CHAPTER III

PLANNING AND PROCEDURE

3. INTRODUCTION:

In the previous chapter the theoretical foundation of creativity, classroom climate, Achievement Motivation, and Mental Ability were discussed. A review of the literature related to the study was given. Now in this chapter, the design, method, plan and procedure of the study has been described.

3.1. METHOD OF THE STUDY:

The method adopted for the present study can be largely categorized as being 'descriptive statistical in nature'. However, the use of inferential statistics has been made in deducing results from different statistical techniques employed for investigating the relationship between creativity, Achievement Motivation, Mental Ability and Classroom climate.

3.2. THE FACTORIAL DESIGN:

The concept of single variable is found useful in some areas of physical sciences. It fails to provide a sound approach to experimentation in the behaviour sciences.
Despite its appealing simplicity and apparent logic, it does not provide an adequate method for studying complex problem. It assumes a highly artificial and restricted relationship between single variables. Rarely, if ever, are human events the result of single cause. They are usually the result of the interaction of many variables, and an attempt to limit variables so that one can be isolated and observed proves impossible.

The contributions of R.A. Fisher, first applied in agricultural experimentation have proved a much more effective way of conducting realistic experimentation in the behavioural Sciences. His concept of achieving pre-experimental equation of conditions through random selection of subjects and random assignments of treatments, and his concept of analysis of variance and analysis of co-variance, made possible the study of complex interactions through factorial designs, in which the influence of more than one independent variable upon more than one dependent variable could be observed.

Hence, for the present study it was decided to make use of Factorial Design.

The design followed 2 x 2 x 2 pattern. This design
envisages three independent variables and one dependent variable:

The three independent variables are:

1. Achievement Motivation,
2. Intelligence or Mental Ability,
3. Classroom Climate.

The dependent variable is Creativity.

The above mentioned independent variables are studied at two levels each with the dependent variable.

Regarding Achievement Motivation n.Ach. Scores of 7 or less and 11 or more constitute two levels.

Regarding Intelligence 'Intelligence Scores' of 95 or less and 110 or more constitute two levels for comparision.

With regards Classroom climate a score of 160 and below and a score above 160 form the basis for reference at two levels.

This was done with a view to determining the relative effects of the three independent variables upon the dependent variable. For three variables at two levels eight combi-
nations are possible for comparison.

As the subjects of the study were drawn from standard VIII and Standard IX, sixteen cells in total were framed with eight cells for standard VIII and eight cells for Standard IX. Each cell consists of 20 pupils distributed through stratified sampling technique having been matched for comparison.

All groups were tested simultaneously and under the same conditions.

3.3. THE SAMPLE:

The sample for the present study was selected keeping in view the needs and aims of the study in different phases.

The sample was selected at random separately from Std. VIII and Std. IX from Seven Higher Secondary Schools, teaching through the medium of English and situated in Madurai City.

The sample selected included pupils of two levels of intelligence, two levels of Achievement Motivation, and two levels of Classroom Climate so as to make them more representative of the population they were drawn from.
For the purpose of interaction analysis the samples were stratified according to the scores of their performances, in the respective tests administered on them, at two levels.

3.4. TOOLS USED IN THE STUDY:

It was decided to use the following tools:

1. Classroom Climate Scale (CaSe, Baroda)
2. Mixed Group Test of Intelligence by P.N. Mehrotra.
3. Achievement Motivation Inventory by Prayas Mehta
4. Verbal Test of Creative Thinking by Baquer Mehdi.

