CHAPTER III

METHODOLOGY

Section A: test development - MTA test of personality - check-list on teacher effectiveness - personal information schedule - Section B: the research design: plan and procedure - the sample - classification of subjects into high, average, and low teacher effective groups - the variables under study - procedure for data collection - statistical techniques used for analysis.
The methodology for the investigation has been presented in this chapter under two sections. Section A contains the details of the development of MTA Test of Personality, and Check-list on Teacher Effectiveness. The Personal Data Schedule developed for collecting personal information regarding the subjects is also explained.

Section B contains the details of sample selection, the procedure for data collection, and the statistical techniques used for analysing the data.
SECTION A
TEST DEVELOPMENT

1. MTA TEST OF PERSONALITY

This test measures the three dimensions of personality, namely, Mental Health Status, Temperament, and Alienation. Different scales for measuring these three variables were already available, but were not found useful for the present investigation because they were standardized on different samples like adolescents and school or college students. Further, the number of items in these scales varied from eight to twenty-five, and a few tests were standardized as early as in the seventies. Considering all these, the present investigator felt it necessary to develop a comprehensive test for measuring all the variables under study using a single test.

(a). The Draft Scale: Subtests and Items:

The MTA Test of Personality (Prasad, Sananda Raj, and Muthiah, 1993), as noted earlier, is developed to measure Mental Health Status, Temperament, and Alienation. The items for the scale were either selected and modified from other scales, or prepared by the present authors. M.H.S. Scale and Alien Inventory, developed by Gireesan and Sananda Raj (1990a,b), Healthy Personality Index and
Generalised T-Scale, developed by Sananda Raj (1992a,b), Mathew Maladjustment Inventory, and Mathew Temperament Scale developed by Mathew (1970, 1973) were the important tools referred for the purpose.

The draft test consisted of 180 items, with twelve items each (six positive and six negative), for the fifteen variables, categorized under the three personality dimensions selected for investigation.

The fifteen variables or subtests, and sample items are explained below, under three sections:

(i). Mental Health Status:

Attitudes toward the Self, Integration, Autonomy, Perception of Reality, and Environmental Mastery are the five variables (A to E) measured under this section (serial numbers 1 to 5).

1. Attitudes toward the Self (A):

The mentally healthy 'attitudes toward the self' is described by terms such as self-acceptance, self-confidence, or self-reliance. Self-acceptance implies that a person has learned to live with himself, accepting both the limitations and possibilities he may find in
himself. Self-confidence, self-esteem, and self-respect have a more positive slant; they express the judgement that in balance the self is 'good', capable and strong. Self-reliance carries the connotation of self-confidence, and, in addition, of independence from others and of initiative from within. The content of the scale consists of traits, motives, feelings, interests, or values.

Two examples are given below:

1. I do not think that I am responsible for my mistakes.

2. For evaluating any action, I usually consider its negative side also.

2. Integration (B):

Integration refers to the relatedness of all processes and attributes in an individual. Integration as a criterion for mental health is treated with emphasis on one of the following aspects: (1) a balance of psychic forces in the individual, (2) a unifying outlook on life, emphasizing cognitive aspects of integration, and (3) resistance to stress. Balance of psychic forces implies the notion of a balance between ego and superego. It does not aim at eliminating or denying their demands. The unifying philosophy of life results in the individual's feelings that there is purpose and meaning to
his life. The use of the term 'resistance to stress' connotes behaviour under stress-resilience, anxiety, or frustration-tolerance, and the like - leads to greater concreteness in specific criteria than does the use of the more general concept integration.

Two examples of items in the subtest are given below:

1. After a failure, I can find new methods.
2. I do not like to do any work which requires accuracy.

3. Autonomy (C):

The term autonomy denotes a relation between individual and environment with regard to decision-making. Autonomy means a conscious discrimination by the individual of environmental factors he wishes to accept or reject. Expositions of the criteria of autonomy deal with one or both of two aspects: (1) The nature of the decision-making process, emphasizing the regulation from within, in accordance with internalized standards; (2) The outcome of the decision-making process in terms of independent actions. One's behaviour should not be determined by external exigency alone, but dictated also from within, based upon that inner organization of values,
needs, beliefs, accomplishments, and still unrealized goals, which together comprise that individual's world view.

Two examples of items in the subtest are given below:

1. I can work with self-control.
2. My actions are justifiable.

4. Perception of Reality (D):

Perception of reality is called mentally healthy when what the individual sees corresponds to what is actually there. In the mental health literature, perception of reality is discussed invariably as social perception, meaning that the conditions under which perception occurs or the object of perception, or both, involve other human beings. Two aspects of reality perception are suggested as criteria for mental health: perception free from need-distortion; and empathy or social sensitivity. A mentally healthy person will seek objective evidence, and accept it even if it goes against his wish; he will treat the inner life of other people as a matter worthy of his concern and attention.
Two examples of items in the subtest are given below:

1. On my own accord, I don't distort facts.
2. Without any reason, others find fault with me.

5. Environmental Mastery (E):

This subtest measures the individual's achievement in some significant areas of living: capacity for adaptation, and adjustment. The following aspects of environmental mastery are suggested as criteria for mental health: the ability to love; adequacy in love, work, and play; ability to relax after work, and enjoy recreation; ability to carry on essential biological functions of sleeping, excreting, and so on, without any sense of disturbance or discomfort; adequacy in interpersonal relations; efficiency in meeting situational requirements; capacity for adaptation and adjustment; efficiency in problem solving.

