CHAPTER III
METHOD AND PROCEDURE

“All progress is born of inquiry. Doubt is often better than overconfidence, for it leads to inquiry and inquiry leads to invention.”

Increased amount of research make progress possible. Research inculcates scientific and inductive thinking and it promotes the development of logical habits of thinking and organization. Research provides the intellectual satisfaction of knowing a few things just for the sake of knowledge and also has practical utility for the social scientist to know for the sake of being able to do something better or in a more efficient manner. Research in social sciences is concerned both with knowledge for its own sake and with knowledge for what it can contribute to practical concerns.

In the previous chapters, review of related literature, objectives and hypotheses were presented. In the present chapter, the Investigator has discussed about the methods of data collection. The present chapter is devoted to explain the method, procedure and tools to collect the data and statistical techniques to analyze and interpret the collected data.

After the selection and definition of problem, researcher has to decide about the methods, tools and techniques to be used for research study. Research is a scientific, systematic and purposive activity. It is not haphazard task. It seems appropriate at this juncture to explain the difference between research methods and research methodology. Research methods may be understood as all those methods/techniques that are used for conduction of research. Research methods or techniques (At times, a distinction is also made between research techniques and research methods. Research techniques refer to the behaviour and instruments we use in performing research operations such as making observations, recording data, techniques of processing data and the like. Research methods refer to the behaviour and instruments used in selecting and constructing research technique) thus, refer to the methods the researchers use in performing research operations.

Methods are more general. It is the methods that generate techniques. However, in practice, the two terms are taken as interchangeable and when we talk of...
research methods we do, by implication, include research techniques within their compass. In other words, all those methods which are used by the researcher during the course of studying his research problem are termed as research methods.

Since the object of research, particularly the applied research, is to arrive at a solution for a given problem, the available data and the unknown aspects of the problem have to be related to each other to make a solution possible. Keeping this in view, research methods can be put into the following three groups:

1. In the first group we include those methods which are concerned with the collection of data. These methods will be used where the data already available are not sufficient to arrive at the required solution;

2. The second group consists of those statistical techniques which are used for establishing relationships between the data and the unknowns;

3. The third group consists of those methods which are used to evaluate the accuracy of the results obtained.

Research methods falling in the above stated last two groups are generally taken as the analytical tools of research.

Research methodology is a way to systematically solve the research problem. It may be understood as a science of studying how research is done scientifically. In it we study the various steps that are generally adopted by a researcher in studying his research problem along with the logic behind them. It is necessary for the researcher to know not only the research methods/techniques but also the methodology. Researchers not only need to know how to develop certain indices or tests, how to calculate the mean, the mode, the median or the standard deviation or chi-square, how to apply particular research techniques, but they also need to know which of these methods or techniques, are relevant and which are not, and what would they mean and indicate and why. Researcher also needs to understand the assumptions underlying various techniques to know the criteria by which he/she can decide that certain techniques and procedures will be applicable to certain problems and others will not. All this means that it is necessary for the researcher to design his/her methodology for his/her problem as the same may differ from problem to problem. For example, an architect, who designs a building, has to consciously evaluate the basis of his
decisions, i.e., he has to evaluate why and on what basis he selects particular size, number and location of doors, windows and ventilators, uses particular materials and not others and the like. Similarly, in research the scientist has to expose the research decisions to evaluation before they are implemented. He has to specify very clearly and precisely what decisions he selects and why he selects them so that they can be evaluated by others also.

From what has been stated above, we can say that research methodology has many dimensions and research methods do constitute a part of the research methodology. The scope of research methodology is wider than that of research methods. Why a research study has been undertaken, how the research problem has been defined, in what way and why the hypothesis has been formulated, what data have been collected and what particular method has been adopted, why particular technique of analyzing data has been used and a host of similar other questions are usually answered when we talk of research methodology concerning a research problem or study.

Research methods are the various procedures, schemes, algorithms, etc. used in research. All the methods used by a researcher during a research study are termed as research methods. They are essentially planned, scientific and value-neutral. They include theoretical procedures, experimental studies, numerical schemes, statistical approaches, etc. Research methods help us collect samples, data and find a solution to a problem. Particularly, scientific research methods call for explanations based on collected facts, measurements and observations and not on reasoning alone. They accept only those explanations which can be verified by experiments.

