CHAPTER IV

METHOD AND PROCEDURE
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4.1 DESIGN OF THE STUDY

In order to know 'what exists, and what is the present status of phenomena, and to take into stock of comparison of two groups of adolescents on the variables of intelligence, creativity, personality and values, descriptive survey method of investigation was employed in the present study with the intent of employing the data to justify current conditions and practices and also to make more intelligent plans for improving social educational conditions and processes. Also as this design involves events which have already taken place and the researcher has to only manipulate his methods of observation and description, therefore, this design was preferred according to the objectives of the study.

The technique of t-ratios was employed in order to know and compare the differences in the level of intelligence creativity level, personality characteristics and value patterns of adolescents of minority and non-minority communities.
4.2 SAMPLE

A representative sample of senior secondary schools was taken so as to represent rural-urban schools, boys, girls and co-educational institutions and government and aided schools. The geographical area was also restricted according to the purpose of the study and time-schedule and monetary resources at the disposal of the investigator.

Out of all the districts of Punjab, only seven districts were selected randomly for the present study. In addition to this sample was also selected from Union Territory of Chandigarh (Capital of Punjab). 428 (adolescents (150 from minority and 273 from non-minority communities) were selected from Xth class on the basis of multistaged randomization technique. In case the institution was big and there were many students, who could not be covered up within limited time, a random sample of 25-43 students was selected from such institutions.

Out of 150 adolescents of minority community, all the responses were found complete and hence these were taken. The responses of 8 adolescents from non-minority community were found incomplete and hence these were deleted. Thus final sample consisted of 420 adolescents (150 from minority community and 270 from non-
minority community). The composition of final sample for the present study has been given in Table 4.1.

Table 4.1

The composition of final sample

<table>
<thead>
<tr>
<th>District</th>
<th>Adolescents from Minority community</th>
<th>Adolescents from non-minority community</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>S. No.</td>
<td>Name of the Institution</td>
</tr>
<tr>
<td>Sangrur</td>
<td>1</td>
<td>Govt. Sr. Sec. School, Malerkotla</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Govt. Girls Sr. Sec. School, Malerkotla</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Islami Sr. Sec. school, Malerkotla</td>
</tr>
<tr>
<td>Ferozepur</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Muktsar</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Bathinda</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Faridkot</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Jallandhar</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

contd...
### Table 4.1 contd:

<table>
<thead>
<tr>
<th>Location</th>
<th>School Details</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chandigarh</td>
<td>7. DAV Sr. Sec. School, Sector 8, Chandigarh.</td>
<td>43</td>
</tr>
<tr>
<td>Ropar</td>
<td>8. Govt. Senior Secondary School, Mohali</td>
<td>24</td>
</tr>
</tbody>
</table>

**TOTAL**  
N=150  
N=270

### 4.3 TOOLS USED

In order to test the hypotheses it was necessary to collect evidence and therefore for this purpose following tools were used as per the nature of the problem.

Before selecting the tools following considerations were kept in mind:

(i) Easy administration and scoring.
(ii) Level of understanding of the respondents.
(iii) The effectiveness of the tool for the present study.

Thus, following tools were selected on the basis...
of the above mentioned criteria:

2. Creative Activities Check List (Torrance, 1962).
4. Sixteen Personality Factor Questionnaire (Cattel & Eber, Indian adaptation by Kapoor & Tripathi, 1982).

4.3.1 Group Test of General Mental Ability (Jalota, 1972)

In the present study, Jalota's Group Test of General Mental Ability was used as a measure of verbal intelligence. This test was preferred to others as it is a well known test and is widely used in India (e.g., Gakhar 1981, Saini 1993). Further being a group test, it can be administered conveniently to a number of students at a time.

This test is in Hindi and comprised of 100 items. It includes 100 items as 10 similar, 10 opposite, 20 classification, 20 classification, 20 number series, 10 best answers, 10 reasoning and 20 analogies items. The reliability of the test was reported to be ranging
from 75 to 85 which is quite high and its concurrent validity coefficient ranged from 50 to 78 by taking the examination marks as criterion.

