CHAPTER – 3

PLAN AND PROCEDURE OF THE STUDY

3.1 Need and Significance of the Study

The validity, truthfulness or the credibility of the B.Ed. entrance test for selection of candidates to educational colleges is an important issue in teacher education and, therefore, is an important area for research. Any criterion for admission to B.Ed. course could be an effective tool to screen right persons for teaching profession. So, B.Ed. entrance test is being used as a tool to control the quality of teacher-trainees and hence, of teachers.

The results of more than 50 prominent research studies, conducted during 1950-80, as presented by Gupta (1984) in an All India Seminar, had shown that teachers had long standing dissatisfaction, teaching profession attracted either the dedicated or the aimless but never the ambitious people, training colleges’ products were stagnant minded, their caliber was poor, most of the teacher trainees suffered from various personality and adjustment disorders and also faced much anxiety and frustration.

These facts clearly indicate that somewhere something is wrong in our teacher education system. Causes of poor quality of teachers could be numerous but the admission criteria for selection of the teacher-trainees, primarily, is one of the major causes. Now for the admission in B.Ed. colleges norms laid by the NCTE are being followed. In Punjab the admission to B.Ed. colleges affiliated to Panjab, Punjabi and Guru Nanak Dev universities is done through B.Ed. Entrance Test every year. The focus of the study is on this important aspect as it aims to assess the efficacy, credibility, predictive validity etc. of the Joint B.Ed. Entrance Test-2003
conducted by the G.N.D.U. for the admission to education colleges in Punjab and Union Territory of Chandigarh.

Trainees enter the B.Ed. course in their early adulthood when they already have achieved maturity. To bring any effective and permanent change in their attitude, aptitude, interest, understanding, thinking, reasoning, intelligence and other personality traits is very difficult, if not impossible. Furthermore, in our country teachers are trained in hurry. Within a short period of few months and with such a hectic curriculum we should not expect to draw too much out of the trainees. So, to control the quality of trainees, a careful and judicious selection procedure is required. The present study is significant, as it helps us to know whether the Joint B.Ed. Entrance Test-2003 could select right persons having some of the required attributes.

No doubt, the eligibility marks to appear in the entrance test were 45% in the first or second degree examination with a relaxation of 5% to SC/ST candidates, yet the criterion for B.Ed. admission has shown disregard to the academic equipment of the candidates as the admission was made on the basis of the merit of the candidates in the Entrance Test only. There are host of studies, which have successfully demonstrated a substantial relationship between academic achievement and intelligence and also showed that high achievers tend to differ significantly in relation to certain personality aspects. By knowing the relationship of academic achievement of candidates with their scores in the entrance test, the present study investigates that how much it is justified to ignore the merit of academic marks in admissions. The selection criteria though has admitted the candidates on the basis of minimum eligibility marks in their qualifying examinations yet the study explores their actual level of achievement in graduation examinations.
One among the essential qualities of a good teacher is that he might be reasonably intelligent as it is the intelligence which helps a person in learning, acquiring knowledge, thinking in abstract terms and making adjustments. The general assumption that the more intelligent students will be better teachers is not always supported by all the studies. But there are several research reports, which show a definite relationship between intelligence and success in teaching. Perhaps giving importance to this viewpoint, the B.Ed. Entrance Test assessed the general mental ability of the candidates through Paper-I: Part C. The study is significant, as it helps us to know whether the entrance test was a reliable tool to select intelligent persons. Along with it, the study also explores the intelligence level i.e. I.Q. of the student-teachers in education colleges of Punjab and U.T. Chandigarh.

There can be a little doubt that the attitudes a teacher has towards himself, towards his pupils and towards teaching profession influence his behaviour in the classroom and also his effectiveness in teaching. The results of many researches clearly indicate that teaching attitude and teaching success are significantly related to each other. Positive or favourable attitude makes the work not only easier but also more satisfactory and professionally rewarding. A negative or unfavourable attitude makes the teaching task harder, more tedious and unpleasant. The Entrance Test was supposed to be an effective tool for selecting the candidates with desirable teaching attitude as Paper I: Part B of the entrance test assessed teaching potential of the candidates. The results of the study help in knowing whether the entrance test was an effective tool for assessing the teaching attitude of the candidates.

The predictive validity of any entrance test is always unknown and it varies from test to test also. The study is also useful as it explores the predictive validity of the entrance test by investigating
whether those who are on the high merit in entrance test have also secured high scores in their B.Ed. examinations.

Since the introduction of B.Ed. entrance test in Punjab, very few studies have been conducted on it and they too are narrow in scope. It could be called a significant work as the researcher is not aware of any study on Joint B.Ed. Entrance Test-2003 conducted on such a large sample of teacher-trainees representing the whole population belonging to the education colleges in Punjab and U.T. Chandigarh affiliated to all the three Panjab, Punjabi and Guru Nanak Dev universities. Again, the study deals with all those important variables such as academic achievement, intelligence, teaching attitude and performance of the students in B.Ed. course which are closely related to the success in teaching profession.