Two examples of items in the subtest are given below:

1. I like to carry out things according to situations.
2. My words often annoy others.
(ii). Temperament:

Inferiority, Self-sufficiency, Sociability, Stability, and Objectivity are the five variables (F to J) measured under this section (serial numbers 6 to 10).

6. Inferiority (F):

The following are the qualities associated with inferiority, as measured in this subtest: Feeling of inadequacy; feeling of unacceptance (believes that others may not like him); does not believe in himself; egocentric; feeling of discontentment with status; feeling of need for improvement; feeling of guilt. According to Guilford (1959), positive vs. negative attitudes, such as confidence vs. inferiority feelings, are shown most clearly in whether or not the individual tends to advance to meet his environment or to retreat from it. Inferiority feelings have no consequences in the form of behaviour problems.

Two examples of items in this subtest are given below:

1. I cannot tolerate others finding fault with me.

2. Whenever I do something, failure is the result.
7. Self-sufficiency (G):

Self-sufficiency, as used in this subtest, is characterized as a matter of independence in personal matters, an inclination to work alone and to depend upon one's self (Guilford, 1959). It may be noted that Bernreuter (1933) proposed the trait of self-sufficiency and included items in his personality inventory. To elaborate the trait, the following aspects may be useful:

Never feels lost when there is nothing to do; prefers to do one's planning alone; enjoys evenings he must spend alone, prefers to work things out in his own way; finds things to do in his spare time.

The following are two examples of items included in the subtest:

1. I enjoy spending my leisure time with friends.
2. I work out things in consultation with others.

8. Sociability (H):

Sociability is the ability of an individual to adapt his behaviour to the changing social environment and its demands, so that he exhibits an extraverted or gregarious type of behaviour. While Guilford (1959) quotes the terms social initiative and social resourcefulness, he means sociability.
The various characteristics measured by the subtest may be summarised as: Socially active, making friends easily, enthusiastic, lively, pleasantness, happy-go-lucky, positive response to criticisms, helpful, does not stay in the background, and energetic. The following are examples of items selected from the subtest:

1. I like to be happy always.
2. I enjoy the presence of others.

9. Stability (I):

Stability, as used in this subtest, means how far a person remains relatively unchanged in his attitudes, perceptions, opinions, and in all his behaviour. According to Guilford (1959), stability is characterized by evenness of mood (without having ups and downs in mood). The different aspects measured by the subtest may be summarised as: Emotional maturity, stability in taking decisions, lack of fatigue, optimistic, alertness, firmness, endurance, not having feelings of worry, depression, guilt and anxiety, and non-phantastic.

Two sample items of this subtest are given below as examples:

1. I stick on to my decisions.
2. I usually keep cheerful in spite of troubles.
10. **Objectivity (J):**

A number of writers have suggested that there is an objective-subjective dimension of personality (Guilford, 1959). Rational behaviour generally entails an objective interpretation of the realities around us, without giving way to subjectivity. Objectivity, as a matter of fact, is the scientific temperament in observing and interpreting the world of events, realistically, and reasonably. The objective perception and interpretation of realities is a function of the intellect as against that of emotions which have, apart from inducing motivation, little role to play in this process. The "Objectivity" as used in the present subtest covers the following characteristics of temperament: Realistic, systematic, punctual, persistent, self-confident, self-controlled, analysing oneself, lack of impulsiveness, showing forbearance, attentiveness, and concerned about morality and ethics.

Two examples of items used in the subtest are given below:

1. I do not have irrational fear.
2. I wish to have everything in an order.
(iii) Alienation:

Powerlessness, Meaninglessness, Normlessness, Isolation, and Self-estrangement are the five variables (% to 0) measured under this section (serial numbers 11 to 15).

11. Powerlessness (%):

Powerlessness, as used in this subtest, refers to the inability to control one's destiny; the feeling that an individual is an object, dominated and controlled by other people. Modern man is in the position of having to react rather than act in terms of influence over the political system, the industrial economy, and international affair fitted against the powerfully constituted system at the national level and their various relationships. The individual cannot but feel a sense of powerlessness.

Two examples of items in the subtest are given below:

1. I am depressed over the consequences of my actions.
2. I often work as per the direction of others.

12. Meaninglessness (%):

This subtest indicates that the individual has no
sense of understanding the events in which he is engaged. Meaninglessness involves a lack of clarity as to what the individual ought to believe in. The individual's psychic system wanders in search of meaning, of new experiences of belief systems. Meaninglessness involves social and political apathy alongside social and racial upheavals, combined with sharp criticism of our political structure and life. The individual is unsure about the future outcomes of behaviour.

Two examples of items in the subtest are given below:

1. My actions are not suitable to the society.
2. I do not know the aim of the works that I do.

13. Normlessness (M):

This subtest indicates that the individual has high expectation that socially unapproved behaviours are required to achieve given goals. In other words, normlessness is a condition where the socially prescribed norms for individual behaviour are no longer effective; the norms have lost their regulatory power. An indication of this normlessness in current society is the legitimization of violence. Frustrated hopes come into line with the growing sense that violence can be
legitimately exercised in an ethos of powerlessness and alienation.

