CHAPTER III
DESIGN AND METHODOLOGY
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This Chapter deals with the design and methodology of the research adopted by the researcher during the study. Methodology is very important to any research project and needs to be dealt/decided carefully to avoid any kind of hassles and systematic problems at later stages. This is even more important to arrive at precise and clear results. Design and methodology of the study endow the researcher with guidelines to accomplish the research in a systematic manner.

3.1 Design of the Study

This study was a correlational study of the Handwriting of prospective secondary school teachers in relationship with personality, self-concept and mental health. The practical design of the study was set under the following broad headings:

- Sample design
- Tools
- Collection of Data
- Statistical techniques

3.2 Sample Design

The descriptive survey method was used to conduct the research. The data were complete in case of 476 subjects only; about 24 subjects formed the experimental mortality. So the results are based on a sample of 476 subjects only. Prospective secondary school teachers were taken from Chandigarh and Punjab (in the periphery of 100 to 150 km). In Punjab, 128 students responded from Government College (State College of Education) while 122 from Private College (Rayat & Bahra College of Education). Similarly, in Chandigarh 140 students responded properly from Government College of Education while only 86 students responded from Private College (Dev Samaj College of Education) leading to very high mortality. There were 441 female and only 35 male prospective secondary school teachers. This imbalance resulted due to lesser number of male than female prospective secondary school teachers taking admission in these colleges, moreover Dev Samaj College of Education, Chandigarh is only for women. Purposive quota sampling technique was
used to collect the data. The variables under the study were measured by use of standardized psychological tests.

![Sample Distribution Diagram]

**Figure 3.1 Sample Distribution**

### 3.3 Procedure to Collect Data

In order to collect data, firstly, requisite permissions were taken from the principals of the respective colleges and a convenient appointment was fixed. Researcher established a rapport with the students and explained the purpose of the research. Instructions were given according to the respective manuals of the tools to respondents regarding the nature of questions and they were requested to mark the first response that comes to their mind. Then after, Questionnaires were distributed. Students were given ample time to answer and any queries thereof were attended to by the researcher.

### 3.4 Tools Employed

Tools of data collection are pivotal in a research project. They decide the kind of data generated and type of statistics used to draw meaningful information from the data. In order to collect data from prospective secondary school teachers following tools were used:

1. **Handwriting Analysis Scale**: Self constructed Handwriting Analysis Scale was used to collect the data.


3.5 Description of Tools
The details of the tools used for the study are discussed in this chapter. The details have been taken from the respective manual of the tests and presented in this chapter for the academic purpose only.

3.5.1 Handwriting Analysis Scale
This scale has been developed by the researcher and the supervisor Dr. Renu Verma. The procedure of the development of scale is described in a separate chapter (i.e., Chapter IV).

3.5.2 Eysenck’s Personality Questionnaire – Revised by H. J. Eysenck and S. B. G. Eysenck (1980)
Eysenck’s Personality Questionnaire consists of 90 statements to be answered in ‘Yes’ or ‘No’. It covers four dimensions of personality viz. extraversion, neuroticism, psychoticism and lie score. There are 21 statements pertaining to extraversion dimension, 23 statements related to neuroticism, 25 statements regarding psychoticism and 21 statements to assess lie score.

Description of Items
EPQ-R measured following items, namely Extroversion/Introversion, Psychoticism, Neuroticism and Lie scores.

a. Extraversion (E)
It is opposed to Introversion (I). Those who are high score on this dimension are sociable, lively, active, assertive, sensation seeking, carefree, dominant, surgent, venturesome, tends to be aggressive persons and lose their temper quickly, and they are not always reliable persons.

