CHAPTER 5
RESEARCH METHODOLOGY

This chapter describes the methodology of the current research work. It commences with Problem Definition, followed by Objectives of the Research, Hypotheses, Scope of the Study, Research Framework, Research Design, Population, Sampling Frame, Sampling Method, Sources of Data, Research Tools, Data Collection Methods and Analytical Methods.

5.1. Problem Definition

The problem definition for this research work is- To measure certain competencies of emotional intelligence and examine their relationship with anxiety and academic achievement among students and occupational stress and teacher effectiveness among faculty members of private medical and engineering colleges in Uttar Pradesh, India, so as to assess the need of an EI Training Programme for the students and faculty members.

Medical and engineering education was selected for this study because of the fact that stress, anxiety and depression cases among these students are much higher than the students of other professional courses (Schneider, 2007; Singh, Lal & Shekhar, 2010; Ray & Joseph, 2010) and also these two courses are much more in demand as compared to other courses. The sample was restricted to the students and faculty members of only private medical and engineering colleges as the functioning and selection process of students and the staff in private colleges is different from those of government colleges. Also, the expectations of management, parents and students from the faculty members in private colleges are much higher than that of government colleges. There were some sensitive issues in the study like rating of teacher effectiveness by the students; hence it was necessary for the researcher to personally interact with the students for the collection of data. Approachability of the researcher to other states was physically and economically strenuous, therefore the data collection was limited to the colleges of Uttar Pradesh only. Moreover, with cities like Noida, Gaziabad, Meerut, Kanpur, and Lucknow having many private professional colleges, Uttar Pradesh becomes a major representative state of professional education in North India. Population-wise also it is the largest state in India.
5.2. Objectives of the Research Work

5.2.1 Primary Objectives

1. To assess the level of anxiety among medical and engineering students.

2. To examine the relationship between Anxiety, Optimism, Achievement Motivation and Academic Performance among medical and engineering students.

3. To assess Achievement Motivation Factors and their relationship with academic achievement among the students.

4. To assess Occupational Stress (OS) and its factors among medical and engineering faculty members.

5. To assess EI and its competencies among medical and engineering faculty members.

6. To explore the relationship between EI, OS and Teacher Effectiveness (both self-reported and students’ rated) among medical and engineering faculty members.

7. To explore specific EI competencies predicting Occupational Stress.

8. To explore specific EI competencies predicting Teacher Effectiveness.

9. To suggest a customized EI Training Programme for faculty members and students based on the findings of the study.

5.2.2 Secondary Objectives

1. To notice if there is any correlation or difference between self reported and students’ rated teacher effectiveness.

2. To examine if there is any difference in EI, occupational stress and teacher effectiveness between medical and engineering faculty members.

3. To determine if there is any gender difference in EI, occupational stress and teacher effectiveness among medical and engineering faculty members.

4. To find if there is any gender difference in anxiety, optimism, achievement motivation and academic performance among medical and engineering students.

5. To observe if there is any difference in anxiety, optimism, achievement motivation and academic performance between medical and engineering students.
5.3 Hypotheses

1. Ho 1: Anxiety among medical and engineering students is not high.
   Ha 1: Anxiety among medical and engineering students is high.

2. Ho 2: Anxiety among medical and engineering students has no relationship with
   their academic achievement.
   Ha 2: Anxiety among medical and engineering students has significant negative
   relationship with their academic achievement.

3. Ho 3: Optimism and achievement motivation among medical and engineering
   students will not have any significant relationship with their anxiety.
   Ha 3: Optimism and achievement motivation among medical and engineering
   students will have significant negative relationship with their anxiety.

4. Ho 4: There is no relationship between optimism, achievement motivation and
   academic achievement among medical and engineering students.
   Ha 4: There will be significant positive relationship between optimism, achievement
   motivation and academic achievement among medical and engineering students.

5. Ho 5: Occupational Stress among medical and engineering faculty members is not
   high.
   Ha 5: Occupational Stress among medical and engineering faculty members is high.

