Chapter-4

Methodology
CHAPTER-4

METHODOLOGY

4.1 STATEMENT OF THE PROBLEM

The present study aims at investigating the “Interaction effect of a few selected variables viz. language proficiency, emotional intelligence and reasoning ability on teaching competency of Diploma in Education (D.Ed) students”.

4.2 ASSUMPTIONS OF THE STUDY

- Teaching Competency of D.Ed students is effected by their language Proficiency i.e. reading, writing, and speaking.
- Teaching Competency of D.Ed students is effected by their Reasoning Ability, i.e., verbal arithmetic and Scientific.
- Teaching Competency of D.Ed students is effected by their Emotional Intelligence i.e., self Awareness, Self Regulation, Motivation, Social Awareness, Social skill.
- Teaching Competency can be assessed by observing the teaching of D.Ed students during their practice teaching sessions.
- Language Proficiency, Reasoning Ability and Emotional Intelligence contribute to the Teaching Competency of D.Ed students.
- Teaching Competency of D.Ed students based on gender, locality and type of college differ from each other.
- There exists a relationship between Language Proficiency, Reasoning Ability and Emotional Intelligence and Teaching Competency of D.Ed students.
- Reliable estimates of the predictor factors may be obtained through suitable devices.
4.3 OBJECTIVES OF THE STUDY

1. To construct and validate language proficiency test for D.Ed students.
2. To construct and validate reasoning ability test for D.Ed students.
3. To investigate the effect of Language Proficiency on teaching competency of D.Ed students.
4. To investigate the effect of Emotional Intelligence on teaching competency of D.Ed students.
5. To investigate the effect of Reasoning Ability on teaching competency of D.Ed students.
6. To investigate the interaction effect of language proficiency and Emotional Intelligence on teaching competency of D.Ed students.
7. To investigate the interaction effect of language proficiency and Reasoning Ability on teaching competency of D.Ed students.
8. To investigate the interaction effect of Emotional Intelligence and Reasoning Ability on teaching competency of D.Ed students.
9. To investigate the interaction effect of language proficiency, Emotional Intelligence and reasoning ability on teaching competency of D.Ed students.
10. To investigate the relationship of Language Proficiency with teaching competency of D.Ed students.
11. To investigate the relationship of Emotional Intelligence with teaching competency of D.Ed students.
12. To investigate the relationship of Reasoning Ability with teaching competency of D.Ed students.
13. To compare the teaching competency of D.Ed students when they are classified according to gender.
14. To compare the teaching competency of D.Ed students when they are classified according to type of management.
15. To compare the teaching competency of D.Ed students when they are classified according to location.
16. To compare the Language Proficiency of D.Ed students when they are classified into gender.
17. To compare the Language Proficiency of D.Ed students when they are classified into type of management
18. To compare the Language Proficiency of D.Ed students when they are classified into location.
19. To compare the Emotional Intelligence of D.Ed Students when they are classified into gender.
20. To compare the Emotional Intelligence of D.Ed Students when they are classified into type of management
21. To compare the Emotional Intelligence of D.Ed Students when they are classified into location
22. To compare the Reasoning Ability of D.Ed students when they are classified into gender.
23. To compare the Reasoning Ability of D.Ed students when they are classified into type of management.
24. To compare the Reasoning Ability of D.Ed students when they are classified into location.
25. To determine the relative efficiency of the independent variables in predicting teaching competency of D.Ed students.
26. To investigate the relationship between reading proficiency and Teaching Competency of D.Ed students.
27. To investigate the relationship between writing proficiency and Teaching Competency of D.Ed students.
28. To investigate relationship between speaking proficiency and teaching competency of D.Ed students.
29. To investigate relationship between verbal reasoning and teaching competency of D.Ed students.
30. To investigate relationship between arithmetic Reasoning and teaching competency of D.Ed students.
31. To investigate relationship between scientific reasoning and teaching competency of D.Ed students
32. To investigate relationship between self awareness and teaching competency of D.Ed students
33. To investigate relationship between self regulation and teaching competency of D.Ed students
34. To investigate relationship between motivation and teaching competency of D.Ed students
35. To investigate relationship between social awareness and teaching competency of D.Ed students
36. To investigate relationship between social skill and teaching competency of D.Ed students

4.4 VARIABLES OF THE STUDY

A. The independent variables of the present study include

a) Language Proficiency. The three dimensions of language proficiencies are
   - Reading Skill (vocabulary and reading comprehension)
   - Writing skill
   - Speaking skill

b) Emotional Intelligence. The five dimensions of emotional intelligences are
   - Self Awareness
   - Self Regulation
   - Motivation
   - Social Awareness
   - Social Skills.

c) Reasoning Ability. The three dimensions of reasoning ability are
   - Verbal reasoning
   - Mathematical reasoning
   - Scientific reasoning
B. The dependent variables of the present study include

a) Teaching Competency. The five dimensions of teaching competency are

- Planning
- Presentation
- Closing
- Evaluation
- Managerial

4.5 RESEARCH HYPOTHESES

1. Effect of high, Moderate and Low language proficiency differ significantly in teaching competency of D.Ed students.

2. Effect of high, Moderate and low Emotional Intelligence differs significantly in teaching competency of D.Ed students.

3. Effect of high, Moderate and low reasoning ability differ significantly in teaching competency of D.Ed students.

4. Interaction effect of language proficiency and Emotional Intelligence differ significantly in teaching competency of D.Ed students.

5. Interaction effect of language proficiency and reasoning ability, differ significantly in teaching competency of D.Ed students.

6. Interaction effect of emotional intelligence and reasoning ability, differ significantly in teaching competency of D.Ed students.

7. Interaction effect of language proficiency and emotional intelligence and reasoning ability, differ significantly in teaching competency of D.Ed students.

8. There is a positive relationship between language proficiency and teaching competency of D.Ed students.

9. There is a positive and significant relationship between reading proficiency and teaching competency of D.Ed students.
10. There is a positive and significant relationship between writing proficiency and teaching competency of D.Ed students.
11. There is a positive and significant relationship between speaking proficiency and teaching competency of D.Ed students.
12. There is a positive relationship between emotional intelligence and teaching competency of D.Ed students.
13. There is a positive relationship between self awareness and teaching competency of D.Ed students.
14. There is a positive relationship between self regulation and teaching competency of D.Ed students.
15. There is a positive relationship between motivation and teaching competency of D.Ed students.
16. There is a positive relationship between social awareness and teaching competency of D.Ed students.
17. There is a positive relationship between social skills and teaching competency of D.Ed students.
18. There is a positive relationship between reasoning ability and teaching competency of D.Ed students.
19. There is a positive relationship between verbal reasoning ability and teaching competency of D.Ed students.
20. There is a positive relationship between arithmetic reasoning ability and teaching competency of D.Ed students.
21. There is a positive relationship between scientific reasoning ability and teaching competency of D.Ed students.
22. There is a positive relationship between language proficiency and emotional intelligence of D.Ed students.
23. There is a positive relationship between language proficiency and reasoning ability of D.Ed students.
24. There is a positive relationship between reasoning ability and emotional intelligence of D.Ed students.

25. There is a relative efficiency of Language proficiency, reasoning ability and emotional intelligence in predicting teaching competency of D.Ed students.

