CHAPTER - FOUR
METHODOLOGY
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4.1 METHOD

The purpose of the present study was to know the relationship of creativity, personality characteristics, and academic achievement of adolescents with the school climate prevailing in various government/government aided senior secondary schools of Jammu region. In such type of studies neither any previous record nor any type of experimentation can be helpful in gathering the required information. Such type of information can be collected only by administering some tests and data are gathered about what exists from relatively large sample of a particular population. Hence, the descriptive survey method was adopted in the present study.

4.2 DESIGN

The whole project was so organised that it could be carried out systematically. For this following steps were followed:

In the beginning suitable tests were selected. Adolescents from government/government aided senior secondary schools of Jammu region were selected. The organisational climate of each school was identified with the test. The scores concerning the organisational climate of schools were
converted into standard scores. Data was analysed statistically.

4.3 SAMPLE

To begin with 527 adolescents of X+1 class were selected from government/government aided senior secondary schools of Jammu region on the basis of stratified randomisation technique. From all the schools which were selected randomly a sample of 36 (boys/girls) adolescents was taken up randomly. Tools were administered one by one in two sittings spread over a period of two days. As 23 adolescents were absent on one or the other test, therefore, these 23 adolescents were dropped from the final study. In this way final sample of the present study consisted of 504 adolescents. Its composition was as follows:

Table 4.1

Table showing composition of final sample

<table>
<thead>
<tr>
<th>Sr.No.</th>
<th>Name of the institution</th>
<th>Boys</th>
<th>Girls</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Kendriya Vidyalaya, Nagrota</td>
<td>18</td>
<td>18</td>
<td>36</td>
</tr>
<tr>
<td>2.</td>
<td>Army School, Nagrota</td>
<td>18</td>
<td>18</td>
<td>36</td>
</tr>
<tr>
<td>3.</td>
<td>Kendriya Vidyalaya No.1, Gandhi Nagar, Jammu.</td>
<td>18</td>
<td>18</td>
<td>36</td>
</tr>
<tr>
<td>4.</td>
<td>Luthra Academy, Palace Road, Jammu.</td>
<td>18</td>
<td>18</td>
<td>36</td>
</tr>
</tbody>
</table>

contd...
Table 4.1 contds

<table>
<thead>
<tr>
<th></th>
<th>School Name</th>
<th>Boys</th>
<th>Girls</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Model Academy (MIEE), B.C. Road, Jammu.</td>
<td>18</td>
<td>18</td>
<td>36</td>
</tr>
<tr>
<td>6</td>
<td>Shastri Memorial Higher Secondary School, Subash Nagar, Jammu.</td>
<td>18</td>
<td>18</td>
<td>36</td>
</tr>
<tr>
<td>7</td>
<td>Jain School, Ranl Tallab, Jammu.</td>
<td>18</td>
<td>18</td>
<td>36</td>
</tr>
<tr>
<td>8</td>
<td>Government Higher Secondary School, Domana.</td>
<td>18</td>
<td>18</td>
<td>36</td>
</tr>
<tr>
<td>9</td>
<td>Govt. Girls Higher Secondary School, Canal Road, Jammu.</td>
<td>0</td>
<td>36</td>
<td>36</td>
</tr>
<tr>
<td>10</td>
<td>Govt. Higher Secondary School, Ranbir Singh Pura, Jammu.</td>
<td>36</td>
<td>0</td>
<td>36</td>
</tr>
<tr>
<td>11</td>
<td>Govt. Girls Higher Secondary School, Mubarak Mandi, Jammu.</td>
<td>0</td>
<td>36</td>
<td>36</td>
</tr>
<tr>
<td>12</td>
<td>Govt. Higher Secondary School, Kot Balwal, Jammu.</td>
<td>36</td>
<td>0</td>
<td>36</td>
</tr>
<tr>
<td>13</td>
<td>Govt. Girls Higher Secondary School, Behari Sarwal, Jammu.</td>
<td>0</td>
<td>36</td>
<td>36</td>
</tr>
<tr>
<td>14</td>
<td>Govt. Higher Secondary School, Akhnoor.</td>
<td>36</td>
<td>0</td>
<td>36</td>
</tr>
</tbody>
</table>

Total = 252 252 504
4.4 TOOLS USED

Following tools were used to collect the data for the present study:


2. Verbal Test of Creative Thinking (Baquer Mehdi, 1985).

3. 16 Personality Factor Questionnaire (by Cattell & Eber, Indian adaptation by Kapoor & Tripathi, 1982).

