CHAPTER - III

METHODOLOGY OF THE STUDY
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In the previous chapter, the researcher has presented the review of related studies which helped him in designing the study which includes the selection of variables and formulation of hypotheses.

In the present chapter, the researcher presents in detail about variables, formulation of hypotheses, tools used for collection of data, nature and size of the sample and statistical techniques used for analysis of data.

3.1 Statement of the Problem

The major purpose of the present investigation is to evaluate the status of in-service training programmes in the Colleges of Teacher Education (CTE’s) in the State of Karnataka. Hence, the problem is stated as ‘Evaluation of In-service Programmes of Colleges of Teacher Education (CTE’s) in the State of Karnataka’.
3.2 Variables considered in the study

3.2.1 Independent Variables

1. Sex (Men and Women)
2. Location (Urban and Rural)
3. Types of Institution (Government and Private)
4. Number of years of service (below 10 years, between 11-20 years and 21 and above 21 years)
5. Number of training programmes attended (teachers attended one programme and teachers attended two or more programmes)

3.2.2 Dependent variables

1. Teachers’ need assessment
2. Attitude of teachers towards in-service programmes

3.3. Hypotheses

In pursuance of fifth, sixth, seventh and eighth objectives of the study stated earlier, the following research hypotheses were set up.

1. There is no significant difference between pre test and post test scores of academic needs and its dimensions among teacher participants.
2. There is no significant difference between pre test and post test scores of academic needs and its dimensions among teacher participants in relation to – sex, location, type of management, years of service and number of programmes attended.

Sub hypotheses

2.1 There is no significant difference between pre test and post test scores of academic needs and its dimensions among men teachers.

2.2 There is no significant difference between pre test and post test scores of academic needs and its dimensions among women teachers.

2.3 There is no significant difference between pre test and post test scores of academic needs and its dimensions among urban school teachers.

2.4 There is no significant difference between pre test and post test scores of academic needs and its dimensions among rural school teachers.

2.5 There is no significant difference between pre test and post test scores of academic needs and its dimensions among government school teachers.
2.6 There is no significant difference between pre test and post test scores of academic needs and its dimensions among private school teachers.

2.7 There is no significant difference between pre test and post test scores of academic needs and its dimensions among 0 – 10 years experienced teachers.

2.8 There is no significant difference between pre test and post test scores of academic needs and its dimensions among 11 – 20 years experienced teachers.

2.9 There is no significant difference between pre test and post test scores of academic needs and its dimensions among 21 and above 21 years experienced teachers.

2.10 There is no significant difference between pre test and post test scores of academic needs and its dimensions among teachers who attended one training programme.

2.11 There is no significant difference between pre test and post test scores of academic needs and its dimensions among teachers who attended two and more training programme.

3. There is no significant difference between pre test scores of academic needs and its dimensions among teacher participants in relation to sex,
location, type of management, years of service and number of programmes attended.

Sub-hypotheses

1.1 There is no significant difference between pre test scores of academic needs and its dimensions among men and women teachers.

2.1 There is no significant difference between pre test scores of academic needs and its dimensions among urban and rural school teachers.

3.1 There is no significant difference between pre test scores of academic needs and its dimensions among government and private school teachers.

4.1 There is no significant difference between pre test scores of academic needs and its dimensions among teacher participants in respect of years of service.

5.1 There is no significant difference between pre test scores of academic needs and its dimensions among teachers who attended one training programme and teachers who attended two and more training programmes.
4. There is no significant difference between post test scores of academic needs and its dimensions among teacher participants in relation to sex, location, type of management, years of service and number of programmes attended.

Sub-hypotheses

4.1 There is no significant difference between post test scores of academic needs and its dimensions among men and women teachers.

4.2 There is no significant difference between post test scores of academic needs and its dimensions among urban and rural school teachers.

4.3 There is no significant difference between post test scores of academic needs and its dimensions among government and private school teachers.

4.4 There is no significant difference between post test scores of academic needs and its dimensions among teacher participants in respect of years of service.

4.5 There is no significant difference between post test scores of academic needs and its dimensions among teachers who attended one training programme and teachers who attended two and more training programmes.
5. There is no significant difference between pre test and post test attitude scores among teacher participants.

6. There is no significant difference between pre test and post test attitude scores among teacher participants in relation to – sex, location, type of management, years of service and number of programmes attended.

Sub-hypotheses

6.1 There is no significant difference between pre test and post test attitude scores among men teachers.

6.2 There is no significant difference between pre test and post test attitude scores among women teachers.

6.3 There is no significant difference between pre test and post test attitude scores among urban school teachers.

6.4 There is no significant difference between pre test and post test attitude scores among rural school teachers.

6.5 There is no significant difference between pre test and post test attitude scores among government school teachers.

6.6 There is no significant difference between pre test and post test attitude scores among private school teachers.

6.7 There is no significant difference between pre test and post test attitude scores among 0 – 10 years experienced teachers.
6.8 There is no significant difference between pre test and post test attitude scores among 11 – 20 years experienced teachers.