Further more, the three universities by rotation bear the expenditure in lacs on the conduct of B.Ed. entrance test and admissions. Many persons from the university, so many from different educational colleges, the candidates, parents, guardians, etc. remain busy for so many days. The study investigates whether this process of conducting admissions is merely wastage of time, energy and finance or is a fruitful effort which will provide us more objective, valid, reliable, scientific and transparent procedure of admissions and ultimately will help to bring quality teachers in our schools.

Keeping in view all the facts given above and also thinking that this piece of research work is directly related to an important aspect of teacher education, the investigator felt the need of studying the relationship of the B.Ed. Entrance Test with the scholastic and attitudinal variables.

3.2 Statement of the Problem

The problem can be stated in measured words as:

Relationship of B.Ed. Entrance Test Performance with Scholastic and Attitudinal Variables
3.3 Operational Definitions of the Terms Used

3.3.1 B.Ed. (Bachelor of Education)

B.Ed., as used in the study, is a course of study meant for secondary school – teacher training program.

3.3.2 Entrance Test

Entrance Test is a test used as a method or technique for selection of candidates to be admitted to the institution or institutions. In the study Entrance Test relates to the Joint B.Ed. Entrance Test – 2003 conducted on Sunday June 15, 2003 as per NCTE admission policy by the Guru Nanak Dev University, Amritsar, authorised by Punjab Govt. and Chandigarh Administration, for the admission to B.Ed. course for session 2003-04 in the colleges of education situated in the state of Punjab and Union Territory of Chandigarh and affiliated to Punjabi University, Patiala, Guru Nanak Dev University, Amritsar and Panjab University, Chandigarh.

3.3.3 Entrance Test Performance

Entrance test performance is the marks obtained by the candidates in the Joint B.Ed. Entrance Test –2003 conducted by the G.N.D.U.

3.3.4 Scholastic Variables

Scholastic variables are those variables which are related to the achievements of the students pertaining to their schools, institutions or education. For the purpose of the study following academic and intellectual achievements of the students have been considered as scholastic variables:

(i) Marks obtained by the students in their qualifying / graduation degree examination, that is, B.A./B.Sc./B.Com. marks which were the eligibility marks to appear in the Entrance Test.

(ii) Marks obtained by the B.Ed. students in their B.Ed. examinations conducted by the three universities for the B.Ed. session 2003-04. The B.Ed. marks relate to the total marks...
obtained in theory papers, practicals, skill-in-teaching, internal assessment, etc.

(iii) Intelligence scores as obtained by the B.Ed. students on the General Mental Ability Test for College Students (TGI).

3.3.5 Attitudinal Variables

Attitudes are relatively enduring beliefs or opinions that predispose people to respond in a positive, negative or ambivalent way to a person, object or idea.

Attitudinal variable as concerned with the study is the teaching attitude of the B.Ed. students. For the purpose of the study, the marks obtained by the B.Ed. students on the Teaching Attitude Inventory (TAI) were taken into consideration.

3.4 Objectives of the Study

The study was undertaken with the following objectives:

1. To study and analyse the data on entrance test, B.A/ B.Sc./B.Com., teaching attitude, intelligence and B.Ed. scores.
2. To find out the difference in entrance test, B.A./B.Sc./B.Com., teaching attitude, intelligence and B.Ed. scores of the groups based on universities and colleges.
3. To study the relationship between the scores obtained by the selected candidates in B.Ed. entrance test and obtained by them in their graduation (B.A. /B.Sc. /B.Com.) examinations.
4. To find out the relationship between teaching attitude of the candidates and their performance in the entrance test.
5. To study the relationship of scores of the B.Ed. students on the entrance test and intelligence test.
6. To find out whether or not there is any relationship between the scores of the candidates obtained in the entrance test and the scores obtained in the B.Ed. final examination.
7. To investigate whether the qualifying examination (B.A./B.Sc./
B.Com.) scores of candidates and their teaching attitude have any relationship with each other.

8. To find out the relationship between B.A./B.Sc./B.Com. and intelligence scores of the candidates.

9. To study the relationship between B.A./B.Sc./B.Com. scores of the trainees and their scores in B.Ed. final examinations.

10. To investigate how far the intelligence and teaching attitude of the B.Ed. students are related to each other.

11. To study the relationship between teaching attitude of the candidates and their performance in B.Ed. examination.

12. To know the relationship between B.Ed. examination scores and intelligence scores of the teacher trainees.

13. Another objective of the study is to analyse the syllabus and question paper of the B.Ed. Entrance Test – 2003, to note the weaknesses, if any, and suggest improvements.

14. Finally to make recommendations and suggestions emerging out of the study.

3.5 Hypotheses of the Study

Synchronizing with these objectives following hypotheses were formulated:

1. There is no significant difference in entrance test, B.A./B.Sc./B.Com., teaching attitude, intelligence and B.Ed. scores of the groups based on universities.

2. The scores on entrance test and scores in B.A./B.Sc./B.Com. examinations have no positive correlation.

3. Entrance test scores and teaching attitude scores are positively and significantly related to each other.

4. The scores on entrance test and scores on intelligence test of the candidates have a positive and significant correlation.