Two examples of items in the subtest are given below:

1. I acknowledge those who maintain the principles of morality.
2. I do not feel it a crime to amass wealth by improper means.


This type of alienation, as used in this subtest, refers to estrangement from society, lacking of satisfaction with the group, or co-workers. Isolation presumes assigning low reward value to goals or beliefs that are highly valued in society. This is similar to turning one's back on the goal of wealth and success. It presupposes alienation from accepted goals and standards. The individual feels that he was purposefully deprived from interacting and integrating with others in social, economic, and religious life.

Two examples of items in the subtest are given below:

1. Loneliness is always with me.
2. I try to understand the difficulties of my friends.
15. **Self-estrangement (0):**

This subtest indicates the individual's engagement in activities that are not intrinsically rewarding. Self-estrangement is thus related to 'other directedness', i.e., the degree of dependence of the given behaviour upon rewards that lie outside the activity itself. Nothing in the individual himself, or what he has done, is valued for itself. It only has significance in terms of its effect on others. In other words, the work is valued primarily as a means to nonwork ends rather than valued for its intrinsic rewards. Sometimes, self-estrangement refers to the failure to realise one's human potential.

Two examples of items in the subtest are given below:

1. I have no feeling that I am unlucky.
2. I always think of my weak points.

(b). Instructions to the Subjects:

The following instructions were given to the subjects:

Some statements related to certain problems that we face in our daily life are given below. Please indicate in the resposne sheet provided separately, how far you
agree or disagree with each statement by putting a tick mark (✓) on A, B, C, D or E given against each item number. A denotes 'strongly agree', B denotes 'agree' C denotes undecided', D denotes 'disagree', and E denotes strongly disagree'. Please note: select C, only when you can't say clearly whether you agree or disagree with a statement. Do not omit any item. Your responses will be kept confidential and will be used for research purposes only.

A copy of the MTA Test of Personality (Draft Form) is given as Appendix A.

(c). Scoring:

The items were scored with the help of a scoring key. For positive statements, a score of 5 is given for strongly agree; 4 for agree; 3 for undecided; 2 for disagree, and 1 for strongly disagree. For negative statements scoring is done in the reverse order. The sum of the item credits represents the individual's total score. A high score indicates high teacher effectiveness and a low score indicates low teacher effectiveness.

(d). Item Analysis:

Item analysis is the process of finding out the suitability of items to be included in the final form of
the test. It is done after the preliminary administration of the test. In this test, item analysis was done following the instructions given in Mathew Item Analysis Table (Mathew, 1982), as explained below:

The table gives item-criterion correlations (Phi coefficient) and percentages of testees marking the keyed answer (P value). Phi is non-parametric and so the table can be used in any situation, regardless of any assumption regarding the nature of distribution of the variable being measured.

The Criterion:

The criterion is usually the total score of the trial (draft) form of the test itself. It can be an external criterion as well. The external criterion can be a rating or a dichotomous variable like membership in a group. If a dichotomous variable is taken as the criterion, ordinarily, ensure that equal number of subjects are tested from each of the two categories. For the present test, the total score of the draft form is taken as the criterion.

Tail Proportions:

One advantage of the Phi coefficient is that any convenient tail proportion can be made use of in order to
use the same table. Smaller the tail proportion, higher will be the Phi coefficients. However, in order that the item indices will have sufficient reliability, it is recommended that, regardless of sample size, there should be a minimum of 100 subjects in each tail. Ideally, there should be about 400 subjects in the sample so that 100 subjects getting extreme scores would mean 25 per cent tails. Having more than 100 subjects in one extreme group would mean too much labour in terms of counting as well as conversion into percentages. For the present test a sample of 400 subjects was used for item analysis.

Procedure for Using the Table:

Arrange the answer sheets in the order of the criterion score. Count 100 answer sheets having the highest criterion score. These answer sheets constitute the upper tail. Similarly select 100 answer sheets having the lowest score, forming the lower tail. For each item, count the number of testees giving the keyed answer (which is the correct answer in ability or achievement tests and the answer which gets the higher weight in dichotomous items in other types of tests) in each of the tails. Calculate the percentage of individuals giving the keyed answer in each of the tails. If 100 cases are included in each tail, the number of persons marking the keyed answer becomes the percentage.
Items which can be scored as right or wrong and items which have one response as the keyed answer are called dichotomous items. If items are not dichotomous, the response categories may be grouped into dichotomous categories for purposes of item analysis. For example, if there are four response categories in an attitude scale (strongly agree, agree, disagree, and strongly disagree), the two responses getting the larger weights in scoring can be considered as the keyed answer and the other two as indicating the non-keyed answer. If there is an odd number of response categories (for example a middle category like 'undecided' in inventories) the number may be divided and added to the frequencies in the dichotomous categories. The division can be even or based on the proportion of frequencies in the other two categories. The final percentages will be an estimate of the percentages, that would have been got if the tester had provided only two response categories.

The final percentages needed for reading the item indices from the table are the following:

PL : Percentage of individuals in the lower tail marking the keyed answer
PU : Percentage of individuals in the upper tail marking the keyed answer.
In the table, all indices for the same value of PL have been grouped together. So to read indices of an item, locate first the PL value of the item given as heading. Then in that section locate the PU value of the item among the left margin and read the corresponding Phi and P values. If the PL value is larger than the PU value for any item, interchange PL and PU values in reading the indices and then attach a -ve sign to the Phi coefficient. Phi is zero when PL and PU are equal.