Emersion tables have been provided grade-wise for finding out the mental age with caution of not using the same with very young or very old age groups. Norms are given on the basis of both chronological age and grades. All the items have four or five alternative responses and were scored on "All or None" basis. Total scores were found out by adding all the correct responses.

The test provides some simple directions in the beginning which are to be read carefully by the investigator. To minimise the work of writing on the part of the examinee, the answers have been framed in a manner to provide an answer to a question in a digit form of one figure only. The test is administered for 20 minutes only. Another 25 minutes are required for distributing the test-booklet, answer sheets and giving directions. The answer sheets are scored with the help of hand scoring key provided for this purpose in the manual of the test.

4.3.2 Creative Activities Check List (Torrance, 1962)

The choice in favour of this tool was guided by
considerations of its research orientedness, richness and variety of items, ease of administration and suitability of the test for the present study.

This check list contains 100 items which tests the creative level of individual in the field of language, science and home science. Each item has two choice alternative answers in the form of 'yes' or 'no'. For every 'yes' response one mark is to be given and marks so obtained are summed up. A high score on the 'Check-List' indicates high degree of creativity of the child.

4.3.3 Study of Values (Indian adaptation by Kulshreshta, 1970)

This test is designed to measure the relative prominence of six dominant interests, motives, and attitudes. It was originally developed by G.W. Allport and P.E. Vernon in 1931 and was revised in 1951 by Allport-Vernon and Gardiner-Lindzey. The main changes of this revised scale according to the test manual are an improvement in the diagnostic power of items, a simplification of working and modernisation of certain items, a more economic scoring system, redefinition of social
values, fresh norms and increase in the reliability of the test as a whole.

The study of values is basically rooted in Spranger's contention that personality can be inferred from an individual's values. Spranger in his book "Types of Men" specifies six types of values.

1. Theoretical value - with dominant interest in the discovery of truths.

2. Economic value - with characteristics interest in the practical and the useful in a definitely materialistic sense.

3. Aesthetic value - with chief interest in the artistic aspects of life, looking always for form, harmony and grace.

4. Social value - tending strongly towards love of people whether of one or many whether conjugal friendly or philanthropic.

5. Political value - aiming to place prestige, dominance and power.

6. Religious value - desiring to comprehend the
the cosmos and to see the unity of man with cosmic totality.

It is a forced choice instrument which contains 45 questions and is divided into two parts. The first part contains thirty items whereas the second part contains fifteen items. In the first part, two alternatives have to be rated either as 3 and 0 or 0 and 3 or 2 and 1 or 1 and 2 according to the agreement or disagreement with the statement. In part two, four alternatives are rated in order to personal preference giving 4 to the most attractive, 3 to the second attractive, 2 to the next one and 1 to the least attractive.

Indian Adaptation

The Allport-Vernon Lindzey study of values was adopted in Indian conditions by S.P. Kulshrestha. The according to the author is highly valid and quite satisfactory for Hindi speaking population. No item has been added or eliminated keeping the number of items same.

Reliability and Validity

The coefficient of reliability was determined by
the split half method and stability method. The coefficient of correlations are given below:

<table>
<thead>
<tr>
<th>Values</th>
<th>Split-half reliability</th>
<th>Stability reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theoretical</td>
<td>.87</td>
<td>.92</td>
</tr>
<tr>
<td>Economic</td>
<td>.85</td>
<td>.90</td>
</tr>
<tr>
<td>Aesthetic</td>
<td>.83</td>
<td>.88</td>
</tr>
<tr>
<td>Social</td>
<td>.89</td>
<td>.99</td>
</tr>
<tr>
<td>Political</td>
<td>.90</td>
<td>.91</td>
</tr>
<tr>
<td>Religious</td>
<td>.89</td>
<td>.92</td>
</tr>
</tbody>
</table>

Validity has been determined on a group of 130 students and lecturers of Agra and Aligarh City. Dr. Choudhary's Scale of value was used for comparison. The time interval was 10-15 days. The result showed that the test is highly valid. The coefficient of correlation of .90, .89, .94, .91, .85, .81 were found for theoretical, economic, aesthetic, social, political and religious values respectively.