5. The scores on entrance test and scores in B.Ed. examination
have a positive and significant correlation.

6. Teaching attitude scores and scores in B.A./B.Sc./B.Com. examinations bear a poor may be a negative correlation.

7. Scores in the B.A./B.Sc./B.Com. examinations and scores on intelligence test are positively and significantly correlated.

8. B.A./B.Sc./B.Com. examination scores and B.Ed. examination scores are positively correlated and the index of correlation is high.

9. Teaching attitude and intelligence of the candidates do not show any significant correlation with each other.

10. Teaching attitude scores and B.Ed. examination scores have a significant positive correlation.

11. Scores on intelligence test and scores in B.Ed. examination have a significant positive correlation.

3.6 Sample of the Study

It is neither feasible nor always admirable to conduct any research on large population, so sampling becomes essential. The population of the present study consisted of all the B.Ed. students who got admission to the educational colleges, for the session 2003-04, through the conduct of Joint B.Ed. Entrance Test-2003. The Entrance test was conducted by Guru Nanak Dev University and the admission was done to the colleges of education affiliated to Panjab University, Chandigarh, Guru Nanak Dev University, Amritsar and Punjabi University, Patiala.

After collecting all the necessary information relating to the population and its units from the B.Ed. Entrance Cell, G.N.D.U., a three stage-sample design was employed which is as explained below:

3.6.1 First Stage

At the first stage Proportionate-Stratified Sampling technique
was adopted. The total number of sample colleges to be taken from the population colleges was to be decided. One-fourth, i.e. twenty five per cent, of the total colleges was considered to be an ideal number to represent the population. So, with the ratio of 1:4, 9 colleges out of total 36 affiliated to all the three universities were included in the sample of the study. After this, the number of sample colleges from each university was fixed approximately with the same proportion. Total colleges affiliated to Panjab, G.N.D. and Punjabi universities were 16, 13 and 7 respectively. Therefore, 4 colleges from Panjab University, 3 colleges from G.N.D.U. and 2 from Punjabi University, i.e. 9 in total as shown in Table 3.1 were included in the sample of the study.

Table 3.1
Ratio Between Sample Colleges and Population Colleges

<table>
<thead>
<tr>
<th>University</th>
<th>Sample Colleges</th>
<th>Population Colleges</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panjab</td>
<td>4</td>
<td>16</td>
<td>1 : 4</td>
</tr>
<tr>
<td>G.N.D.</td>
<td>3</td>
<td>13</td>
<td>1 : 4 approx.</td>
</tr>
<tr>
<td>Punjabi</td>
<td>2</td>
<td>7</td>
<td>1 : 4 approx.</td>
</tr>
<tr>
<td>Total</td>
<td>9</td>
<td>36</td>
<td>1 : 4</td>
</tr>
</tbody>
</table>

3.6.2 Second Stage

At the second stage, all the nine sample colleges from the three universities were to be selected. For this, random sampling technique was adopted. Firstly, to select colleges from Panjab University, Chandigarh, the names of all the 16 education colleges affiliated to the university were written on separate paper-chits. Putting them into a container, four chits were drawn out one by one mixing them well every time. The four colleges shown on the chits were included in the sample. Then, adopting the same procedure 3 colleges from G.N.D.U. and 2 from Punjabi University were selected for the sample. The 9 sample colleges are scattered all over the Punjab and one is in the U.T. of Chandigarh as shown in the following Figure:
3.6.3 Third Stage

At the third stage, the sample subjects were to be selected from all the 9 colleges. Purely random sampling at this stage could not be possible because of the following reasons:

1. Very Short, limited and definite time, i.e. B.Ed. session 2003-04, for such a large and scattered sample.
2. Disturbance in the regular time-table of each college at least for 3.00 hours.
3. Very hectic and busy schedule of the education colleges: In addition to regular time-table for teaching and its allied aspects, it covers demonstration lessons, discussion lessons, teaching practice usually in two sessions, final skill-in-teaching lessons,
two terminal exams. One final exam., educational tour, community visits, competitions, seminars, workshops, extension lectures, celebration of important national and international days, colleges’ functions and other programmes like Prize Distribution, Convocation, Sports day, Talent-Search programme, Youth Festivals, Cultural programme, etc. Public holidays and Sundays make the room for collection of data more tight.

Keeping all this in mind, the researcher, before visiting the colleges, confirmed only the availability of the students in the colleges and rest everything was left on chance. So, the type of sample was different in different colleges as is described below.

