3.0 METHODOLOGY

Research methodology is a way to systematically investigate the research problem. It gives various steps for conducting the research in a logical way. The research design provides the details regarding what, where, when, how much and by what inquiry is initiated. Every piece of research must be planned and designed carefully so that the researcher proceeds ahead without getting confused at the subsequent steps of research. The researcher must have an objective understanding of what is to be done, what data is needed, which data collecting tools are to be employed and how the data is to be statistically analyzed and interpreted.

A researcher before formulating a research design should contemplate on it thoroughly keeping in view the demands of the selected problem. An objectively and suitable designed technique for the completion of various research steps is the basic requirement for a research problem. This research plan is specifically conceived and executed to bring empirical evidence. The research design is the blueprint of ensuring research. A well-conceived design helps greatly in relying both on observations and inferences. Thus, the research design may be considered as a series of steps taken to make sure that the relevant data collected permits testing of different hypotheses formulated for achieving the objectives of the research problem. Kerlinger (1986) identified two basic purposes of research design. 1) To provide an answer to research questions 2) To control variance.

3.1 DESCRIPTION OF SAMPLE

For the present study the sample consisted of 400 secondary school teachers; 200 trained and 200 un-trained secondary school teachers. The total sample
includes 140 male and 260 female teachers working in different secondary schools of District Anantnag, District Kulgam (South Kashmir); District Bandipora, District Baramulla (North Kashmir) and District Budgam, District Ganderbal (Central Kashmir) of Jammu Kashmir State. The investigator divided Kashmir division into three zones and from these zones teachers were selected through random sampling technique. The investigator selected the sample by using stratified random sampling in which the strata’s were formed on the basis of training and gender. The list of teachers was obtained from the Chief Education Offices in the concerned districts.

3.2 SELECTION AND DESCRIPTION OF TOOLS

The following tools were selected and administered to collect the data for the present investigation:

- Teaching Aptitude Test Battery (TATB) by Smt. Karim, S., and Prof. Dixit, A. K.
- Teacher Attitude Scale by Goyal, J. C.
- Teacher Values Inventory by Reddy, N. Y.

The brief description of the above tools is as under:

3.3.1 Teaching Aptitude Test Battery (TATB) by Smt. Karim, S., and Prof. Dixit, A. K.: (Appendix 1)

Several teaching aptitude tests are reported to have been developed in India and abroad. The researcher analysed the available aptitude tests, reviewed the literature on test construction and discussed with educational experts with a view to decide (i) Whether one of the already available aptitude tests can be used for the purpose of the present study, or (ii) To develop a new aptitude test for his own study. After a prolonged discussion on the reliability and validity of aptitude tests and keeping the quantum of work involved in the construction and standardization of an aptitude test, the teaching aptitude of teachers, a test developed and standardized by Karim, S., and Dixit, A. K. was adopted in the presented study. The test battery has 8 areas of 10 items each, thus having a total of 80 items.
Reliability of the test
Since reliability is the most essential and significant feature of a test, the split-half and Test-retest reliabilities have been calculated for the test battery. For calculating the split-half reliability, Guttman and Spearman-Brown's Prophecy Formula were used and they yielded the coefficients of correlation as 0.851 and 0.913 respectively. The reliability coefficients revealed that the present test battery is highly reliable. On test-retest reliability, the coefficient of correlation was found to be 0.894, which signifies high reliability.

Validity of the test
The validity of the teaching aptitude test was obtained by computing coefficient of correlation between scores of the test and the assessment of the final examination marks; and between the scores of the test and marks obtained through the ratings by their respective teachers and Head of the Department (HOD). Thus, coefficient of correlation obtained was 0.625 assuming that the test has validity.

Test administration
As we all know, teaching aptitude is primarily a student-teacher concern as such there should be coordination between the two and each of them should actively participate as well. The items framed in the test is to judge the aptitude of a teacher and moreover to what degree. As such to make this test a reliable source of measurement, it is advised that before administering the test, the investigator should be careful of the following points.
1. The place of administration of the test should be such that the testee may work comfortably and without any disturbance.
2. The usual setting for the test administration is the classroom. But the tester should be careful that the class is not over-crowded.
3. The prospective teachers should be properly motivated to take the test. The word ‘Test’ however, should never be used at the time of administration of the test. What is important is to avoid the threatening situation which is frequently associated with testing.
4. The investigator should see that each prospective teacher has a pen or pencil with him. He should, however, have a stock of pens or pencils with him so that he may be able to meet any emergency.