26. Male and Female D.Ed students differ in their language proficiency.
27. Male and Female D.Ed students differ in their emotional intelligence
28. Male and Female D.Ed students differ in their reasoning ability
29. Male and Female D.Ed students differ in their teaching competency
30. D.Ed students of government and private institutions differ in their language proficiency
31. D.Ed students of government and private institutions differ in their emotional intelligence
32. D.Ed students of government and private institutions differ in their reasoning ability
33. D.Ed students of government and private institutions differ in their teaching competency.
34. D.Ed students of different districts differ in their language proficiency.
35. D.Ed students of different districts differ in their emotional intelligence.
36. D.Ed students of different districts differ in their reasoning ability.
37. D.Ed students of different districts differ in their teaching competency.

4.6 SCOPE OF THE STUDY

- The scope of the study extends to study the effect of three independent variables i.e. language proficiency, emotional intelligence, reasoning ability on teaching competency.
- The D.Ed students included in the study were limited to only 12 colleges from four districts of Karnataka. They are Davangere, Shimoga, Chitradurga and Chikamagalore.
4.7 DEFINITIONS OF TECHNICAL TERMS

Language Proficiency

Language proficiency is a measure of the expressive and receptive language skills in the areas of phonology, syntax, vocabulary and semantics and including the areas of pragmatic, language usage within various domains or social circumstances of D.Ed students. Language proficiency is the ability to communicate effectively with the students in the classroom. It includes the use of language skills such as reading, writing and speaking in the teaching learning process. In the present study language proficiency is the score obtained on language proficiency test.

Emotional Intelligence

Emotional intelligence refers to the ability to monitor one's own and others feelings and emotions to discriminate among them and to use this information to guide one's thinking and actions. In the present study emotional intelligence of a student was considered as the scores obtained by the students on emotional intelligence scale. Emotional intelligence is the self awareness of one's emotions and regulates emotions to interact effectively and establish good rapport with primary school children in the classrooms.

Reasoning Ability

Reasoning ability is a measure of mental process which informs our imagination perceptions thoughts and feelings with whatever intelligibility these appear to contain and thus links our experience with universal meaning. Reasoning ability is the ability to reason effectively in the subjects prescribed in the primary school syllabus and deliver it to the students i.e. reasoning verbally, arithmetically and scientifically and impart knowledge. In the present study reasoning ability is a score on reasoning ability test.
Teaching competency

Teaching competency is teacher behavior that produces intended effects. Thus teaching competency would mean effective performance of all observable teacher behavior that brings about pupils outcomes. In the present study teaching competency is referred to as the scores obtained by the D.Ed students on teaching competency scale. Teaching competency means an affective performance of all the observable teacher behavior that brings about desired pupil outcome. Teaching competency is the ability to plan the classroom lesson systematically and present it effectively to the students. It also includes closing the lesson managing the classroom and conducting evaluation procedures.

D.Ed students

D.Ed students are those who obtain elementary teachers training at District institute of education and training (DIET) or in private institutions. In the present study students from Bangalore and Mysore division constituted the sample of D.Ed students.

4.8 METHOD OF RESEARCH

The descriptive method of research was employed which was intended to describe the relationship which exists between independent and dependent variable, i.e. the relationship exists between language proficiency, emotional intelligence and reasoning ability and teaching competency. Descriptive research describes recording, analyzing and interpreting conditions that exist. It involves some type of comparison or contrast and attempts to discover relationships between existing non manipulated variables Best and Kahn (1992).
For the present study casual comparative method and correlation method were used. The steps involved in the present research are

- Sensing the problem and defining it
- Determination of objectives
- Determination of tools for investigation
- Formulation of hypothesis
- Collection of data through texts and inventories
- Analysis and statistical treatment in the form of correlation, ANOVA and multiple regressions.
- Interpretation of results
- Conclusion

4.9 SAMPLE

There are mainly two methods of sampling. Probability sampling and non probability sampling which are again classified into sub methods
In the present investigation the researcher has adopted random sampling technique. Government of Karnataka has identified four divisions for the smooth administration and management viz. Bangalore, Mysore, Belgaum and Gulbarga. In this study DIET’s and D.Ed colleges belong to four districts i.e. Shimoga, Chitradurga, Davangere of Bangalore division and Chikamagalore of Mysore division were selected for the study. Out of 19 D.Ed colleges in Shimoga district two are Government, one aided and rest unaided D.Ed colleges. In Chitradurga District out of 21 D.Ed colleges two are Government, two aided and 17 unaided D.Ed colleges. Whereas, in Chikamagalore district total of nine colleges two are government and 7 unaided colleges. Davangere district consist of 25 D.Ed colleges of this one Government, 1 aided and rest all are unaided colleges. Out of 74 colleges from these districts total of 12 colleges were selected randomly for the study representing three colleges from each district i.e. one DIET(District Institute of Teachers Training) and 2 private D.Ed colleges. There are about 50 students studying in private colleges and 100 in DIET. A sample of 50 students from private colleges and 50 from DIET’s were selected randomly for the study. A total sample of 600 D.Ed. students were selected which is represented in Table-4.1
Map of Karnataka Depicting districts Selected for the sample
Table 4.1 A flow chart of samples selected in the present study

Four Divisions in Karnataka

- Belagum
- Bangalore
- Gulbarga
- Mysore

Shimoga District
- Total 19 Colleges
- Govt. 2
- Aided 1
- Unaided 16
- 3 Colleges for study
- 1 DIET
- 2 Private
- 50 Sts. In each College
- Total 150

Chitradurga District
- Total 21 Colleges
- Govt. 2 Aided 2
- Unaided 17
- 3 Colleges for study
- 1 DIET
- 2 Private
- 50 Sts. In each College
- Total 150

Davangere District
- Total 9 Colleges
- Govt. 2
- Unaided 7
- 3 Colleges for study
- 1 DIET
- 2 Private
- 50 Sts. In each College
- Total 150

Chikamagalore District
- Total 25 Colleges
- Govt. 1 Aided 1 Unaided 23
- 3 Colleges for study
- 1 DIET
- 2 Private
- 50 Sts. In each College
- Total 150

Samples: Total 600 D.Ed. Students.

4.10 TOOLS USED FOR COLLECTION OF DATA

In the present study the researcher used four tools for the collection of data which are provided in the table-4.2 below.
Table 4.2 Tools used for collection of data

<table>
<thead>
<tr>
<th>Sl.No.</th>
<th>Variables</th>
<th>Tools used</th>
<th>Devised by</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Language proficiency</td>
<td>Language proficiency test</td>
<td>Investigator</td>
</tr>
<tr>
<td>2.</td>
<td>Reasoning ability</td>
<td>Reasoning ability test</td>
<td>Investigator</td>
</tr>
<tr>
<td>3.</td>
<td>Emotional intelligence</td>
<td>Emotional intelligence inventory scale</td>
<td>Shailendra Singh</td>
</tr>
<tr>
<td>4.</td>
<td>Teaching competency</td>
<td>General teaching competency scale</td>
<td>Passi, &amp; Lalitha</td>
</tr>
</tbody>
</table>

4.10.1 Construction and validation of Language Proficiency Test

In order to fulfill the objective number one of the study i.e. to construct and validate language proficiency test of D.Ed students. The Language Proficiency test was constructed using the following steps.