Significance of the Phi Coefficient:

When 100 cases are included in each tail, Phi significant at 5 per cent level is 0.14 and at 1 per cent level is 0.18.

Item Selection:

Ordinarily, the required number of items are selected from among items having the highest correlation values and medium (in the middle range) P values. One special feature of Phi is that since Phi values tend to be high for items having medium P values, item selection based on Phi alone would give the desired result. Items with Phi values below the 5 per cent level of significance are not considered for selection. When Phi values of most items are high, and the number of items is large, items with some spread of P values would be desirable.
(e). The Final Scale (MTA Test of Personality):

The Phi values obtained for all the 180 items were found to be greater than .18, indicating that all these values are significant at 1 per cent level. However, five positive and five negative items were selected under each subtest, deleting two items, one positive and one negative, each having either low Phi coefficient, or extreme $P$ value (normally any item with high Phi coefficient and medium $P$ value is eligible for selection. It may be noted here that the $P$ values of the selected items ranged from .34 to .81; the lowest Phi coefficient was .26 and the highest, .67.

Thus, the final test consisted of 150 items falling under 15 subtests with 10 items each.

(f). The Format of the Final Test:

Slight changes were made in the format of the final test. Separate response sheets were not provided, and hence instructions to the subjects were modified accordingly. Also, the selected items were given under three sections, as described in Table 2.
TABLE 2

Format of MTA Test of Personality (Final Scale): Subtests and Items under Each Section

<table>
<thead>
<tr>
<th>Subtest</th>
<th>Serial No. of items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Section 1 (Mental Health Status)</td>
<td></td>
</tr>
<tr>
<td>1. Attitudes toward the Self</td>
<td>1 to 10</td>
</tr>
<tr>
<td>2. Integration</td>
<td>11 to 20</td>
</tr>
<tr>
<td>3. Autonomy</td>
<td>21 to 30</td>
</tr>
<tr>
<td>4. Perception of Reality</td>
<td>31 to 40</td>
</tr>
<tr>
<td>5. Environmental Mastery</td>
<td>41 to 50</td>
</tr>
<tr>
<td>Section 2 (Temperament)</td>
<td></td>
</tr>
<tr>
<td>6. Inferiority</td>
<td>1 to 10</td>
</tr>
<tr>
<td>7. Self-sufficiency</td>
<td>11 to 20</td>
</tr>
<tr>
<td>8. Sociability</td>
<td>21 to 30</td>
</tr>
<tr>
<td>9. Stability</td>
<td>31 to 40</td>
</tr>
<tr>
<td>10. Objectivity</td>
<td>41 to 50</td>
</tr>
<tr>
<td>Section 3 (Alienation)</td>
<td></td>
</tr>
<tr>
<td>11. Powerlessness</td>
<td>1 to 10</td>
</tr>
<tr>
<td>12. Meaninglessness</td>
<td>11 to 20</td>
</tr>
<tr>
<td>13. Normlessness</td>
<td>21 to 30</td>
</tr>
<tr>
<td>14. Isolation</td>
<td>31 to 40</td>
</tr>
<tr>
<td>15. Self-estrangement</td>
<td>41 to 50</td>
</tr>
</tbody>
</table>
Validity and Reliability of MTA Test of Personality:

Validity:

The MTA Test of Personality has been validated by the method of concurrent validity. For this purpose other standardized tools were used as external criteria, for the fifteen subtests (component variables) as detailed below:

For the mental health status variables (variable numbers 1 to 5): Mental Health Status Scale (Abraham and Prasanna, 1981) for temperament variables (variable numbers 6 to 10). A Temperament Survey (Mathew, 1975), and for the alienation variables (variables 11 to 15), Alienation Scale developed by Sinha (quoted in Sinha, 1986) were the external criteria.

For estimating validity, a stratified sample of 100 teachers (50 males and 50 females) selected randomly from schools and colleges were used. The tools mentioned above were administered along with MTA Test of Personality and the correlations were calculated. The correlations were taken as the reliability coefficients. The validity coefficients thus obtained for the different subtests are given in Table 3.

Reliability:

The reliability of the MTA Test of Personality has been established in two ways, viz., retest method and
### TABLE 3

Validity coefficients of the Fifteen subtests of MTA Test of Personality

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Subtest</th>
<th>r against external criteria*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Attitude towards the Self</td>
<td>0.87</td>
</tr>
<tr>
<td>2.</td>
<td>Integration</td>
<td>0.82</td>
</tr>
<tr>
<td>3.</td>
<td>Autonomy</td>
<td>0.78</td>
</tr>
<tr>
<td>4.</td>
<td>Perception of Reality</td>
<td>0.83</td>
</tr>
<tr>
<td>5.</td>
<td>Environmental Mastery</td>
<td>0.73</td>
</tr>
<tr>
<td>6.</td>
<td>Inferiority</td>
<td>0.84</td>
</tr>
<tr>
<td>7.</td>
<td>Self-sufficiency</td>
<td>0.86</td>
</tr>
<tr>
<td>8.</td>
<td>Sociability</td>
<td>0.74</td>
</tr>
<tr>
<td>9.</td>
<td>Stability</td>
<td>0.81</td>
</tr>
<tr>
<td>10.</td>
<td>Objectivity</td>
<td>0.75</td>
</tr>
<tr>
<td>11.</td>
<td>Powerlessness</td>
<td>0.79</td>
</tr>
<tr>
<td>12.</td>
<td>Meaninglessness</td>
<td>0.71</td>
</tr>
<tr>
<td>13.</td>
<td>Normlessness</td>
<td>0.70</td>
</tr>
<tr>
<td>14.</td>
<td>Isolation</td>
<td>0.72</td>
</tr>
<tr>
<td>15.</td>
<td>Self-estrangement</td>
<td>0.83</td>
</tr>
</tbody>
</table>