6. Ho 6: There is no relationship between occupational stress and teacher effectiveness
   among medical and engineering faculty members.
   Ha 6: There will be a significant negative relationship between occupational stress
   and teacher effectiveness among medical and engineering faculty members.

7. Ho 7: Emotional intelligence among faculty members of medical and engineering
   colleges has no relationship with their occupational stress.
   Ha 7: Emotional intelligence among faculty members of medical and engineering
   colleges will have significant negative relationship with their occupational stress.

8. Ho 8: There is no relationship between emotional intelligence and teacher
   effectiveness among medical and engineering faculty members.
   Ha 8: There will be significant positive relationship between emotional intelligence
   and teacher effectiveness among medical and engineering faculty members.
9. Ho 9: There will be no difference in self-reported and students-rated teacher effectiveness among the faculty members of medical and engineering colleges.

Ha 9: There will be a significant difference in self-reported and students-rated teacher effectiveness among faculty members of medical and engineering colleges.

10. Ho 10: Faculty members of medical and engineering colleges do not differ in emotional intelligence, occupational stress and teacher effectiveness.

Ha 10: Faculty members of medical and engineering colleges will differ significantly in emotional intelligence, occupational stress and teacher effectiveness.

11. Ho 11: There will be no gender difference in EI, occupational stress and teacher effectiveness among faculty members of medical and engineering colleges.

Ha 11: There will be a significant gender difference in EI, occupational stress & teacher effectiveness among faculty members of medical and engineering colleges.

12. Ho 12: There will be no gender difference in anxiety, optimism, achievement motivation and academic achievement among medical and engineering students.

Ha 12: There will be a significant gender difference in anxiety, optimism, achievement motivation and academic achievement among medical and engineering students.

13. Ho 13: Medical and engineering students do not differ in anxiety, optimism, achievement motivation and academic achievement.

Ha 13: Medical and engineering students will differ significantly in anxiety, optimism, motivational aspects and academic achievement.

5.4 Scope of Study

1. The study is limited to the students and faculty members of private medical and engineering colleges of Uttar Pradesh, India.

2. The study is limited to measuring only certain EI competencies and their relationship with certain other variables relevant in teaching-learning process for medical and engineering education. These variables are:

   i. Anxiety, Optimism, Achievement Motivation and Academic Achievement (Academic results provided by the respective colleges) among medical and engineering students.
ii. Factors of Achievement Motivation among the students: Academic Motivation, Future Goals, Competency Beliefs, Meaningfulness of Task, Relevance of College, Self Determination, Work Methods, Social Goals, Co-curricular Activities & Sports.

iii. EI competencies measured among faculty members: Self Awareness, Empathy, Self Motivation, Emotional Stability, Managing Relations, Integrity, Self-Development, Value Orientation, Commitment and Altruism.

iv. Occupational Stressors assessed among faculty members: Role Overload, Role Ambiguity, Role Conflict, Group Pressure, Responsibility for Persons, Under Participation, Powerlessness, Poor Peer Relations, Intrinsic Impoverishment, Low Status, Strenuous Working Conditions and Unprofitability.

v. Self-reported Teacher Effectiveness and Students’ Rated Teacher Effectiveness among faculty members.

3. The customized EI Training Programme suggested in this study is limited to the requirements and time constraints of students and faculty members of medical and engineering colleges.

5.5 Research Design

The present research is exploratory, empirical and descriptive in nature. It utilized correlation research design using standardized tools. The research is based on exploratory study to identify the issues concerning the topic for the purpose. Literature survey, experience survey, analysis of case studies, internet and newspaper reports and unstructured interviews with the students and the faculty members of medical and engineering colleges were adopted as basic methods for exploring various issues under consideration for this study. Findings of this exploratory study provided better insights and also facilitated the development of hypotheses. Relationships between various variables under consideration for this research were also explored to test the hypotheses in this study. The nature of research is empirical as it is a data-based research followed by formulation and testing of hypothesis and drawing definite conclusions that are capable of being verified and can be considered for implementation. It is also a descriptive research, as the work required describing certain trends, behaviors, strategies, beliefs etc. after exploring the relationship between the variable under study in ex post facto setting. It is a quantitative research and to some extent
qualitative research as well, because the perception of students and faculty members through unstructured interviews were also analysed.