4.3.4 Sixteen Personality Factors (Cattell & Eber, Indian Adaptation by Kapoor & Tripathi, 1982)

The 16 PF is an objectively scorable test devised
for basic research in the field of psychology to give the most complete coverage of the personality possible in brief time. This test was designed for use with individuals aged 16 and above for literate individual whose educational level is roughly equivalent to that of a normal high school student.

In Form C and Form D, there are eight items for Factor B Scale, seven items for the motivational distortion scale and six items for each of the remaining scale.

Three alternative answers are provided for each of the questions, since the two alternative, 'forced-choice situation forbidding any middle of the road and may produce aversion to the test on the part of the examination'.

Reliability
Equivalence Co-efficient of the Test Form for Each Trait

<table>
<thead>
<tr>
<th>Form</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>L</th>
<th>M</th>
<th>N</th>
<th>O</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>.35</td>
<td>.49</td>
<td>.48</td>
<td>.39</td>
<td>.36</td>
<td>.44</td>
<td>.55</td>
<td>.47</td>
<td>.16</td>
<td>.25</td>
<td>.16</td>
<td>.51</td>
<td>.35</td>
<td>.40</td>
<td>.33</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
Validity

The concept validity of the scale can be evaluated directly by correlating the scale with the pure factor it was designed to measure.

Scoring

Two card board stencil scoring keys are used, one cover factors (Traits) A, C, F, H, I, N, Q, and Q, and the other factors B, E, G, I, M, O, Q, and Q'. Simply fit the stencil 1 over the answer sheet and count the marks visible through the holes. For Factor A, allowing either 2 or 1 indicated by the number printed adjacent to the hole. Sum these scores and enter the total in the space indicated by the arrow on the stencil for Factor A (raw score), but the Factor is peculiar in that each correct mark visible in a hole gives a score of 1 only. Similarly for other Factors.

Interpretation of the Primary Factors

Predictions of scores on various criteria and assignment of individuals to various diagnostic clinical groups, can be carried out actuarially, by computation from standard scores, using methods discussed in detail in the Handbook and elsewhere. Where no correlations with criteria are known, knowledge of the psychological
nature of the factors must guide initial prediction until empirical studies can be done in a particular situation. Moreover, even where correlational, actuarial evidence about a certain criterion is available, it is desirable to add psychological judgement to immediate statistical computations to allow for changes of personality with learning, maturation, etc., or for anticipated changes in life situation.

Each of the primary factors measured by the 16 PF has an alphabetic designation (A through Q), a technical title (which is given in parentheses in the following descriptions), and a brief, less technical title (given here in bold face), which the practitioner will most commonly use.

The definitions and interpretations of the factors, as given below, are short, non-technical, and of course, less exact than the more intensive discussions available in the Handbook and elsewhere (see Handbook References and the list of supplementary references given in Section 8 of this Manual). Furthermore the large number of profiles given in the Handbook for well-defined occupational and clinical groups provides the psychologist with additional insights into the meaning and operations of the factors.
Capsule Descriptions of the Sixteen Primary Personality Factors:

Low Score Direction | High Score Direction
---|---
**FACTOR A**

Reserved, Detached, Critical, Cool (Sizothymia) vs. Outgoing, Warmhearted, Easy-going, Participating (Affectothymia)

The person who scores low (sten of 1 to 3) on Factor A tends to be stiff, cool, skeptical, and aloof. He likes things rather than people, working alone, and avoiding compromises of viewpoints. He is likely to be precise and 'rigid' in his way of doing things and in personal standards, and in many occupations these are desirable traits. He may tend, at times, to be critical, obstructive, or hard.