- Determining the skills of language proficiency.
- Pooling of items in each skill.
- Initial draft.
- Editing of Items.
- Validation of Initial Draft.
- Validation of the Test.
  a. Item analysis.
  b. Content Validity.
  c. Concurrent Validity.
  d. Reliability.
- Final draft of the test.
- Time allotted.
- Scoring.
4.10.1.1 Determining the skills of Language Proficiency

A Language Proficiency test was constructed to assess the language proficiency of D.Ed. student trainees. English language was considered to assess the language proficiency of D.Ed. students. It is divided into various sub skills. English language basically consists of four components i.e., listening, reading, writing and speaking. Considering the fact that D.Ed student trainees having completed P.U.C. and they would have developed listening skills, the other three components i.e., reading, writing and speaking were considered in the construction of language proficiency test. The test was divided into three parts. Part one consists of reading skills and its sub skills, part two consists of writing skills and its sub skills and part three consists of speaking skills and its sub skills.

Reading consists of two sub skills, such as vocabulary and reading comprehension. To test the vocabulary, two sub skills such as word meaning morphology were included. To test the word meaning, antonyms and synonyms were used. To test morphology parts of speech, spelling, punctuations were included. To test the reading comprehension, main idea, classification and categorization, sequencing events, drawing conclusion, inferential comprehension, and interpretation were included.

Writing consists of five sub skills, such as composition, grammar, spelling, punctuation and handwriting. Speaking consists of five sub skills, such as fluency, pronunciation, voice, presentation and language usage.
4.10.1.2 Pooling of Items in Each Skill

Items on each of the sub skills of language were pooled from various resources like, text books, grammar books, journals, work books etc. Care was taken to include all the sub skills while choosing the items for the test. After consultation with the guide an initial draft of the test was prepared which included 120 items. The test included items which were of objective type.

4.10.1.3 Initial Draft of Language Proficiency

The Language proficiency test is a test that has ten parts, of which I-VI test vocabulary, VII test reading comprehension, part VIII and IX test writing skills and part X test speaking skills.

Part I: Part 1 of language proficiency test consists of items where the examinees were asked to identify the right meaning of the given word from the four options provided. This part consists of 12 items each carrying one mark.

Part II: Part two of language proficiency test consists of items where the examinees were asked to identify the right opposite of the given word from the four options provided. This part consists of 12 items each carrying one mark.

Part III: It has two divisions A and B.
A: Language proficiency test of part three A consists of items where the examinees are asked to identify the correct suitable missing word from the four options provided and fill in the blank. This part consists of 12 items each carrying one mark.
B: Language proficiency test of part three B consists of items where the examinees are asked to read the sentence, identify the correct part of speech of underlined words. This part consists of 12 items of one mark each.

Part IV: Part four of language proficiency test consists of items where the examinees were asked to read the words, identify the misspelt words and write the correct spellings. This part consists of 12 items of one mark each.

Part V: Part five of language proficiency test consists of items where the examinees are asked to read the sentences, identify the necessary punctuation mark, punctuate it and mention the punctuation mark. This part consists of 12 items of one mark each.

Part VI: Part six of language proficiency test consists of an item where the examinees were asked to read the words identify and takeout the odd word which does not fit into the category. This part consists of 16 items of one mark each.

Part VII: Part seven of Language proficiency test consists of items where the examinees are asked to read the five passages (each of about 150 words) and then answer the multiple choice items that accompany each passage. This part consists of 29 items of one mark each.

Part VIII: Part eight of language proficiency test consists of essay writing. The examinees were asked to write an essay on any one of the three topics in 300-400 words. They are expected to state their point of view and this part was allotted 15 marks.

Part IX: Part nine of language proficiency test consists of letter writing. The examinees are asked to write a letter on any one of the three topics. This part was allotted 15 marks.
Part X: Part ten of Language proficiency test consists of speaking skills where the examinees are asked to speak in English on any one of the five topics. This part was allotted 25 marks.

Table 4.3 Initial draft of language proficiency test

<table>
<thead>
<tr>
<th>SN</th>
<th>Components of English Language</th>
<th>Sub skill in each of the components</th>
<th>Number of Items</th>
<th>Scores Allotted</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Reading</td>
<td>a. Vocabulary: word meaning:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>i). Antonyms ii). Synonyms</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>b. Reading Comprehension:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>i). Main idea.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>ii). Classification and</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Categorization.</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>iii). Sequencing events.</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>iv). Drawing Conclusion.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>v). Inferential Comprehension.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>vi). Interpretation.</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>117</td>
<td>117</td>
</tr>
<tr>
<td>2</td>
<td>Writing</td>
<td>a. Composition.</td>
<td>2</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b. Grammar.</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>c. Spelling.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>d. Punctuation.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>e. Hand Writing.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Speaking</td>
<td>a. Fluency.</td>
<td>1</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b. Pronunciations.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>c. Voice.</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td>d. Présentation.</td>
<td></td>
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<tr>
<td></td>
<td>Total</td>
<td></td>
<td>120</td>
<td>172</td>
</tr>
</tbody>
</table>
**4.10.1.4 Editing of Items**

The initial draft of Language proficiency test was given to ten English subject teachers and five experts in the field of research. They were asked to go through all the items and check whether there were spelling errors, the arrangements of the sub skills, coverage of the sub skills, the instruction given and mention any suggestions for improvement. After the suggestions of the experts, items were modified to bring about qualitative changes in the test.

**4.10.1.5 Validation of Initial Draft**

To establish validity of the test, the test thus prepared was distributed to a sample of 50 experts, which includes English teacher, experts in the field of research, professors of English in the field of Education. The experts were instructed to go through all the 120 items carefully and to express their decision about whether to include, delete or modify the item and suggest measures for improvement. The 50 experts were distributed individual test booklets and the response sheets.

The teachers had to indicate to what extent the Language proficiency test included the English language skills and the clarity and appropriateness of the items to test the specific Language skills. Majority of the teachers rated all the 120 items as being appropriate and the skills included in the test covered the English language skills to a great extent. Hence all the 120 items in the English language proficiency test were included and thus validity was established. The response sheet of the validation of language proficiency test is provided in appendix A-1.
4.10.1.6 Validation of the English language proficiency test

In order to validate the tool of the study the students from four colleges of Bangalore and Davangere were chosen. Two colleges from each city such as one private college and DIET were selected. The 25 students from each college a total of 100 students were selected randomly for the validation of the tool. Prior permission was taken by the head of the institution and specific time; date was fixed for the test. The Language proficiency test was given to one college students each day. The students were intimated about the test and were asked to provide honest response.

A separate test booklet and response sheets were provided for each student. They were made to read the instructions carefully and were asked to write the time of test they began and the time at which they ended. They were also asked to write the percentage they had obtained in second pre university college annual English exam. The students were asked to answer in the response sheet. Care was taken to prevent copying under proper supervision. After the students finished responding the response sheets were collected. Each student was made to speak on one topic out of 5 topics given in speaking test and it was rated by the researcher. The test was subjected to validation as below.

a. Item analysis of Language proficiency test

The test was administrated to a group of 100 D.Ed. student trainees and the data obtained was used to calculate validity index and difficulty index was calculated by using the formula

\[ D = \frac{P_H + P_L}{2} \]

Items whose validity index was less than 0.25 were eliminated and above 0.25 were included. The very difficult items and very easy items were eliminated and only those items whose difficulty index ranged between 20-80 were retained. A total of 34 items were deleted according to difficulty index,
33 items were deleted according to validity index. Of these 67 items, eight were deleted according to both the index. Validity index and difficulty of the items is provided in the appendix A-2

b. Content Validity of Language Proficiency test

The content validity of language proficiency test was established by taking the opinion of five experts, and the procedure of establishing validity is as follows.