6.9 There is no significant difference between pre test and post test attitude scores among 21 and above 21 years experienced teachers.

6.10 There is no significant difference between pre test and post test attitude scores among teachers who attended one training programme.

6.11 There is no significant difference between pre test and post test attitude scores among teachers who attended two and more training programmes.

7. There is no significant difference between pre test attitude scores among teacher participants in relation to sex, location, type of management, years of service and number of programmes attended.

**Sub-hypotheses**

7.1 There is no significant difference between pre test attitude scores among men and women teachers.

7.2 There is no significant difference between pre test attitude scores among urban and rural school teachers.

7.3 There is no significant difference between pre test attitude scores among government and private school teachers.
7.4 There is no significant difference between pre test attitude scores among teacher participants in respect of years of service.

7.5 There is no significant difference between pre test attitude scores among teachers who attended one training programme and teachers who attended two and more training programmes.

8. There is no significant difference between post test attitude scores among teacher participants in relation to sex, location, type of management, years of service and number of programmes attended.

Sub-hypotheses

8.1 There is no significant difference between post test attitude scores among men and women teachers.

8.2 There is no significant difference between post test attitude scores among urban and rural school teachers.

8.3 There is no significant difference between post test attitude scores among government and private school teachers.

8.4 There is no significant difference between post test attitude scores among teachers participants in respect of years of service.

8.5 There is no significant difference between post test attitude scores among teachers who attended one training programme and teachers who attended two and more training programmes.
3.4 Definitions of the Variables and Terms Used

**Evaluation**: Quantitative and qualitative judgement of facilities for in-service training programmes to secondary school teachers in terms of adequacy of preparation, facilities provided in the training centre, academic awareness performance, overall effectiveness of the training programme and perception of teachers towards programmes of CTE's.

**In-service programmes**: All the formal and informal educative programmes that help the teachers to grow professionally when he/she attends in-service programmes.

**Colleges of Teacher Education (CTE)**: As a result of NPE-1986 all the government colleges of education and some recognized private aided colleges of education in the country have been upgraded as College of Teacher Education (CTE) by assigning both pre-service and in-service training programmes to secondary school teachers.

**Administration**: All those techniques and procedures are employed in operating the educational organization in accordance with established policies.
**Organization:** The process of separation of the administrative units into divisions for the purpose of planning and activity of the unit.

**Selection Procedure:** The process by which the participants are selected for the training programmes.

**Infrastructure:** All those human resources and material facilities required to organize the training programmes to teachers.

**Professional Growth:** Growth in the subject matter, development of teaching skills, efficiency and insight into educational problems with a concomitant increase in getting success as a teacher.

**Need Based Training:** A sense of professional worth, sense of belonging and attainment of some measure of success in one’s efforts.

**Attitude:** A mental and neural state of readiness, organized through experience exerting directive or dynamic influence upon the individuals response to all objects with which it is related.

### 3.5 Tools Used for the Collection of Data

In relation to the objectives, the present study calls for the construction of the following tools.

2. Construction of questionnaire for programme co-ordinators.

3. Construction of secondary school teachers academic need assessment scale (SSTANAS) to know the level of academic needs.

4. Construction of an attitude scale to know the attitude of secondary school teachers towards in-service training programmes.

3.5.1 Theoretical Background

Generally in social science research, questionnaire is widely used for collection of data. It does not mean that it is easy to construct. It is rather very difficult to construct a questionnaire. Keeping this in view, the researcher has taken care to make the questionnaire a valid and reliable tool as a data collecting device.

According to Armond J. Galfo (1965) [7:26] ‘The word questionnaire refers to a device for securing answers to questions by using a form which the respondent fills in himself/herself’.
Barr, Davis and Johnson (1953) define questionnaire as ‘A systematic compilation of questions that are submitted to a sample of population from which information is desired’.

Questionnaire is the most flexible tool which is more useful than other kinds of tools for collection of both quantitative and qualitative information. An effective questionnaire involves a great deal of time, ingenuity and hard work. Generally, a defective questionnaire secures unhelpful, slow and scanty responses which provide an inadequate and even unreliable basis for generalization.

John W. Best and others (1986) [12:166-185] have identified the following common errors in the construction of questionnaires.

1. Questionnaires are very often too lengthy.

2. The subject is of trivial importance.

3. The items are vaguely worded or improperly arranged, and

4. The form is poorly organized.

The most frequent misuses of questionnaire as stated by Abalson (1933) are:

1. Request for information which is available in other sources.

2. Failure to arouse any motive to answer.
3. Employment questions which on account of their being suggestive or naturally encouraging to the respondent, elicit misleading answers, and

4. Common occurrence of identical questions

All the errors described above have been carefully noted and avoided by the investigator at the time of constructing questionnaires.