3.4.1. THE CLASSROOM CLIMATE SCALE: (CCS)

The Classroom Climate Scale contains three constructs VIZ. Authenticity, Legitimacy, and Productivity. Each construct has eight components as described below:

<table>
<thead>
<tr>
<th>CONSTRUCT: AUTHENTICITY</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Components</strong></td>
</tr>
<tr>
<td>1. Role coordination: &quot;Maintaining effective relationships of behaviour within the classroom.&quot;</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Components</td>
</tr>
<tr>
<td>---------------------</td>
</tr>
<tr>
<td>2. Openness</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>3. Involvement</td>
</tr>
<tr>
<td><em>Full involvement in the learning process</em></td>
</tr>
<tr>
<td>4. Expectation</td>
</tr>
<tr>
<td><em>Looking forward to certain behaviours or actions to happen.</em></td>
</tr>
<tr>
<td>5. Cognitive input</td>
</tr>
<tr>
<td><em>The knowledge that one absorbs through the learning process.</em></td>
</tr>
<tr>
<td>Components</td>
</tr>
<tr>
<td>--------------------------------</td>
</tr>
<tr>
<td>6. Affect arousal</td>
</tr>
<tr>
<td>&quot;The awakening of feelings and emotions in a classroom while learning or due to interaction with each other.&quot;</td>
</tr>
<tr>
<td>7. Stimulation</td>
</tr>
<tr>
<td>&quot;Activating a person to think or act.&quot;</td>
</tr>
<tr>
<td>8. Unself-Conscious Absorption</td>
</tr>
<tr>
<td>&quot;Being unaware of imbibing certain behaviours, values etc.,&quot;</td>
</tr>
</tbody>
</table>

**CONSTRUCT: LEGITIMACY**

| 1. Imposed Discipline           | 1. My teachers can maintain good discipline in my class. (+)            |
| "Authoritative control of pupil behaviours through rules and regulations." | 2. There is no discipline and order in my class. (-) |
| 2. Utility                     | 3. I feel that what I learn in my class will help me to face life and its problems (+) |
| "Usefulness of any activity in a class." | |
4. I feel that what I learn in my class is not of any practical use to me. (-)

3. Homogeneity
   = The degree to which pupils are similar or alike in their behaviour traits.

5. The composition of my class is such that we take quick decisions without bitter conflicts. (+)

4. Commitments
   = Whole-hearted involvement in any activity.

6. There are many conflicts in my class which do not allow us to take any decision. (-)

5. Democratic Behaviour
   = Behaviour which encourages differences of opinions and free discussions.

7. During any activity in my class, the pupils have a great sense of commitment. (+)

6. Group Strength
   = The support that is received in being together collectively.

8. In my class, the pupils show a lack of commitment during many activity. (-)

9. Our teachers allow us to take part in discussions. (+)

10. Our teachers take all the decisions in our class without even consulting us. (-)

11. We are so united in our class that we help each other in our work. (+)

12. In my class, each one is aloof and does not help the others(-)
7. Directedness
   = Having a direction for an activity so that movement leads to progress.

13. Our teachers come to class in time and enjoy teaching us. (+)
14. Our teaching are unpunctual and do not have any interest in teaching us. (-)

8. Identification
   = The appropriation in to one's self.

15. Our class teacher feels that our class is her own. (+)
16. Our class teacher does not feels that our class is her own (-)

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CONSTRUCT : PRODUCTIVITY

1. Interpersonal support
   = Mutual assistance rendered by teachers and pupils to one another.

2. Role satisfaction
   = The pleasure a pupil experience when she performs her duty or as expected of her.

1. There is co-operations and love for work among our teachers. (+)
2. Our teachers do not try to understand our difficulties. (-)

3. It gives me great pleasure to go to my class. (+)
4. In my class, I do not get any satisfaction from my studies. (-)
3. Resource utilization
   * Making use of materials, aids and talents one possesses, in order to be more effective.

4. Role manifestation
   * The characteristic behaviour displayed when one performs her duty.

5. Behaviour Consonance
   * The harmony that exists between the behaviour and expectations that others have of a person.

6. Help
   * The right type of assistance rendered.

5. Our teachers make their lessons interesting by using various teaching aids.
6. Our teachers do not use enough teaching aids. (-)
7. Our teachers are devoted to their work and are interested in teaching us. (+)
8. I feel that my teachers should put in more effort to help me in my studies. (-)
9. I like the behaviour of our teachers and feel like imitating them. (+)
10. Our various teachers behave differently and hence we feel confused.
11. Along with the lessons, our teachers tell us many things that will be useful in life. (+)
12. In my class, our teachers are absorbed in giving us content matter only and forget to solve our difficulties. (-)
7. Physical facilities
   = The class setting, seating arrangement, Light etc.,
   that are available to pupils in a classroom.