5.6 Research Framework

Figure 5.1 illustrates the research framework involving the variables relevant in this study and the statistical tools used in data analysis.

Figure 5.1 Illustration of the Research Framework
5.7 Population

The population for this research work consists of (i) All the students currently studying in private medical and engineering colleges of Uttar Pradesh, India (ii) All the faculty members working in private medical and engineering colleges of Uttar Pradesh, India.

5.8 Sampling Frame

5.8.1 Sampling Method for Selection of Colleges for Data Collection

The important representative districts of Uttar Pradesh each having population over one million and having at least one private medical college and five private engineering colleges were selected. Well established colleges of these cities were then identified through internet on the basis of their infrastructure and courses offered. The districts selected were Gaziabad, Lucknow, Kanpur, Meerut and Bareilly. Twelve colleges, six each of medical and engineering were shortlisted. Principals, Directors and the Chairmen of these colleges were contacted for seeking permission to conduct the study but only seven colleges (3 medical and 4 engineering) granted the permission. Approachability of the researcher to other states was physically and economically strenuous, therefore the data collection was limited to the colleges of Uttar Pradesh only. So, to some extent it can be considered as convenience sampling as well.

5.8.2 Sampling Method for Selection of Students and Faculty Members for Data Collection

As students of 1st year are too new to the college to understand the faculty members and final year students are mostly busy with their projects and internship or preparing for job placements or further competitive exam, these students were not considered for this study. After taking permission for the study, the availability schedule of students studying in 2nd and 3rd year was obtained from the HODs of the respective departments of the colleges. Students were made available either in their lab sessions or in the class of some faculty members who were on leave. Only those faculty members teaching the students who participated in the study and whose teacher effectiveness rated by the students was available, were included in this research.
5.8.3 Sample Size

A target of total 700 participants (350 students and 350 faculty members) was set for data collection. Out of this 656 responses (346 students and 310 faculty members) were used. As the students’ questionnaires were administered in their respective colleges, all 350 responses were available but 4 responses from the students were incomplete. Hence, they were rejected. Faculty questionnaires were handed over to them and collected later when they had completed. 33 faculty members did not return the questionnaires and responses from 7 faculty members were rejected as they were incomplete. As the questionnaires were distributed through the HODs, the return rate was high (91%). Thus, the final sample size of students was 346 (171 medical & 175 engineering; 161 females & 185 males) and for faculty members it was 310 consisting of 137 from medical colleges and 173 from engineering colleges. Gender wise distribution of faculty sample was 130 females and 180 males.

5.9 Sources and Methods of Data Collection

5.9.1 Secondary Data

The secondary data for literature survey was collected through books, journal articles and case studies published by Emerald, SAGE publications, Taylor and Francis, Canadian Centre for Science and Education, Europe’s Journal of Psychology, International Journal of Advances in Management, Asia Pacific Journal of Higher Education etc. National journals like Journal of Applied Psychology, Journal of Psychometry and Education, Psycholingua, Journal of Social Research and Development. Articles published in leading newspapers of India such as Times of India and The Hindustan Times were also referred. Articles and conference papers from websites like wikipedia.org, freelibrary.com, organisationaccelaration.com, news.stanford.edu and eiconsortium.org were of great help. Libraries of some of the institutions like Sikkim Manipal Institute of Technology, Lucknow University and Army Central Command Library, Lucknow were approached for books, journal and magazines for relevant articles based on the variables under study.

5.9.2 Primary Data

- Experience survey through unstructured interviews with students and faculty members of private medical and engineering colleges was conducted to understand
the perception of students about the faculty members and vice versa and their opinions about the functioning of the college. This helped the researcher in exploratory study and formulation of hypotheses.

- Quantitative data was collected using standardized psychological questionnaires available at National Psychological Corporation, Agra, India, as an instrument to measure the variables under study.