3.5.2 Preparation of Questionnaire for Secondary School Teacher Participants

The researcher studied different sources (4, 6, 7, 8, 12, 14, 17, 18, 24, 25, 29, 32, 34, 36, 37, 42, 44, 54, 55, 65, 69, 84, 90, 98, 108, 116, 124, 130, 135, 138) for preparing questionnaire for secondary school teacher participants. These sources helped the researcher to know about training programmes. The researcher discussed some aspects with Principals of CTE's and senior teacher educators to prepare draft of the questionnaire for secondary school teacher participants.

The draft of the questionnaire for secondary school teacher participants contained 35 questions. All these questions seek responses in the form of either 'Yes' or 'No' relating to organization, administration,
selection procedure and infrastructure facilities of in-service teacher training programmes. These 35 questions were again discussed with research experts and experienced teachers. At this stage 18 questions were deleted and 2 questions were added out of which 1 open-ended question was added at the end. This open-ended question was to get the opinion of the teacher participants regarding the problems and suggestions. Altogether 19 questions were finalized. Questions were considered on different areas as mentioned in the table below;

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Area</th>
<th>No. of Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Organisation of the programme</td>
<td>8</td>
</tr>
<tr>
<td>2.</td>
<td>Administration</td>
<td>2</td>
</tr>
<tr>
<td>3.</td>
<td>Procedure of selecting participants</td>
<td>1</td>
</tr>
<tr>
<td>4.</td>
<td>Infrastructure facilities required for the programme</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>19</strong></td>
</tr>
</tbody>
</table>

Questionnaire for secondary school teacher participants was prepared to know the teacher feeling and facilities provided in the in-service training programmes of CTE's. This questionnaire contains 18 questions and one open-ended question to get the opinion regarding
problems and suggestions of secondary school teacher participants for further improvement of training programmes. Totally 19 questions were randomly arranged.

Questionnaire contains directions in the beginning. Against each question Yes / No has been mentioned as ‘Y’ (for Yes) and ‘N’ (for No). The secondary school teachers were asked to read each question carefully and put a tick (✓) mark to either ‘Yes’ or ‘No’. For the last question they had to give descriptive opinion as it was an open-ended question (See Appendix: ‘B’)

The researcher has referred related books and discussed with experts about scoring procedures which are suitable. Finally researcher decided to follow the percentage analysis on the basis of the number of secondary school teacher participants said ‘Yes’ and the number said ‘No’ to each of the question and its sub questions. For the last question the researcher thought of collecting opinions of each secondary school teacher participant and listing the different opinions.

3.5.2.1 Validity of the questionnaire

Five experienced secondary school teachers who have participated in different in-service training programmes, two teacher educators, one Professor of the Department of Education, Bangalore University,
Bangalore, one Professor of the Department of Post Graduate Studies and Research in Education, Kuvempu University, B.E.A. College of Education, Davangere were requested to screen the teacher participant questionnaire for comprehensiveness. They found the questionnaire quite comprehensive. This implies that the questionnaire has content validity.

3.5.3 Preparation of Questionnaire for Programme Co-ordinators

The researcher studied different sources (Sources are already given on page No. 102) for preparing the questionnaire. These sources have helped the researcher to know more information relating to the organization of training programmes. Researcher discussed some aspects with principals of CTE’s and senior teacher educators. The researcher has also worked as academic co-ordinator for ‘Sarva Shiksha Abhiyana’ (SSA) programmes. This experience helped the researcher to prepare a draft of the questionnaire.

Draft of the questionnaire for programme co-ordinator contained 40 questions. All those questions seek responses in the form of either ‘Yes’ or ‘No’ relating to administration, organization, selection procedure and
infrastructure facilities of in-service secondary school teachers training programmes. These 40 questions were discussed with research experts.

The draft of the questionnaire was given to three retired principals of CTE’s, five experienced programme co-ordinators and five experienced teacher educators of CTE’s. The researcher personally discussed all the questions with these experts. At this stage out of 40 questions 15 questions were deleted and 7 questions were newly added by the experts. Altogether 32 questions were finalized. Questions considered on different areas are mentioned in the table below;

Table: 3.2 Questions Considered in Different Areas

<table>
<thead>
<tr>
<th>Sl.No.</th>
<th>Area</th>
<th>No. of Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Organisation of the programme</td>
<td>4</td>
</tr>
<tr>
<td>2.</td>
<td>Administration</td>
<td>20</td>
</tr>
<tr>
<td>3.</td>
<td>Procedure of selecting participants</td>
<td>1</td>
</tr>
<tr>
<td>4.</td>
<td>Infrastructure facilities required for the programme</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong>:</td>
<td><strong>32</strong></td>
</tr>
</tbody>
</table>

Questionnaire for programme co-ordinators with 32 questions was prepared to know the problems faced by programme co-ordinators in the areas of organization, administration, selection procedure and provision of infrastructure facilities in the training course. One open-ended question
was asked to get their opinion and suggestions in overcoming the problems and make the in-service training programme more meaningful and purposeful. Totally 32 questions were randomly arranged.