4. Academic Achievement (Academic achievement of the adolescents was measured by taking their percentage of score on final examination of the class Xth).

4.4.1 School Climate Description Questionnaire (Holpin and Croft, 1963). Indian adaptation by Sharma, 1980

To study the organizational climate of the school (by Holpin and Croft, 1963, Indian adaptation by Sharma, 1980) was employed. SCDQ is consisted of following eight sub tests:

1. Principal's Leadership Style (PLS)
2. Teacher's Attitude Towards Work (TATW).
3. Student's Academic Self-concept (SASC).
4. Interrelation Among Students (IRAS).
5. Students' Attitude Towards Learning (SATL).
7. Students' Perception of School Academic Environment (SPSAE).
8. Students' Perception of Level of Discipline in the School (SPLDS).

1. **PLS:** This sub test consists of 7 Likert type item. It refers to the principal's taking pains, welcoming participation of teachers and students, his democratic and flexible approach towards problems.

2. **TATW:** It refers to the teachers' attitude towards work i.e. pains taken by teachers, marking of assignment in time, their contacts with individual students and parents and their effects. This sub-test consists of 7 items.

3. **SASC:** It refers to students' academic self concept i.e. benefit taken by the students from classroom teaching and their becoming successful in various academic activities. It has 4 Likert type statements.

4. **IRAS:** It refers to interrelation among students i.e. students inter-dependence in academic and social fields, their 'we feelings', celebration of functions by students without any groupism. It has 5 Likert type items.

5. **SATL:** It refers to students' attitude towards learning i.e. their concept about learning, their attention towards class, their interest towards lesson etc. It
6. **SPSSE:** It measures students' participation of school social environment with the help of 5 Likert's type item. It refers to students' and staff cooperation, cooperation of the school with parents and community and organisation of various co-curricular activities.

7. **SPSAE:** It refers to student participation of school academic environment. It has 5 Likert's type statements which are addressed to facilities in the school in the form of library, books, group discussion and utilization of time fruitfully by students and teachers.

8. **SPLDS:** It refers to students perception of discipline i.e. orderliness of the school, silence in the school, no conflict, no disorganization of any sort and discouraging copying during examination. It is measured with the help of 6 Likert's type items.

All the items are positive with five alternatives i.e. strongly agree, agree, indifferent, disagree, and strongly disagree. Scoring was done as per the instructions given in the manual of the test i.e. 4 marks for strongly agree, 3 for agree, 2 for indifferent, 1 for disagree and 0 for strongly disagree.
Raw scores were further converted into their standard scores for the purpose of the analysis.

4.4.2 Verbal Test of Creative Thinking (Bager Mehd, 1985)

The battery is meant to identify creative talent at all stages of education, except pre-primary and primary.

The choice of this test was made due to its wide applicability and use. This test has already been used by Prasad (1979), Singh (1984) and Singh (1985) in Indian situation.

The theoretical framework for the preparation of the test battery was provided by empirical studies on the nature of creativity. Unlike convergent thinking, where information leads to one right answer or a recognised best or conventional answer, divergent production leads to novel responses to given stimuli. Guilford relates divergent thinking to certain well known ability factors which seem to go with creative output.

For example in (i) consequence test some hypothetical situations (as 'what would happen if man could fly like a bird?') are given and the subject is required to think as many consequences of these situations as he/she can. The time allowed for the three problems is 4 minutes each. In (ii) unusual uses test subject is presented with the names of three common objects (as a piece of stone, a wooden stick, and water) and he/she required to write as many novel, interesting and unusual uses of these objects as he may think
The time allowed for the three tasks is 5 minutes. In (iii) New Relationship Test, the subject is presented with three pairs of words apparently different - tree and house, chair and ladder, air and water it is required from him/her to think and write as many novel relationship as possible between the two objects of each pair in the space provided. The time allowed for each pair of words is 5 minutes. In (iv) Product Improvement 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.

