<tr>
<th>Category</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild and occasional verbal punishment</td>
<td>0</td>
</tr>
<tr>
<td>Mild and occasional physical punishment/</td>
<td>1</td>
</tr>
<tr>
<td>Moderate and occasional verbal punishment</td>
<td></td>
</tr>
<tr>
<td>Moderate and occasional physical punishment/</td>
<td>2</td>
</tr>
<tr>
<td>Moderate and frequent verbal punishment</td>
<td></td>
</tr>
<tr>
<td>Moderate and frequent physical punishment/</td>
<td>3</td>
</tr>
<tr>
<td>Severe and occasional verbal punishment</td>
<td></td>
</tr>
<tr>
<td>Severe and occasional physical punishment/</td>
<td>4</td>
</tr>
<tr>
<td>Severe and frequent verbal punishment</td>
<td></td>
</tr>
<tr>
<td>Severe and frequent physical punishment</td>
<td>5</td>
</tr>
</tbody>
</table>

It is clear from the above table that weightage given on physical punishment is something higher than that on verbal punishment. The reason of giving higher weightage lies in the assumption that by nature, physical punishment is relatively more painful to the children of the preadolescent age.

4.6.19 Reactions to Punishment

Parents' perception of child's reaction to punishment were categorized on a five point scale namely, highly adverse reaction, adverse reaction, neutral, favourable reaction, highly favourable reaction. The information were recorded in the following manner:
Table 4.16 - Five categories of parental perception of child's reaction to punishment

<table>
<thead>
<tr>
<th>Category</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highly favourable</td>
<td>5</td>
</tr>
<tr>
<td>Favourable</td>
<td>4</td>
</tr>
<tr>
<td>Neutral</td>
<td>3</td>
</tr>
<tr>
<td>Adverse</td>
<td>2</td>
</tr>
<tr>
<td>Highly adverse</td>
<td>1</td>
</tr>
</tbody>
</table>

4.6.20 Purpose of Punishment

In the interview schedule parents were asked to report the causes of giving punishment to their children. For this purpose, various causes like bad academic proficiency, inattentiveness, hostile behaviour, rivalry with siblings, disobedience and many others were mentioned in the schedule. All the causes of punishment ultimately were categorized into three namely cognitive control, behavioural control and both.

4.6.21 Reward

Firstly, parental rewarding habit was categorized into two namely, rewarding and non-rewarding. Then, the rewarding parents were asked to state the
occasion of giving reward. Parents were asked to report whether they gave reward for social achievement, cultural achievement, achievement in games and sports and good behaviour. Again, parents were also asked to report the kind of rewards given to the children. For this purpose, various types of reward like cash, gift, praise, taking to joy trip etc. were mentioned in the interview schedule. The information ultimately recorded for analysis into three namely, reward in kind, verbal reward and non-verbal reward.

4.6.22 Parental Attitude

Parental attitude towards parental role and responsibility was measured in the dimension of favourable to unfavourable. Responses were recorded for analysis in the following way:

Table 4.17 - Five categories of parental attitude as used for scoring

<table>
<thead>
<tr>
<th>Score for father's responses</th>
<th>Description</th>
<th>Score for mother's responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mother should have the prime role</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>Role of mother is more important than father</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>Both must have equal role to play</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>Role of father is more important than mother</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>Father should have the prime role</td>
<td>1</td>
</tr>
</tbody>
</table>
Parental Concept of Their Role and Responsibility

Parental concept of their role and responsibility was measured in the dimension of extreme authority to extreme permissiveness. Responses were recorded for analysis in the following manner:

Table 4.18 - Five categories of parental concept of their role and responsibility as used for scoring

<table>
<thead>
<tr>
<th>Category</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extreme authority</td>
<td>5</td>
</tr>
<tr>
<td>Moderate authority</td>
<td>4</td>
</tr>
<tr>
<td>Mutual</td>
<td>3</td>
</tr>
<tr>
<td>Moderate authority of the spouse</td>
<td>2</td>
</tr>
<tr>
<td>Extreme authority of the spouse</td>
<td>1</td>
</tr>
</tbody>
</table>