Questionnaire contains directions in the beginning. Against each question, Yes / No has been mentioned as ‘Y’ (for Yes) and ‘N’ (for No). The programme co-ordinators were asked to read each question carefully and put a tick (✓) mark to either ‘Yes’ or ‘No’. For the last question they had to give descriptive opinion as it was open-ended question (See Appendix : ‘C’)

The researcher has discussed the scoring procedure with the guide and expert teacher educators. Finally the researcher decided to follow the percentage analysis on the basis of number of programme co-ordinators said ‘Yes’ and the number said ‘No’ to each of the question. Answer for the last question was in the form of suggestions. The researcher pooled all theses responses. These responses were listed on the basis of priority and used at the time of framing suggestions.

3.5.3.1 Validity of the questionnaire

Two teacher educators, one lecturer in the department of Education, Bangalore University, Bangalore, one lecturer in the department of Education, Mysore University, Mysore, one professor in the department of
Post Graduate Studies and Research in Education, Kuvempu University, B.E.A. College of Education, Davangere were asked to screen the questionnaire for programme co-ordinators for comprehensiveness. They found the questionnaire is quite comprehensive. This implies that the questionnaire has content validity.

3.5.4. Construction of Secondary School Teachers Academic Need Assessment Scale (SSTANAS)

The fifth and the sixth objectives of the study was to assess the needs and the need-fulfillment of secondary school teachers through in-service training programmes of CTE's.

The researcher planned to identify the dimensions of the needs of secondary school teachers to construct need assessment scale. To identify the dimensions, the researcher has discussed with 20 secondary school senior teachers and 10 newly appointed teachers of Davangere, Shimoga and Chitradurga dist., teacher educators and Principals of CTE's.

On the basis of the oral discussion, opinions of the secondary school teachers, personal experience as a Professor of Education in a College of Education and review of related literature (29, 102, 115, 121, 130, 132, 133, 135, 138, 139, 140) five dimensions of academic needs of secondary school teachers were identified. They are,
a) Personal needs

b) Curriculum and content needs

c) Instructional needs,

d) Information and communication needs, and

e) Evaluation needs.

These five dimensions were discussed with two teacher educators and two senior teachers of secondary school. All of them accepted five dimensions of academic needs. Hence, all the five dimensions of academic needs were finalised.

After finalizing the five dimensions of academic needs of secondary school teachers, the researcher planned to prepare statements on each of the dimensions to construct Secondary School Teachers Academic Need Assessment Scale (SSTANAS). For this purpose the researcher studied different sources (2, 6, 7, 8, 12, 24, 29, 34, 36, 37, 42, 50, 57, 66, 67, 69, 73, 78, 82, 83, 86, 88, 99, 102, 104, 108, 115, 118, 121, 129, 130, 135, 138, 140) on need assessment scale construction and organization of in-service training programmes. These sources helped the researcher to know more information relating to the needs of secondary school teachers and effective organization of in-service training programmes. The researcher
discussed all the aspects with Principals of CTE's keeping in view the five dimensions of academic needs which were finalized at earlier stage. The researcher conducted bench test to ten secondary school senior teachers and ten newly appointed teachers regarding needs of the secondary school teachers.

3.5.4.1. Steps followed in the construction of Secondary School Teachers Academic Need Assessment Scale. (SSTANAS)

**First Step:** After thorough review discussion with experts and bench test information, the researcher wrote 100 statements covering all the five dimensions of scale finalized earlier. While writing these statements, the researcher followed the suggestions given by Wang (1932), Thurstone and Chave (1929), Bird (1940), Edwards & Kilpatrick (1948) and others. [5:13-14]

The suggestions are summerised below;

1. Avoid statements that refer to the past rather than to the present.
2. Avoid statements that are factual or capable of being interpreted as factual.
3. Avoid statements that may be interpreted in more than one way.
4. Avoid statements that are irrelevant to the psychological object under consideration.

5. Avoid statements that are likely to be endorsed by almost everyone or by almost no one.

6. Select statements that are believed to cover the entire range of the affective scale of interest.

7. Keep the language of the statements simple, clear and direct.

8. Statements should be short, rarely exceeding 20 words.

9. Each statement should contain only one complete thought.

10. Statements containing universals such as all, always none and never often introduce ambiguity and should be avoided.

11. Words such as only, just, merely and others of a similar nature should be used with care and moderation in writing statements.

12. Whenever possible, statements should be in the form of simple sentences rather than in the form of compound or complex sentences.

13. Avoid the use of words that may not be understood by those who are to be given the completed scale.

14. Avoid the use of double negatives.

**Second Step:** The researcher refined the statements at his level, keeping the suggestions mentioned above and discarded 10 statements.
Third Step: The list of 90 statements was given to a group of experts for further refinement. The researcher requested the experts to go through the statements and find out whether these statements are properly worded, grammatically correct and measures the intended objective. Sufficient time was given for them for giving suggestions for further refinement.

Forth Step: The experts totally rejected 10 statements from different dimensions mentioned above and gave suggestions for the statement required.