13. The furniture in our classroom is comfortable. (+)

14. In my class there is no proper seating arrangement. (-)

8. Fulfilment
   = The joy and satisfaction one obtains after her
   wishes are fulfilled.

15. I am extremely happy to be in my class and wish I could always
   study with the same companions. (+)

16. I do not enjoy even a single moment in my classroom. (-)

GENERAL STATEMENT:

1. I feel that my class is like a prison (-)

2. I have great love for my class. (+)

The above 50 statements (16+16+16+2) comprise the scale of Classroom climate.

The classroom climate scale is given in the Appendix.I.
Classroom Climate Scale consists of 50 statements comprising 25 positive items and 25 negative items with five levels of responses for each.

An example is given below:

<table>
<thead>
<tr>
<th>Statements</th>
<th>I strongly feel.</th>
<th>v.o feel</th>
<th>s.t. feel</th>
<th>rarely feel</th>
<th>never feel</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I feel that my class is a prison.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Going to my class is not a pleasant experience.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. I have great love for my class.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The pupil is asked to read each situation and indicate his/her answer by marking a tick against any one of the responses he thinks suited to this notion of the classroom situation. The responses checked are then scored as 5, 4, 3, 2, 1 according to the degree represented by the
responses for positive items and scored as 1, 2, 3, 4, 5 according to the degree represented by the responses for negative items.

In the example cited above score for statement No. 1 is = 5 and the score for response for statement No. 2, is 4 as the two items cited above are negative items. The score for statement No. 3 is 5 as it is a positive item. The sum of all the scores, as various situations checked by the pupil, gives his total score on classroom climate scale. The maximum score obtainable in the CCS is 250 and the minimum is 50.

A mean score of 150 and below on classroom climate scale indicate a low ALP climate.

A mean score above 150 on classroom climate scale indicates High ALP climate.

The classroom climate scale is a standard scale devised by CASE, BARODA.

3.4.2. MIXED GROUP TEST OF INTELLIGENCE: (MGTI)

The present test is prepared in a spiral -
omnibus form providing selective form of items for both parts of the test (verbal and non-verbal) which may be conveniently used in a group form. The test can be used on school-going pupils between 11 to 17 years. This test is constructed on the lines of Welschler - Bellervue scale of intelligence. The author has included ten sub-tests, five each for verbal and non-verbal section of tests. They are as follows:

A. VERBAL TESTS:
1. Analogy Test
2. Number - Series test
3. Classification test
4. Vocabulary test
5. Reasoning test

B. NON-VERBAL TESTS:
1. Analogy test
2. Arrangement test
3. Classification test
4. Digit - symbol test
5. Part - fitting test

All these sub-tests are mostly saturated with 'g' factor.
Under each sub-tests there are fifty items organized in an omnibus selective form. Since the test comprises of two kinds of items i.e., verbal and non-verbal, it is conveniently called a mixed test of intelligence. The test contains items of varying difficulty levels, and high discrimination power. The items have positive and high correlation with the test scores. (For mixed Group test of Intelligence wide appendix II)

**CORRELATION WITH EXAMINATION MARKS:**

A. Verbal Test 0.36  
B. Non-verbal Test 0.30  
C. Full Test 0.35

**CORRELATION WITH OTHER TESTS SCORES:**

A. Verbal Test and Jalota's test Scores 0.54  
B. Non-verbal Test and Jalota's test Scores 0.37  
C. Verbal Test and Bhatia's Test Scores 0.53  
D. Non-verbal Test and Bhatia's test Scores 0.61  
E. Full Test and Jalota's test Scores 0.47  
F. Full Test and Bhatia's test Scores 0.56

Sub-tests validity in terms of 'g' saturation.

