CHAPTER III
METHODOLOGY

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Introduction
Defining research, J.W. Best quotes, 'Research is considered to be the more formal, systematic intensive process of carrying on the scientific method of analysis. It involves a more systematic structure of investigation, usually resulting in some sort of formal record of procedures and a report of results or conclusions.' Hence, it is essential to plan each step of any investigation in a systematic way.

After identifying the research problem and formulating the hypotheses, the researcher has reviewed studies related to emotional and teaching competencies and their allied aspects and the review has provided an insight into various research designs adopted for educational researches.

Opting for the appropriate research method survey descriptive, the variables and samples selected for the study are planned for the present research. The tools and research method adopted for collecting data, scoring procedure and statistical techniques applied for the analysis of the data are discussed in this chapter.

3.1 Research Method
It is important that the selection of the research method should be in accordance to the problem identified. The three basic types of research methods classified by George J. Mouly are survey method, which is concurred with the present and attempts to determine the status of the phenomena under investigation; historical method, which is related to the past and attempts to trace the past as a means for seeing the present perspective; and experimental method which is oriented towards
the discovery of basic relationship among phenomena as means of predicting and
eventually, controlling their occurrence.

The present study deals with emotional competence, a psychological factor
that has been gaining prominence in the field of education at present times. The
relationship between emotional competence and teaching competence being the major
focus of the study, a large number of sample populations is needed. Therefore,
descriptive survey method is selected for the present study.

3.2 Sample selected for the study

a) Population

Quality of education depends on the quality of curriculum which, in turn,
depends on the quality of teachers in order to transact the contents of the curriculum
through effective classroom situations. An activity based learning classroom demands
an emotionally competent teacher who is capable of organizing teaching learning
activities that calls for team work, peer support and self study. Such a teacher is
believed to possess leadership qualities, self motivation, and communication and inter
personal skills which enhance effective teaching-learning process through activities.
In developing emotionally competent teachers, teacher education needs to be a
cornerstone and teaching skills of the teacher aspirants should be honed while they are
in their pre-service period itself. Women education being the focus of the present
study, women teacher trainees is preferred for the sample.

Among the 32 TTI’s in Coimbatore educational district, 29 are run by private
management, leaving one Government and two Government aided institutes. Since
the variation in the ratio of the three types of management is noted to be significantly
large, only private TTI’s are selected. Taking
25% of the 29 private TTI’s, the researcher has identified seven institutes that have effective technology for teaching learning process, qualified teachers and excellent infrastructure for collecting data so that quality response may be obtained.

**b) Sample Size:**

The ideal sample is large enough to serve as an adequate representation of the population about which a researcher wishes to generalize and small enough to be selected economically in terms of subject availability and expense in both time and money. The total number of trainees in the 29 TTIs in Coimbatore is found to be 1600, among which 60-65 percentage is women and it approximately makes 1000 of them. Since there is no fixed number of subjects that determines the size of an adequate sample, it is desired that approximately 25% of the total women teacher trainees (i.e.) 250 subjects are to be considered as sample for the study. It is also observed that survey studies should have large samples. The larger the sample, the smaller the magnitude of sampling error. Hence, a large sample is opted. The sample is distributed as, shown in Table 3.1.