Fifth Step: The suggestions given by the experts were incorporated and refined. The remaining 80 statements were subjected to item analysis. (See Appendix: ‘D’)

Sixth Step: Selection of statements through item analysis

To carry out the item analysis, a sample of two hundred teachers was randomly selected and the scale was administered to them. Likert method was used for the development of the scale. The responses were quantified
by assigning numerical weights of 5, 4, 3, 2, 1 in respect of each statement.

The whole group of two hundred teachers were divided into two groups based upon the weighted scores. The 25 per cent of the highest group was taken and designated as **high group** and the least 25: per cent were designated as **low group**. The mean and standard deviation were calculated for both high and low groups. The values were used to compare the results of the two groups which resulted in ‘t’ value for each statement.

Of these statements, only 60 statements were selected and another 20 were discarded. The selection was based on the size of the ‘t’ value. As per the suggestions provided by Edwards ‘any ‘t’ value equal to or greater than 1.75 is the basis used for selection of statements. [5:153]. The ‘t’ value of each statement is presented in the following table.
Table: 3.3: ‘t’ Values of Statements of Preliminary Form of Need Assessment Scale

<table>
<thead>
<tr>
<th>Sl.No. of statement in the draft form</th>
<th>‘t’ value of the statement</th>
<th>Accepted/Rejected</th>
<th>Sl.No. of statement in the draft form</th>
<th>‘t’ value of the statement</th>
<th>Accepted/Rejected</th>
<th>Sl.No. of statement in the draft form</th>
<th>‘t’ value of the statement</th>
<th>Accepted/Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>6.132</td>
<td>Accepted</td>
<td>31</td>
<td>7.130</td>
<td>Accepted</td>
<td>61</td>
<td>1.442</td>
<td>Rejected</td>
</tr>
<tr>
<td>2</td>
<td>3.102</td>
<td>Accepted</td>
<td>32</td>
<td>6.020</td>
<td>Accepted</td>
<td>62</td>
<td>2.813</td>
<td>Accepted</td>
</tr>
<tr>
<td>3</td>
<td>2.813</td>
<td>Accepted</td>
<td>33</td>
<td>3.762</td>
<td>Accepted</td>
<td>63</td>
<td>1.623</td>
<td>Rejected</td>
</tr>
<tr>
<td>4</td>
<td>2.613</td>
<td>Accepted</td>
<td>34</td>
<td>3.341</td>
<td>Accepted</td>
<td>64</td>
<td>4.130</td>
<td>Accepted</td>
</tr>
<tr>
<td>5</td>
<td>1.440</td>
<td>Accepted</td>
<td>35</td>
<td>3.890</td>
<td>Accepted</td>
<td>65</td>
<td>5.742</td>
<td>Accepted</td>
</tr>
<tr>
<td>6</td>
<td>3.113</td>
<td>Accepted</td>
<td>36</td>
<td>4.292</td>
<td>Accepted</td>
<td>66</td>
<td>3.632</td>
<td>Accepted</td>
</tr>
<tr>
<td>7</td>
<td>2.131</td>
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<td>67</td>
<td>1.452</td>
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</tr>
<tr>
<td>8</td>
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<td>Rejected</td>
<td>38</td>
<td>1.665</td>
<td>Rejected</td>
<td>68</td>
<td>3.724</td>
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</tr>
<tr>
<td>9</td>
<td>7.311</td>
<td>Accepted</td>
<td>39</td>
<td>1.825</td>
<td>Accepted</td>
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</tr>
<tr>
<td>10</td>
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<td>40</td>
<td>2.290</td>
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<tr>
<td>11</td>
<td>5.213</td>
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<td>12</td>
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<tr>
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<td>1.728</td>
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<td>73</td>
<td>1.695</td>
<td>Rejected</td>
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<td>Accepted</td>
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<td>Accepted</td>
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<td>1.555</td>
<td>Rejected</td>
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<td>Accepted</td>
</tr>
<tr>
<td>17</td>
<td>2.075</td>
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<td>2.222</td>
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<td>3.413</td>
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</tr>
<tr>
<td>18</td>
<td>5.740</td>
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<td>2.561</td>
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</tr>
<tr>
<td>19</td>
<td>1.655</td>
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<td>Accepted</td>
</tr>
<tr>
<td>20</td>
<td>4.130</td>
<td>Accepted</td>
<td>50</td>
<td>3.090</td>
<td>Accepted</td>
<td>80</td>
<td>4.092</td>
<td>Accepted</td>
</tr>
<tr>
<td>21</td>
<td>3.630</td>
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<td>51</td>
<td>2.075</td>
<td>Accepted</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>1.150</td>
<td>Rejected</td>
<td>52</td>
<td>4.170</td>
<td>Accepted</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>3.720</td>
<td>Accepted</td>
<td>53</td>
<td>3.970</td>
<td>Accepted</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>2.812</td>
<td>Accepted</td>
<td>54</td>
<td>3.582</td>
<td>Accepted</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>1.400</td>
<td>Rejected</td>
<td>55</td>
<td>1.154</td>
<td>Rejected</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>1.720</td>
<td>Rejected</td>
<td>56</td>
<td>2.690</td>
<td>Accepted</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>3.090</td>
<td>Accepted</td>
<td>57</td>
<td>5.140</td>
<td>Accepted</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>5.321</td>
<td>Accepted</td>
<td>58</td>
<td>2.326</td>
<td>Accepted</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>1.520</td>
<td>Rejected</td>
<td>59</td>
<td>1.476</td>
<td>Accepted</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>1.150</td>
<td>Rejected</td>
<td>60</td>
<td>2.311</td>
<td>Accepted</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
3.5.4.2. Final Form of the Scale

