CHAPTER 4

RESEARCH METHODOLOGY

4.1 RESEARCH FLOW

According to Shields & Twycross (2003) and Williams & Monge (2001), quantitative research contains numbers, proportions and statistics that are inevitable for measuring affective, behavioral and emotional states of individuals including cognitive thinking and such data are largely helpful in testing hypotheses proposed on the relationship among variables under study (Barnes et al 2007; Sitter 2004).

It is necessary to note that given the objectives of the research and the research questions raised for investigation and the eventual aim of this study, which was to examine the mediating role of self-esteem on the relationship between EI and motivation, and also on the relationship between personality traits and motivation, a quantitative research was most appropriate research design for this study. The chapter includes details relating to research context and sample, sampling method, research variables, instruments and statistical tools utilized.

The research methodology followed in this research work is explained in Figure 4.1. The details are presented in the following sections.
4.1.1 Literature Review

A review of literature was done to study the variables under consideration. The various theories, concepts and empirical research
undertaken so far was studied to get a broad understanding and to identify the research gaps.

In the review, the variables used, the manner of their operationalization, and the arguments put forward by scholars in support of their contentions were closely perused.

4.1.2 Proposed Research Model

Having identified the research gap, a conceptual model as shown in Figure 3.1 was proposed. The model took into account the variables, its inter-relationships by taking into account personal characteristics, behavioral tendencies and eventual outcomes of activities.

4.1.3 Formulation of Hypotheses

A set of eight hypotheses were framed that would help in justifying the relationships among the variables. They would also facilitate in supplementing the answers to the research questions outlined in chapter-1.

4.1.4 Identification of Research Instruments

Certain parameters were drawn up prior to undertaking the research for appropriate constructs and measuring instruments. Firstly the construct must not be too long. Secondly the instrument must have proven psychometrics. Lastly, the instrument in addition must be able to measure what it is intended to measure accurately and reliably. After having zeroed on the exact research instruments, its advantages over others were compared and final selections were made.
4.1.5 Identifying Target Population and Selecting Sample

The felt need to enhance the performance of all cadets undergoing training at the academy gave ample opportunity to select them as the population for the study. However this entailed getting formal approval and permission to conduct research since it would impinge on the time schedule of an already tightly packed training schedule of the trainees. The concurrence to go ahead with the research was finally obtained.

4.1.6 Research Design

The duration of the course being short, the cadets on commissioning get posted to various assignments dispersed geographically including remote areas. It was neither practical to indulge in longitudinal studies nor possible to complete within the research time available with the researcher. Hence the sample was a convenient sample that included entire cadets undergoing training at the time of conduct of survey.

4.1.7 Survey Enumeration

Once the target population, research method and the statistical tools were finalized it was time to carry out the survey. The paper-pencil self-report was the main approach. The questionnaire was distributed to the cadets soon after the drill parade in the morning and they were asked to complete it prior to proceeding to the next class. There were no enumerators utilized as the researcher himself distributed the survey documents through the adjutant who has supervised the parade.
4.1.8 **Data Sanitization**

After receiving back the filled in questionnaire, it was subjected to detailed scrutiny for missing entries and usability for data entry. Questionnaire having missing responses were dropped from the study. The data was checked for outliers, normality, linearity and heteroskedasticity. KMO test and Bartlett’s test of sphericity were performed and all the assumptions for conduct of correlation, regression and ANOVA tests were also ascertained. Data entry was made after taking due consideration for reverse coding of items wherever applicable.

4.1.9 **Data Analysis Tools and Techniques**

The study was to find the inter-relationships among the chosen variables and its impact on the academic achievement of cadets. Therefore correlation analysis, hierarchical regression analysis, one-way ANOVA, mediation analysis using Baron and Kenny method followed by Sobel’s test were some of the techniques employed for the present study.

4.1.10 **Results and Discussions**

The results obtained after the statistical analyses were studied and the pattern emerging out of this were elucidated against the backdrop of the literature that has been reviewed. The hypotheses were tested for finding answers to the research questions.