Parental Concept of the Goal of Child-rearing

Responses from parents were sought about their concept of goal of child rearing. For this purpose parents were asked to select one answer out of five alternatives given in the interview schedule. Responses obtained from the parents were recorded ultimately for analysis in the following manner:
Table 4.19 - Five categories of parental concept of goal of child rearing as used for scoring

<table>
<thead>
<tr>
<th>Category</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extremely pragmatic</td>
<td>5</td>
</tr>
<tr>
<td>More or less pragmatic</td>
<td>4</td>
</tr>
<tr>
<td>In between the two</td>
<td>3</td>
</tr>
<tr>
<td>More or less idealistic</td>
<td>2</td>
</tr>
<tr>
<td>Extremely idealistic</td>
<td>1</td>
</tr>
</tbody>
</table>

4.6.25 Parental Control

Control exercised by parents on children were categorized on a five point rating category namely, extreme control, good control, medium control, slight control and no control. Information were recorded for analysis in the following manner:

Table 4.20 - Five categories of parental control as used for scoring

<table>
<thead>
<tr>
<th>Category</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extreme control</td>
<td>5</td>
</tr>
<tr>
<td>Good control</td>
<td>4</td>
</tr>
<tr>
<td>Medium control</td>
<td>3</td>
</tr>
<tr>
<td>Slight control</td>
<td>2</td>
</tr>
<tr>
<td>No Control</td>
<td>1</td>
</tr>
</tbody>
</table>
4.6.26 Parental Perception of Environment

Information from parents was sought about their perceptions of home, social, academic and economic environment and scored separately in the dimension of unfavourable to favourable in the following manner:

Table 4.21 - Five categories of parental perception of environment as used for scoring

<table>
<thead>
<tr>
<th>Category</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highly unfavourable</td>
<td>1</td>
</tr>
<tr>
<td>Unfavourable</td>
<td>2</td>
</tr>
<tr>
<td>Moderate</td>
<td>3</td>
</tr>
<tr>
<td>Favourable</td>
<td>4</td>
</tr>
<tr>
<td>Highly favourable</td>
<td>5</td>
</tr>
</tbody>
</table>

4.7 ANALYSIS

Primarily, there may be three types of designs depending upon the patterns of variables, namely univariate, bivariate and multivariate. The situation is called univariate when we work with one variable. When we try to find out the relationship between two variables, the
situation is called bivariate. Finally, the situation may be multivariate if the complex interrelationship within a number of variables is the primary aim of a study.

The present research work is intended to find out the relationship between certain child rearing variables, in one hand, and creativity, on the other. So, there was a possibility of using multivariate pattern of analysis of the variables. But as many of the responses regarding child rearing variables were taken from the parents on a rating category, the computation of intercorrelation among variables were not so desirable. Since majority of the multivariate analysis primarily begin with intercorrelation matrix among variables, there was hardly any scope for adopting multivariate analysis.

It may be recalled that in a previous section we found factorial design as most appropriate for our study. So considering the mode of measurement, and factorial design, it was decided that the only way of analysis for the present study is the Analysis of Variance.

The conditions necessary for the analysis of Variance (ANOVA) have been inherently satisfied by the nature and type of variables and the emerging scores.
But as it has been mentioned in the previous section of design and hypothesis that three types of sources of variation have to be studied, namely, the difference in respect of a particular child rearing variable, between two creativity groups, between two parental sexes and the interaction of parental sex and creativity group. Therefore, two way ANOVA was deemed suitable for the present study. It was decided the two way ANOVA for the rating categories (Guilford and Fruchter, 1979) would be most suitable for our purpose and as a consequence all the analysis were conducted in a 2 x 2 paradigm with the following dichotomy:

2 Creativity groups: High and Low
2 Parental sex: Father and Mother
(with 100 entries in each of the four cells)

However, in the case of some of the parental variables, the responses were genuinely in dichotomised form like Yes or No, employed or unemployed etc. In these cases it was essential to study the differences between the parental sex and creativity group by $\chi^2$ test (Guilford and Fruchter, 1978).
Also, in some other instances, the measures were obtained in the score form, e.g., parental age, intelligence of the child under study etc. In these cases, the Mean and Standard Deviation were computed for each of the measures and the differences mentioned above were studied by t test (Guilford and Fruchter, 1978).

The results of analysis will be presented and discussed in the next chapter on Results and Discussion.