All sub-tests except analogy test of non-verbal tests are highly saturated with 'g' factor loadings which range from 0.2478 to 0.8269.
FACTORIAL VALIDITY:

Factorial validity in the present test was ascertained by Hotelling’s principal components’ method. The author has followed the procedure of extracting factors as has been given by Kendall. In all, ten factors have been extracted.

NORMS:

To provide basis for interpreting raw scores obtained by pupils, various types of norms have been prepared by the author. These norms are Age and Grade-wise standard scores, T-Scores, Deviation I.Q and Centill Norms. Besides, tentative norms in terms of mean scores and standard Deviations according to the age and grades group have been prepared to present a quantitative analysis of data. The tables of the various types of norms are given in the instruction manual.

3.4.3. ACHIEVEMENT MOTIVATION INVENTORY (AMI)

The Achievement Motivation Inventory (AMI), a multiple response type Questionnaire, was developed by the author (Mehta, 1969, p.p.130-135) with the help of the stories written by the high school boys to TAT type pictures. The idea of the author was to provide a simple and objective measure of achievement motivation. It was hoped
that AMI, based on the pictorial cues and stories written in response to them, would reveal achievement motivation similar to or at least, closely approximating to the TAT measure of need achievement. The AMI, as a close approximation to the measure of need achievement, was expected to be an easy tool for the use of the teachers and researchers alike. Although the descriptive statements in the inventory are based on stories of some real life situations the inventory is basically a multiple response type Questionnaire and is purely a paper-pencil test.

The inventory contains 22 items. These are the descriptive statements of the pictorial stimuli which were tried out in connection with the TAT measure of nAch. Each item in the inventory is followed by six alternatives of which the respondents are required to check only one. One example of the same is given below:

A boy is painting:
1. He is thinking whether to complete the painting or to leave it incomplete.
2. He is practising painting.
3. He is painting in order to participate in the school's annual art competition.
4. He is thinking whether to put colours in the painting or not.
5. The boy is learning the art of painting.
6. He is thinking that he would paint beautiful pictures after learning to draw nicely.

It will be observed that two each of the six alternative responses, were achievement related, task related and unrelated to achievement and the same are designated as AR, TR, and VR. In the above example, 3 and 6 are AR, 2 and 5 are TR; and 1 and 4 are VR. (For AMI wide appendix III).

The inventory was administered by the author, as a part of the survey of the achievement motive to high school boys in Delhi. About, 1000 boys of standard IX from 32 different schools formed the S of the Survey. The K - R 20 reliability was 0.67 for the inventory - The K - R 20 formula tended to show a lower - bound value under the conditions of the inventory where there were several alternatives, the obtained reliability of 0.67 was, therefore, considered satisfactory, as per the author. The correlation between the total score on the Achievement Motivation Inventory and the TAT type stories was 0.152 and was significant at 0.0001 level.
3.4.4. VERBAL TEST OF CREATIVE THINKING (VTCT):

The test for creativity is a battery which consists of both verbal and non-verbal tests.

The verbal test of creativity includes four sub-tests, namely, consequences test, unusual uses test, similarity test, and product improvement test.

(i) Consequences test: The consequences test consists of three hypothetical situation (a) What would happen if man could fly like birds? (b) What would happen if our schools had wheels? and (c) What would happen if man does not have any need for food?

The subject is required to think as many consequences of these situation as he can, and write them under each situation the space provided. The situations being hypothetical, minimize the effect of experience and also provide the subject with unlimited opportunity to make responses. The test encourages free play of imagination and originality. An example is given on the test booklet to acquaint the subject with the nature of the test. The time allowed for the three problems is 4 minutes each.
(ii) **Unusual Uses Test**: This test presents the subject with the names of three common objects - a piece of stone, a wooden stick, and water—and requires him to write as many novel, interesting and unusual uses of these objects as he may think of. The example given on the test booklet properly acquaints the subjects with the nature of the task. This test measures the subject's ability to retrieve items of information from his personal information in storage. Evidently, it measures also the subject's ability to shift frames of reference to use the environment in an original manner. The time allowed for the three tasks is 5 minutes each.