Reliability of the Test

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

Test-retest reliability of the 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 scores and total creativity score reliabilities are considerably high ranging from .896 to .959. These values are highly satisfactory.

Validity of the Test

The validity coefficients for teacher ratings for each factor are given below:

Table 4.3
Validity coefficient for factor scores and total creativity score against teacher rating (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 which place confidence in the use of the test.

4.4.3 16 Personality Factors Questionnaire (Cattell and Eber, 1967). Indian adaptation by Kapoor and Tripathi, 1982.

The 16 Personality Factor Questionnaire (16 PF) is an objectively scorable test devised by basic research in psychology to give the most complete coverage of personality possible in brief time. This personality inventory by Kapoor and Tripathi, 1982 is conceptually based on Cattell's theory of personality. He states, "Personality becomes one and the same enterprise." His strategy of personality research is
that of multivariate experiment as illustrated in factor analysis, the multiple discriminant function, canonical correlations etc. He said that, "We enter the experiment with a great number of variables, usually allowing them to vary as they vary in nature, without attempting to control them artificially in any way."

This 16 PF Questionnaire is very convenient and easy to use as a group test. It is a well known tool for measuring personality of the individual. Comprehensive coverage of 16 Personality Factor Questionnaire is the measurement of sixteen functionally independent and psychologically meaningful dimensions. These sixteen dimensions of Scale are essentially independent with small correlation between one another. Therefore, having a certain position on one does not prevent the persons having any other position whatsoever on any other factor. Thus, each scale brings an entirely new information about the individual. It is widely used tool in India (e.g. Lekha, 1997; Rajnish, 1998). The description of the 16 Personality Factors measured by 16 PF Questionnaire is given as:

1. **Factor A**:

   Factor A tests the reserved vs. outgoing factors of an individual. A person who scores low on factor A tends to be stiff, cool and aloof. High scorer on factor A tends to be—
good natured, easy going, emotionally expressive, ready to cooperate, soft hearted and adaptable.

2. **FACTOR B:**

It tests the intellectual ability of an individual i.e. less intelligent Vs. more intelligent. The person who scores less on factor B tends to be slow in learning and his/her grasp is dull. The person scoring high tends to be quick to grasp and is fast learner.

3. **FACTOR C:**

Described as a factor of affected by feelings Vs. emotionally stable. Low score on it is indicative of the fact that the person is more readily affected by feelings whereas the higher score on it means emotional stability.

4. **FACTOR E:**

It is a factor of humble Vs. assertive traits of an individual. The high scores on this factor means the individual is stubborn and low scores is accommodating.

5. **FACTOR F:**

Sobber Vs. happy go lucky traits of an individual are measured by this factor F. Sobber is the more dominant trait of the individual scoring low on it, whereas high scorer is more intended to be a happy-go-lucky one.
6. FACTOR G:

A person scoring more on this factor has conscientiousness as dominant traits but if the score is low then expediency takes its place. A conscientious person is characterized by traits of conscientious and the low scorer, i.e., expediency is a measure of expedient.

7. FACTOR H:

Shy Vs. Venturesome as dominant traits measured by the factor H. Low scorer on this factor is supposed to be shy, timid, threat sensitive while as a high scorer venturesome relates to socially bold.

8. FACTOR I:

It is a factor of tough minded Vs. tender minded traits of the individual. Tough mindedness is indicated by a low score on it whereas the person is tender hearted if the score on it is high.

9. FACTOR L:

The two traits pitched on this factor are trusting Vs. suspicious. The person who scores low on this factor tends to be free of jealous tendencies, adaptable, cheerful and a good team worker. The person who scores high on factor L tends to be mistrusting and doubtful.
10. **FACTOR M**:

Factor M accounts for the practical vs. imaginative bent of mind. The person whose score is low on factor M tends to be anxious to do the right things, attentive to practical matters. The high score on factor M represents the individual who is unconventional unconcerned over everyday matters.