Note: *External criteria:

1. Mental Health Status Scale (Abraham and Prasanna, 1981), for subtests 1 to 5.
2. A Temperament Survey (Mathew, 1975), for subtests 6 to 10.
split-half method. The test has been administered twice on a sample of one hundred teachers (50 males and 50 females) selected randomly from schools and colleges, repeating the test one month after the first administration. The correlations were obtained using Pearson product-moment method, and were taken as reliability coefficients. The details are given in Table 4.

For calculating the split-half reliability coefficients of the test, the scores obtained by a sample of 100 teachers (50 males and 50 females) on the first administration, as noted above, were used. The score, on odd items and even items were taken separately for the total sample and the correlations were calculated. Using Spearman Brown formula for correction for attenuation, the reliability coefficients of the test was estimated for a the subtests (vide Table 4).

All these indicate that the test would yield reliable and valid scores for the different variables under study.

A copy of the MTA Test of Personaity (Final Form) is given as Appendix B.
### TABLE 4

Retest and Split-half Reliability Coefficients of the Fifteen Subtests of MTA Test of Personality

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Subtest</th>
<th>Retest Reliability Coefficient</th>
<th>Split-half Reliability Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Attitude towards the Self</td>
<td>0.78</td>
<td>0.74</td>
</tr>
<tr>
<td>2.</td>
<td>Integration</td>
<td>0.73</td>
<td>0.78</td>
</tr>
<tr>
<td>3.</td>
<td>Autonomy</td>
<td>0.76</td>
<td>0.79</td>
</tr>
<tr>
<td>4.</td>
<td>Perception of Reality</td>
<td>0.81</td>
<td>0.76</td>
</tr>
<tr>
<td>5.</td>
<td>Environmental Mastery</td>
<td>0.89</td>
<td>0.73</td>
</tr>
<tr>
<td>6.</td>
<td>Inferiority</td>
<td>0.89</td>
<td>0.84</td>
</tr>
<tr>
<td>7.</td>
<td>Self-sufficiency</td>
<td>0.92</td>
<td>0.88</td>
</tr>
<tr>
<td>8.</td>
<td>Sociability</td>
<td>0.88</td>
<td>0.87</td>
</tr>
<tr>
<td>9.</td>
<td>Stability</td>
<td>0.93</td>
<td>0.89</td>
</tr>
<tr>
<td>10.</td>
<td>Objectivity</td>
<td>0.90</td>
<td>0.91</td>
</tr>
<tr>
<td>11.</td>
<td>Powerlessness</td>
<td>0.74</td>
<td>0.77</td>
</tr>
<tr>
<td>12.</td>
<td>Meaninglessness</td>
<td>0.71</td>
<td>0.81</td>
</tr>
<tr>
<td>13.</td>
<td>Normlessness</td>
<td>0.83</td>
<td>0.82</td>
</tr>
<tr>
<td>14.</td>
<td>Isolation</td>
<td>0.81</td>
<td>0.82</td>
</tr>
<tr>
<td>15.</td>
<td>Self-estrangement</td>
<td>0.79</td>
<td>0.73</td>
</tr>
</tbody>
</table>

Note: All the coefficients are significant at 0.01 level.
2. CHECK-LIST ON TEACHER EFFECTIVENESS

The Check-list on Teacher Effectiveness (Prasad, Muthiah, and Sananda Raj, 1994) is intended to provide a criterion to classify teachers into three groups, viz., High, Average, and Low effective teachers under study, as mentioned earlier. The instrument measures various aspects associated with the teaching-learning process, as evaluated by superiors, or experts in the field of teacher education, or head of the institution who is familiar with the teacher concerned, in terms of his ability or efficiency in teaching. It may further be mentioned here that the present check-list has been prepared in such a way that the same evaluator can observe teachers working in different schools or colleges, and assign scores for teacher efficiency, provided that he is skilled in evaluating teacher performance, and has a lot of experience.

It is desirable to have the same person assigning scores on teacher effectiveness using the check-list to provide uniformity in assessment. In the case of the present study, the investigator visited the respective schools and colleges, and observed the teaching-learning situation of the teacher, more than once, for the purpose. In addition, he had sought the help of principals or heads
of the institution to verify whether the assessment is objective. If discrepancies were found, the responses of those subjects were not used for the final study.