(iii) **New Relationships Test**: This test presents the subjects with three pairs of words apparently different—tree and house, chair and ladder, air and water, and requires him to think and write as many novel relationships as possible between the two objects of each pair in the space provided. The test provides an opportunity for the free play of imagination and originality. The time allowed for each pair of words is 5 minutes.
(iv) **Product Improvement Test:** In this test the subject is asked to think of a simple wooden toy of a horse and suggest addition of new things to it to make it more interesting for the children to play. The time allowed is 6 minutes.

The total time required for administering the test is 48 minutes in addition to the time necessary for giving instructions, passing out test booklets to children and collecting them back.

1. **Consequences:**

The basis of this activity is Guilford's Consequences Test or Torrance's Just to Suppose Activity. The tasks included in this activity are based on familiar things but are presented in the form of a hypothetical situation. The tasks confront the subject with a situation which he can think of with a large number of possibilities to a hypothetical happening. This implies cause and effect thinking. The event is mentioned and the subject has to think of the consequences that may occur as a result of that stimulus, event, or happening, whether the happening is usual or unusual, logical or illogical. Thus the number of relevant responses produced by the subject yields a measure of his ideational fluency, the number of shifts in the thinking trends of the consequences gives the measure of verbal
flexibility, and the statistical infrequency of the response or the thinking departure from the commonplace gives the measure of originality.

2. Unusual Uses:

The basic idea of these tasks comes from Guilford's Brick Uses Test or Torrance's Tin Can Uses Test, or Cardboard Boxes Uses Test. Common things like water, a wooden stick and a piece of stone are used as stimulate let the subject's thinking go in different directions. The Activity appears playful to the child but quickly puts him on a train of though which will yield many novel responses. The number of relevant responses may give the measure of one's ideational fluency, the number of thought categories the measure of verbal flexibility, and uncommonness of responses a measure of his originality.

3. New Relationships:

Mednick worked extensively with word associations, and his definition of creativity is based upon remoteness of such associations. In this activity, articles of daily use with which the child is quite familiar are taken so as to enable him to think more naturally about relationships between two apparently dissimilar objects. The items of this activity
provide possibilities for scoring responses for fluency, flexibility, and originality in the same fashion as for Unusual Uses Test.

4. **Product Improvement:**

   This test of verbal imagination is similar to the one found in Torrance's Product Improvement Activity. Torrance used a picture of a toy-monkey, but in this test the subject is only asked to imagine a figure of horse-toy and then give responses which would indicate what he will do to make it more interesting and unusual for the child to play. The task takes the child in the world of imagination and spurs him to think in different directions. Apart from ideational fluency, the test also measures flexibility and originality. (For Verbal Test of Creativity wide appendix IV)

**TECHNICAL INFORMATION ABOUT THE TEST:**

(i) **Item Validity:**

   The test was administered to two samples—one urban and the other rural consisting of 300 and 175 pupils respectively, studying in classes VII and VIII. Each item was scored for fluency, flexibility and originality. The raw scores for each item were converted into T scores with a means of 50 and SD 10 and were added up to get the total score for each item.
The item scores were then correlated, first, with the total activity scores and then with the grand total i.e., the total of all four activities. The total activity scores were also correlated with the grand total.

Another method for studying the usefulness of the items in a given activity was to obtain separate scores for fluency, flexibility and originality for each set of items under a given activity in order to see how the factor scores were correlated among themselves and how they correlated with the grand total.

Table I denotes the correlation of Test Items with the Total Activity Score and Grand Total for urban and rural sample.

Table II denotes the correlation between Test Activities and the total creativity score on urban and rural samples.
### TABLE I (a)

Correlation of Test Items with the Total Activity Score & Grand Total (Urban Sample) N = 300.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Item</th>
<th>Correlation with activity total</th>
<th>Correlation with grand total</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>1</td>
<td>.824</td>
<td>.741</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>.861</td>
<td>.741</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>.766</td>
<td>.555</td>
</tr>
<tr>
<td>II</td>
<td>1</td>
<td>.864</td>
<td>.758</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>.864</td>
<td>.768</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>.840</td>
<td>.708</td>
</tr>
<tr>
<td>III</td>
<td>1</td>
<td>.874</td>
<td>.722</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>.882</td>
<td>.762</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>.843</td>
<td>.659</td>
</tr>
<tr>
<td>IV</td>
<td>1</td>
<td>1.000</td>
<td>.761</td>
</tr>
</tbody>
</table>

All correlations are significant beyond .01 level.