Govt. College of Education (Edu.), Faridkot: Students were taken from all the classes of teaching subjects. D.A.V. College of Edu., Abohar: Students of two sections, free due to teachers on leave, were the sample subjects. Khalsa College of Edu., Amritsar: many of the students were out of the college due to the death of a local trainee’s mother, all the students present in the premises of the college formed the sample. Punjab College of Edu., Raipur: It was the last period, almost all were assembled for data collection. Partap College of Edu., Ludhiana: Some of the trainees were busy in practice for Youth Festival, data were collected from all the remaining students. Dev Samaj College of Edu., Chandigarh: Due to the Second-Terminal examination next day, many of the students were on leave, all those who were available were the sample subjects. Ramgarhia College of Edu., Phagwara: Students were scattered in the campus to get their lesson plans checked for the final skill-in-teaching examinations. The students were requested to assemble in a room for the purpose. Guru Nanak College of Edu., Kapurthala: Final skill-in-teaching lessons were being conducted. After when the students delivered the lessons, they were turned
towards the Hall where the data were being collected in small groups. Here the investigator could not collect the data in a proper manner. But there was no other option because after that day the students were to appear in the final examinations. Dev Samaj College of Edu., Ferozepur: Only two days before the end of the session, each day one group of those students who had done their computer practicals, gave the data.

From the description given above, it is clear that a Pure/Systematic Random Sampling was not possible at the third stage. Thus, sampling technique varied from college to college depending upon the availability and accessibility of the students. Sampling at this stage could be called a Convenient, Incidental, Chance, Opportunistic or Mixed-type of sampling. It could also be called an Unsystematic Random Sampling as the required number of students was picked from the specified sample units without any prejudice.

After completing all the three-stages the sample of the study, in its final form, is as shown in the following table:

<table>
<thead>
<tr>
<th>Universities</th>
<th>Sample Colleges</th>
<th>Sample Subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panjab Uni.</td>
<td>D.A.V. College of Edu., Abohar</td>
<td>66</td>
</tr>
<tr>
<td>..</td>
<td>D.S.College of Edu., Chandigarh</td>
<td>52</td>
</tr>
<tr>
<td>..</td>
<td>Partap College of Edu., Ludhiana</td>
<td>62</td>
</tr>
<tr>
<td>..</td>
<td>D.S.College of Edu., Firozepur</td>
<td>57</td>
</tr>
<tr>
<td>..</td>
<td>Ramgarhia College of Edu., Phagwara</td>
<td>51</td>
</tr>
<tr>
<td>..</td>
<td>Guru Nanak College of Edu., Kapurthala</td>
<td>54</td>
</tr>
<tr>
<td>Punjabi Uni.</td>
<td>Govt. College of Edu., Faridkot</td>
<td>60</td>
</tr>
<tr>
<td>..</td>
<td>Punjab College of Edu., Raipur</td>
<td>65</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>9</strong></td>
<td><strong>525</strong></td>
</tr>
</tbody>
</table>

There were about 5200 students in all the 36 colleges. The
sample of the study included 525 B.Ed. students taken from 9 education colleges of the Panjab, Punjabi and G.N.D. universities as shown above in Table 3.2.

3.7 **Tools and Techniques Used for Data Collection**

In order to collect the data for the study different tools and techniques were used. They are as under:

1. Marks relating to B.A./B.Sc./B.Com. examination and Entrance Test were collected directly from the B.Ed. students and also from the official records of the B.Ed. colleges.
2. Marks obtained by the sample students in B.Ed. final examination were taken from the B.Ed. Result-Gazettes of the Panjab, Punjabi and G.N.D. universities and also from the offices of the colleges.
3. Test of General Intelligence for college students (TGI), constructed by Pal and Misra (1991), was used to measure intelligence of the B.Ed. students.
4. Teaching Attitude Inventory (TAI), developed by Ahluwalia (1998) was used to measure the teaching attitude of B.Ed. students.

The description of the TGI and TAI used to collect the data for the study is given below:

**3.7.1 Test of General Intelligence for College Students (TGI)**

Several attempts have been made to construct verbal tests for measuring intelligence. Well-known tests of intelligence, which are frequently used by researchers mostly, are meant for adolescents. Intelligence test developed by M.C. Joshi is for students of VIII to XII classes, Prayag Mehta’s test is meant for 12-14 years old students, Patel has developed for 14-16 years age group, P.N. Mehrotra constructed for 11-17 year old students and S.S. Jalota’s test is meant for VIII to X class students (Pal and Misra, 1991).
The **TGI**, developed by Pal and Misra (1991) is a latest verbal test for measuring intelligence of students studying in degree and post-graduate classes. The test is meant for measuring the general mental ability. There are 6 **Sub-tests** assessing six mental abilities i.e. one ability through each test. Following are the six types of the sub-tests:

1. Word meaning
2. Analogy
3. Classification
4. Number series
5. Code transformation
6. Syllogism


There are **10 questions in each sub-test**. The TGI consists of 60 questions in total. The test is available both in Hindi and English languages. For the purpose of the study English version of the TGI was used as the same was the medium of instruction for the Mental Ability Test in the Entrance Test. Along with the manual of TGI, there is a re-usable test booklet with a separate answer-sheet.

**Initial screening** by the authors was done after preparing the several items. Try-out form of the TGI was administered to 66 graduate and post-graduate students. Item analysis was done by calculating difficulty value (ranged from 20 to 73) and discrimination index (ranged from 20 to 85) for every item belonging to a particular sub-test and the same has been given in Table-1 of the TGI.