Preparation of the Trail Check-List:

The items for the check-list were collected by making an extensive study of the available tools already constructed and standardized by other investigators, the literature pertaining to teaching, by consulting experts on teaching, and from the opinions of experienced teacher educators, and some research workers working in the field of education. Based on the above, and the discussions held with experts, a list of certain important aspects of teaching, could be formulated. They are: lesson planning, skill of introduction, clarity of objectives, mastery of subject matter, the range of activities provided in the classroom, the amount of originality shown in the presentation of the lesson, teacher-pupil interaction, questioning technique of the teacher, handling teaching aids, blackboard work, and classroom management. These formed the basis for item writing. After deleting those repeated, the draft check-list was prepared, which contained 20 items.
Instructions for the Evaluator:

The evaluator was instructed as follows:

The items in this check-list indicate various aspects of the teaching-learning situation with regard to the teacher whom you have to evaluate for teacher efficiency. For each of the items, three response categories, namely, Poor (P), Average (A), and Good (G), are given. By observing the teacher while in action in the classroom and/or on the basis of your overall impression about the teacher with regard to his teaching ability, you are requested to respond to each item by putting a tick mark against either P or A or G. Your response will be kept confidential, and will be used for research purpose only. The draft check-list was administered to a group of 400 teachers with the help of Headmasters/Headmistresses and principals of the schools and colleges.

Item analysis was done as per the instructions given in Mathew Item Analysis Table (Mathew, 1982), as explained earlier under the development of the MTA Test of Personality. It may be mentioned here that all the items showed significant Phi-coefficient. However, five items with low Phi coefficients, and extreme values were rejected.
A copy of the draft form of the Check-List on Teacher Effectiveness is given as Appendix C.

Format of the Final Forms of the Check-List:

The final form of the check-list which is known as Check-list on Teacher Effectiveness, thus contained 15 items. The checking was done on this using a three-point scale (Poor, Average, and Good), as in the case of the draft scale. The check-list necessitated the observation of the classroom behaviour of teacher being evaluated.

Reliability and Validity of the Check-List:

Reliability:

In order to establish reliability of the check-list, inter-scorer reliability method and split-half method were used. For this purpose, a sample of 100 teachers were used. Each teacher was evaluated by two superiors, and the correlation was calculated. The correlation (reliability coefficient) was found to be .88, showing that the Check-list on Teacher Effectiveness is highly reliable. Further, the odd-even split-half reliability coefficient of .89 (after correction for attenuation), using a sample of 100 teachers, also indicate that the check-list is a highly reliable one.
Validity:

The Check-list on Teacher Efficiency was validated against General Teaching Competency Scale (Mukundan, 1988). The validity coefficient thus obtained was found to be 0.78 (N = 100). The check list was analysed and studied by a group of experts. They were also of the opinion that the check-list is a satisfactory tool for measuring teaching effectiveness.

All these indicate that the Check-list on Teacher Effectiveness is a valid and reliable tool for the purpose of the present investigation.

A copy of the final form of the Check-list on Teacher Effectiveness is given as Appendix D.

3. PERSONAL INFORMATION SCHEDULE

In addition to the variable measured with the help of the above mentioned tools, the investigator had to develop a "Personal Information Schedule" in order to collect data regarding background factors and other relevant variables such as age, sex, religion, locality, experience in teaching etc. A specimen copy of the same is given as Appendix E.
SECTION B

THE RESEARCH DESIGN: PLAN AND PROCEDURE

Research is a careful search or enquiry to discover new ideas by scientific study. It is an endless quest for knowledge or unending search for truth. Educational research is that activity which is directed towards the development of a science of behaviour in educational institutions.

In research studies, different methods are used. The method should be selected based on the purposes and approaches of the study. The decision about the method or methods to be employed, always depend upon the nature of the problem selected and the kind of data necessary for its solution. By selecting a suitable method, the investigator's energy, time, and money can be saved.

Some of the popular methods used in educational researches are: Survey method, Historical method, and Experimental method. In addition to the above, there are other methods especially for studying complex causal relationships like Causal comparative method, Correlation method, Case study method and Genetic method. Sometimes, a judicious combination of various methods is used. In the present study the investigator used the Normative Survey Method.
The Descriptive or Normative Survey Method of educational research is very common. It is that method of investigation which attempts to describe and interpret what exists at present in the form of conditions, practices, processes, trends, effects, attitudes, and beliefs. It is concerned with the phenomena that are typical of the normal conditions. It is an organized attempt to analyse, interpret, and report the present status of a social institution, group, or area. It seeks to answer the question, "what are the real facts with regard to the existing conditions".

Survey research is a method for collecting and analysing data obtained from a large number of respondents representing a specific population.

Worthwhile survey studies collect three types of information:

(i) "Of what exists" by studying and analysing important aspects of present situation.

(ii) "Of what we want" by clarifying goals and objectives possibly through a study of the conditions existing elsewhere or what experts otherwise consider to be desirable.

(iii) "Of how to get there" through discovering the possible means of achieving the goals on the basis
of the experiences of others or the opinions of experts.

The various aspects of the method followed in the present investigation are discussed under the following heads: A. The sample; B. Classification of subjects into high, average, and low teacher effectiveness groups; C. The variables under study; D. Data collection Procedure; E. Statistical techniques used for analysis.

I. THE SAMPLE

A sample is a small group which represents all the traits and characteristics of the population (Kothari, 1986). All the items under consideration in any field of enquiry constitute a universe or population. A representative sample is one in which the measurements made on its units are equivalent to those which would be obtained by measuring all elements of the population, except for the inaccuracy due to the limited size of the sample.