Research methodology is a systematic way to solve a problem. It is a science of studying how research is to be carried out. Essentially, the procedures by which researchers go about their work of describing, explaining and predicting phenomena are called research methodology. It is also defined as the study of methods by which knowledge is gained. Its aim is to give the work plan of research. It is necessary for a researcher to design a methodology for the problem chosen. One should note that even if the method considered in two problems are same the methodology may be different. It is important for the researcher to know not only the research methods necessary for the research under taken but also the methodology. For example, a
researcher not only needs to know how to calculate mean, variance and distribution function for a set of data, how to find a solution of a physical system described by mathematical model, how to determine the roots of algebraic equations and how to apply a particular method but also need to know (i) which is a suitable method for the chosen problem?, (ii) what is the order of accuracy of the result of a method?, (iii) what is the efficiency of the method? and so on. Consideration of these aspects constitute a research methodology. This is what we mean by a research methodology. That is, research methodology tells us which method or formula or algorithm has to be used out of the various existing methods or formulas or algorithms. More precisely, research methods help us get a solution to a problem. On the other hand, research methodology is concerned with the explanation of the following:

1. Why is a particular research study undertaken?
2. How did one formulate a research problem?
3. What types of data were collected?
4. What particular method has been used?
5. Why was a particular technique of analysis of data used?

The study of research methods gives training to apply them to a problem. The study of research methodology provides us the necessary training in choosing methods, materials, scientific tools and training in techniques relevant for the problem chosen.

For a clear perception of the term research, one should know the meaning of scientific method. The two terms, research and scientific method, are closely related. Research, can be termed as an inquiry into the nature of, the reasons for, and the consequences of any particular set of circumstances, whether these circumstances are experimentally controlled or recorded just as they occur. Further, research implies the researcher is interested in more than particular results; he is interested in the repeatability of the results and in their extension to more complicated and general situations. On the other hand, the philosophy common to all research methods and techniques, although they may vary considerably from one science to another, is usually given the name of scientific method. In this context, Karl Pearson writes, The scientific method is one and same in the branches (of science) and that method is the
method of all logically trained minds … the unity of all sciences consists alone in its methods, not its material; the man who classifies facts of any kind whatever, who sees their mutual relation and describes their sequences, is applying the Scientific Method and is a man of science. Scientific method is the pursuit of truth as determined by logical considerations. The ideal of science is to achieve a systematic interrelation of facts. Scientific method attempts to achieve this ideal by experimentation, observation, logical arguments from accepted postulates and a combination of these three in varying proportions. In scientific method, logic aids in formulating propositions explicitly and accurately so that their possible alternatives become clear.

Thus, the scientific method encourages a rigorous, impersonal mode of procedure dictated by the demands of logic and objective procedure. Accordingly, scientific method implies an objective, logical and systematic method, i.e., a method free from personal bias or prejudice, a method to ascertain demonstrable qualities of a phenomenon capable of being verified, a method wherein the researcher is guided by the rules of logical reasoning, a method wherein the investigation proceeds in an orderly manner and a method that implies internal consistency.

3.1 DESIGN OF THE STUDY

The research problem having been formulated in clear cut terms, the researcher requires to prepare a research design, i.e., he will have to state the conceptual structure within which research would be conducted. The preparation of such a design facilitates research to be as efficient as possible yielding maximum information. In other words, the function of research design is to provide for the collection of relevant evidence with minimal expenditure of effort, time and money. But how all these can be achieved depends mainly on the research purpose. Research purposes may be grouped into four categories, viz., (i) Exploration, (ii) Description,(iii) Diagnosis, and (iv) Experimentation. A flexible research design which provides opportunity for considering many different aspects of a problem is considered appropriate if the purpose of the research study is that of exploration. But when the purpose happens to be an accurate description of a situation or of an association between variables, the suitable design will be one that minimizes bias and maximizes the reliability of the data collected and analyzed.
There are several research designs, such as, experimental and non-experimental hypothesis testing. Experimental designs can be either informal designs (such as before-and-after without control, after-only with control, before-and-after with control) or formal designs (such as completely randomized design, randomized block design, Latin square design, simple and complex factorial designs), out of which the researcher can select one for his own project.

The preparation of the research design, appropriate for a particular research problem, involves usually the consideration of the following:

(i) The means of obtaining the information;
(ii) The availability and skills of the researcher and his staff (if any);
(iii) Explanation of the way in which selected means of obtaining information will be organized and the reasoning leading to the selection;
(iv) The time available for research; and
(v) The cost factor relating to research, i.e., the finance available for the purpose.