**Scoring procedure**

For the purpose of scoring the test, 3 marks is given to ‘agree’ response, 2 marks to ‘doubtful' response and 1 mark to ‘disagree' response. Each response mark of a given statement should be added together to form the total raw score of the test battery.

**Table 1.0: Norms for teaching aptitude test**

<table>
<thead>
<tr>
<th>Raw Score Range</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>226-240</td>
<td>Very high teaching</td>
</tr>
<tr>
<td>211-255</td>
<td></td>
</tr>
<tr>
<td>196-210</td>
<td></td>
</tr>
<tr>
<td>181-195</td>
<td></td>
</tr>
<tr>
<td>166-180</td>
<td>High teaching</td>
</tr>
<tr>
<td>151-165</td>
<td>Aptitude</td>
</tr>
<tr>
<td>136-150</td>
<td></td>
</tr>
<tr>
<td>121-135</td>
<td>Average Teaching</td>
</tr>
<tr>
<td>106-120</td>
<td></td>
</tr>
<tr>
<td>96-105</td>
<td>Low teaching</td>
</tr>
<tr>
<td>81-95</td>
<td>Aptitude</td>
</tr>
<tr>
<td>66-80</td>
<td>Very Low Teaching</td>
</tr>
<tr>
<td>51-65</td>
<td></td>
</tr>
</tbody>
</table>

The above tool was found suitable for the present study as per the validity and reliability values.

**3.3.2 Teacher Attitude Scale by Goyal, J. C.: (Appendix II)**

In the present study, teacher attitude scale was used to collect the data, which was constructed and standardized by Goyal, J. C. (1984). The purpose of this scale is to measure the attitude of the practicing and prospective teachers towards teaching profession. It has been specifically developed for secondary school teachers but it can be used very well for elementary and pre-primary level teachers also.
Types of items: This scale consists of 22 items. It is developed on Thurstone technique of attitude scale construction.

Scoring: In the present questionnaire each statement has been assigned a scale value and has positive each statement. The attitude score of a subject is the sum total of the scale values of the statements ticked by the respondent.

Reliability: Reliability of this scale was determined by the split-half method. It was found to be 0.90 by the Pearson Product Moment Correlation Method. When corrected by Spearman Brown Formula, its coefficient of correlation was found to be 0.95.

Validity: The validity of the scale was determined through self-rating method by subjects on a graphic continuum of the scale. It was found to be 0.78.

3.3.3 Value Scale by Reddy, N. Y. (Indian Adaptation Value Scale): (Appendix III)

A well-known scale on values ‘Study of Values' constructed by Allport, G. W., Vernon, P. E., and Lindzey, G. (1960). “This scale measures one relative prominence of six basic values theoretical; economic; aesthetic; social; political and religious. The classification is based directly upon Edward Spranger's (1928) ‘Types of Men’. A brilliant work depends on the view that the personalities of men are best known through a study of values or evaluative attitudes”.

The “Study of Values” scale is in the form of a questionnaire which continues to be the most used instrument in educational research as both graduate students and professional agencies continue to rely upon it. The present study has used the Indian Adaptation of the scale by Reddy, N. Y. (1980). Now a brief description of the basic values is given below:

1) The theoretical value

A man with the dominant theoretical value is interested in the discovery of truth. He takes a cognitive attitude which means that he must be in a position to differentiate the beauty or utility of objects and seek only to observe and to reason. His interests are empirical, critical and rational; he is necessarily an
intellectualist, frequently a scientist or a philosopher. His chief aim of life is to order and systematize knowledge.