5.9.3 Procedure for Primary Data Collection

After selecting the colleges on the basis of the criteria mentioned in section 5.8.1 of this chapter, permission to conduct the study was taken from the chairmen, directors and the principals of the respective colleges. Students’ availability schedule was obtained from the respective HODs of the various departments of the colleges. According to the schedule, students were divided randomly in groups of 25-30. After general introduction and proper instructions one questionnaire at a time (anxiety test, learned optimism scale and achievement motivation scales) were administered to the students. On an average, students took about 30-40 minutes to complete all three questionnaires.

After the students had completed their questionnaires, Teacher Rating Scale along with the Glossary (criteria for rating various attributes of a teacher) were provided to the students and they were instructed how to rate the faculty members. The researcher was available to the students for any query. It was an anonymous rating i.e. names of the raters were not required and it was also ensured that no faculty members were present during the rating process. Each student had to rate five teachers, thus each faculty member was rated by at least five students. The confidentiality of the information obtained from the respondents was guaranteed. After getting the data from the students, the faculty members teaching these students whose teacher effectiveness rated by the students was available, were contacted through the HODs of the concerned departments. With a brief introduction and required instructions the faculty questionnaires were handed over to them. Completed questionnaires were collected after few days, depending upon the time taken by the faculty members to complete them. In some cases it was even a month.
5.9.4 Demographic Characteristics of the Participants

Table 5.1 presents the frequencies and descriptive statistics for the demographic characteristics of the participants. As indicated in Table 5.1 the mean age of total students (N = 346) was 19.76 years. The minimum age of the total sample was 17 years and maximum was 22 years. Percentage of medical students (N = 171) was 49.4% and that of engineering (N = 175) it was 50.6%. Gender ratio was male (N = 185) 53.47% versus female (N = 161) 46.53%. The mean age of female students was 19.48 and that of male students it was 19.98 years. The mean age of the total faculty members (N = 310) was 33.97 years. The minimum age of the total sample was 24 years and maximum was 68 years.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Group</th>
<th>Category</th>
<th>N (%)</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>Students</td>
<td>Male</td>
<td>185</td>
<td>17</td>
<td>22</td>
<td>19.98</td>
<td>1.439</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Female</td>
<td>161</td>
<td>17</td>
<td>22</td>
<td>19.48</td>
<td>1.295</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Engr.</td>
<td>175</td>
<td>17</td>
<td>22</td>
<td>19.97</td>
<td>1.491</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Med.</td>
<td>171</td>
<td>17</td>
<td>22</td>
<td>19.54</td>
<td>1.261</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>346</td>
<td>17</td>
<td>22</td>
<td>19.76</td>
<td>1.414</td>
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<td></td>
<td>Fac-Mem</td>
<td>Male</td>
<td>180</td>
<td>24</td>
<td>68</td>
<td>36.44</td>
<td>12.289</td>
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<tr>
<td></td>
<td></td>
<td>Female</td>
<td>130</td>
<td>24</td>
<td>61</td>
<td>31.47</td>
<td>6.877</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Engr.</td>
<td>173</td>
<td>24</td>
<td>64</td>
<td>29.36</td>
<td>6.959</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Med.</td>
<td>137</td>
<td>25</td>
<td>68</td>
<td>40.50</td>
<td>11.223</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>310</td>
<td>24</td>
<td>68</td>
<td>33.97</td>
<td>10.146</td>
</tr>
</tbody>
</table>

| City  | Students |  |
|-------|----------|  |
| Lucknow | Med 51 (30%) | Engr. 46 (26%) |
| Meerut | Med 56 (33%) | Engr. 82 (47%) (2 colleges) |
| Bareily | Med 64 (37%) | Engr. 47 (27%) |

**Faculty Members**

| City  | Students |  |
|-------|----------|  |
| Lucknow | Med 43 (31.00%) | Engr. 45 (26%) |
| Meerut | Med 47 (34.50%) | Engr. 81 (47%) (2 colleges) |
| Bareily | Med 43 (34.50%) | Engr. 47 (27%) |

Note: Total No. of Participants = 656 (346 Students + 310 Faculty Members)

There was a significant difference in the mean age of medical faculty (40.50 years) as compared to the mean age of engineering faculty (29.36 years), showing that engineering faculty members are comparatively much younger than medical faculty members. This could be because medical faculty members need to have minimum five years of clinical
experience before being qualified as teachers in medical colleges, whereas, engineering faculty members can be appointed immediately after M. Tech. and in some cases it is even after B. Tech. The gender ratio was male (N=180) 58% versus female (N = 130) 42%. The mean age of female faculty members (31.47 years) was also found to be lower than the mean age of male faculty members (36.44 years) indicating that males probably prefer to explore other professions before joining the teaching profession.