On the basis of ‘t’ value, sixty statements covering five dimensions were included in the final form of the scale. The statements in the scale were then randomly arranged. (See Appendix: ‘E’) The number of statements considered from each dimension is given in the table below.

Table: 3.4 Number of Statements Considered in Different Dimensions.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Dimensions of academic needs</th>
<th>No. of Statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Personal needs</td>
<td>13</td>
</tr>
<tr>
<td>2.</td>
<td>Curriculum and content needs</td>
<td>14</td>
</tr>
<tr>
<td>3.</td>
<td>Instruction needs</td>
<td>13</td>
</tr>
<tr>
<td>4.</td>
<td>Information and communication needs</td>
<td>9</td>
</tr>
<tr>
<td>5.</td>
<td>Evaluation needs</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>60</strong></td>
</tr>
</tbody>
</table>

3.5.4.3 Establishment of Validity of the Scale

Any measuring instrument must possess two important characteristics namely validity and reliability. Validity refers to what it intends to measure. There are different types of validity. In this study, content validity found to be most appropriate and hence it has been established.
Two teachers and head masters with 15 to 20 years of experience in secondary schools, 5 newly appointed teachers, 2 experienced teacher educators, one lecturer in the Department of education, Bangalore University, Bangalore and 1 professor of the Department of Post Graduate studies and research in education, Kuvempu University, B.E.A. College of Education, Davangere were asked to screen the secondary school teachers academic need assessment scale for comprehensiveness. They found the scale to be quite comprehensive and opined that each statement measures what is intended to be measured. This gives ample of evidence to infer that the scale is valid.

3.5.4.4 Establishment of Reliability of the Scale

The researcher administered the secondary school teachers academic needs assessment scale to 110 secondary school teachers who have participated in training programmes organized by the college of teacher education (CTE), Chikmagalur with a view to examine the reliability.

The secondary school teachers academic need scores of 110 teacher participants was found by Likert’s method of five point scale scoring. And split-half (odd-even) technique was used to calculate reliability.
co-efficient by Pearson’s product moment correlation. The reliability value found was 0.74.

The above value reveals that the reliability of the secondary school teachers academic need assessment scale (SSTANAS) is quite satisfactory.

3.5.5. Construction of Attitude Scale to measure Attitude of Teachers towards In-service Programme.

The seventh objective of the study was to evaluate the attitude of secondary school teachers towards in-service training programmes of CTE’s. The eighth objective of the study was to evaluate the attitudinal change of secondary school teachers through in-service training programmes of CTE’s. Hence, the researcher planned to construct an attitude scale to assess to what extent the secondary school teachers have attitude towards the in-service training programmes of CTE’s.

The researcher has studied the different sources (5, 6, 8, 12, 14, 18, 44, 57, 61 ,62, 65, 78, 102, 108, 115, 117, 130, 133, 135, 138) on attitude scale construction and in-service training programmes and also discussed with the experts in the field of education to prepare draft of the attitude scale. The sources studied and discussions held with experts helped the researcher to prepare draft of the attitude scale.
3.5.5.1 Steps followed in the construction of Attitude Scale

**First Step:** After thorough review of related literature the researcher wrote 70 statements. At the time of writing these statements the researcher followed the suggestions given by Wang (1932), Thurstone and Chave (1929), Bird (1940), Edwards and Kilpatrick (1948) and others. (The suggestions are already given on page No. 111.)

**Second Step:** Keeping the above suggestions the researcher refined the statements. Ten statements were discarded. Sixty statements were retained in the scale.

**Third Step:** Remaining 60 statements were given to a group of experts for further refinement. The researcher requested the experts to go through the statements and find out whether these statements are properly worded, grammatically correct and measure the intended objective. Sufficient time was given to them for giving suggestions for further refinement.