2) **The economic value**

The economic man is characteristically interested in what is useful. In the ideal economic man, the investigator has to identify the practical affairs of the business world - the production, marketing and consumption of goods: the elaboration of credit and the accumulation of the tangible wealth. The economic attitude frequently comes into the conflict with other values. The economic men want education to be practical and applied. The values of utility likewise conflict with aesthetic values, except when art serves and commercial ends. In his personal life, he is likely to confuse luxury with beauty. In his relations with people, he is more interested in surpassing them in wealth than in dominating them (political attitude) or in serving them (social attitude).

3) **The aesthetic value**

The aesthetic man sees his highest value in peace and harmony. His experience is judged from the view point of grace, symmetry and fitness. He regards life as a procession or events and each impression is enjoyed by him for his own sake. The aesthetic man in the economic sphere sees different process of manufacturing, advertising and trade as a destructor of values. In social affairs, he may be interested in persons but not in their welfare. His outlook tends to be individualistic and self-sufficient. Aesthetic people like the beautiful insignia of pomp and power but oppose political activity when it makes for the repression of individuality. So far as religion is concerned, he confuses beauty with purer religious experience.

4) **The social value**

The highest value for this type is the love of people. In the ‘Study of Value, it is the altruistic or philanthropic aspect of love that is measured. The social man is himself kind, sympathetic and unselfish. He considers the theoretical, economic and aesthetic attitudes cold and inhuman. In contrast to the political
types, the social man regards love as the only suitable form of human relationship.

5) **The political value**
The political man is interested in power. His activities are not necessarily within the narrow field of politics. High political value men may become leaders and as such leaders generally, have high power value. Since competition and struggle play a vital role in life, many philosophers have seen power as the most universal and most fundamental of motives. There are certain personalities in whom the desire for a direct expression of this motive is uppermost, who wish above all else, for personal power, influence and prestige.

6) **The religious value**
Religious man craves for unity. Spranger defines that religious man as one "whose mental structure is permanently directed to the creation of the highest and absolutely satisfying value experience." Some men of this type are imminent mystics, i.e., they find in the affirmation of life and in active participation of their religious experience. The "transcendental mystic" on the other hand seeks to unite himself with a higher reality by withdrawing from life. In many individuals, "the negative affirmation of life alternate to yield the greater satisfaction."

Spranger does not believe that a given man belongs exclusively to one or another of these types of values. His depictions are entirely in terms of "ideal types" a conception fully explained in his "Types of Men" (1928).

**Administration of the value scale**
The instructions for the administration of the value scale were strictly followed after G.W. Allport, G. W., Vernon, P. E. and Lindzey, G. These are as follows:

1) **The study of values is self-administrating**
In part I, the highest preferences do not always come first in the series of two items. Whenever alternative (b) is preferred the higher score will appear second in the series of two boxes. In part II, it is well to point out that the first choice should be given a score of 4, the lowest a score 1.
2) **There is no time limit**

Most subjects require about 20 minutes answering the questions in the test. Although they should not be stopped before finishing, they should be discouraged from spending too long time over the questions.

3) **The test may be taken in a group or individuals**

If the test is taken at home it is desirable to caution the subject against answering it in collaboration with others and spending too much time on it.

4) **There should be no explanation of the purpose or construction of the test before it is taken**

The bias of one sort or another is likely to affect the scores of those who are familiar with the significance of the questions. For this reason, the score sheet is not consulted until the subject has finished taking the test.

5) **Omissions are permissible but undesirable**

Guesses are frequently as significant as more deliberate choices, and omissions make the scoring more complex.

6) **Certain groups, not familiar with psychological tests need assurance and encouragement**

If the examiner detects an air of suspicion or opposition among the subjects it should be explained that the study of values is not disguised scale for measuring intelligence, social skills or moral knowledge. The subject must be given to understand that the results can no way detract from his standing. Experience has shown that with a little encouragement, even groups that are unfamiliar with psychological tests develop keen interests, especially if they are to be informed of their scores.

**Instructions for scoring**

The test is a self-scoring and can be completed within one hour. The test is so constructed that the subject may proceed directly to score it himself as soon as he finishes it. While, there is no objection to this procedure, experience shows that it is desirable to check the transcribing and computations of scores. For this reason, a subject who takes and scores the test at home should bring it to the class and verify his computations under supervisions. Before interpreting the
test or making any use of scores the examiner should satisfy himself that the scoring is accurate. Thus, it is necessary for the examiner to study the method of scoring carefully, if the scoring is done in class, he should be prepared to assist in classifying procedure at the following points.