The person who scores high (sten of 8 to 10) on Factor A tends to be good-natured, easy-going, emotionally expressive (hence naturally Affectothymia), ready to cooperate, attentive to people, soft-hearted, kindly adaptable. He likes occupations dealing with people and socially impressive situations. He readily forms active groups. He is generous in personal relations, less afraid of criticism, better able to remember names of people.
**FACTOR B**

**Less Intelligent, Concrete thinking**

(Lower scholastic mental capacity)

The person scoring low on Factor B tends to be slow to learn and grasp dull, given to concrete and literal interpretation. His dullness may be simply a reflection of low intelligence, or it may represent poor functioning due to psychopathology.

**vs.** **More Intelligent, Abstract thinking.**

(Bright.

(Higher scholastic mental capacity)

The person who scores high on Factor B tends to be quick to grasp ideas, a fast learner, intelligent. There is some correlation with level of culture and some with alertness. High scores contraindicate deterioration of mental functions in pathological conditions.

**FACTOR C**

**Affected By Feelings, Emotionally Less Stable, Easily Upset**

(Lower ego strength)

The person who scores low on Factor C tends to be low in frustration tolerance for unsatisfactory conditions, changeable and plastic,

**vs.** **Emotionally Stable, Faces Reality, Calm, Mature**

(Higher ego strength)

The person who scores high on Factor C tends to be emotionally mature, stable, realistic about life, unruffled, possessing ego strength, better
evading necessary reality
demands, neurotically
fatigued, fretful, easily
emotional and annoyed,
active in dissatisfaction,
having neurotic symptoms
(phobias, sleep disturbances,
psychosomatic complaints, etc.).
Low Factor C score is common
to almost all forms of
neurotic and some psychotic
disorders.

able to maintain solid
group morale. Sometimes he
may be a person making a
resigned adjustment*
to unsolved emotional
problems.

♦Shrewd clinical observers
have pointed out that a
good C level sometimes
enables a person to achieve
effective adjustment
despite an underlying
psychotic potential.

FACTOR E

Humble, Mild, Accommodating vs. Assertive, Independent,
Conforming Aggressive, Competitive,
(Submissiveness) Stubborn (Dominance)

The person who scores low
Factor E tends to give way to
others, to be docile, and to
conform. He is often
dependent, confessing,
anxious for obsessional
correctness. This passivity
is part of many neurotic
syndromes.

The person who scores high on
Factor E is assertive, self-
assured, and independent-
minded. He tends to be
austere, a law to himself,
hostile or extrapunitive,
authoritarian (managing
others), and disregards authority
FACTOR F

Sober, Prudent, Serious, Taciturn (Desurgency)

The person who scores low on Factor F tends to be restrained, reticent, introspective. He is sometimes dour, pessimistic, unduly deliberate, and considered smug and primly correct by observers. He tends to be a sober, dependable person.

vs. Happy-go-lucky, Impulsively Lively, Enthusiastic (Surgency)

The person who scores high on this trait, tends to be cheerful, active, talkative, frank, expressive, effervescent, carefree. He is frequently chosen as an elected leader. He may be impulsive and mercurial.

FACTOR G

Expedient, Evades Rules, vs. Conscientious, Persevering, Feels Few Obligations, Staid, Rule-bond. (Weak superego strength) (Stronger superego strength)

The person who scores low on Factor G tends to be unsteady in purpose. He is often casual and lacking in effort for group undertakings and cultural demands. His freedom from group influence may lead to anti-social acts, but at times makes him more effective, while his

The person who scores high on Factor G tends to be exacting in character, dominated by sense of duty, persevering, responsible, planful, "fills the unforgiving minute." He is usually conscientious and moralistic, and he prefers hard working people to witty companions.
refusal to be bound by rules causes him to have less somatic upset from stress.

The inner "categorical imperative" of this essential superego (in the psychoanalytic sense) should be distinguished from the superficially similar "social ideal self" of Q*.

FACTOR H

Shy, Restrained, Diffident, vs. Timid
(Threctia)

The person who scores low on this trait tends to be shy, withdrawing, cautious, retiring, a "wallflower". He usually has inferiority feelings. He tends to be slow and impeded on speech and in expressing himself, dislikes occupations with personal contacts, prefers one or two close friends to large groups, and is not given to keeping in contact with all that is going on around him.