The final format of language proficiency test along with opinionnaire was given to five experienced teachers and were requested to go through the test intensively. Sufficient time was given for them to assess its validity. They were asked to give their remarks regarding whether the test covers the whole content kept as criteria, whether all the items are appropriate in measuring those criteria. After evaluating all these aspects they were asked to rate, to what extent the test covers the content, by ticking √ mark on the choice provided below.

a. To a very great extent.
b. To a great extent.
c. To the extent of 50%.
d. To some extent.

All the experts responded that the test covers the content to a great extent. Hence the language proficiency test was considered valid. The opinion of the experts is provided in the appendices A-3 to A-7

c. Concurrent Validity of Language Proficiency Test

The scores of the 100 D.Ed. student trainees obtained on English language in second pre-university board annual examination were collected. The co-efficient of correlation between scores on English language proficiency test and scores on English language in second year pre university
board examination was calculated using Person’s Product Moment Coefficient of Correlation.

The ‘r’ value was found to be 0.39. Hence the English language proficiency test was considered to be valid.

d. Reliability of Language Proficiency Test

Test & Retest method

The reliability of language proficiency test was found out using test and retest method. The Language Proficiency Test was administered to 100 D,Ed. student trainees. By giving proper instructions, test booklets and response sheets were distributed to the students. There was no time limit to respond to Language proficiency test. After the students responded to the language proficiency test, response sheets were collected and scored using scoring key.

After a gap of 15 days, same students were administered the English language proficiency test. The question booklet and response sheet were given and the time taken by them in attending the paper was entered. The response sheets were collected and they were scored using the scoring key. The co-efficient of correlation between scores on English language proficiency test and retest was calculated using Pearsons Product Moment Coefficient of Correlation. The ‘r’ value was found to be 0.98. Hence the English language proficiency test was considered to be reliable.
Table 4.4 Validity and Reliability coefficients of English Language Proficiency Test.

<table>
<thead>
<tr>
<th>Relationship Between</th>
<th>Index</th>
<th>Mean ± SD</th>
<th>Corr-Coeff r value</th>
<th>P- Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scores on English in PUC and Language Proficiency Test</td>
<td>Concurrent</td>
<td>64.7 ± 8.4</td>
<td>+ 0.39</td>
<td>&lt;.05, Sig</td>
</tr>
<tr>
<td></td>
<td>Validity</td>
<td>57.2 ± 15.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scores on Language Proficiency Test and retest</td>
<td>Stability</td>
<td>57.2 ± 15.2</td>
<td>+ 0.98</td>
<td>&lt;.001, HSig</td>
</tr>
<tr>
<td></td>
<td>Reliability</td>
<td>58.3 ± 14.5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4.10.1.7. Final Draft of the language proficiency test

The English language proficiency test was validated using the above procedures. The final draft of the test was drawn after the deletion of the items according to the difficulty level and validity index. The items retained in each part were as follows

**Part one:** It consisted of 12 items before validity out of which 4 items were deleted and 8 items were retained. One mark for each item and total of 8 marks were allotted to part I.

**Part Two:** It consisted of 12 items before validity out of which 6 items were deleted and 6 items were retained. One mark for each item, and a total of 6 marks were allotted to part II.

**Part Three:** This part has two divisions A and B

A. It consisted of 12 items before validity out of which 7 items were deleted and 5 items were retained. One mark for each item and a total 5 marks were allotted to part III -A
B. It consisted of 12 items before validity out of which 4 items were deleted and 8 items were retained. One mark for each item and a total of 8 marks were allotted to part III -B

**Part Four:** It consisted of 12 items before validity out of which one item is deleted and 11 items were retained. One marks for each item a total of 11 marks were allotted to Part IV.

**Part Five:** It consisted of 12 items before validity out of which 8 items were deleted and 4 items were retained. One mark for each item, and a total of 4 marks were allotted to Part V.

**Part Six:** It consisted of 16 items before validity out of which 12 items were deleted and 4 items were retained. One mark for each item and a total of 4 marks were allotted to Part VI.

**Part Seven:** It consisted of 5 passages with 29 questions before validity out of which one passage and 17 questions were deleted and 4 passages and 12 questions were retained. One marks for each item and a total of 12 marks were allotted to Part VII.

**Part Eight:** It consisted of one Essay to be written out of three choices. This item was retained. It was allotted 25 marks for one essay.

**Part Nine: Includes writing skill.**

It consists of three letter writing items, of which one letter to be written among the three. This item was deleted after validity. The difficulty index of letter writing item on writing proficiency test was found. Hence the letter writing item was consider to be difficult and was eliminated.
Part Ten: Includes Speaking Skill

It consists of 5 topics, out of which the student had to choose one topic and speak for five minutes. This item was retained as it is and it was allotted 25 marks.

In the final draft of the language proficiency test, out of ten parts nine parts were retained and out of 120 items 60 items were retained. A total of 172 marks which was allotted in the initial draft reduced to 108 marks in the final draft. The final draft of the language proficiency test is provided in the table below. The language proficiency test with its response sheet and scoring key is provided in the appendix A-8 to A-10.

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Components of English Language</th>
<th>Sub skills in each of the components</th>
<th>Number of items</th>
<th>Scores allotted</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Reading</td>
<td>a)Vocabulary: word meaning:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1)Antonyms</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2)Synonyms</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>b)Reading Comprehension:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1)Main idea</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2)Classification &amp; Categorization</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3)Sequencing events</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4)Drawing conclusion</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>5)Inferential Comprehension</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>6)Interpretation</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>46</td>
<td>46</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>2.</td>
<td>Writing</td>
<td>a)Composition</td>
<td></td>
<td>25</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b)Grammar</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>c)Spelling</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>d)Punctuation</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>e)Hand writing</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>25</td>
</tr>
<tr>
<td>3.</td>
<td>Speaking</td>
<td>a)Fluency</td>
<td></td>
<td>25</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b)Pronunciation</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>c)Voice</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>d)Presentation</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>e)Language usage</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>60</td>
<td>108</td>
</tr>
</tbody>
</table>
### 4.10.1.8 Time allotted

In initial draft of the language proficiency test the time limit to respond to the test was not fixed. The time taken by the 100 D.Ed students to respond the reading and writing skill and speaking skills were recorded separately. The average time taken by 100 students to respond to language proficiency test was found out. In the final draft of the language proficiency test, the time allotted was 2 hour for reading and writing, 5 minutes for speaking skill.

Table 4.6 Time allotted for the language proficiency test

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Components of Language Skills</th>
<th>Time allotted</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Reading</td>
<td>2 hrs</td>
</tr>
<tr>
<td>2.</td>
<td>Writing</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Speaking</td>
<td>5 minutes.</td>
</tr>
</tbody>
</table>

### 4.10.1.9 Scoring of Language proficiency test

The response sheets of 100 D.Ed students on language proficiency test were collected after administration. The scoring done for reading, writing and speaking skills were different. The procedures used for scoring was as follows:

Scoring of reading skill test was done using scoring key, one mark was given for each right response for each item. Total number of right responses of each D.Ed student constituted his score on language Proficiency test.

Scoring of writing skill test was done using the scoring key. It was a essay writing item assessing 5 sub skills for 5 marks each. Totally 25 marks were allotted to writing skills. The following characteristics were used while scoring:

- Whether the writer has dealt clearly and specifically with one of the topic provided in the test.
• Whether the essay written has a clear structure that is easy for the reader to follow i.e., the first paragraph begins with a brief introduction that leads into a clearly expressed topic statement. The topic is then developed in two or three well developed paragraphs, each of which contains at least four or more sentences. Finally the essay ends with a concluding paragraph that does something more than just repeat the idea or ideas in the topic statement.