5.10 Research Tools

All the research tools used in the study are constructed and standardized on the Indian Population and were obtained from the Psychological Corporation of India. The following psychometric tests were used as an instrument to measure the variables under study.

**i. Sinha’s Comprehensive Anxiety Test (SCAT):** The test is constructed and standardized on humanities undergraduate students and developed by Prof. A.K.P. Sinha and Prof L.N.K. Sinha (2007) of Raipur and Patna University respectively. The internal consistency reliability of the scale is 0.92 and its content validity is 0.77. The test consists of total 100 items with response pattern of “Yes” or “No”. For any response indicated as ‘Yes’ the respondent is awarded ‘one’ and ‘zero’ for ‘No’ response. The sum of all positive or yes response is the total anxiety score of an individual. The maximum score can be 100 and minimum zero. The items are based on physiological, psychological, cognitive and behavioural symptoms of anxiety. Example of an item is: “Do you have the fear of being unsuccessful even after thorough preparations?”

**ii. Learned Optimism Scale (LOS):** Developed by Pethe, S., Chaudhari, S., Dhar, S., and Dhar, U. (2000), Professors at Institute of Management and Research, Indore, the scale is constructed and standardized on a sample of graduates and postgraduate subjects. The split half reliability coefficient of the scale is 0.99 and its content validity is also 0.99. The test consists of total 22 items with the response categories - Strongly Agree, Agree, Neutral, Disagree, and Strongly Disagree. Each item or statement is scored 5, 4, 3, 2 and 1 respectively for strongly agree, agree, neutral, disagree, and strongly disagree. Maximum score that can be obtained is 110 and minimum is 22. The items are based on believes and attitudes towards work, criticism, failures, challenging situations, abilities, and social
support. Example of an item is: “I believe present crisis will form strong basis for
tomorrow.”

**iii. Achievement Motivation Scale (AMS):** Developed by Prof. P. Deo, and Dr. A. Mohan
(2002) of Pune and Chandigarh University respectively, the scale is constructed and
standardized on Indian students at school and college levels. With .78 test-retest reliability
and .75 content validity, the scale consists of 50 items (13 negative and 37 positive). A
positive item carries the weights of 4,3,2,1 & 0 for the categories of always, frequently,
sometimes, rarely, and never respectively. The negative item is scored 0,1,2,3 & 4 for the
aforementioned categories respectively. The total score is the summation of all positive and
negative item scores. The minimum score that can be obtained is zero and maximum is 200.
The scale consists of fifteen factors to assess achievement motivation among students. But
in the present study some of the related factors were grouped together to make it a total of
nine factors. This also helped in increasing the value of Cronbach’s alpha for each factor.

The factors assessed were: *(i)* Academic Motivation (includes relevance of studies and
college grades). *(ii)* Future Goals (includes competitions and need for success. *(iii)*
Competency Beliefs (includes academic challenges). *(iv)* Meaningfulness of Task (includes
relevance of subject matter) *(v)* Relevance of College (includes classroom learning and
attitude towards teachers). *(vi)* Work Method (includes regular studies and looking for
details) *(vii)* Social Goals (includes interpersonal relations with friends and teachers,
expectations of parents and social responsibility). *(viii)* Self-determination and *(ix)* Co-
curricular, Sports and Adventure. An example of an item is: “I feel very much frustrated if I
do not get a chance to compete in the field of my choice.”

**iv. Academic Achievement:** The academic results of the students (aggregate of previous
year’s exams) provided by their respective colleges were taken as scores for their academic
achievement. Engineering colleges in Uttar Pradesh are under Uttar Pradesh Technical
University which follows marks system instead of Cumulative Grade Point Average
(CGPA) and medical colleges across India follow marks system, therefore academic
achievement of both the groups (medical and engineering) were taken in percentage scores.