The **administration of the TGI** is a tough and responsible task to be performed. Examiner should go through the instructions.
printed on the test booklet. He should read the instructions loudly and should also ask the examinees to read the same. He should tell them that to solve each sub-test they will be given strictly 4 minutes, neither less nor more. They should be informed to do the next test after every 4 minutes. They should also be informed to be quick in reading, thinking and answering. They should be told that it is not expected from them that they would answer all the questions correctly.

After giving all the instructions, the examiner should ask the examinees to turn over to the second page of the TGI where 'examples for practice' are written. The examinees are made to understand the method of solving and writing the answers of the 6 tests with examples. For this 24 minutes are given and they are not allowed to open the fourth page until they are asked to do so. They are asked to remove their difficulties before the start of their work. During the conduct the examiners should move around in the room to check whether examinees are doing their work seriously and sincerely.

**Scoring** procedure of the TGI is very simple. Answer-key is given in the manual. Correct answers should be marked by putting the tick (✓) mark. Number of tick marks for every sub-test should be counted and then these sub-scores are to be added together to get a composite score, which could range from 0 to 60.

For **interpretation** Table-5 in the manual of TGI which is shown below as Table 3.3, can be used to convert raw score into a normalized standard score IQ with a mean of 100 and a standard deviation of 16. The table converts raw scores from 11 to 55 into I.Q. e.g., an individual whose raw scores are 11 has 63 I.Q. And who gets 55 scores has 143 I.Q.
Table 3.3
Normalized Standard Score IQ’s for Total Scores on TGI

<table>
<thead>
<tr>
<th>Score</th>
<th>IQ</th>
<th>Score</th>
<th>IQ</th>
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</thead>
<tbody>
<tr>
<td>11</td>
<td>63</td>
<td>34</td>
<td>105</td>
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<tr>
<td>12</td>
<td>65</td>
<td>35</td>
<td>107</td>
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<td>13</td>
<td>67</td>
<td>36</td>
<td>108</td>
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<td>69</td>
<td>37</td>
<td>110</td>
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<td>15</td>
<td>71</td>
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<td>112</td>
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<td>16</td>
<td>72</td>
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<td>114</td>
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<td>17</td>
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<td>18</td>
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<td>121</td>
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<td>21</td>
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<td>22</td>
<td>83</td>
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<td>85</td>
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<td>87</td>
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<td>130</td>
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<td>90</td>
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<td>137</td>
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<td>97</td>
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<td>31</td>
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<td>54</td>
<td>141</td>
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<tr>
<td>32</td>
<td>101</td>
<td>55</td>
<td>143</td>
</tr>
<tr>
<td>33</td>
<td>103</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Percentile norms for the scores on TGI, based on the sample of 384 B.A., B.Sc., B.Com., M.A., M.Sc., L.T./ B.Ed. and M.Ed. students, has also been calculated and given in Table-4 of the manual.

TGI is highly reliable and valid. The split-half reliability of the total test is .95 and the test-retest reliability is .81. These reliabilities of the test scores have been calculated for 148 students studying in degree and post-graduate classes.

Criterion related validity was calculated by finding out product moment co-efficient of correlation between scores on TGI and scores on Cattell’s Culture Fair Test of Intelligence, Scale 3 form A. The value of correlation was .68 (for N=36). Correlations between various sub-tests of TGI were also calculated.
3.7.2 Teaching Attitude Inventory (TAI)

Teaching Attitude Inventory was constructed and standardized in 1978 by S.P. Ahluwalia, the then the Reader in Education department of Banaras Hindu University. He constructed the inventory with the help of research assistants under a project of the National Council for Educational Research and Training (NCERT). As such the TAI is an adequate scale for measuring attitude towards teaching profession. It is believed that the content of its items is appropriate as a tool for conducting research especially for knowing whether student-teachers have acquired the desired teaching attitude or not.

The TAI is a bilingual inventory available both in English and Hindi languages. Along with the Manual, the inventory contains a re-usable test-booklet with a separate answer-sheet. The inventory is a Likert continuum instrument containing 90 items. It has six sub scales and there are 15 statements in each which pertain to a particular aspect of prospective and practicing teachers’ professional attitudes. The six aspects dealt within the inventory are, Attitude towards:

(i) Teaching profession
(ii) Classroom teaching
(iii) Child centered practices
(iv) Educational process
(v) Pupils
(vi) Teachers

Out of 90 items, 56 are in positive declarative form and 34 of them are in negative form. Again 43 items are meant to assess attitude in favourable direction and 47 in unfavourable direction. Thus the favourable–unfavourable continuum adequately measures these six selected areas. Following table shows the total number of favourable and unfavourable items and their distribution in each sub-scale.
Table 3.4
Total Number of Favourable and Unfavourable Items and Scale-wise Their Serial Numbers