• Whether the sentence structure of the essay is varied and correct.

• Whether the English usage is exact, not too simple, and is idiomatic.

• Whether the use of composition, grammar, spelling, punctuation and handwriting is precise.

Scoring of speaking skill test in the initial draft was done by the researcher as follows. It consisted of 5 sub skills each with 5 marks. A total 25 marks were allotted to the speaking skill. The following were the characteristics used during scoring.

• Whether the speaker has dealt clearly and specifically with one of the topics provided on the test.

• Whether the speaker has the fluency of Language or not.

• Whether the speaker pronounces the words correctly or not.

• Whether the speaker has the clear voice or not i.e. which should be audible for the whole class.

• Whether the speaker presents the topic in an organized manner.

• Whether the speaker’s usage of language is adequate

4.10.2 Construction and validation of reasoning ability test

In order to fulfill the objective number two i.e. to construct and validate a reasoning ability test for D.Ed students.
The Reasoning ability test was constructed using the following steps:

- Determining the components of reasoning ability.
- Pooling of items in each of the reasoning abilities.
- Initial draft
- Editing of items
- Validation of initial draft
- Validation of the test.
  - a) Item analysis
  - b) Content validity
  - c) Concurrent validity
  - d) Reliability
- Final draft of the test
- Time allotted
- Scoring

**4.10.2.1 Determining the components of reasoning ability**

A reasoning ability test was constructed to measure the reasoning ability of D.Ed student trainees. The components of reasoning ability test were determined by discussing with the experts. Considering the fact that the D.Ed students are trained to teach elementary school children for all the subject like science, maths and social science prescribed for them. It was thought relevant to include three components in the reasoning ability test. The three component included in the reasoning ability test are verbal reasoning, arithmetic reasoning and scientific reasoning.

The test was divided into three parts based on the three components considered in the construction of reasoning ability test. Part one consisted of verbal reasoning, part two consisted of arithmetic reasoning and part three consisted of scientific reasoning.
4.10.2.2 Pooling of items in each ability

Items were pooled using various sources like differential aptitude test, other aptitude tests, D.Ed content text books, SSLC text books prescribed by the state government, etc. Care was taken to include items on all the abilities while choosing the items for the test. After consultation with the guide an initial draft of the test was prepared which included 94 items.

4.10.2.3 Initial draft of reasoning ability

The reasoning ability test is a test that has three parts. Verbal reasoning consists of analogy type items in Part I. Arithmetic reasoning consists of Mathematical type items in Part II. Scientific reasoning consists of Physics, Chemistry and Biology items in Part III.

Part I: Verbal Reasoning:

Part I of the reasoning ability test consists of analogy type items where examinees were asked to respond to blanks using the clues provided and choosing the right response from the two set of choices. It involves matching or pairing of words based on certain characteristics, functions, relation and use. It requires the student to reason carefully before showing a verbal response by putting a tick mark on one of the right answer among four choices. This part consists of 26 items with each carrying one mark.

Part II: Arithmetic Reasoning

Part II of reasoning ability test consists of arithmetic reasoning which includes items in the statement form. The student had to read the statement problems accurately and solve the problems and tick one of the right answers in the four choices provided. This part consists of 27 items with each carrying one mark.
Part III: Scientific Reasoning

Part III of the reasoning ability test consists of scientific reasoning which includes items from three areas of science i.e., Physics, Chemistry and Biology. Items were such that the student had to read the stimulus or question, reason scientifically and respond to the questions by putting a tick on one of the right answer among the four choices provided. This part consists of 41 items with each carrying one mark. The initial draft of reasoning ability test is provided in the table below.

Table 4.7 Initial draft of Reasoning Ability Test and its components

<table>
<thead>
<tr>
<th>SL No</th>
<th>Components of reasoning ability test</th>
<th>Number of Items</th>
<th>Scores allotted</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Verbal Reasoning</td>
<td>26</td>
<td>26</td>
</tr>
<tr>
<td>2.</td>
<td>Arithmetic Reasoning</td>
<td>27</td>
<td>27</td>
</tr>
<tr>
<td>3.</td>
<td>Scientific Reasoning</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Physics</td>
<td></td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>b) Chemistry</td>
<td></td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>c) Biology</td>
<td></td>
<td>10</td>
<td>10</td>
</tr>
</tbody>
</table>

4.10.2.4 Editing of Items

The initial draft of reasoning ability test booklet was given to 5 science subject teachers, 5 maths subject teachers, and 5 experts in the field of research. They were asked to go through all the items and check whether there are spelling errors, content errors, response errors, item errors, if any, the arrangement of the items, the coverage of all reasoning ability components, the instructions given and any other. They were asked to provide any suggestions for modification. After the suggestions of the experts items were modified to bring out qualitative changes in the test.
4.10.2.5 Validation of Initial draft

To establish validity of reasoning ability test, the test thus prepared was distributed to a sample of 25 experts, which includes Maths teacher, science teacher, experts in the field of research in Maths and science department and guides in the field of education. The experts were instructed to go through all the 94 items carefully and to express their decision about whether to include, delete or modify the items and suggest measures for improvements. The 25 experts were distributed, individual test booklets and the response sheets.

The teachers were asked to indicate to what extent the reasoning ability test included the reasoning ability components and the clarity, appropriateness of the items to test the specific reasoning components. Majority of the teachers rated all the 94 items as being appropriate and the components included in the test covered the reasoning ability components to a great extent. Hence all the 94 items in the reasoning ability test were retained and thus validity was established. The response sheet for the validation of reasoning ability test is provided in appendix B-1.

4.10.2.6 Validation of the Reasoning Ability Test

In order to validate the reasoning ability test the students from four colleges of Bangalore and Davangere were chosen. Two colleges from each city such as, one private college and DIET were selected. 25 students from each college were selected randomly. Prior permission was sought by the Head of the Institution and specific time; date was fixed for administration of the test. The reasoning ability test was administered to students of one college each day. The students were intimated about the test and were asked to provide honest response. A separate test booklet and response sheets were provided for each individual. They were made to read the instruction first.
The specific time was not allotted for the test. They were asked to record the time they began the test the time at which they ended. They were also asked to write the percentage they had obtained in II\textsuperscript{nd} year P.U.C. board annual exam.

The students were asked to answer in terms of what they know in the response sheet. Care was taken to prevent copying under proper supervision. After the students completed responding the response sheets were collected. The test was subjected to validation as below.

\textit{a. Item analysis of Reasoning Ability test}

The test was administered to a group of 100 D.Ed students trainees and the data obtained was used to calculate validity index and difficulty index using the formulae

\[
D = \frac{P_H + P_L}{2}
\]

Items whose validity index was less than 0.25 were eliminated and above 0.25 were included. The very difficult items and very easy items were eliminated and only those items whose difficulty index ranged between 20-80 were retained. Thirteen items were deleted according to difficulty Index. 31 items were deleted according to validity Index. In these 44 items, 6 were deleted according to both. Validity index and difficulty index table of reasoning ability test is provided in the appendix B-2.