### TABLE I (b)

Correlation of Test Items with the Total Activity Score and the Grand Total (Rural Sample) N = 175.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Item</th>
<th>Correlation with activity total</th>
<th>Correlation with grand total</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>1</td>
<td>.751</td>
<td>.412</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>.798</td>
<td>.496</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>.745</td>
<td>.591</td>
</tr>
<tr>
<td>II</td>
<td>1</td>
<td>.695</td>
<td>.562</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>.793</td>
<td>.692</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>.760</td>
<td>.541</td>
</tr>
<tr>
<td>III</td>
<td>1</td>
<td>.717</td>
<td>.552</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>.668</td>
<td>.502</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>.692</td>
<td>.515</td>
</tr>
<tr>
<td>IV</td>
<td>1</td>
<td>1.000</td>
<td>.541</td>
</tr>
</tbody>
</table>

All correlations are significant beyond .01 level.
The above table shows that (i) the items in each activity are correlating highly with the activity total indicating that together they are measuring the same thing and (ii) their correlations with the grand total are also considerably high, again pointing to the fact that the items are highly internally consistent. This is more clearly shown in the urban sample than in the rural sample, but the correlations in the rural sample are also considerably high and leave no room for any doubt about the internal validity of the test.

**TABLE II**

Correlation Between Test Activities and the Total Creativity Score on Urban and Rural Samples.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Urban N = 300</th>
<th>Rural N = 175</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>.818</td>
<td>.646</td>
</tr>
<tr>
<td>II</td>
<td>.862</td>
<td>.741</td>
</tr>
<tr>
<td>III</td>
<td>.806</td>
<td>.695</td>
</tr>
<tr>
<td>IV</td>
<td>.761</td>
<td>.541</td>
</tr>
</tbody>
</table>

All correlations are significant beyond .01 level.
The correlations in the above table show a significantly high degree of relationship between the activities and the total creativity score (all being significant beyond .01 level). The correlations range from .761 to .862 for the urban sample and from .541 to .741 for the rural sample. Such high correlations show once again the usefulness of the activities in measuring the creative thinking abilities of the individual which the test purports to do.

(ii) Factor Validity

The correlations between the different factors of creativity and the total creativity score are given in Tables III and IV.

**TABLE III**

Correlation Coefficients Between Various Factors of Creativity and the Total Creativity Score on the Urban Sample (N = 300)

<table>
<thead>
<tr>
<th>Factor</th>
<th>Fluency</th>
<th>Flexibility</th>
<th>Originality</th>
<th>Creativity total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluency</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flexibility</td>
<td>.944</td>
<td>--</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Originality</td>
<td>.796</td>
<td>.776</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>Creativity total</td>
<td>.966</td>
<td>.960</td>
<td>.889</td>
<td></td>
</tr>
</tbody>
</table>

All correlations are significant beyond .01 level.
TABLE IV

Correlation Coefficients Between Various Factors of Creativity and Total Creativity Score on the Rural Sample.
(N = 175)

<table>
<thead>
<tr>
<th>Factor</th>
<th>Fluency</th>
<th>Flexibility</th>
<th>Originality</th>
<th>Creativity Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluency</td>
<td>--</td>
<td>--</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flexibility</td>
<td>.817</td>
<td>--</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Originality</td>
<td>.435</td>
<td>.448</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>Creativity Total</td>
<td>.828</td>
<td>.836</td>
<td>.751</td>
<td>--</td>
</tr>
</tbody>
</table>

All correlations are significant beyond .01 level.