<table>
<thead>
<tr>
<th>Sub-scale</th>
<th>Items</th>
<th>Serial Numbers</th>
<th>Total Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>F*</td>
<td>1, 8, 20, 33, 41, 66, 85</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>UF*</td>
<td>13, 34, 46, 48, 60, 72, 79, 86.</td>
<td>8</td>
</tr>
<tr>
<td>II</td>
<td>F</td>
<td>2, 9, 14, 17, 42, 47, 53, 67</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>UF</td>
<td>35, 38, 59, 61, 65, 73, 84</td>
<td>7</td>
</tr>
<tr>
<td>III</td>
<td>F</td>
<td>3, 11, 16, 27, 37, 39, 49, 62, 64, 80</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>UF</td>
<td>25, 54, 75, 83, 90</td>
<td>5</td>
</tr>
<tr>
<td>IV</td>
<td>F</td>
<td>15, 28, 36, 43, 50, 55, 71, 87</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>UF</td>
<td>4, 7, 10, 32, 63, 74, 76</td>
<td>7</td>
</tr>
<tr>
<td>V</td>
<td>F</td>
<td>5, 44, 81, 82, 89</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>UF</td>
<td>18, 22, 29, 31, 37, 51, 56, 58, 70, 77</td>
<td>10</td>
</tr>
<tr>
<td>VI</td>
<td>F</td>
<td>6, 23, 40, 52, 88</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>UF</td>
<td>12, 19, 24, 26, 30, 45, 57, 68, 69, 78</td>
<td>10</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>90</strong></td>
</tr>
</tbody>
</table>

F* - Favourable  
UF* - Unfavourable

The try-out sample consisted of 1402 and norming sample consisted of 2169 pupil-teachers studying in secondary teacher training institutions having courses leading to B.Ed. and L.T. degree/diplomas in five Hindi speaking states viz., Uttar Pradesh, Rajasthan, Haryana, Bihar and Madhya Pradesh.

The subject responds to each item by putting a tick mark (✓) in a square of chosen alternative of the attitude statement which has been provided in the answer-sheet on a Likert continuum: Strongly agree, agree, undecided, disagree and strongly disagree. Subjects are required to respond all the items. The procedure of test-taking and recording responses on the answer-sheet is explained in simple and clear terms in the test-booklet. Instructions for the experimenter or
researcher regarding how to conduct or administer the scale has been given in an easy and systematic way in the manual. While instructing he should also tell the subjects how to respond on the continuum provided in the answer-sheet.

For **scoring**, consulting the Table 3.4 of the study (Table-1 in the TAI manual), favourable and unfavourable items are marked differently. For favourable items, each item alternative is assigned a weight ranging from 4 to 0 i.e. from 4 for strongly agree to 0 for strongly disagree. But in case of unfavourable items, the range of weights is reversed, i.e. from 0 for strongly agree to 4 for strongly disagree. The attitude score of a subject is the sum total of item scores of all the six sub-scales. The theoretical range of scores is from 0 to 360. The higher score indicates the more favourable attitude towards teaching and its allied aspects.

The **reliability** of the scale estimated by the split-half (odd-even) method on a sample of prospective teachers was found to be .79 (corrected to .88). The test-retest reliability co-efficient after the interval of 3 months and 9 months was found to be .59 on a sample of 102 and .64 on a sample of 290.

Determination of **validity** of an attitude inventory is a hard task. The inventory has content validity. Differences in mean scores among selected ‘known’ groups were computed and compared. The observed differences were found to be in the expected direction. The validity was also determined through stimulus group technique. For determining the concurrent validity, the scores on TAI (N=79) were compared with scores on Hindi Adaptation of the MTAI developed by Dr. M.C.Joshi. The co-efficients of correlation came out to be positive but low. The high discriminatory power of the items of the TAI is a testimony of its internal consistency.

Norms also were computed state-wise and area-wise for the five Hindi speaking states. In addition to it, sex-wise percentile
norms have been computed and are given in the manual.

### 3.8 Collection of the Data

In the preliminary preparation for the data collection, the researcher went through both the tools to be administered as to know about those possible difficulties the subjects could face while responding to the items of the tools.

In the TGI (Appendix-II), two mistakes were observed and corrected after consulting its scoring-key. In Sub-test IV which is related to ‘numerical ability’, in item No.31, ‘4’ was replaced by ‘36’. In sub-test V of ‘code transformation’, word ‘REPNERRUS’ was corrected as ‘REDNERRUS’. Complexity and confusion in the Answer-sheet was also removed by removing the Hindi words printed along with the English words. The Teaching Attitude Inventory, prepared on students of five Hindi speaking states, has used some tough Hindi words. In the test-booklet of the TAI (Appendix-V), the investigator herself failed to understand the exact meaning of the few words in some of the statements. To confirm the same, the TAI was distributed among 15 Punjabi medium B.Ed. students and they were requested to note down those words which were not clear to them or those they felt were difficult to be understood. Then after a free discussion with the students, twelve words were declared as difficult words. Two Hindi lectures were consulted and easier Hindi synonyms of those difficult words were written side by side for the convenience of the sample students.