Those who are introvert are retiring sort of persons introspective, fond of books, are reserved and distant, take matters of daily life seriously, plan in advance, seldom
behave aggressively, are reliable and do not lose temper easily. The typical introvert is retiring sort of person is introspective and reserved. He keeps his feelings under close control, does not lose his temper, "looks before he leaps", and places great value on ethical standards.

b. Psychoticism (P)
It is an independent dimension. Those who are high on the dimensions are aggressive, cold, egocentric, impersonal, impulsive, antisocial, un-empathetic, creative, tough-minded and liking odd and unusual things.

c. Neuroticism (N)
It refers to the general emotional liability of a person, his emotional over responsiveness and his liability to neurotic breakdown under stress.

dl. Lie Scale (L)
It scores is used as measure of the personality trait of "conformity". High conformist persons obtain high scores; less conforming persons obtain low scores. High (L) scores person actually does behave in a manner more conforming to the present social norms i.e. socially desirable direction.

Reliability: Test-retest reliabilities of psychoticism extraversion, neuroticism, and lie score after one month interval vary between 0.78 and 0.90, which are very high indicating the reliability of the scale.

Validity: The given questionnaire had been validated for various sections of males and females and is described with the help of mean and standard deviations in the manual of the Eysenck’s Personality Questionnaire. From the data, it was seen that psychotics and prisoners, as predicted, had the highest P scores; those of drug addicts, personality disorders, individuals with sex problems and alcoholics were elevated. Endogenous depressives had P scores which, while higher than normal, were well below the other groups mentioned. All psychiatric groups (but not the prisoners) were markedly introverted. Psychiatric groups and criminals had elevated N scores, in particular the neurotics and the personality disorders. Psychiatric groups showed elevated L scores, but prisoners did not; this suggested that, had they not dissimulated, psychotics and neurotics would have had even higher P and N scores that were actually found. An analysis of groups with high and low L scores respectively,
support this view. It was seen that the P scores of all groups were much higher when L scores were less than equal to 7. E scores did not seem to be much affected, N-scores were also much higher except perhaps for the neurotics themselves.

Scoring: The scoring of the questionnaire was done according to the given transparency as key. The individual scores for extraversion, psychoticism and neuroticism were calculated as per the scoring key in the manual.

3.5.3 Self-Concept Word List by Deo (1985) Revised

Personality word list (PWL) developed by Deo, (1985) revised was used as a measure of self concept. This personality word list is an outcome of series of attempts to evolve a suitable word list. Originally it consisted of 212 adjectives. It was first prepared in 1963 and then revised in 1971. The personality word list in final revised version contains 90 adjectives in terms of words both in Hindi and English. However for the present study its English version was used by the investigator. Out of the 90 adjectives 56 are related to positive and 34 related to negative trades, both to be scored with separate stencil hand scoring keys. The PWL can be used for age groups which possess reading ability and are mature enough to report about themselves.

Reliability: Reliability was estimated by test-retest method with the gap of 15 days reliability co-efficient came out to be 0.89 (N= 595). Taking different time intervals from 15 days to 3½ months coefficient of correlation ranged from 0.62 to 0.86 ( N ranging from 65 to 70 ). The correlations between consistency scores ranged from 0.84 to 0.98. These values indicate a high degree of consistency and did not reveal any marked difference in the self concept over the period. This proves that PWL gives a stable and reliable measure of self concept.

Validity: The concurrent validity of various trades in the list ranges from 0.40 to 0.65. The overall validity coefficient of scores of Deo’s personality word list and self concept of Deo and Walia (1965) was 0.56. Moreover the discriminate validity coefficients for the trades of PWL fall in the range of 0.12 to 0.80.

Scoring: The weightages for positive words for the five points of very much like this, much like this, uncertain, not like this and not at all like this are 4, 3, 2, 1 and 0 respectively and for a negative word also the weightage is same. The neutral words
are to be ignored in the scoring. The composite score is obtained by subtracting the total negative score from the total positive score.

Scoring: It is self-rating word list rather than a check list to be rated by the subject. The rating is done on 5 point scale as under:

1. Very much like this.
2. Much like this
3. Uncertain
4. Not much like this and
5. Not at all like this.

For the rating scale the weightages for positive words for the five point scale ranging from “very much like this” to “not at all like this” were 4, 3, 2, 1 and 0 and for the negative words 0, 1, 2, 3 and 4 respectively. The composite score was obtained by subtracting the total negative score from the total positive scores. Scoring was done with the help of separate stencil hand scoring keys for positive and negative words.