The sample for the present investigation was selected by using the method of stratified sampling technique. Stratified sampling method is designed to
ensure representativeness and avoid bias. This scheme is applicable when the population is composed of subgroups or strata of different sizes, so that a representative sample must contain individuals drawn from each stratum. Within each stratum or subgroup, the sampling is random (so that each individual in the population has an equal chance to become part of the sample), or as nearly so as possible (Garrett, 1973).

The sample for the study comprised of teachers selected from different schools and colleges of four educational districts, namely, Kuzhithurai, Thuckaley, Nagercoil-1 and Nagercoil-2, from Kanyakumari revenue district in Tamil Nadu state. From each of the above educational districts, six schools were chosen, making a total of 24 schools, from which a minimum of ten teachers were randomly selected. College teachers were selected from various colleges located in three of the above educational districts (There were no colleges in Tuckaley revenue district). From each of the these educational districts, three colleges were chosen, from which a minimum of ten teachers were selected. It may be mentioned here that there is only one training college in Kanyakumari revenue district. Four teachers were randomly
selected from this college (The total number of teachers in these training college including Principal is 10).

The data were collected from a total of 352 teachers from the schools and colleges, as described above. This sample is called the initial sample. In order to give a clear picture of the sample, stratification based on sex, age, religion, and locale (Rural and Urban) of subjects and the type of management of institution (Management and Private) is given in Tables 5, 6 and 7.

TABLE 5
Initial Sample: Sex-wise and Institution-wise Distribution of Teachers

<table>
<thead>
<tr>
<th>Sex</th>
<th>Institution</th>
<th>Government</th>
<th>Private</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td></td>
<td>70</td>
<td>84</td>
<td>154</td>
</tr>
<tr>
<td>Female</td>
<td></td>
<td>80</td>
<td>118</td>
<td>198</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>150</td>
<td>202</td>
<td>352</td>
</tr>
</tbody>
</table>
### TABLE 6

**Initial Sample: Age-wise and Teaching Experience-wise Distribution of Teachers**

<table>
<thead>
<tr>
<th>Age</th>
<th>Teaching Experience</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Less than 15 years</td>
<td>15 years and above</td>
<td>Total</td>
</tr>
<tr>
<td>Upto 40</td>
<td>23</td>
<td>18</td>
<td>41</td>
</tr>
<tr>
<td>Between 40 and 50</td>
<td>99</td>
<td>104</td>
<td>203</td>
</tr>
<tr>
<td>50 and above</td>
<td>19</td>
<td>89</td>
<td>108</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>141</strong></td>
<td><strong>211</strong></td>
<td><strong>352</strong></td>
</tr>
</tbody>
</table>

### TABLE 7

**Initial Sample: Religion-wise and Place of Residence-wise Distribution of Teachers**

<table>
<thead>
<tr>
<th>Religion</th>
<th>Place of Residence</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rural</td>
<td>Urban</td>
<td>Total</td>
</tr>
<tr>
<td>Hindu</td>
<td>92</td>
<td>65</td>
<td>157</td>
</tr>
<tr>
<td>Muslim</td>
<td>28</td>
<td>25</td>
<td>53</td>
</tr>
<tr>
<td>Christian</td>
<td>84</td>
<td>58</td>
<td>142</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>204</strong></td>
<td><strong>148</strong></td>
<td><strong>352</strong></td>
</tr>
</tbody>
</table>
The scrutiny of the response sheets indicated that a few of them were incomplete. Also, in some response sheets, more than one alternative response was found marked, making it impossible to identify the response chosen by the subject. In the personal data schedule, some items were found unanswered in some response sheets. All these resulted in the rejection of 28 responses from the initial sample.

The final sample of 324 was used for the study. The details are given in Tables 8, 9, and 10.

**TABLE 8**

Final Sample: Sex-wise and Institution-wise Distribution of Teachers

<table>
<thead>
<tr>
<th>Sex</th>
<th>Institution</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Government</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>61</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>70</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>131</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Private</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>79</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>114</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>193</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>140</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>184</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>324</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### TABLE 9

**Final Sample: Age-wise and Teaching Experience-wise Distribution of Subjects**

<table>
<thead>
<tr>
<th>Age</th>
<th>Teaching Experience</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Upto 15 years</td>
<td>15 years and above</td>
<td>Total</td>
<td></td>
</tr>
<tr>
<td>Upto 40</td>
<td>21</td>
<td>14</td>
<td>38</td>
<td></td>
</tr>
<tr>
<td>Between 40 and 50</td>
<td>93</td>
<td>102</td>
<td>195</td>
<td></td>
</tr>
<tr>
<td>50 and above</td>
<td>12</td>
<td>79</td>
<td>91</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>126</td>
<td>198</td>
<td>324</td>
<td></td>
</tr>
</tbody>
</table>

### TABLE 10

**Final Sample: Religion-wise and Place of Residence-wise Distribution of Teachers**

<table>
<thead>
<tr>
<th>Religion</th>
<th>Place of Residence</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rural</td>
<td>Urban</td>
<td>Total</td>
<td></td>
</tr>
<tr>
<td>Hindu</td>
<td>88</td>
<td>59</td>
<td>147</td>
<td></td>
</tr>
<tr>
<td>Muslim</td>
<td>23</td>
<td>21</td>
<td>44</td>
<td></td>
</tr>
<tr>
<td>Christian</td>
<td>78</td>
<td>55</td>
<td>133</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>189</td>
<td>135</td>
<td>324</td>
<td></td>
</tr>
</tbody>
</table>
B. CLASSIFICATION OF SUBJECTS INTO HIGH, AVERAGE, AND LOW TEACHER EFFECTIVENESS GROUPS

As described in Chapter I, the sample of 324 teachers under study were classified as high, average, and low groups, using mean and standard deviation of the distribution of scores on teacher effectiveness. The criterion used was mean ± 1/2 standard deviation as cut-off points.