Venturesome, Socially-bold, Uninhibited, Spontaneous
(Parmia)

The person who scores high on Factor H is sociable, bold, ready to try new things, spontaneous, and abundant in emotional response. His "thick-skinnedness" enables him to face wear and tear in dealing with people and grueling emotional situations, without fatigue. However, he can be careless of detail, ignore danger signals, and consume much time talking. He tends to be "pushy" and actively interested in the opposite sex.
FACTOR I

Tough-minded, No nonsense (Harris)
The person who scores low on Factor I tends to be practical, realistic, masculine, independent, responsible, but skeptical of subjective, cultural elaborations. He is sometimes unmoved, hard, cynical, smug. He tends to keep a group operating on a practical and realistic "no non-sense" basis.

vs. Tender-hearted, Protected, Sensitive. (Premsia)
The person who scores high on Factor I tends to be tender-minded, day-dreaming, artistic, fastidious, feminine. He is sometimes demanding of attention and help, impatient, dependent, impractical. He dislikes crude people and rough occupations. He tends to slow up group performance, and to upset group morale by unrealistic fussiness.

FACTOR L

Trusting, Adaptable, Free of Jealousy, Easy to Get on with. (Alaxia)
The person who scores low on Factor L tends to be free of jealous tendencies, adaptable, cheerful, uncompetitive, concerned about other.

vs. Suspicious, Self-opinionated, Hard to Fool (Protension)
The person who scores high on Factor L tends to be mistrusting and doubtful. He is often involved in his own ego, is self-opinionated.
people, a good team worker. and interested in internal, mental life. He is usually deliberate in his action unconcerned about other people, poor team member.

N.B. This factor is not necessarily paranoia. In fact, the data on paranoid schizophrenics are not clear as to typical Factor L value to be expected.

**FACTOR M**

- Practical, Careful, Conventional, Regulated by External Realities, Proper (Praxernia)
- Imaginative, Wrapped up in inner Urgencies, Careless of Practical Matters, Absent-minded (Autia)

The person who scores low on Factor M tends to be anxious to do the right things, attentive to practical matters, and subject to the dictation of what is obviously possible. He is concerned over detail, able to keep his head in emergencies, but sometimes unimaginative.

The person who scores high on Factor M tends to be unconventional, unconcerned over everyday matters, Bohemian, self-motivated, imaginatively creative, concerned with "essentials", and obvious of particular people and physical realities. His inner-directed interests
sometimes lead to unrealistic situations accompanied by expressive outbursts. His individuality tends to cause him to be rejected in group activities.

**FACTOR N**

Forthright, Natural, Artless, Sentimental (Artlessness) vs. Shrewd, Calculating, Worldly, Penetrating. (Shrewdness)

The person who scores low on Factor N tends to be unsophisticated, sentimental, and simple. He is sometimes crude and awkward, but easily pleased and content with what comes and is natural and spontaneous. The person who scores high on Factor N tends to be polished, experienced, worldly, shrewd. He is often hardheaded and analytical. He has an intellectual, unsentimental approach to situations, an approach akin to cynicism.

**FACTOR O**

Placid, Self-assured, Confident, Serene (Untroubled adequacy) vs. Apprehensive, Worrying, Depressive Troubled. (Guilt proneness)

The person who scores low on The person who scores high
Factor 0 tends to be placid, with unshakable nerve. He has a mature, unanxious confidence in himself and his capacity to deal with things. He is resilient and secure, but to the point of being insensitive of when a group is not going along with him, so that he may evoke antipathies and distrust.

on Factor 0 tends to be depressed, moody, a worrier, full of foreboding, and brooding. He has a childlike tendency to anxiety in difficulties. He does not feel accepted in groups or free to participate. High Factor 0 score is very common in clinical groups of all types (see Handbook).