**Table 3.1 Distribution of the Sample**

<table>
<thead>
<tr>
<th>S. No</th>
<th>Name of the TTI</th>
<th>Total no of Trainees</th>
<th>Sample size</th>
<th>Percentage of sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>PPG TTI, Saravanampatty.</td>
<td>100</td>
<td>60</td>
<td>24</td>
</tr>
<tr>
<td>2.</td>
<td>Holy Angels TTI for women, Mettupalayam</td>
<td>50</td>
<td>36</td>
<td>14.4</td>
</tr>
<tr>
<td>No.</td>
<td>Institute</td>
<td>Sample Size</td>
<td>Density</td>
<td>Average</td>
</tr>
<tr>
<td>-----</td>
<td>-------------------------------</td>
<td>-------------</td>
<td>---------</td>
<td>---------</td>
</tr>
<tr>
<td>3.</td>
<td>Karpagam TTI, Seerapalayam.</td>
<td>50</td>
<td>32</td>
<td>12.8</td>
</tr>
<tr>
<td>4.</td>
<td>Nova TTI, Selvapuram, CBE.</td>
<td>50</td>
<td>32</td>
<td>12.8</td>
</tr>
<tr>
<td>5.</td>
<td>Annai Kaveri TTI, Annur.</td>
<td>50</td>
<td>30</td>
<td>12.8</td>
</tr>
<tr>
<td>6.</td>
<td>NGP TTI, Kalapatty.</td>
<td>50</td>
<td>30</td>
<td>12.8</td>
</tr>
<tr>
<td>7.</td>
<td>AVMR TTI, Avinashi Road.</td>
<td>50</td>
<td>30</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td></td>
<td>400</td>
<td>250</td>
<td>100</td>
</tr>
</tbody>
</table>

The above table illustrates that among the 400 trainees from the seven institutes 250 samples that contribute 25% of the total population are selected. Percentage of each sample to the total sample size varies from 12-24% depending on the number of total population.

c) Sampling Design:

The candidates of teacher training courses do not constitute a homogeneous group in terms of age, intelligence, skills, mental and emotional maturity, etc. For such a heterogeneous group, stratified random sampling technique is generally
applied in order to obtain a representative sample. Under stratified sampling the population is divided into several sub-populations viz. strata that are individually more homogeneous than the total population. Since stratified sampling results in more reliable and detailed information, it is chosen for the present study.

3.3 Variables selected for the study

Variables are the conditions or characteristics that the researcher manipulates, controls or observes.

The independent variables are the conditions or characteristics which are manipulated or observed in the attempt to ascertain their relationship to observed phenomena. The dependent variables get altered by the presence or absence of the independent variable.

Since emotional competence is the variable whose relationship to the observed phenomenon teaching competence is to be ascertained through the study, it is the independent variable. The effect of emotional competence on teaching competence is to be studied and therefore the dependent variable is teaching competence. Age group, major subject in higher secondary course, marital status, food habits, hobbies, extra physical activity and general health condition of the teacher trainees, and the nature of their family system, locality of their residence and the educational status of their parents are selected as intervening variables.

3.4 Tools for Data Collection

1. Personal Profile sheet
2. Emotional Competence scale
3. Teaching Competence scale
3.5 Description of the Tools

1. **Profile Sheet** of each student teacher is prepared to collect the personal details namely age, marital status, subject group in H.S.C., educational status of parents, nature of their family system and locality of residence. It also gathers details about their food preference, hobbies, presence of any mild diseases and whether they do any extra physical activity.

2. **Emotional Competence Scale** which is developed by Dr. Harish Sharma, Agra and Dr Rajeev Lochan Bharadraj, Aligrah is used. The scale consists of 30 incomplete statements which are to be completed by the respondents using the 5 clue phrases given. The scale is a closed type as the respondent has to choose the options given to complete the statements which offer different emotional situations and test the respondent’s reaction to such situations in a way to test her emotional competence.

3. **Teaching Competence Scale** is prepared by the investigator based on the ‘Core Teaching Skills’ published by NCERT in 1982. It covers 8 major components of teaching skills namely introducing the lesson, stimulus variation, explaining, use of blackboard, structuring classroom questions, promoting pupils’ participation using teaching aids and achieving closure of the lesson. Under each component 3 to 5 questions are asked. Totally there are 30 questions and each question offers 5 responses as always, often, cannot say, sometimes and never. It is a closed type of questionnaire.