It may be mentioned here that the mean for teacher effectiveness was 35.03, and standard deviation, 8.02. Hence, mean + 1/2 standard deviation was 39.04, and those obtained scores above this formed the high group, and the size of this group was 110. Similarly, mean - 1/2 standard deviation was 31.02, and 96 teachers obtained below this score, and they formed the low group. The remaining 118 teachers who obtained scores between 31.02 and 39.04 formed the average group.

C. THE VARIABLES UNDER STUDY

As mentioned earlier, the investigation made use of the following independent variables for study:

1. Attitudes toward the Self
2. Integration
3. Autonomy
The above variables fall under Mental Health Status (1 to 5), Temperament (6 to 10) and Alienation (11 to 15), and were measured using 'MTA Test of Personality'.

Teacher effectiveness was the dependent variable measured using 'Check-list on Teacher Effectiveness'.

In addition to the above, data were collected for age, sex, religion, teaching experience, type of management of the institution, and place of residence using 'Personal Information Schedule'.

D. PROCEDURE FOR DATA COLLECTION

The procedure used for collection of data is explained in Chapter I. It may be noted that the data were
collected individually from teachers, and that the instructions for administration and scoring the different tools were strictly followed.

E. STATISTICAL TECHNIQUES USED FOR ANALYSIS

The data collected for the present investigation were analysed using the following statistical techniques: Multivariate Analysis of Variance (MANOVA), Analysis of Variance (ANOVA), Scheffe Procedure, test of significance of difference between means for large independent samples (t-test), and Pearson product movement method of correlation (Pearson r). These are explained below in some detail.

1. MANOVA:

The technique of multivariate analysis of variance (MANOVA) was sued for testing the null hypothesis that there will not be any significant difference among the High, Average, and Low effective teachers in all the fifteen variables under study, considered together. The methods suggested by Morrison (1967), and Cooley and Lohnes (1971) were followed for the purpose.

As the results of MANOVA obtained for the study refuted the null hypothesis the data were further subjected to analysis using ANOVA as noted below.
2. Analysis of Variance (Anova):

The analysis of variance (ANOVA) as explained by Garrett (1973) was carried out for calculating the F-ratios. Here, instead of taking all the fifteen variables together as in MANOVA, a single variable is considered at a time. It may be mentioned that the ANOVA furnishes an overall test of significance of the differences among means of the three groups of subjects, for a variable.

3. Scheffe Procedure:

A significant F, obtained as the result of Anova, does not point out which of the three groups differ among themselves. In such cases, the comparison of the differences between means for any two groups is done using a rigorous method called Scheffe Procedure (Scheffe, 1957).

However, if the F-test does not refute the null hypothesis, there is no justification for further analysis, as differences between pairs of means will not differ significantly unless there are a large number of groups in which case one or two might by chance equal or approach significance. In the present study, a majority of
F-ratios were found significant, and, therefore, it seemed reasonable to proceed to test the separate differences using Scheffe Procedure.

4. The t-test:

The test of significance for difference between means of large independent samples (t-test) was used for comparing any pair of groups, such as the male and female teachers, for the fifteen variables under study. The method suggested by Garrett (1973) was used for the purpose. As the degrees of freedom is 322 \((N = 2)\), the null hypothesis will be rejected at 1 per cent level, if the obtained t-value exceeded 2.59, and at 5 per cent level, if the obtained t-value exceeded 1.97.

5. The Pearson r:

The Pearson Product-moment method of correlation (Garrett, 1973) was used to find out the correlations among the fifteen variables under study. The following statistical procedure is used in interpreting r:

(a). The Significance of r:

The correlation is interpreted only after the statistical significance of the coefficient of correlation has been considered. For a \(df = 322\) or \((N-2)\),
an $r$ should be above 0.143 to be significant at 0.01 level, and above 0.110 to be significant at 0.05 level.

(b). Verbal Interpretation of Correlations:

The following classification for interpreting the various values of $r$'s are given by Garrett:

$r$ from $0.00$ to $\pm 0.20$ denotes indifferent or negligible relationship.

$r$ from $\pm 0.20$ to $\pm 0.40$ denotes low correlation, present but slight.

$r$ from $\pm 0.40$ to $\pm 0.70$ denotes substantial or marked relationship.

$r$ from $\pm 0.70$ to $\pm 1.00$ denotes high to very high relationship.

This classification can be accepted only as a general guideline for interpreting a coefficient of correlation.

(c). Percentage Overlap of Correlated Variables:

Correlation between two variables can be interpreted in terms of common variance for the two variables (or overlap). The percentage overlap is $(r^2 \times 100)$.

It may be mentioned here that computer facilities were made use of for analysing the data.

The details of analysis and interpretation of results are given in the next chapter.