The whole process of data collection then was completed under three phases and each phase had nine steps covering the nine sample colleges one by one.

#### 3.8.1 First Phase

The researcher herself visited each college and collected the data with responsibility. Permission was sought from the principals
of all the colleges to use the human and material resources of their respective colleges for research purposes only. A great co-operation was found in each college. At least 2 lectures and 3 to 5 trainees assisted the researcher and made the difficult task an easier one. The first phase of data collection was completed in two sessions.

3.8.1(a) SESSION – I

In the first session, the data relating to marks of the B.Ed. students in Entrance test and B.A/B.Sc./B.Com. courses were collected and the administration of TGI was done.

After making all the necessary arrangements in rooms and somewhere in hall, students were asked to sit comfortably without any stress or fear. In a very free and frank way the investigator introduced herself and explained the students the purpose of her visit and that of assembling them. They were requested to give true responses and were assured that the data would be kept confidential and would not be used anywhere else except for the research purpose.

After establishing rapport with the students and creating a cordial and congenial environment, the students were requested to fill the Performa, attached with TGI, relating to their college roll numbers, name of their college, marks obtained in entrance test, obtained in B.A./B.Sc./B.Com., M.A./M.Sc. courses etc. In the first college (G.C. of Edu., FDK.), while collecting the data some of the students informed the researcher regarding their inability to recollect the marks obtained by them. They were told not to write the same. After that in each college it was announced that those who were unable to recall the exact marks obtained by them would leave the respective columns unfilled.

Administration of TGI

The administration of TGI, in fact, is a tough task as TGI is an objective type test and as a test it provokes the examinees for
copying and cheating. To control and minimize such practices, the students were told in nutshell about the importance of true data for researches and were requested to co-operate sincerely and seriously.

Conduct of the TGI is similar to that of examination. Along with the arrangement of chalk-board/marker-board and chalk/ marker, the supervisors and the time-keeper were made alert. Before the start of the test, the researcher read the instructions loudly and asked the students to attend and follow the same. Students were informed that TGI is a test of general mental ability and it contains 6 sub-tests. They would be given four minutes to solve each sub-test and would shift to the next only when the time-keeper would ask them to do so. They were told to use the given four minutes for a sub-test in completing, thinking or checking that sub-test only and would not worry if any of the sub - test remained incomplete.

After giving the necessary instructions, the researcher, taking the TGI booklet in hand, asked the students to open the same page. She introduced the students with the type and nature of each sub-test and solved the examples on chalk/marker board. Extra examples were also added to make the ‘Code transformation’, and ‘syllogism’ test items more clear. It was found that the recommended time of 24 minutes to understand the tests was more than sufficient for B.Ed. students as they already had prepared themselves for similar type of ‘Mental Ability Test’ in B.Ed. Entrance test. After clearing the doubts of some of the students, the test was conducted by following all the instructions strictly. To check cheating and the working of the students, the investigator and the other examiners frequently moved around in the room. Almost all the students co-operated beautifully and did their work seriously and honestly. A few who wanted to copy were interrupted immediately with words like ‘No please’, ‘Do honestly’, etc. and they accepted it with smile. After when the conduct was over, the researcher asked the students why
they had the tendency to cheat. They told that they were in habit of doing so whenever they got the opportunity especially in examinations. In spite of the written and verbal instructions not to write anything on the reusable booklets of TGI, the students used them for rough work. So after the data collection from first college, some of the booklets were to be discarded and from some other booklets the hints and clues were removed by using a fluid corrector-pen. No doubt, the misuse was controlled afterward, yet before visiting any new college, the booklets were properly checked and corrected.

3.8.1(b) SESSION-II

Same day, in the second session, the data relating to teaching attitude were collected from the students by administering the Teaching Attitude Inventory.

Administration of TAI

Students were told that TAI is a tool to measure their attitude towards teaching profession and its allied aspects. They were requested not to conceal anything, to opine truly and to answer only that what they really would feel in such situations. On black-board they were told how to respond the statements by putting a tick-mark (√) on one of the options: SA, A, UD, D, SD. In doing so, two statements from TAI were used as examples. Students were told that there was no time limit to complete the scale items but they would try to answer all the statements as early as possible. They were also informed that some words in the TAI were found difficult so their meanings in simple form had been written close to them. They were told to feel free in asking the meaning of any other word. Students were given as much time as they required. It took them 30 to 50 minutes to complete all the 90 statements of the TAI.

The first phase of data collection was completed throughout the session 2003 – 04 and when the colleges were reopened for
session 2004–05, the second and third phases were completed.

3.8.2 Second Phase

After completing all the nine steps of the first phase of data collection, in the second phase taking one college at one time all the forms filled by the students were checked. The unfilled and incomplete data regarding scores of entrance test and graduation examinations were completed from the official records of the colleges. It was found that the passage of time became instrumental in forgetting the entrance test scores and graduation marks by the B.Ed. students. During this time the students’ college roll numbers, their marks in the entrance test and B.A./B.Sc./B.Com. examinations were systematized in a written form. One student was found who got admission on the basis of post graduation marks but she was excluded from the sample subjects. During this phase, the university roll numbers of the sample students corresponding to their college roll numbers were also collected from the offices of all the nine colleges.