**Fourth Step:** The experts totally rejected five statements and gave some suggestions for the statements required.

**Fifth Step:** The suggestions given by the experts were incorporated and refined. The remaining 55 statements were subjected to item analysis.
Sixth Step: Selection of statements through item analysis

To carry out the item analysis, a sample of 200 teachers participated in teacher training programme earlier were randomly selected. The scale was administered to them. Likert method was used for the development of the scale. The responses were quantified by assigning numerical weights of 5, 4, 3, 2, 1 in respect of positive statements and these weightages were reversed in respect of negative statements. The whole group of 200 was divided into two groups based upon the weighted scores. The first 25 per cent of the group was taken and designated as High Group. And the last 25 per cent were designated as Low Group. Mean and standard deviation were calculated for both High and Low groups. The values were used to compare the results of the two groups which resulted in ‘t’ value for each statement. Of these statements, forty six statements were selected and nine were discarded. The selection was based upon the size of the ‘t’ value. As per the suggestions provided by Edwards, any ‘t’ value equal to or greater than 1.75 as the basis used for selection of statements. The ‘t’ value of each statement is presented in the following table:
### Table: 3.5 ‘t’ Values of Statements of Preliminary Form of Attitude Scale

<table>
<thead>
<tr>
<th>Sl.No. of statement in the draft form</th>
<th>‘t’ value of the statement</th>
<th>Accepted/Rejected</th>
<th>Sl.No. of statement in the draft form</th>
<th>‘t’ value of the statement</th>
<th>Accepted/Rejected</th>
<th>Sl.No. of statement in the draft form</th>
<th>‘t’ value of the statement</th>
<th>Accepted/Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5.324</td>
<td>Accepted</td>
<td>20</td>
<td>5.134</td>
<td>Accepted</td>
<td>39</td>
<td>2.652</td>
<td>Accepted</td>
</tr>
<tr>
<td>2</td>
<td>3.142</td>
<td>Accepted</td>
<td>21</td>
<td>3.723</td>
<td>Accepted</td>
<td>40</td>
<td>3.090</td>
<td>Accepted</td>
</tr>
<tr>
<td>3</td>
<td>3.242</td>
<td>Accepted</td>
<td>22</td>
<td>1.706</td>
<td>Rejected</td>
<td>41</td>
<td>2.034</td>
<td>Accepted</td>
</tr>
<tr>
<td>4</td>
<td>1.945</td>
<td>Accepted</td>
<td>23</td>
<td>2.197</td>
<td>Accepted</td>
<td>42</td>
<td>1.812</td>
<td>Accepted</td>
</tr>
<tr>
<td>5</td>
<td>1.927</td>
<td>Accepted</td>
<td>24</td>
<td>2.754</td>
<td>Accepted</td>
<td>43</td>
<td>2.170</td>
<td>Accepted</td>
</tr>
<tr>
<td>6</td>
<td>2.457</td>
<td>Accepted</td>
<td>25</td>
<td>4.333</td>
<td>Accepted</td>
<td>44</td>
<td>2.562</td>
<td>Accepted</td>
</tr>
<tr>
<td>7</td>
<td>1.896</td>
<td>Accepted</td>
<td>26</td>
<td>2.814</td>
<td>Accepted</td>
<td>45</td>
<td>4.213</td>
<td>Accepted</td>
</tr>
<tr>
<td>8</td>
<td>1.960</td>
<td>Accepted</td>
<td>27</td>
<td>2.226</td>
<td>Accepted</td>
<td>46</td>
<td>1.232</td>
<td>Rejected</td>
</tr>
<tr>
<td>9</td>
<td>2.632</td>
<td>Accepted</td>
<td>28</td>
<td>1.054</td>
<td>Rejected</td>
<td>47</td>
<td>6.800</td>
<td>Accepted</td>
</tr>
<tr>
<td>10</td>
<td>1.572</td>
<td>Rejected</td>
<td>29</td>
<td>2.222</td>
<td>Accepted</td>
<td>48</td>
<td>7.274</td>
<td>Accepted</td>
</tr>
<tr>
<td>11</td>
<td>4.555</td>
<td>Accepted</td>
<td>30</td>
<td>3.637</td>
<td>Accepted</td>
<td>49</td>
<td>4.132</td>
<td>Accepted</td>
</tr>
<tr>
<td>12</td>
<td>3.342</td>
<td>Accepted</td>
<td>31</td>
<td>1.064</td>
<td>Rejected</td>
<td>50</td>
<td>1.799</td>
<td>Accepted</td>
</tr>
<tr>
<td>13</td>
<td>2.222</td>
<td>Accepted</td>
<td>32</td>
<td>2.257</td>
<td>Accepted</td>
<td>51</td>
<td>3.856</td>
<td>Accepted</td>
</tr>
<tr>
<td>14</td>
<td>1.852</td>
<td>Accepted</td>
<td>33</td>
<td>1.866</td>
<td>Accepted</td>
<td>52</td>
<td>1.995</td>
<td>Accepted</td>
</tr>
<tr>
<td>15</td>
<td>1.284</td>
<td>Rejected</td>
<td>34</td>
<td>3.340</td>
<td>Accepted</td>
<td>53</td>
<td>2.652</td>
<td>Accepted</td>
</tr>
<tr>
<td>16</td>
<td>6.555</td>
<td>Accepted</td>
<td>35</td>
<td>3.496</td>
<td>Accepted</td>
<td>54</td>
<td>2.576</td>
<td>Accepted</td>
</tr>
<tr>
<td>17</td>
<td>5.532</td>
<td>Accepted</td>
<td>36</td>
<td>5.260</td>
<td>Accepted</td>
<td>55</td>
<td>1.589</td>
<td>Rejected</td>
</tr>
<tr>
<td>18</td>
<td>0.943</td>
<td>Rejected</td>
<td>37</td>
<td>0.806</td>
<td>Rejected</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>1.799</td>
<td>Accepted</td>
<td>38</td>
<td>2.634</td>
<td>Accepted</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### 3.5.5.2. Final form of the Scale

Forty six statements were included in the final form of the scale which have ‘t’ value either equal to or greater than 1.75, out of which 29 are positive statements. The statements in the scale were then randomly arranged. (See Appendix: ‘G’)

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3.5.5.3. Establishment of Validity

Validity refers to its accuracy, i.e., how closely the scale measures what it intends to measure. In this study, content validity has been established.