**v. Emotional Intelligence Scale (EIS):** Based on Goleman’s view of EI, the scale is
developed by Hyde, A., Pethe, S. and Dhar, U. (2007), Professors at Nirma Institute of
Management, Ahmedabad. The scale is constructed and standardized on Indian executives
but can be used on other professionals as well. EIS was preferred over other measures as it is constructed and standardized on Indian population and available from the Psychological Corporation of India. The split half reliability coefficient of the scale is 0.88 and its content validity is 0.93. The validation has been done on Indian executives but it can be used for other professions as well. The scale has a total of 34 items. Each item or statement is scored 5 for strongly agree, 4 for agree, 3 for neutral, 2 for disagree and 1 for strongly disagree. Maximum score can be 170 and minimum 34. The scale measures ten EI competencies. (i) Self Awareness (ii) Empathy (iii) Self Motivation (iv) Emotional Stability (v) Managing Relations (vi) Integrity (vii) Self Development (viii) Value Orientation (ix) Commitment and (x) Altruistic Behaviour (being able to help people without any personal interests). An example of an item is: “I can listen to someone without an urge to say something”.

vi. Occupational Stress Index (OSI): Developed by Dr. A.K. Srivastava and Dr. A.P. Singh (1984) of Banaras Hindu University, the scale is constructed and standardized on employees of different cadres working in various production and non-production organizations. The reliability of the scale is 0.93 and the validity is 0.79. The scale consists of total 46 items (28 positive and 18 negative). Scoring for positive items response is 1, 2, 3, 4 and 5 for strongly disagree, disagree, undecided, agree and strongly agree respectively. For negative items the scores are reversed. The minimum score can be 48 and maximum can be 180. An example of an item is: “I get less salary in comparison to the quantum of my work”.

The sub scales of the test measure twelve areas of stress in work environment: (i) Role Overload: job demands exceeding the individual’s ability to cope. (ii) Role Ambiguity: person’s tasks or authority are not clearly defined. (iii) Role Conflict: conflicting job demands from various authorities or when the individual is required to do things that are not part of his job. (iv) Unreasonable group pressure: stress from personality conflicts and feelings of competition. (v) Responsibility for Persons: welfare and growth of persons working under an individual. (vi) Under Participation: lack of participation in decision making process. (vii) Powerlessness: feeling of not getting one’s due and recognition. (viii) Poor Peer Relations: problems due to people one works with. (ix) Intrinsic Impoverishment: lack of opportunities for personal growth. (x) Unprofitability: includes less pay, lack of job security and promotion opportunities. (xi) Strenuous Working Conditions: includes physical environment, meeting deadlines, long hours of work, shift work, travel, risk and danger,
absorbing new technology, work overload etc. (xii) Low Status: feeling of being low in status, under promotion etc.

vii. Teacher Effectiveness Scale (TES): Developed by Dr. S. Puri and Prof. S. C. Gakhar (2010) of Punjab University, the scale is constructed and standardized on college teachers. In the present study TES was administered to measure Self-reported Teacher Effectiveness among faculty members. The test-retest reliability coefficient of the scale is 0.79 and its content validity is 0.91. The scale consists of a total of 68 items. Score awarded for the response categories are: strongly agree-5, agree-4, undecided-3, disagree-2 and strongly disagree-1. Total score is sum of all the scores on 68 items. The maximum score obtained can be 340 and minimum would be 68. The areas of teaching measured by the test items are – (i) Academic and professional knowledge, (ii) Preparation and presentation of lesson, (iii) Class management, (iv) Attitude towards students, parents, colleagues and head of the institution, (v) Use of motivation, reward and punishment, (vi) Result feedback accountability and (vii) Personal qualities. An example of an item is: “I seek the cooperation of students to pursue my topic”.

viii. Teacher Rating Scale (TRS): Developed by Dr. R. C. Deva (2003) of Alligargh Muslim University, TRS was used for rating Teacher Effectiveness of faculty members by the students in the present study. The scale consists of 17 dimensions, grouped under 3 categories: (i) Personal qualities, (ii) Professional competence and (iii) Classroom performance of the teachers. The inter-rater reliability coefficient of the scale is 0.91 and its content validity is 0.85. It is a seven point numerical rating scale. Total teacher effectiveness score can be obtained by simply adding numerical rating obtained on all the dimensions. The maximum score can be 119 and minimum can be 17. An example of an item is: “The teacher encourages students to discuss and present their views”.