1) Treatment of omitted questions
Since, the sum of six final scores for every subject must be the same it is necessary that all omitted answers be treated in the manner on the score sheet (at the end of the test). It is also essential that the sum of marks for the two answers to any question in part 1 equal 3 and the sum of the marks for the four answers to any question in part 1 is equal to 10.

2) The order of transcription
The page total when they are transcribed to the score sheet is not to be always transcribed in the same order as they appear at the bottom of the test page.

3) Perfections of transcriptions and additions
The scores should check the accuracy of his additions and transcriptions on the score sheet. He does so by adding the scores for each row and comparing the totals with the printed figures in the last column. If an error appears it may be due to:
   a) Faulty addition of the score sheet rows
   b) Incorrect transcription of the page totals
   c) Faulty addition of the columns on the test pages
   d) The use of scores for the individual question that fails to add to 3 in part I, or to 10 in part II.

4) Correction figures
The total scores for the six columns are to be corrected by making slight addition or subtraction as indicated on the score sheet, the correction is made in order to equalize the popularity of the six values. The uncorrected mean for the social value (in standardization group) is approximately 43, three points higher than the desired mean of 40. For this reason, a correction figure of 3 is employed. It is essential for the purpose of the test that the final average scores
for all values in a large population be as identical as possible. The correction figures ensure the results.

5) **Drawing the profile**

The six total scores should be plotted as crosses or dots on the vertical lines on the back of the score sheet. The six crosses or dots may then be joined by ruling five short diagonal lines.

6) **Average score**

The test has been constructed in such a way that 40 is the average for any single value. A few subjects obtain profiles that are nearly flat, indicating that by this test their attitudes are equally favourable to all six values. Only the larger peaks or depressions in the profiles are significant as indicated by the discussions of "high" and "low" scores under the profile.

7) **Measures of the relative strength**

Unlike most tests of personality, the present scale aims to measure more than a single variable. It does not however, measure the absolute strength of each of the six values, but only relative strength. A high score on one can be obtained by reducing scores on one or more of the other values. In interpreting the results, it is necessary to bear in mind that they reveal only the relative importance of each of the six values in a given personality, not the total amount of ‘value energy' or drive possessed by an individual. It is quite possible for the highest value of a generally apathetic person to be less intense and effective than the lowest value of a person on whom all values are prominent and dynamic.

In 1951, some modifications are made in the scale and the diagnostic power of items and reliability of the test as a whole is increased. Some items were modified; scoring system and assessment of fresh norms were obtained. In the third edition (1960), the score sheet was changed and norms enlarged and improved. The **reported reliability** by test-retest ranges for the six values from **.84 to .93**. By comparing the results with other tests of interests and attitudes, the validity of the present scale has been reported to be increased.
3.4 PROCEDURE OF DATA COLLECTION
In this phase, the secondary school trained and un-trained teachers (200 each) which includes 140 males and 260 females, were provided with questionnaires. These questionnaires include Teaching Aptitude Test Battery (TATB) constructed by Smt. Karim, S., and Prof. Dixit, A. K.; Teacher Attitude Scale developed by Goyal, J. C. and Indian Adaptation Value Scale developed by Reddy, N. Y. Sufficient time was given to secondary school teachers to respond and a vigorous follow-up procedure was followed to get back the duly filled questionnaires from them within a specific time. After the collection of data, the scoring was done as per the instructions given in the manual.

3.5 STATISTICAL TECHNIQUES USED FOR DATA ANALYSIS
The statistical techniques are relevant which have been adopted for the purpose of the study.

i. Descriptive analysis of data
For descriptive analysis of the data, the following statistical techniques were used:
Percentage, measure of central tendency- mean and a measure of variability or dispersion-standard deviation.

ii. Inferential analysis of data
The inferential analysis involves testing of hypotheses. The statistical technique used for inferential analysis was t-test. The details about statistical analysis of the data and interpretation of the same are given in the subsequent chapter.