4.1.11 **Implications and Directions for Future Research**

A detailed discussion on the implications of the study and usefulness are brought out in chapter-6. Some of the limitations of the study
are also mentioned. The possibilities of furthering the study based on the present study have been brought out as directions for future research.

4.2 RESEARCH SETTING AND SAMPLE

4.2.1 Target Population

The population also called as ‘universe’ for this study is drawn from the cadets who are undergoing training in the officers’ training academy located in Chennai, in south India, who on completion of their course get commissioned to various arms/services in the Indian army as officers. All those who were undergoing training at the time of conduct of survey were included for the study. The population sample chosen for study come from diverse background in terms of language, domicile, culture and ethnicity as they are enrolled/selected from across the country. The common features among all are that they are unmarried and unemployed. At any time two batches have training running concurrently often termed as junior and senior batch. In this study the survey instrument was given to both the batches.

4.2.2 Sampling Method

The sampling design commenced with deciding on the sample frame which had only two elements to define the inclusion criteria. First, the individuals based on whom the study would be conducted must be a trainee at the officers’ training academy. Second they must be undergoing pre-commissioned training. There was no restriction on gender. Convenience sampling method was employed for data gathering. The cadets who were hospitalized or physically unable to attend classes or excused from parade did not take part in the survey. The prerequisites of Fowler (2014) and Sitter (2004) on sampling design were met.
4.3 DATA COLLECTION PROCEDURE

4.3.1 Research Variables

There are essentially five major variables namely emotional intelligence, personality traits, self-esteem, motivation and academic achievement used in the present study. The four sub-variables of emotional intelligence are self awareness of emotions, awareness of others emotions, regulation of own emotions and regulation of others emotions. The five personality traits are openness to experience, agreeableness, emotional stability conscientiousness and extraversion. Self-esteem is the proposed mediator variable in this study.

4.3.2 Enumeration of Survey

The survey was conducted through the use of well designed, pre-tested and structured close-ended questionnaire that consisted of four parts: Part-I Demographic profile of the respondents consisting of ten statements dealing with background variables like age, gender, education of respondents and family income. Part-II EI(16 Items) consisted of four questions for each sub-variable. Part-III Personality traits were captured with 50 statements dealing with all the five traits as mentioned above. Part-IV consisted of Self-esteem (10 Items). The last Part-V consisted of Motivation (31 Items). The respondents were handed over the questionnaire directly by the researcher and assured of anonymity and that the data would be used for research purpose only. The respondent took approximately 45-50 minutes to complete the entire questionnaire in one sitting by paper-pencil method. The final evaluation grades in respect of every cadet were obtained from the academy as secondary data for the dependent variable academic achievement.
4.3.3 Pilot Study

A pilot study was undertaken among 50 respondents. This was to check whether the cadets were able to comprehend the statements correctly. It also served the dual purpose of firstly to assess the time taken to complete the whole questionnaire, secondly to cull out any words that was dubious or was not understood properly. The pilot study also helped in finding out if the respondents faced any difficulty in responding to any of the items. The time taken to complete the responses was found to be reasonable. The respondents felt comfortable in answering the questions. The outcome of the analysis based on the limited data was encouraging, hence no changes were made to the research instruments.

4.3.4 Demographic Profile of Sample

A total of 600 questionnaires were distributed to cadets who belonged to four different battalions, 576 responses were obtained duly filled-in, out of which 515 were found usable (response rate 91.1%). There were 132 female and 383 male cadets whose average age was 22.6 years (Standard deviation=3.67), from the two batches undergoing training concurrently at the time of conducting the survey.

4.4 Research Instruments

Four research instruments were used in the present study. Wong and Law EI Scale (WLEIS) by Wong & Law (2002) for measuring all the variables of emotional intelligence, International Personality Item Pool (IPIP scale) by Goleman (1995) for the Big-Five personality traits, Rosenberg Self-Esteem Scale (RSES) by Rosenberg (1965) for self-esteem and Motivated Strategies for Learning questionnaire (MSLQ) Pintrich and DeGroot (1990)
for measuring motivation have been used. All the instruments using Likert type of scale are validated and found to be robust self-reported measures.