Two measures (TES and TRS) of teacher effectiveness were used as TES is a self-report measure with items constructed from the teachers’ point of view for self-evaluation whereas items in TRS are constructed from a student’s point of view asking their opinion about the personal qualities, professional competence and classroom performance of their teachers. Also, it would have been very time consuming for students to rate five teachers each on 68 items; therefore TRS was used as it accommodates the various items of TES under 17 dimensions of teacher effectiveness making it convenient for the respondents.
Table 5.2: Reliability Coefficients (Cronbach’s Alpha) for Sub Scales of the questionnaires used in the study

<table>
<thead>
<tr>
<th>SCALE</th>
<th>( \alpha )</th>
<th>SCALE</th>
<th>( \alpha )</th>
</tr>
</thead>
<tbody>
<tr>
<td>EI SCALE (N = 310)</td>
<td></td>
<td>OSI (N = 310)</td>
<td></td>
</tr>
<tr>
<td>Self Awareness</td>
<td>0.809</td>
<td>Role Overload</td>
<td>0.781</td>
</tr>
<tr>
<td>Empathy</td>
<td>0.849</td>
<td>Role Ambiguity</td>
<td>0.721</td>
</tr>
<tr>
<td>Self Motivation</td>
<td>0.804</td>
<td>Role Conflict</td>
<td>0.783</td>
</tr>
<tr>
<td>Emotional Stability</td>
<td>0.811</td>
<td>Group Pressure</td>
<td>0.851</td>
</tr>
<tr>
<td>Managing Relations</td>
<td>0.826</td>
<td>Responsibility for Persons</td>
<td>0.734</td>
</tr>
<tr>
<td>Integrity</td>
<td>0.714</td>
<td>Under Participation</td>
<td>0.776</td>
</tr>
<tr>
<td>Self Development</td>
<td>0.862</td>
<td>Powerlessness</td>
<td>0.734</td>
</tr>
<tr>
<td>Value Orientation</td>
<td>0.818</td>
<td>Poor Peer Relations</td>
<td>0.743</td>
</tr>
<tr>
<td>Commitment</td>
<td>0.815</td>
<td>Intrinsic Impoverishment</td>
<td>0.881</td>
</tr>
<tr>
<td>Altruism</td>
<td>0.847</td>
<td>Low Status</td>
<td>0.744</td>
</tr>
<tr>
<td><strong>Total EI</strong></td>
<td><strong>0.944</strong></td>
<td><strong>Total Occupational Stress</strong></td>
<td><strong>0.908</strong></td>
</tr>
<tr>
<td>Unprofitability</td>
<td>0.836</td>
<td>Strenuous Working Conditions</td>
<td>0.959</td>
</tr>
</tbody>
</table>

Note: Each of the alpha coefficients (\( \alpha \)) is within acceptable parameters.

5.11 Analytical Methods

All statistical analyses have been conducted using the software Statistical Package for Social Sciences (SPSS) 16.0 version. Descriptive and inferential statistics have been applied using Pearson \( r \) correlation, regression analysis (bivariate and multivariate), independent samples \( t \) test and paired samples \( t \) test as statistical tools to determine the association between the variables and the groups under study in this research. The seven steps of hypothesis testing have been followed-

- **Step 1:** Set null and alternative hypothesis
- **Step 2:** Determining the appropriate statistical test
- **Step 3:** Setting the level of significance
- **Step 4:** Setting the decision rule
- **Step 5:** Collecting the sample
- **Step 6:** Analyzing the data
- **Step 7:** Arriving at a statistical conclusion