**FACTOR Q**

Conservative, Respecting Established Ideas, Tolerant of Traditional Difficulties. (Conservatism)

The person who scores low on Factor Q tends to be confident in what he has been taught to believe and accepts the "tried and true", despite inconsistencies, when something else might be better. He is cautious and compromising in regard to new ideas. Thus, he tends to

vs. Experimenting, Critical, Liberal, Analytical, Free-thinking. (Radicalism)

The person who scores high on Factor Q tends to be interested in intellectual matters and has doubts on fundamental issues. He is skeptical and inquiring regarding ideas, either old or new. He tends to be more well informed, less inclined
to moralize, more inclined to experiment in life generally, and more tolerant of inconvenience and change.

**FACTOR Q₂**

Group-dependent, A "Joiner" and Sound Follower (Group adherence)

The person who scores low on Factor Q₂ prefers to work and make decisions with other people, likes and depends on social approval and admiration. He tends to go along with the group and may be lacking in individual resolution. He is not necessarily gregarious by choice; rather he needs group support.

vs. Self-sufficient, Prefer own Decisions, Resourceful (Self-sufficiency)

The person who scores high on Factor Q₂ is temperamentally independent, accustomed to going his own way, making decisions and taking action on his own. He discounts public opinion, but is not necessarily dominant in his relations with others (see Factor E). He does not dislike people but simply does not need their agreement or support.
FACTOR Q₃

Undisciplined Self-conflict, vs. Controlled, Socially precise, following Self-image
Careless of Protocol, (Low integration) (High self-concept control)
Folllows Own Urges

The person who scores low on Factor Q₃ will not be bothered with will control and regard for social demands. He is not overly considerate, careful, or painstaking. He may feel maladjusted, and many maladjustments (especially the effective, but not the paranoid) show Q.

The person who scores high on Factor Q₃ tends to have strong control of his emotions and general behaviour, is inclined to be socially aware and careful, and evidences what is commonly termed "self-respect" and regard for social reputation. He sometimes tends, however, to be obstinate. Effective leaders and some paranoids, are high on Q₃.

FACTOR Q₄

Relaxed, Tranquil, Torpid, vs. Tense, Frustrated, Driven, Unfrustrated Overwrought (Low ergic tension) (High ergic tension)

The person who scores low on Factor Q₄ tends to be sedate, relaxed, composed, and satisfied (not frustrated). In

The person who scores high on Factor Q₄ tends to be tense, excitable, restless, fretful, impatient. He is often fatigued,
some situations, his over-
satisfaction can lead to 
but unable to remain inactive. 
laziness and low performance,  
In groups he takes a poor 
in the sense that low motivat-
ion produces little trial and  
view of the degree of unity,  
error. Conversely, high tension  
orderliness, and leadership. 
level may disrupt school and  
His frustration represents  
work performance. 
an excess of stimulated,  
but undischarged drive. 

4.4 ADMINISTRATION OF THE TOOLS 

It was planned to administer tests to all the 
adolescents of both samples selected for this purpose. For 
this permission of the head of the concerned school was 
sought and timings were fixed for administration of the test. 
A rapport was established with the subjects by seeking brief 
introduction and talking to them informally on the importance 
of the study of human behaviour. Then they were told the 
purpose of the psychological tests to be administered. They 
were requested to cooperate fully and respond sincerely, 
truthfully and honestly. 

To reduce the anxiety of the subjects, they were 
told that their responses would in no way effect their 
assessment and the information would be kept confidential.
Before the start of each test, instructions were given in accordance with the standard instructions of manual. As the tests were lengthy, therefore, they were given to the subjects in two sessions with some break.

On scrutiny, it was found that few response sheets were incomplete. These were rejected and, therefore, data collection for a sample of 420 adolescents were used for statistical analysis and interpretation of results for the present study.

4.5 **STATISTICAL TECHNIQUES USED**

Following statistical techniques were used in the present study:

Values of mean, standard-deviation, and t-ratios were calculated for the variables of intelligence, creativity, values and sixteen personality factors by taking data of both the groups to see the differences between the two groups of adolescents belonging to minority and non-minority communities on the basis of their intellectual level, creativity level, value patterns and personality characteristics.