3.5.4 Mental Health Inventory (1983)

Mental Health Inventory (1983) developed by Srivastava and Jagdish was used to assess the mental health of prospective secondary school teachers.

The Scale purports to assess the extent of sound mental health or psychological well being of the people. The inventory covers following six dimensions of sound mental health. Serial numbers of items belonging to different dimensions are given below:

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Dimension</th>
<th>Serial Number of the Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Positive Self Evaluation</td>
<td>1*, 7*, 13*, 23*, 27*, 32, 33, 45, 51, 54</td>
</tr>
<tr>
<td>2</td>
<td>Realistic Perception</td>
<td>5, 8, 24*, 25*, 35*, 41, 46*, 49</td>
</tr>
<tr>
<td>3</td>
<td>Integration of Personality</td>
<td>2*, 9*, 12, 15*, 18*, 20, 28*, 36*, 40, 42, 44, 53</td>
</tr>
<tr>
<td>4</td>
<td>Autonomy</td>
<td>3*, 10*, 14*, 38, 47*, 48*</td>
</tr>
<tr>
<td>5</td>
<td>Group Oriented Attitudes</td>
<td>4, 11, 19, 21*, 26, 30*, 39, 43, 50, 55*</td>
</tr>
<tr>
<td>6</td>
<td>Environmental Competence</td>
<td>6, 16*, 17*, 22*, 29, 31, 34, 37, 52, 56</td>
</tr>
</tbody>
</table>

*False – Keyed Items
Specific Components of the Six Dimensions

1. Positive Self Evaluation: Self Confidence, self-acceptance, self-identity, feeling of worthwhileness, realisation of one’s potentialities etc.

2. Realistic Perception: Perception free from need, distortion, absence of excessive fantasy – a broad outlook of the world

3. Integration of Personality: Balance of psychic forces, ability to understand and to share other people’s emotions, ability to concentrate at work/task, interest in variety of activities etc.

4. Autonomy: Stable set of internal standards for one’s actions, self-control in one’s actions, dependence for own development upon own potentialities rather than on others etc.

5. Group oriented attitudes: Ability to get along with others and work with others, ability to find recreation, feeling that one is safe in contact with one’s ground members.

6. Environmental Competence: Efficiency in meeting situational requirements, ability to work and play, ability to carry out responsibilities, capacity for adjustment.

Reliability: The reliability of the mental health inventory for the whole scale was 0.73 for 56 items and the reliability for the six sub scales varied between 0.71 and 0.79.

Validity: The construct validity of the scale as reported in the manual was found to be quite satisfactory.

Scoring: The items in the inventory were rated on four-point scale viz., always, most of the times, sometimes and never. The score for true – keyed items ranged from 4 to 1, and for the false – keyed items it ranged from 1 to 4.

3.6 Statistical Techniques Used

After all the necessary data for each of the test that were used in the study was collected and analysed, scores were tabulated for finding out the nature of tests scores for all the variables under consideration. To arrive at conclusions with respect to hypotheses of the present study, the following statistical techniques were employed.
1. Descriptive statistics like the frequency distribution, the measures of central tendency – mean, median and standard deviation were worked out to study the general nature of the sample in relationship to personality, self-concept and mental health. Skewness and kurtosis were worked out to ascertain the nature of the distribution of the scores on the variables of handwriting analysis, personality, self-concept and mental health.

2. From the normal probability curve, Pearson’s coefficients of correlation were computed to test the hypotheses. Based on the analysis, conclusions were drawn and suggestions were extended.

3. t-values were computed to find out the significance of differences to make a comparison of the mean scores of prospective secondary school teachers as per their state (Chandigarh/Punjab), sex (female/male), type of college (Government/Private).

4. Analysis of variance was computed to find out the significance of the difference between mean scores of the handwriting analysis of prospective secondary school teachers of all the four colleges individually.

5. Multiple regressions were used to study the step by step conjoint effect of personality, self-concept and mental health of prospective secondary school teachers towards their handwriting.