The variables have been operationalized for the current research in a specific manner. Bearing in mind the context in which it is being conducted lends itself for the use of the research instruments and scales that have been enumerated in the succeeding paragraphs as against other available instruments. The reliability and validity of these scales have been established in the earlier studies that have used similar constructs and scales. Moreover, they are available freely for research purpose and are popularly used by several scholars. The boundary conditions of the present empirical study entail use of this, adequately brief and direct construct. The simple and easy means of coding and evaluation makes it an attractive psychometric measurement tool. The complete final questionnaire used for the survey is given in Appendix 1.

4.4.1 Wong and Law EIScale (WLEIS, Wong & Law 2002)

EI was measured with the WLEIS scale that measures its four facets of thinking, expressing, controlling and behaving in relation to emotions (Mayer et al 2002). The scale contains 16 Items i.e. awareness of one’s own emotions, awareness of others feeling, observable behavior. Each sub-scale has four items which are summated and averaged to get one composite score for that sub-scale (Cronbach alpha $\alpha=\cdot85$). The scale was anchored with (1=’Strongly disagree’) and (5=’strongly agree’) Likert type scale.

4.4.2 50 Item International Personality Item Pool (IPIP scale)

The psychometric characteristics and the coefficient-reliabilities of the IPIP scales are generally good. There are totally fifty items with ten items under each factor. Within the ten items five are positively worded and five are
negatively worded following a lexical pattern. The Likert scale is anchored as 1= ‘strongly disagree’ and 5 = ‘strongly agree’ to each statement. The scale showed a comparable pattern of convergent, discriminant and criterion-related validity.

4.4.3 Rosenberg Self-Esteem Scale (RSES)

This scale has 10 Items with 5 items negatively worded; hence requires to be reverse coded before any computation is undertaken. Likert-type rating scale anchored at (1= ‘does not apply to me at all’) and (7=‘applies to me very well’) was used. The Dutch translation of this scale provides proof of validity and reliability (van_der_Linden et al 1983). Cronbach alpha for the present study was (α= .76).

4.4.4 Motivated Strategies for Learning Questionnaire (MSLQ)

MSLQ consists of two dimensions i.e. Motivation segment (31 Items) and Self-regulation strategies (51 Items). The first module of MSLQ pertaining to motivation was used in this research. Motivation to succeed in academics can be stated as ‘motivation to learn’ as designated for the purpose of this study. It is considered as the mental force that drives learners to pursue academic goals, initiate, sustain and adapt behavior conducive to learn.

The components of MSLQ derive its sustenance from Expectancy-value model of achievement (McKeachie et al 1986), which is an adaptation of Atkinson’s (1964) achievement model. The expectancy –value model takes in account the learners’ perception of the competence, value of the task to be undertaken under all of which ultimately relates to motivation to learn.
4.4.5 Academic Achievement

The overall assessment scores of individual candidates were obtained from the academy and converted to a continuous variable with score of (maximum marks =100). It was further categorized as: up to 49 marks = below average, 50-59 marks = average, 60-69 marks = high average, 70-79 marks = above average and 80-100 marks = outstanding and coded as 0, 1, 2, 3 and 4 respectively.

The reliability by means of internal consistency of the various measures was determined in which EI ($\alpha = .87$), Self-esteem ($\alpha = .81$), motivation to learn ($\alpha = .76$). The reliability for the personality traits were: Openness ($\alpha = .80$), Agreeableness ($\alpha = .82$), emotional stability ($\alpha = .85$), conscientiousness ($\alpha = .80$) and extraversion ($\alpha = .84$).

This study utilized hierarchical multiple regression analysis (enter method) to find the predominant and unique predictor in each case that contributed towards statistically significant outcome in all the models.

To summarize, the research setting and sample that encompassed the nature of the target population were presented. The chapter also presented the data collection procedures, nature of survey enumeration, pilot study and demographic profile of the sample. Lastly, the research instruments used for the study were described; thereafter the statistical tools employed for arriving at the logical conclusions were also stated.