11. **FACTOR N**:

It measures forthright vs. shrewd trait of the individual. Individual with low score on it may be labelled as forthright while as the one scoring high it be considered shrewd.

12. **FACTOR O**:

A person scoring low on factor O tends to be placid, has a mature, unanxious, confidence in himself. The person who scores high tends to be depressed, moody, worrier.

13. **FACTOR Q₁**:

It indicates conservativeness, if the score on it is low and if the same is high that is indicative of experimenting nature of the individual.

14. **FACTOR Q₂**:

Factor Q₂ tests dependency vs. self-sufficiency. The person who scores low on factor Q₂ prefers to work and make
decision with other people, likes and depends on social approval. The person who scores high has independent nature, accustomed to going his own way.

15 **FACTOR Q₃**

This factor measures the undisciplined (self conflicted) Vs. controlled traits of the individual, higher score on it means a controlled individual whereas low scores means person is undisciplined and careless.

16. **FACTOR Q₄**

Factor Q₄ measures the traits grouped as relaxed Vs. tense. The person who scores low tends to be relaxed and satisfied and the person whose score is high is tense, restless and impatient.

Kapoor and Tripathi (1982) have reported the reliability co-efficient of Form C and Form D of the test in English after two months of retesting range from .35 to .51.

The test consists of 105 items in all, and three alternative answers are provided for each of the items. There is no time limit to complete this test but it is usually completed in 35 to 40 minutes. Scoring of this 16 PF Questionnaire is done with the help of keys which are given in its manual.
4.4.4 Academic Achievement

An achievement test measures the extent to which a person has achieved something, acquired certain information or mastered certain skills usually as a result of specific instruction. It ascertains what and how much has been learnt or how well a task has been performed.

Freeman (1942) defines a test of educational achievement as a test "designed to measure knowledge, understanding skills in a specified subject or group of subjects".

Ebel (1966) defines the achievement test as "a test designed to measure a student's grasp of some body of knowledge or his proficiency in certain skills".

Thus, an achievement test appraises a pupil's educational growth. It assesses what he has learnt in school or other situations where learning and teaching are intended to go on.

Freeman (1942) points out the following differences between achievement and intelligence tests:

1. Achievement tests are concerned with the quantity and quality of learning attached in subject of study, or group of subjects after a period of instruction.

2. Intelligence tests are general in scope and are intended for the measurement and analysis of psychological
processes, although they must, of necessity employ some acquired content that resembles the content found in achievement tests.

Gronlund (1968) sums up the purposes of achievement tests - "achievement tests are useful aids for diagnosing a student's specific learning needs, for identifying his relative strengths and weaknesses for studying his progress and for predicting his success in particular curriculum."

In the present study academic achievement of the students was measured by taking percentage of total marks of the final examination of the previous years (i.e. Xth Class).

4.5 COLLECTION OF DATA

Before the collection of the data research tools were finalised. After that a survey of different schools was conducted and the permission of the head of the institution was taken beforehand for the collection of the data from the concerned school. Different research tools were administered one after the other in two sittings, spread over a period of 1-2 days. Tools were administered in a group of 36-40 adolescents. To begin with data was collected on a sample of 527 adolescents but as 23 adolescents were absent on one or the other test, therefore, these 23 adolescents were dropped and finally the data was collected from 504 adolescents, studying
in XI class in government/government aided senior secondary schools of Jammu region.

Before the data collection all the queries of the respondents were answered so as to satisfy their curiosity and motivate them to answer the tests with ease and concentration. Adolescents were told in the beginning that their results would be kept strictly confidential and the results would only be utilised for the purpose of research in the field of education.

4.6 STATISTICAL TECHNIQUES USED

In the present study following statistical techniques were used for the purpose of analysis of data:

1. The statistical technique of co-efficient of correlation was employed to see the association among various variables i.e. school climate, creativity, personality and academic achievement.

2. Mean, standard deviation and t-ratios were calculated to see the differences in the creativity level, personality characteristics and academic achievement of the adolescents due to different type of school climate.