\textit{b. Content Validity of Reasoning Ability test}

The content validity of reasoning ability test was established by taking the opinion of five experts. The procedure for establishing validity is as follows. The final format of reasoning ability test booklet along with opinionnaire was given to five expert teachers and were requested to go
through the test intensively. Sufficient time was given for them to assess its validity. They were asked to give their remarks regarding whether the test covers the whole content kept as criteria, whether all the items are appropriate in measuring those criteria. After evaluating all these aspects they were asked to rate, to what extent the test covers the content by ticking a √ mark on the choice provided below.

a) To a very great extent
b) To a great extent
c) To the extent of 50%
d) To some extent

All the experts responded that the test covers the content to a great extent. Hence the reasoning ability test was considered valid. The opinion of the experts is provided in the appendix B-3 to B-7.

c. Concurrent Validity of Reasoning Ability test

One hundred D.Ed student trainees’ scores of second pre university course annual exam were collected. The co-efficient of correlation between scores on pre university course annual exam and scores on reasoning ability test was calculated using Pearsons produce moment coefficient of correlation.

The ‘r’ value was found to be 0.03. Hence, reasoning ability test was considered to be valid

d. Reliability of Reasoning Ability test

Test and Retest method

The reliability of reasoning ability test was found out using test and retest method. The reasoning ability test was administered to 100 D.Ed student trainees. By giving proper instructions, test booklets and response sheets were distributed to the students. There was no time limit to respond to
reasoning ability test. After the students responded to the reasoning ability test response sheets were collected and scored using scoring key.

After a gap of 15 days, same students were administered the reasoning ability test. The question booklet and response sheets were given and the time taken by them in attending the paper was entered. The response sheets were collected and they were scored using the scoring key. The coefficient of correlation between Scores on Reasoning Ability Test and retest was calculated using Pearsons Product Moment Coefficient of Correlation. The ‘r’ value was found to be 0.93. Hence the reasoning ability test was considered to be reliable.

Table 4.8 Validity and Reliability Coefficient of Reasoning Ability test

<table>
<thead>
<tr>
<th>Relationship Between</th>
<th>Index</th>
<th>r-value</th>
<th>P – value</th>
</tr>
</thead>
<tbody>
<tr>
<td>P.U.C and Reasoning test</td>
<td>Concurrent</td>
<td>0.03</td>
<td>NS(P&gt;0.05)</td>
</tr>
<tr>
<td>Reasoning test and Retest</td>
<td>Validity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reasoning test and Retest</td>
<td>Stability</td>
<td>0.93</td>
<td>S(P&lt;0.05)</td>
</tr>
<tr>
<td>Reasoning test and Retest</td>
<td>Reliability</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4.10.2.7 Final draft of Reasoning Ability Test

The Reasoning ability test was validation using the above procedures. The final draft of the test was drawn after the deletion of the items according to the difficulty level and validity index. The items retained in each part were as follows.

Part One: Verbal Reasoning

Verbal reasoning consists of 26 items before validity, out of which 6 items were deleted and 20 items were retained. One mark to each item and a total of 20 marks were allotted to Part I.
Part Two: Arithmetic Reasoning

Arithmetic reasoning consists of 27 items before validity, out of which 12 items were deleted and 15 items were retained. One mark to each item and a total of 15 marks were allotted to Part II.

Part Three: Scientific Reasoning

Scientific reasoning consisted of 41 items before validity, out of which 26 items were deleted and 15 items were retained. One mark to each item and a total of 15 marks were allotted to Part III.

In the final draft of reasoning ability test, all the three parts put together consisted of 94 items out of which 50 items were retained and one mark was allotted to each item. A total of 50 marks were allotted in the final draft of reasoning ability test.

The reasoning ability test, its response sheet and the scoring key are provided in the appendix B-8 to B-11. The final draft of the reasoning ability test is provided in the table below.

Table 9 Final draft of Reasoning Ability Test and its components

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Components of Reasoning Ability</th>
<th>Number of Items</th>
<th>Scores allotted</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Verbal Reasoning</td>
<td>26</td>
<td>26</td>
</tr>
<tr>
<td>2</td>
<td>Arithmetic Reasoning</td>
<td>27</td>
<td>27</td>
</tr>
<tr>
<td>3</td>
<td>Scientific Reasoning</td>
<td>41</td>
<td>41</td>
</tr>
<tr>
<td></td>
<td>a) Physics</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>b) Chemistry</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>c) Biology</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>94</td>
<td>94</td>
</tr>
</tbody>
</table>
4.10.2.8. **Time allotted**

In the initial draft of the reasoning ability test the time limit to respond the test was not fixed. The time taken by the 100 D.Ed students to respond the reasoning ability was recorded. The average time taken by 100 students to respond to reasoning ability test was found out. In the final draft of the reasoning ability test the time allotted was 2 ½ hours.

Table 10 Time allotted for the Reasoning Ability test

<table>
<thead>
<tr>
<th>Sl.No.</th>
<th>Components of Reasoning Ability</th>
<th>Time allotted</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Verbal Reasoning</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Arithmetic Reasoning</td>
<td>2 ½ hours</td>
</tr>
<tr>
<td>3</td>
<td>Scientific Reasoning</td>
<td></td>
</tr>
</tbody>
</table>

4.10.2.9 **Scoring of reasoning ability test**

The response sheets were of 100 D.Ed students on reasoning ability test collected after administration. The scoring was done for verbal, arithmetic and scientific reasoning was made using scoring key.

Scoring of verbal reasoning test was done using scoring key, one mark was given for each right response for each item. Total number of right responses of each D.Ed students constituted his scores on language proficiency test.

Scoring of arithmetic test was done using the scoring key, one mark was given for each right response for each item. Total number of right responses of each D.Ed student constituted his score on reasoning ability test.

Scoring of the scientific reasoning test was done using scoring key, one mark was given for each right response for each item. Total number of right responses of each D.Ed student constituted his score on reasoning ability test.
Table 4.11 Scores allotted for the components of reasoning ability test

<table>
<thead>
<tr>
<th>Sl.No.</th>
<th>Components of Reasoning Ability</th>
<th>Scores Allotted</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Verbal Reasoning</td>
<td>20</td>
</tr>
<tr>
<td>2</td>
<td>Arithmetic Reasoning</td>
<td>15</td>
</tr>
<tr>
<td>3</td>
<td>Scientific Reasoning</td>
<td>15</td>
</tr>
</tbody>
</table>

### 4.10.3 Emotional Intelligence Scale

In the present study emotional intelligence inventory developed by Singh (2004) was used. This inventory was developed based on Goleman (1998) Model of emotional intelligence the emotional intelligence scale attempted to measure five core dimensions of emotional intelligence namely, self-awareness, self-regulation, motivation, social awareness and social skills. There were 60 items in all the five dimensions of emotional intelligence. This scale includes only positive items. All these positive statements were measured on a five point rating scale. Namely strongly agree (SA), agree (A), undecided (U), disagree (DA) and strongly disagree (SDA). The scale weightage assigned for each item was 5, 4, 3, 2, 1 for responses which indicates strongly agree (SA), agree (A) undecided (U), disagree (DA) and strongly disagree (SDA) respectively. Each dimension consists of 12 items and totally 5 dimensions consists of 60 items.