Two teacher educators of M.M. College of Education, Davangere, one lecturer in the department of education, Karnataka University, Dharwad and one professor of the department of Post Graduate studies and Research in Education, Kuvempu University, B.E.A. College of Education, Davangere were asked to screen the secondary school teachers attitude scale for comprehensiveness. They found the scale to be quite comprehensive. This implies that the scale has content validity.

3.5.5.4. Establishment of Reliability

To examine the reliability of an attitude scale, the investigator administered the scale to 110 secondary school teacher participants who have participated in in-service training programmes organized by College of Teacher Education (CTE), Chikmagalur.

The secondary school teachers attitude scores of 110 teacher participants was found by Likert’s method of five point scale scoring. And
split-half (add-even) technique was used to calculate reliability value by Pearson’s product moment correlation. The degree of reliability co-efficient found was 0.76. This shows the higher degree of reliability. The reliability co-efficient is found to be significant at 0.05 level of significance. This implies that the reliability of the secondary school teachers attitude scale is quite satisfactory.

3.6 Sampling

The present study is connected with the organization, administration, selection procedure of participants, infrastructure facility, academic need assessment and attitudinal change of teachers towards in-service training programmes who have participated in in-service training programmes organised by 10 CTE’s in the State of Karnataka. Hence, the population consists of 640 (consisting of 440 men and 200 women teachers) secondary school teacher participants of selected in-service training programmes in a duration of 3 days and above conducted by 7 CTE’s in the State of Karnataka. Out of which 6 of Government CTE’s, 1 belong to Private Aided College of Teacher Education. Out of 10 CTE’s, only 7 CTE’s are considered for the present study. Remaining 3 private aided CTE’s had not organized any programmes during 2006-07.
Totally 16 programmes were selected from 7 CTE’s out of which minimum two training programmes from each CTE were selected by drawing lots out of the training programmes proposed to be organized by CTE’s during academic year 2006-07. The 7 CTE’s were selected as mentioned in the below table.

**Table: 3.6** Names of Colleges of Teacher Education and Number of Training Programmes from Each CTE Selected for the Study

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Name of the CTE</th>
<th>No. of Programmes Selected</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Government College of Teacher Education, Mysore</td>
<td>3</td>
</tr>
<tr>
<td>2.</td>
<td>Government College of Teacher Education, Belgaum</td>
<td>2</td>
</tr>
<tr>
<td>3.</td>
<td>Government College of Teacher Education, Gulbarga</td>
<td>2</td>
</tr>
<tr>
<td>4.</td>
<td>Government College of Teacher Education, Mangalore</td>
<td>2</td>
</tr>
<tr>
<td>5.</td>
<td>Government College of Teacher Education, Jamakhandi</td>
<td>2</td>
</tr>
<tr>
<td>6.</td>
<td>Government College of Teacher Education, Chitradurga</td>
<td>2</td>
</tr>
<tr>
<td>7.</td>
<td>M.L.M.N. College of Teacher Education, Chikmagalur</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>16</strong></td>
</tr>
</tbody>
</table>

The sample of men and women teachers, rural and urban teachers and teachers from Government and Private schools are considered from 16 training programmes of 7 CTE’s in the State of Karnataka. Below mentioned flow chart gives the picture of sample:
3.7 COLLECTION OF DATA

On the first day of each programme after registration session, investigator gave information blank, SSTANAS and attitude scale as pretest to all the secondary school teacher participants. The scales were collected before commencement of each programme.
During the last session of the last day of each training programme
the investigator gave questionnaire, SSTANAS and attitude scale as post
test to all the secondary school teacher participants. The filled up scales
were collected at the end of the programme.

At the end of the training programme, the investigator gave
information blank and questionnaire to each programme co-ordinator and
collected back after complete filling.

3.8. Statistical Techniques Used for Analysis of Data

To know the attainability of formulated objectives of the study, the
data was analyzed by using the following statistical techniques.

1. The data collected are presented in terms of percentages. Mean and
   SD are also computed.
2. To test the hypotheses ‘t’ test and single classification Analysis of
   Variance (ANOVA) were used.

In this chapter, the researcher has presented the methodology and
design of the study. The procedures followed in the preparation of tools
are also explained in detail. In the next chapter, he presents the detailed
analysis of the data followed by discussion.