3.6 Scoring Procedure

a) **Emotional Competence Scale:**

   Emotional competence scale developed by H.C.Sharma & R.Bharadwaj was used to measure the emotional competence of the subject.
It is a five point scale based on the lines of Likert five alternatives to each item. Scoring of these five alternatives follows a system of 1, 2, 3, 4, & 5 from upper to lower end. The item-wise scores are to be transferred to the table to obtain scores of different competencies. By adding item scores horizontally will provide scores of the competencies for A, B, C, D and E separately. The obtained competencies scores are to be converted into Z-scores with the help of table. The addition of converted Z-scores for five competencies vertically will provide the score for emotional competence.

b) Teaching Competence Scale:

Teaching competence scale prepared by the investigator has 30 questions and each question offers 5 responses as always, often, cannot say, sometimes and never. Since all the questions have favorable attitude towards high skilled teaching, the scoring follows a system of 5, 4, 3, 2, 1 upper to lower end. Total score for all the 30 items is determined as teaching competence score.

3.7 Standardization of the Tools

Each data gathering process has its own weakness or bias and hence standardizing the tools becomes essential for the effectiveness of any data gathering process. Reliability and validity should be measured to standardize the tools.

Emotional competency scale is a standardized tool and it is reliable and valid. Teaching competence scale is developed by the investigator and in order to standardize the teaching competence scale, its reliability and validity are measured.

(i) Reliability

Reliability is the degree of consistency that the instrument or procedure demonstrates: whatever it is measuring, it does so consistently. Reliable tests are stable in whatever they measure and yield comparable scores on repeated administration. If tests have high co-efficient of reliability, errors of
measurement will be reduced to a minimum. Among the various types of reliability, stability over time is measured through test-retest method for the present study.

**Stability over time – Test-Retest method:**

Test-Retest method is applied to measure the reliability of the teaching competence scale. 80 samples from 7 teacher training institutes selected for the study are segregated. 20 samples from the TTI which has an intake of 100 students and 10 samples each from the other 6 institutes which have an intake of 50 students, making a total of 80 samples are considered for the pilot study. Tools are administrated on them and the responses are evaluated and the same tool is administrated on the same samples after a period of two weeks. The reliability coefficient for the two arrays of scores is calculated and tabulated on Table 3.2

**Table 3.2 The reliability coefficient for the two arrays of scores**

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Teaching Competence</th>
<th>Number</th>
<th>Mean</th>
<th>Reliability coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Test</td>
<td>80</td>
<td>116.55</td>
<td>0.8547</td>
</tr>
<tr>
<td>2</td>
<td>Re-Test</td>
<td>80</td>
<td>120.05</td>
<td></td>
</tr>
</tbody>
</table>

Reliability co-efficient is found to be 0.8547 and hence the teaching competence scale is reliable.

(ii) **Validity**

A test is valid if it measures what it claims to measure. Among the five types of validity, factorial validity is preferred by the researcher.
Factorial Validity

It is the extent of correlation of the different factors with the whole test. Factorial validity is determined by a statistical technique known as factor analysis. It uses methods of explanation of inter-correlations to identify factors. Guilford (1950) suggested that factorial validity is the clearest description of what a test measures and by all means should be given preference over other types of validity. Hence, factorial validity is considered to find whether the teaching competence scale used is valid or not. The validity coefficient is found to be 0.8. Therefore; the teaching competence scale used is valid.

3.8 Procedure for data collection

Selecting the variables, samples, tools and research design, data were collected meticulously. Using stratified random sampling method, the samples were collected. Women trainees from second year D.T.Ed. were singled out as they had completed their internship in teaching. Their teaching scores were obtained from their teacher educators and they were segregated into three strata namely above average, average and below average and samples were randomly selected from each stratum. The objectives of the research were explained. Purpose of the data collection was conveyed and their co-operation was sought.

The tools were administered with much care to avoid error factors and the subjects were requested to respond honestly. The responses were collected within the allotted time. They were scored according to the procedure. The information, thus, collected was stored for analysis.
### 3.9 Techniques used for analyzing the Data

Regression Analysis is used to find out the extent to which the independent variable, emotional competence influences the dependent variable, teaching competence. Correlational Analysis is carried out to find the relationship between these two variables. For Differential Analysis, 't' test and 'F' test are applied.

### 3.10 Conclusion

The research design of the study is presented in this chapter by giving a description of tools used, procedure for data collection and the statistical techniques applied for the analysis of the data. The interpretation and analysis of the data are discussed in the next chapter.