#### 4.10.3.1 Reliability

Cronbach Alpha has been taken as a measure of reliability. It was decided that a scale with an Alpha reliability of 0.70 or more would be considered adequate reliability. This is conventionally accepted as a thumb rule for reliability.
Table 4.12 Mean, SD and standardized alpha, reliabilities of emotional intelligence dimensions

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Dimensions of Emotional Intelligence</th>
<th>Range</th>
<th>Mean</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Self Awareness</td>
<td>12.60</td>
<td>44.80</td>
<td>4.93</td>
<td>(0.71)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Self Regulation</td>
<td>12.60</td>
<td>44.58</td>
<td>6.03</td>
<td>0.56</td>
<td>(0.83)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Motivation</td>
<td>12.60</td>
<td>46.53</td>
<td>5.47</td>
<td>0.61</td>
<td>0.64</td>
<td>(0.80)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Social Awareness</td>
<td>12.60</td>
<td>43.80</td>
<td>6.08</td>
<td>0.51</td>
<td>0.63</td>
<td>0.65</td>
<td>(0.83)</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Social Skills</td>
<td>12.60</td>
<td>43.48</td>
<td>6.65</td>
<td>0.52</td>
<td>0.59</td>
<td>0.62</td>
<td>0.68</td>
<td>(0.87)</td>
</tr>
</tbody>
</table>

4.10.3.2 Validity

To ascertain face validity and content validity it was decided that at least three psychologists agreed that item on face value belonged to the dimension that is aimed to measure. Concurrent validity was also addressed by having Scores of respondents on certain criterion variables. Three measures were used to examine concurrent validity are as follows

a. Emotional Expression

The scale consisted to five items regarding person’s sense of adequacy in expressing emotions. Response categories were on 5 point scale the scale statistics are as follows M=17.40, SD=3.09 and Alpha reliability=0.58.

b. Organizational Commitment

This scale consists of six items related to organizational pride, loyalty, attachment and emotional investment in organization. The scale statistics are as follows: M=22.84, SD=3.71 and Alpha reliability=0.82.
c. Quality of life

This measure consists of 10 items and is a composite of current assessment achievement, contribution and satisfaction at work, personal life and relationships. Here again response categories were on five point scale. The scale statistics are: $M=36.39$, $SD=6.37$ and alpha reliability=$0.86$.

Table 4.13 Coefficients of correlation between emotional intelligence and certain criterion variables

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Dimensions of Emotional Intelligence</th>
<th>Emotional Expression $R$ (N=263)</th>
<th>Commitment $r$ (N=263)</th>
<th>$20Lr$ (N=240)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Self Awareness</td>
<td>0.55</td>
<td>0.39</td>
<td>0.18</td>
</tr>
<tr>
<td>2</td>
<td>Self Regulation</td>
<td>0.43</td>
<td>0.48</td>
<td>0.36</td>
</tr>
<tr>
<td>3</td>
<td>Motivation</td>
<td>0.43</td>
<td>0.80</td>
<td>0.20</td>
</tr>
<tr>
<td>4</td>
<td>Social Awareness</td>
<td>0.35</td>
<td>0.51</td>
<td>0.23</td>
</tr>
<tr>
<td>5</td>
<td>Social Skill</td>
<td>0.41</td>
<td>0.42</td>
<td>0.26</td>
</tr>
</tbody>
</table>

The emotional intelligence scale is provided in the appendix C1

4.10.4 General Teaching Competency Scale

In the present study, teaching competency scale developed by Passi and Lalitha (1994) was used. There were about 21 items related to 21 teaching skills which encompasses the entire teaching learning process in the classroom teaching namely, planning, presentation, closing, evaluation and managerial. The items are such that they are centered on teacher classroom behavior in relation to pupil behavior. It is a 7 point rating scale measuring the use of the skill by the teacher in the classroom corresponding to each item ranging from ‘1’ for ‘not at all’ to ‘7’ for ‘very much.'
Table 4.14 Distribution of the various items related to the different classification of teaching skills

<table>
<thead>
<tr>
<th>Classification of Teaching Skills</th>
<th>Number of Items</th>
<th>Serial Number of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning</td>
<td>4</td>
<td>1-4</td>
</tr>
<tr>
<td>Presentation</td>
<td>11</td>
<td>5-15</td>
</tr>
<tr>
<td>Closing</td>
<td>2</td>
<td>16-17</td>
</tr>
<tr>
<td>Evaluation</td>
<td>2</td>
<td>18-19</td>
</tr>
<tr>
<td>Managerial</td>
<td>2</td>
<td>20-21</td>
</tr>
<tr>
<td>Total</td>
<td>21</td>
<td></td>
</tr>
</tbody>
</table>

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

4.10.4.1 Reliability of the Scale

Since this is an observation tool the more appropriate type of reliability is the inter - observer reliability. This scale has been used for doctoral research (Joshi, 1977 and Passi 1977) and reported inter observer reliability coefficients range from 0.85 – 0.91. Inter observer reliability can be better established when the observers train themselves for using the GTC scale. The GTC and its scoring keys provided in the appendix D1

4.11 COLLECTION OF DATA

In order to fulfill the objectives of the study the tools selected for the present study were administered to the 600 D.Ed students selected as sample for the study.
4.11.1 Administration of Language Proficiency Test

The language proficiency test was administered to 600 D.Ed students. Prior permission was sought by the head of the institution and specific time; date was fixed for the administration of the test. The students were intimated about the test and were asked to provide honest response. The language proficiency test was administered to 600 D.Ed students selected for the study by visiting one college each day. They were given proper instructions before administration of the test. The language proficiency test consists of 60 items in three dimensions of Language Proficiency. The students were informed to select the correct alternative using four alternatives provided.

A separate question booklet and response sheets were provided to each D.Ed students and they were asked to put tick (✓) mark against each item for the correct answers.

a. Administration of Reading Skill test

Question booklets of reading skill were given to the D.Ed students with response sheets. They were asked to identify the correct answer and write. Care was taken to prevent copying under proper supervision. After the completion of the test, within the stipulated time the response sheets were collected and they were scored using the scoring key.

b. Administration of Writing Skill test

After the completion of reading skill test. The students were given the writing skill question booklet with their response sheets. In this skill “essay writing” was given. Students were asked to write an essay on the topic out of four topics of their choice in 300-400 words. Care was taken to prevent
copying under proper supervision. The total time given was 2 hours to
complete the reading and writing skill. After the completion of the test the
response sheets were collected and they were scored using scoring key.

c. Administration of Speaking Skill test

After the completion of writing skill test the students were given the
speaking skill question which contained five topic to which students were
asked to speak about one topic of his choice for five minutes. The rating was
given on the spot by the researcher.

4.11.1.1 Scoring of language proficiency test

The procedure for scoring the language proficiency test response sheets
were as follows. The language proficiency test consisted of total 60 items, 58
items were of 1 mark each and 59 and 60th items were of 25 marks each.

The reading skills test consist of 58 items of one mark each. The
scoring was done using the scoring key. In each item indication of correct
response were given ‘one’ score and wrong was given ‘0’. The maximum
score recorded was ‘58’ and minimum ‘0’.

In writing skill test consisted of one essay writing item for 25 marks.
The scoring was done by considering the following points. Introduction 5
marks, Main idea 10 marks, Conclusion 5 marks, and hand writing 5 marks.
The maximum score a student could obtain was ‘25’ marks and minimum
they could obtain was 1 to 2.

Speaking skill test consisted of 1 item i.e. speaking about one topic. It
was allotted 25 marks. The rating was done by the researcher on the spot by
seeing their level of fluency, presentation, voice, pronunciation and usage of
language. Each consists of maximum ‘5’ marks and minimum ‘one’ mark. The total marks a student can obtain in speaking skill are ‘25’ and minimum ‘5’.

The student total score on language proficiency test is obtained by adding the scores obtained on reading, writing and speaking skills. Similarly, the total score of all the 600 students were obtained and tabulated which was subjected to further analysis.