Descriptive Survey Method of Research was employed for the present study. There were two independent variables namely, Emotional Intelligence and Socio-Economic Status and one dependent variable namely, Teaching Competence. Scheduled Caste and Non-Scheduled Caste was used as classificatory variables only. Data was collected by the investigator using the tools discussed in the following part of the chapter.

3.2 SAMPLE

All the items under consideration in any field of inquiry constitute a ‘universe’ or ‘population’. A complete enumeration of all the items in the ‘population’ is known as a census inquiry. It can be presumed that in such an inquiry when all the items are covered no element of chance is left and highest accuracy is obtained. But in practice this may not be true. Even the slightest element of bias in such an inquiry will get larger and larger as the number of observations increases. Moreover, there is no way of checking the element of bias or its extent except through a resurvey or use of sample checks. Besides, this type of inquiry involves a great deal of time, money and energy. The items so selected constitute what is technically called a sample.
The researcher decides the way of selecting a sample or what is known as the sample design. Samples can be either probability samples or non-probability samples. With probability samples each element has a known probability of being included in the sample but the non-probability samples do not allow the researcher to determine this probability. Probability samples are those based on simple random sampling, systematic sampling, stratified sampling, cluster/area sampling whereas non-probability samples are those based on convenience sampling, judgement sampling and quota sampling techniques. A brief mention of the important sample designs is as follows:

(i) **Deliberate sampling:** Deliberate sampling is also known as purposive or non-probability sampling. This sampling method involves purposive or deliberate selection of particular units of the universe for constituting a sample which represents the universe. When subjects are selected for inclusion in the sample based on the ease of access, it can be called *convenience sampling.* At times such a procedure may give very biased results particularly when the population is not homogeneous. On the other hand, in *judgment sampling* the researcher’s judgment is used for selecting items which he considers as representative of the population. For example, a judgment sample of college students might be taken to secure reactions to a new method of teaching. Judgment sampling is used quite frequently in qualitative research where the desire happens to be to develop hypotheses rather than to generalize to larger populations.

(ii) **Simple random sampling:** This type of sampling is also known as chance sampling or probability sampling where each and every item in the population has an equal chance of inclusion in the sample.

(iii) **Systematic sampling:** This procedure is useful when sampling frame is available in the form of a list. In such a design the selection process starts by picking some random point in the list and then every *nth* element is selected until the desired number is secured.

(iv) **Stratified sampling:** If the population from which a sample is to be drawn does not constitute a homogeneous group, then stratified sampling technique is
applied so as to obtain a representative sample. In this technique, the population is stratified into a number of non-overlapping subpopulations or strata and sample items are selected from each stratum. If the items selected from each stratum is based on simple random sampling the entire procedure, first stratification and then simple random sampling, is known as stratified random sampling.

(v) **Quota sampling:** In stratified sampling the cost of taking random samples from individual strata is often so expensive that interviewers are simply given quota to be filled from different strata, the actual selection of items for sample being left to the interviewer’s judgment. This is called quota sampling.

(vi) **Cluster sampling and area sampling:** Cluster sampling involves grouping the population and then selecting the groups or the clusters rather than individual elements for inclusion in the sample. The sample size must often be larger than the simple random sample to ensure the same level of accuracy because is cluster sampling procedural potential for order bias and other sources of error is usually accentuated.

**Area sampling** is quite close to cluster sampling and is often talked about when the total geographical area of interest happens to be big one. Under area sampling we first divide the total area into a number of smaller non-overlapping areas, generally called geographical clusters, then a number of these smaller areas are randomly selected, and all units in these small areas are included in the sample.

(vii) **Multi-stage sampling:** This is a further development of the idea of cluster sampling. This technique is meant for big inquiries extending to a considerably large geographical area like an entire country.

(viii) **Sequential sampling:** This is somewhat a complex sample design where the ultimate size of the sample is not fixed in advance but is determined according to mathematical decisions on the basis of information yielded as survey progresses. This design is usually adopted under acceptance sampling plan in the context of statistical quality control.
In practice, several of the methods of sampling described above may well be used in the same study in which case it can be called mixed sampling.

To obtain the sample, the Investigator applied Stratified random sampling technique was used in the present study. The sample was drawn from various Colleges of Education affiliated to Panjab University, Chandigarh. In this manner, 400 Pupil Teachers (200 Scheduled and 200 Non-Scheduled Caste) formed the sample for the study.