3.8.3 Third Phase

In the third phase when the Panjab, Punjabi and G.N.D. universities declared their B.Ed. examination results, the B.Ed. marks obtained by the students were collected from the B.Ed. Examination Result Gazettes – 2004 of the three universities. The marks of many students were not there in the gazettes due to some or the other reasons. Their marks were taken from the offices of their colleges after a month or more.

3.9 Scoring

All the data received from students were compiled manually and the scoring of TGI and TAI was done as follows:

3.9.1 Scoring of TGI

To make the scoring easier and accurate, the unfilled Answer-
sheet of TGI was converted into Scoring-Key (Appendix-IVB) in such a way that by placing the Scoring-key on the Answer-Sheet, the examiner was just to match the ‘penetrating-answer’ (respondent’s answer) with the answer written on the key. Class +2 students assisted in scoring. One group of students matched the written answers with correct answers and put right-ticks (✓) only to the right answers and gave no sign to wrong answers. Another group counted all the right ticks on the 60 items and awarded a subject the total marks equal to the right-ticks on his/her answer-sheet. The whole conduct was done under the keen guidance and supervision of the investigator. It was interesting to observe that ‘Code Transformation’ and ‘Syllogism’ were comparatively difficult sub-tests whereas the ‘Number Series’ test was easier for majority of the sample students.

3.9.2 Scoring of TAI

A careful scoring of the TAI was essential because both the favourable (F) and unfavourable (UF) statements were to be scored in different ways. So, to ensure accuracy, a Scoring-Key (Appendix-VII), to mark UF statements, was prepared. All the serial numbers of UF statements on unused Answer-sheet were changed into ‘holes’. Hence, a Scoring-key, showing serial numbers of favourable statements directly and those of unfavourable statements through holes, was prepared. The +2 class students were given demonstration about what to do and how to do. First group of students placed the Scoring-keys on Answer-sheets, confirmed that all the 90 serial numbers were visible, then marked only the serial number of UF statements shown by ‘holes’ with coloured sketch pens. The second group then scored only the UF statements, marked by the first group, assigning a weight ranging from 0 to 4 (SA to SD). The Third group scored the F statements with a reverse range of weight from 4 to 0 (SA to SD). The fourth group added the marks of
all the 90 statements and awarded the total marks to the candidate.

3.10 Delimitations of the Study

The study has certain delimitations which are as under:

1. The study has been delimited to the Joint B.Ed. Entrance Test-2003, which was conducted by the Guru Nanak Dev University for the admissions of the students in B.Ed. course 2003-04.

2. The study is confined to the 36 education colleges in Punjab and U.T. of Chandigarh affiliated of Panjab, Punjabi and G.N.D. universities for session 2003-04 and admission to which was made on the basis of the relative merit of the candidates appeared in the Joint B.Ed. Entrance Test-2003.

3. The study has been delimited to the B.Ed. students of session 2003-04 who were admitted to the above said colleges and have passed the course. Those who have left or failed do not come under the purview of the study. A candidate who was found to get admission on master-degree basis was also excluded from the sample students.

4. Scholastic variables are so many but the study has been delimited to B.A./B.Sc./B.Com., B.Ed. and Intelligence scores of the candidates.

5. Scope of attitudinal variables is also very wide but the study has been delimited to the Teaching Attitude of the B.Ed. students.

3.11 Statistical Treatment of the Data

There were variations in the maximum marks for the various courses of different universities. So, before giving any statistical treatment to the data, the B.A./B.Sc./B.Com. and B.Ed. examination marks of all the 525 subjects were converted into percentages to bring uniformity in the data. Then the data relating to entrance test, B.A/B.Sc/B.Com., teaching attitude, intelligence and B.Ed. scores were given the following statistical treatment.
1. Mean, median, mode, standard deviation, skewness, percentages and percentiles were computed for the descriptive analysis of the data relating to all the variables of the study.

2. To know the significance of differences between means t-test was applied. One-way Analysis of Variance (ANOVA) was applied to ascertain the significance of differences among various groups based on universities, colleges, intelligence and B.Ed. marks.

3. Karl Pearson’s product moment method of correlation was used to determine the relationships between the variables of the study. To know the significance of the relationships, Garrett (1981) was followed.

The statistical results received from the computer were organised and are presented in a meaningful form. Tables were prepared to present the results. Correlation matrix was prepared to give a complete view of the relationships. Tabular analysis, wherever necessary, has been supported by appropriate diagrams in order to provide a graphical representation.

In the following chapter the results have been analysed and interpreted in the light of the objectives and hypotheses formulated for verification by keeping in view the previous researches done on the particular variable and citing them wherever suitable. The chapter has been divided into two sections. Section-I deals with the nature and differential analysis where as Section-II deals with the correlation analysis of the data. To make the conclusions of the relationships more effective the findings of the first section have also been taken into consideration.