4.11.2. Administration of Reasoning Ability test

The reasoning ability test was administered to 600 D.Ed students. Prior permission was sought by the head of the institution and specific time; date was fixed for the administration of the test. The students were intimated about the test and were asked to provide honest response. The reasoning ability test was administered to 600 D.Ed students selected for the study by visiting one college a day. They were given proper instructions before administration of the test. The Reasoning ability test consists of 50 items in three dimensions of reasoning ability. The students were informed to select the correct alternative among the four alternatives provided.

A separate question booklets and response sheets were provided to each D.Ed students and they were asked to put tick (✓) mark against each item for the correct answers.

a. Administration of Verbal Reasoning test

Question booklets of verbal reasoning were given to the D.Ed students with their response sheets. It consisted of 20 items of analogy type. Students were asked to respond to blanks using the clues provided and choosing the right response from the two sets of choices. Care was taken to prevent
copying under proper supervision. After the completion of the test the response sheets were collected and they were scored using scoring key.

b. Administration of Arithmetic Reasoning test

After the completion of verbal reasoning test the students were given the Arithmetic reasoning ability question booklet with response sheets. It consisted of items in statement form and the students were asked to solve the problem and write the correct response. Care was taken to prevent copying under proper supervision. After the completion of the test the response sheets were collected and they were scored using scoring key.

c. Administration of scientific reasoning test

After the completion of Arithmetic reasoning test students were given the scientific reasoning ability question booklet with their response sheets. It consists of items of Physics, Chemistry and Biology. Students were asked to think and reason and write the correct response. Care was taken to prevent copying under proper supervision. After the completion of the test. The response sheets were collected and they were scored using scoring key.

4.11.2.2 Scoring

The procedure for scoring the reasoning ability test, response sheets were as follows. Reasoning ability test consisted of total 50 items with one mark each. The total time allotted for reasoning ability test was 2 ½ hours.

Verbal reasoning test consisted of 20 items with one mark each. The scoring was done using the scoring key. In each item, indication of correct response were given ‘one’ score and wrong was given ‘0’. The maximum score a student could obtain was ‘20’ and minimum ‘0’.
Arithmetic reasoning test consisted of 15 items with one mark each. The scoring was done using the scoring key. In each item, indication of correct response were given ‘one’ score and wrong was given ‘0’. The maximum score a student could obtain was ‘15’ and minimum ‘0’.

Scientific reasoning test consists of 15 items with one mark each. The scoring was done using the scoring key. In each item, indication of correct response was given ‘one’ score and wrong was given ‘0’. The maximum score a student could obtain was ‘15’ and minimum ‘0’.

A student’s total score on reasoning ability test was obtained by adding the scores obtained on verbal, arithmetic and scientific reasoning ability. Similarly, the total score of all the 600 students were obtained and tabulated and was subjected to further analysis.

4.11.3 Administration of Emotional Intelligence Test

The emotional intelligence scale was administered to 600 D.Ed students. Prior permission was sought by the Head of the Institution and specific time; date was fixed for the administration of the test. The students were intimated about the test and were asked to provide honest response. The emotional intelligence scale was administered to 600 D.Ed students selected for the study by visiting one colleges each day. They were given proper instructions before administration of the test. The emotional intelligence scale consists of 60 statements in five different dimensions of emotional intelligence. The students were informed to select the correct alternative by using the five point scale provided against each statement. A separate question booklet and response booklets were provided for each D.Ed students. And they were asked to answer in terms of what they actually like or feel.
Care was taken to prevent copying under proper supervision. The time allotted for emotional intelligence test was 1 ½ hours. The response sheets of the students were collected and they were scored using the scoring key.

4.11.3.1 Scoring of Emotional Intelligence test

The response sheets of the 600 D.Ed students were scored using the scoring key. The response indicated as strongly agree (SA) was given a score of 5, Agree (A) was given a score of 4, undecided (U) was given a score of 3, Disagree (DA) was given a score of 2 and strongly disagree (SDA) was given a score of 1. The scores on individual dimensions of emotional intelligence scale of a student were obtained. Finally, the scores of all the 5 dimensions were summoned up and the scores on all 60 items of total 600 D.Ed students was obtained. The maximum score a student could obtain was 300 and minimum 60. The scores of all 600 D.Ed students on emotional intelligence was obtained and tabulated.

4.11.4 Administration of Teaching Competency scale

The teaching competency of D.Ed students was measured by administering the general teaching competency scale to the sample of 600 D.Ed students. The students were asked to give lesson during their practice teaching session. The investigator observes the lesson given by the D.Ed students during their practice teaching. The investigator directly observed the students classroom behavior in relation to pupil behavior for the entire teaching period. The time taken for observation was forty minutes.

As the D.Ed student teachers, the observer sat at the back for observation and recorded her observations on the general teaching competency scale against all the items on the five dimensions i.e. planning, presentation, closing, evaluation and managerial. To facilitate this process
investigator marked frequencies on some items and wrote verbal descriptions against each item on the seven point scale which would help her in giving ratings more objectively. Thus, the response sheet of the teacher writing of 600 D.Ed students was collected and scored using the scoring key.

4.11.4.1 Scoring of teaching competency scale

The procedure used for scoring on the general teaching competency scale was very simple. It is a seven point scale which consists of five dimensions. Each dimension has different number of items. Those items were rated by the teacher on the spot of observation of all lessons given by D.Ed students. The scores of all the items in single dimensions were summoned up. To get the grand total of general teaching competency scale, the scores on all the five dimensions were added.

The scores on all the 21 items of each D.Ed students was summed up and the total score on general teaching competency scale was obtained. The maximum score the students can obtain was 147 (21x7) and the minimum is 21 (21x1). The scores of all the 600 students on general teaching competency scale was obtained and tabulated.

4.11.5 Statistical techniques used for the analysis of the data

The present study was undertaken with the main purpose of investigating the relationship between the predictor variables and criterion variables. Also the present study aimed to test effect and interaction effect of multiple variables on teaching competency of D.Ed students. Further it also aims at determining the relative efficiency of the predictor variables in predicting the teaching competency of D.Ed students. With these purposes in view the suitable statistical techniques were selected.
a) Pearsons product moment coefficient of correlation was used to find out the relationship between independent variable and dependent variable.

\[ Y_{xy} = \frac{\sum xy - (\sum x)(\sum y)}{\sqrt{[\sum (x^2) - (\sum x)^2][\sum (y^2) - (\sum y)^2]}} \]

b) 't' test was used to find out the significant difference in means between the groups with respect to gender, type of college, locality.

\[ t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{S_1^2}{N_1} + \frac{S_2^2}{N_2}}} \]

c) Multiple regression was used to measure the relationship between independent and dependent variable and to predict dependent variable for any given independent variable by both linear and multiple groups.

\[ R_{1,23} = \frac{r_{12}^2 + r_{13}^2 - 2r_{12}r_{13}r_{23}}{1 - r_{23}^2} \]

d) ANOVA

i. One way ANOVA was used to compare the significant difference between multiple groups. Under one way ANOVA we consider only one factor and then observe that the reason for said factor to be important is that several possible types of samples can occur within that factors. We then determine if there are differences without that factors. F ratio was worked out as under

\[ F = \frac{Ms\text{ between the groups}}{Ms\text{ within groups}} \]
ii. Two way ANOVA was used to assess the interaction effect of more than one independent variables acting simultaneously on dependent variable

\[ X = \bar{X}_t + d_a + d_b + d_{ab} + e_r \]

iii. Three way ANOVA was used to assess the interaction effect of three independent variables acting simultaneously on dependent variable

\[ A \times B \times C = \sum C (A \times B) - A \times B \]