3.3 TOOLS

Tools are devised to evaluate or measure behaviour in a standardized way for the purpose of selection, classification, prediction and guidance as well as for the evaluation of educational programme. Tools consist of a series of tasks for the evaluation of educational programme. A standardized tool is one that has specific direction for the administration and scoring, a fixed set of test items and has been administrated to representative samples taken from the populations from whom the tool is intended for the purpose of establishing the norms. While selecting a tool for collecting the data in research, researcher must evaluate their validity, reliability and usability. In the present study, Investigator used the following tools.

1. Teaching Competence scale by Passi and Lalitha (2009)

3.4 DESCRIPTION OF TOOLS

3.4.1 TEACHING COMPETENCE SCALE

General Teaching Competence Scale has been prepared by B.K. Passi and M.S. Lalitha and published by National Psychological Corporation, Agra.

There are 21 items related to 21 teaching skills which encompass the entire teaching learning process in the class-room. They are related to five major aspects of teaching, namely; Planning, Presentation, Closing, evaluation and Managerial. The items are such that they are centered on teacher class-room behaviour in relation to
pupil behaviour. It is a 7-point scale measuring the use of the skill by the teacher in the class-room corresponding to each item from ‘1’ for ‘Not at all’ to ‘7’ for ‘Very much.’

### TABLE 3.1

**Distribution of Items in Different Classification of Teaching Skills**

<table>
<thead>
<tr>
<th>Classification of Teaching skills</th>
<th>No. of items</th>
<th>Serial No. of items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning</td>
<td>4</td>
<td>1 to 4</td>
</tr>
<tr>
<td>Presentation</td>
<td>11</td>
<td>5 to 15</td>
</tr>
<tr>
<td>Closing</td>
<td>2</td>
<td>16 and 17</td>
</tr>
<tr>
<td>Evaluation</td>
<td>2</td>
<td>18 and 19</td>
</tr>
<tr>
<td>Managerial</td>
<td>2</td>
<td>20 and 21</td>
</tr>
<tr>
<td>Total</td>
<td>21</td>
<td></td>
</tr>
</tbody>
</table>

**Procedure for Use:**

The GTC scale is generally used for measuring the teaching competence of teachers individually by a reliable observer or group of observers by making the direct observation of his class-room behaviour for entire teaching period. As the teacher teaches, the observer sits at the back for observation. At the end of the teaching period, he gives his ratings on GTC scale against all the items. To facilitate this process, he may mark frequencies or write verbal descriptions against each item which help him in giving ratings more objectively.

**Scoring Procedure:**

The sum of ratings against all the 21 items constitutes the score on General Teaching Competence (GTC) of a teacher being observed. The maximum score possible is 147 and the minimum is 21.

**Reliability of the Scale:**

Since this is an observation tool, the more appropriate type of reliability is the inter-observer reliability. This scale has been used for doctoral research (Joshi, 1977; Passi, 1977) and reported inter-observer reliability coefficients range from 0.85 to 0.91. Inter-observer reliability can be better established when the observers train themselves for using GTC scale.
Validity of the Scale:

The scale has content validity since at every stage of its development.

Applicability of the Scale:

The scale can be used to measure teaching competence of any teacher irrespective of age, sex, region, socio-economic strata, grade level, and subject, rural/urban and so on. It can be used to train teachers both at pre-service and in-service level. A teacher can use the tool for self-evaluation purpose also. The scale has been widely used not only by researchers for doctoral studies (Passi, 1977; Joshi, 1977) but also in the national projects undertaken by the national Council of Educational Research and Training (Das, Passi and Singh, 1976, 1977, 1977).

3.4.2 Emotional Intelligence Inventory

Emotional Intelligence Inventory has been prepared and standardized by S.K. Mangal and published by National Psychological Corporation, Agra. Emotional Intelligence Inventory has been designed for use with Hindi and English knowing 16+ years age of School College and University students for the measurement of their emotional intelligence (total as well as separately) in respect of four areas or aspects of emotional intelligence namely, Intra-personal awareness (knowing about one’s own emotions) Inter-personal Awareness (knowing about others emotions), Intra personal Management (managing one’s own emotions) and Inter-personal (Managing others emotions) respectively. This inventory has been applied and standardized on Indian population, so this is completely applicable in Indian conditions.