(iii) Correlation between creativity and intelligence:

In the rural sample where Raven’s Progressive Matrices was used, the correlations with verbal and non-verbal creativity tests were found to be .194 and .181 respectively. In the urban sample where Mohsin’s verbal group tests of intelligence was used the correlations with verbal and non-verbal creativity tests came out to be .176 and .159 respectively.
(iv) Correlations between the verbal and non-verbal tests of creativity:

The Correlations between the verbal and the non-verbal tests of creativity based on the total creativity scores were found to be .456 and .356 for the urban and rural samples respectively measuring the same construct, namely, creativity.

RELIABILITY OF THE TEST

The test-retest reliabilities of the factor scores and also the total were obtained on a small sample (N = 31).

TABLE V

Test-retest Reliabilities of Factor Scores and the Total Creativity Score N = 31.

<table>
<thead>
<tr>
<th>Fluency</th>
<th>Flexibility</th>
<th>Originality</th>
<th>Total Creativity score</th>
</tr>
</thead>
<tbody>
<tr>
<td>.945</td>
<td>.921</td>
<td>.896</td>
<td>.959</td>
</tr>
</tbody>
</table>

Both the factor score and the total creativity score reliabilities are considerably high ranging from .896 to .959. The reliability of the total creativity score which
came out to be .959 is quite high. Inter-scorer reliabilities for the factor scores in one study were found to range from .653 to .981.

VALIDITY OF THE TEST

The validity coefficients against the teacher ratings for each factor are given in table VI.

TABLE VI

Validity Coefficient for Factor Scores Against Teacher Ratings. N = 300.

<table>
<thead>
<tr>
<th>Fluency</th>
<th>Flexibility</th>
<th>Originality</th>
<th>Total Creativity Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>.40</td>
<td>.32</td>
<td>.34</td>
<td>.39</td>
</tr>
</tbody>
</table>

All correlations are significant beyond .01 level.

The validity coefficients for factor scores and the total creativity score are high enough (sig. beyond .01 level) to place confidence in the use of the test.

3.5.0 PROCEDURE:

3.5.1 PHASES OF THE STUDY:

The present investigation was undertaken in five
phases. The first phase was concerned with the study of classroom climate of the selected schools in Madurai City. Two types of institutions were identified with the classroom climate scale measuring the climate in terms of Authenticity, Legitimacy and Productivity components.

The second phase was concerned with the measurement of the pupil's mental ability with the help of Mixed Group Test of Intelligence by P.N. Mehrotra.

The third phase was concerned with the measurement of Achievement Motivation of the subjects under study employing Achievement Motivation Inventory by Prayag Mehta.

The fourth phase was concerned with the assessment of creative ability of the subjects for investigation using verbal Test of Creative Thinking by Baquer Mehdi.

The final phase was concerned with the exploration of the relationship between the scores on Achievement Motivation, Mental ability, Classroom climate, and creativity.

In the final phase interaction between the above mentioned variables was studied. The data obtained were tabulated according to a 2 x 2 x 2 factorial design of Analysis of variance, and interpreted according to the
results obtained by the above analysis.

3.5.2 DATA COLLECTION:

The investigator administered the various tests and collected the data by personally visiting the various schools during 1984-85. Full co-operation in this regard was extended by the students, members of the staff and the school authorities. After giving a brief introduction of the purpose of the visit, a general idea about the psychological test was given with particular reference to their utility in competitions for further career. The cardinal point was to create more interest in the job at hand and to establish greater rapport between the subjects and the investigator. The immense interest evinced by the students is evident from the continuous flow of communication received from them.

The students, in all the schools, accorded willing co-operation.

The first test that was administered was the classroom climate scale (Case, Baroda). The test was conducted in a threat free atmosphere. After conducting the test the responses were scored according to the instructions given in the manual and two types of climate such as Low and High ALP climate were identified.
Tests on Mixed Group Test of Intelligence; Achievement Motivation Inventory and Verbal Test of Creativity were conducted separately, keeping different intervals of time on a sample of 1200 pupils of standard VIII and of standard IX after a break of one month scrupulously following the instructions given in the respective test manuals.

The collected data were scored according to the instructions provided by the test manuals prepared by the authors of respected tools.