Procedure of Administration:

Before administrating the Inventory, Investigator tried to win over the confidence and co-operation of Pupil teachers as it is a self-administrating inventory. The purposes of administrating the inventory were clearly discussed with them. Then researcher read the instructions loudly and clearly given on the front page of test booklet, that you are given a test booklet and a response-sheet. Now what you are reading is a Test booklet containing 100 statements, you have to express yours’ views by marking tick√ before choosing ‘yes’ or ‘No’ option given in response sheet. These responses are just to know your emotional Intelligence. Write your response whatever you think is right by keeping in mind that no question should be left. Do not write anything on Test-booklet. There is no time limit for completion of Inventory; however, try to complete with in 30-40 minutes.
TABLE 3.2
Area or Aspects of MEII

<table>
<thead>
<tr>
<th>Sr.No.</th>
<th>Area/Aspect</th>
<th>No.of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a)</td>
<td>Intra Personal Awareness</td>
<td>25</td>
</tr>
<tr>
<td>(b)</td>
<td>Inter Personal Awareness</td>
<td>25</td>
</tr>
<tr>
<td>(c)</td>
<td>Intra Personal Management</td>
<td>25</td>
</tr>
<tr>
<td>(d)</td>
<td>Inter Personal Management</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td><strong>Total of Items</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

**Scoring:**

Individuals with high scores considered to have high level of emotional intelligence and are likely to be high performers. In the present emotional Intelligence inventory there are items where response ‘yes’ is the indicative of presence of emotional intelligence and ‘No’ for the lack of emotional intelligence. Similarly, there are items where ‘no’ response provides clue for the presence of emotional intelligence and ‘yes’ for its absence. For scoring one mark is to be provided for the response indicating presence of emotional intelligence and zero for the absence of emotional intelligence.

TABLE 3.3
Scoring Scheme of Emotional Intelligence Inventory

<table>
<thead>
<tr>
<th>S. No. of Items (where ‘Yes’ response shows presence of intelligence)</th>
<th>Mode of Response</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.18,19,20 to 25,27 to 29,31,41 to 44, 51 to 56, 58 to 68,70,71,73to76,79 to 82, 84,88 to 90,96,99</td>
<td>‘Yes’</td>
<td>1</td>
</tr>
<tr>
<td>1to5,7to17,21,22,26,30,32to40,45to50,57,69,72,77,78,83.85to87,91to95,97,98,100</td>
<td>‘No’</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>S. No. of Items (where ‘No’ response shows presence of intelligence)</th>
<th>Mode of Response</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1to5,7to17,21,22,26,30,32to40,45to50,57,69,72,77,78,83.85to87,91to95,97,98,100</td>
<td>‘No’</td>
<td>1</td>
</tr>
<tr>
<td>1to5,7to17,21,22,26,30,32to40,45to50,57,69,72,77,78,83.85to87,91to95,97,98,100</td>
<td>‘Yes’</td>
<td>0</td>
</tr>
</tbody>
</table>
### TABLE 3.4
Classification of Emotional Intelligence in terms of Categories in four areas

<table>
<thead>
<tr>
<th>Area</th>
<th>Category</th>
<th>Description</th>
<th>Range of Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>Intra</td>
<td>A</td>
<td>Very Good</td>
<td>23&amp; above</td>
</tr>
<tr>
<td>Personal</td>
<td>B</td>
<td>Good</td>
<td>20-22</td>
</tr>
<tr>
<td>Awareness</td>
<td>C</td>
<td>Average</td>
<td>15-19</td>
</tr>
<tr>
<td></td>
<td>D</td>
<td>Poor</td>
<td>10-14</td>
</tr>
<tr>
<td></td>
<td>E</td>
<td>Very Poor</td>
<td>9&amp; below</td>
</tr>
<tr>
<td>Inter</td>
<td>A</td>
<td>Very Good</td>
<td>25&amp; above</td>
</tr>
<tr>
<td>Personal</td>
<td>B</td>
<td>Good</td>
<td>20-24</td>
</tr>
<tr>
<td>Awareness</td>
<td>C</td>
<td>Average</td>
<td>14-19</td>
</tr>
<tr>
<td></td>
<td>D</td>
<td>Poor</td>
<td>9-13</td>
</tr>
<tr>
<td></td>
<td>E</td>
<td>Very Poor</td>
<td>8&amp; below</td>
</tr>
<tr>
<td>Intra</td>
<td>A</td>
<td>Very Good</td>
<td>25&amp; above</td>
</tr>
<tr>
<td>Personal</td>
<td>B</td>
<td>Good</td>
<td>21-24</td>
</tr>
<tr>
<td>Management</td>
<td>C</td>
<td>Average</td>
<td>15-20</td>
</tr>
<tr>
<td></td>
<td>D</td>
<td>Poor</td>
<td>11-14</td>
</tr>
<tr>
<td></td>
<td>E</td>
<td>Very Poor</td>
<td>10&amp; below</td>
</tr>
<tr>
<td>Inter</td>
<td>A</td>
<td>Very Good</td>
<td>24&amp; above</td>
</tr>
<tr>
<td>Personal</td>
<td>B</td>
<td>Good</td>
<td>20-23</td>
</tr>
<tr>
<td>Management</td>
<td>C</td>
<td>Average</td>
<td>15-19</td>
</tr>
<tr>
<td></td>
<td>D</td>
<td>Poor</td>
<td>11-14</td>
</tr>
<tr>
<td></td>
<td>E</td>
<td>Very Poor</td>
<td>10&amp; below</td>
</tr>
</tbody>
</table>
**Reliability:**

Reliability of the inventory was examined through three different methods, namely:

(i) Split half method using Spearman-Brown prophecy formula
(ii) K-R formula(20)
(iii) Test-retest method (after a period of 4 weeks)

**TABLE 3.5**

**Reliabilty Coefficients**

<table>
<thead>
<tr>
<th>Methods used</th>
<th>N</th>
<th>Reliability Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Split half</td>
<td>600</td>
<td>.89</td>
</tr>
<tr>
<td>K-R formula</td>
<td>600</td>
<td>.90</td>
</tr>
<tr>
<td>Test-retest</td>
<td>200</td>
<td>.92</td>
</tr>
</tbody>
</table>

**Validity:**

The validity for the inventory has been established by adopting two different approaches, namely, factorial and criterion related approach.

**Use of the Inventory:**

The use of Inventory is simple, easy and self administrative and does not require the services of any expert. It can be used for research and survey purposes. It can also be used for individual assessment.

**3.4.3 SOCIO-ECONOMIC STATUS SCALE**

Socio-Economic Status Scale has been developed by Rajbir Singh, Radhey Shyam and Satish Kumar and National Psychological corporation has published the scale. SES scale is developed in Hindi and English for both rural and urban people for having allegiance to both areas. First of all, items relating to caste, family, education(of self), occupation, income, possessions(material and monetary), lands(agricultural/residential), participation in social, political, academic and religious activities, house(own or rented), size of house, etc. have been framed.
Procedure of Administration:

Before giving the scale to the respondents, the researcher explained the purpose of testing and acquired information would be used for research and academic purposes only not for any other purpose without their consent. Rapport was established and suitable conditions were made before administrating the scale on pupil teachers. They were asked to read the instruction carefully given on the front page of questionnaire.

Scoring:

Pupil teachers with high scores considered to have high level of Socio-economic status. There are 25 statements in the scale. One item each for caste and occupation. Two for family (type and size), one for educational qualifications of self and other members. Four items related to monetary matters (i.e. income, savings, income tax and deposits), one item is for entertainment expenses per month while four items relate to housing (type and size). Item no 15 (real estate) has been divided into three parts (A) agriculture land holding, (B) residential plots and their sizes, (c) shops and their locations. In order to cover life areas nine items relating to social, religious, political and academic participation have been included. Item no. 25 relates to household possessions (material and livestock). Score on item no. 5, 7, 14, 15 and 25 are additive whereas on rest of the items only single score is given.

Reliability of the scale:

Coefficient of reliability was calculated by test-retest method. One hundred subjects were administrated the SES scale twice after a gap of one year. The coefficient of stability was found to be 0.653. Fifty subjects were administrated the scale again after a gap of 30 days and the stability of coefficient was 0.944. For internal consistency Cornbach alpha was calculated on normalized (with a mean of 50 and SD 10) T scores (N=500) and was found to be 0.791.

Validity of the scale:

Two type of criterion scores were obtained i.e. self ratings and others ratings. the coefficient of correlation between self and other’s rating was r= 0.98. Self ratings correlated with SES scores positively, r= 0.737. Others’ ratings were also found to be correlated positively with SES scores, r=0.55. Then SES questionnaire of Singh and
Saxena (1981) and present SES questionnaire also correlated significantly \( r=0.689 \). The factorial validity was also determined by factor analysis.

**Use of the scale:**

This scale is widely applicable in rural, urban, male and female. It is adaptable to Indian situations. It is easy to administer and score, so a trained expert is not required here.

### 3.5 DATA COLLECTION

In dealing with any real life problem it is often found that data at hand are inadequate, and hence, it becomes necessary to collect data that are appropriate. There are several ways of collecting the appropriate data which differ considerably in context of money costs, time and other resources at the disposal of the researcher. Primary data can be collected either through experiment or through survey. If the researcher conducts an experiment, he observes some quantitative measurements, or the data, with the help of which he examines the truth contained in his hypothesis. But in the case of a survey, data can be collected by any one or more of the following ways:

(i) **By observation:** This method implies the collection of information by way of investigator’s own observation, without interviewing the respondents. The information obtained relates to what is currently happening and is not complicated by either the past behaviour or future intentions or attitudes of respondents. This method is no doubt an expensive method and the information provided by this method is also very limited. As such this method is not suitable in inquiries where large samples are concerned.

(ii) **Through personal interview:** The investigator follows a rigid procedure and seeks answers to a set of pre-conceived questions through personal interviews. This method of collecting data is usually carried out in a structured way where output depends upon the ability of the interviewer to a large extent.

(iii) **Through telephone interviews:** This method of collecting information involves contacting the respondents on telephone itself. This is not a very widely used method but it plays an important role in industrial surveys in developed regions, particularly, when the survey has to be accomplished in a very limited time.
(iv) **By mailing of questionnaires:** The researcher and the respondents do come in contact with each other if this method of survey is adopted. Questionnaires are mailed to the respondents with a request to return after completing the same. It is the most extensively used method in various economic and business surveys. Before applying this method, usually a Pilot Study for testing the questionnaire is conducted which reveals the weaknesses, if any, of the questionnaire. Questionnaire to be used must be prepared very carefully so that it may prove to be effective in collecting the relevant information.

(v) **Through schedules:** Under this method the enumerators are appointed and given training. They are provided with schedules containing relevant questions. These enumerators go to respondents with these schedules. Data are collected by filling up the schedules by enumerators on the basis of replies given by respondents. Much depends upon the capability of enumerators so far as this method is concerned. Some occasional field checks on the work of the enumerators may ensure sincere work.

The researcher should select one of these methods of collecting the data taking into consideration the nature of investigation, objective and scope of the inquiry, financial resources, available time and the desired degree of accuracy. Though he should pay attention to all these factors but much depends upon the ability and experience of the researcher.

After selecting the pupil teachers of various Colleges of Education affiliated to Panjab university, the researcher applied the tools on Pupil Teachers containing the Socio-Economic Scale by Rajbir Singh, Radheyshyam and Satish Kumar, to know about the Socio-Economic Status and their category (Scheduled and Non-Scheduled Caste), Emotional Intelligence (Emotional Intelligence Inventory by S.K. Mangal). The pupil teachers were distributed the set of above mentioned tools in their class and were requested to co-operate by filling the tools accurately and completely. They were also assured that information given by them will be kept secret and that will only be used for research purpose. Teaching Competence Scale (Teaching Competence scale by Passi and Lalitha) was applied by the researcher herself during their teaching practice to know their competence in teaching.
3.6 STATISTICAL TECHNIQUES USED

Following statistical tools were used for the analysis and interpretation of data:

1. Descriptive statistics such as mean, median and standard deviation, skewness and kurtosis was used to ascertain the nature of distribution of the scores with respect to Teaching Competence, Emotional Intelligence and Socio-Economic Status.

2. Pearson’s product moment co-efficient of co-relation was worked out to know the relationship among the variables.

3. Critical ratio was applied to study the significance of difference among the different group variables.

4. With a view to ascertain the relative contribution of Emotional Intelligence and Socio-Economic Status towards the prediction of Teaching Competence, different models of step-up regression equations were worked out. Then the conjoint prediction among scheduled caste and non-scheduled caste pupil teachers was worked out.

3.7 TERMS USED

Symbols used for the Operational Variables:

- Teaching Competence Scale: TCS
- Emotional Intelligence Inventory: EMII
- Socio-Economic Status scale: SESS
- Scheduled Caste: SC
- Non-Scheduled Caste: Non-SC