Methodology

CHAPTER – III

METHODOLOGY

3.1 INTRODUCTION

The urge in human brain to re-examine and to innovate things may rightly be called as 'Research'. Research is the application of human intelligence in a systematic manner to a problem, the solution to which is not immediately available.

Webster's International Dictionary (1999) proposes a very inclusive definition of research as a careful, critical enquiry or examination in seeking facts or principles; diligent investigation in order to ascertain something. Research is a purposeful and systematic study of a problem. For any systematic study, methodology is vital and it is a science of orderliness. It is adopted for the purpose of arranging facts and principles in a systematic way. Researchers use different methods in their investigation. The appropriate method selected helps the investigator to utilize time, money and energy in an efficient manner.

Educational research refers to a systematic attempt to gain a better understanding of the educational process, generally with a view to improving its efficiency. According to Traverse (2003), "Educational research is that activity which is directed towards the development of the science of behaviour in educational situation". It represents an activity directed towards the

development of an organized body of scientific knowledge about the events with which educators are concerned.

The methodology adopted for the investigation is discussed under the following headings :

1. Method Used in the Present Study
2. Variables
3. Locale of the Study
4. Sample for the Study
5. Construction of the Tool
6. Conduct of the Study
7. Scoring and Tabulation of Data
8. Data Analysis Procedure

3.2 METHOD USED IN THE PRESENT STUDY

Considering the nature of the problem under investigation and the nature of the data for the study, it was decided to adopt 'survey' as the method of collecting data. Survey is one of the most commonly used methods of descriptive research in behavioural science. Survey is a method of research involving collection of data directly from a population or a sample thereof at a particular time (Krishnaswami and Ranganathan, 2006).

According to Wiersma (2000), survey in educational context deals with "how people feel or perceive, how they behave or their role or group status". Survey method is designed to obtain pertinent and precise information

concerning the current status of phenomena and whenever possible, to draw valid conclusions from the facts discovered.

3.3 VARIABLES

Selection of proper variables is an important ingredient of a good research work. There are two types of variables in behavioural research ; dependent and independent variables. The present study aims at studying the influence of several independent variables on emotional intelligence, the dependent variable. Independent variables included in this study are gender, type of family, educational qualification of parents , number of siblings, order of birth, economic status of family, hostel experience, type of institution, locality of institution and subject specialization. A personal data sheet (Appendix 1) prepared by the investigator was used to collect the details relating to independent variables. The other important objective of the investigation is to study the relationship between the two variables namely, emotional intelligence and academic performance of teacher trainees.

3.4 LOCALE OF THE STUDY

The present study was confined to the teacher trainees studying in different colleges of education in Coimbatore city in Tamilnadu. Coimbatore, the second largest city in the state of Tamilnadu, is a vibrant industrial city in India and is called as "Manchester of South India" for the number of textile mills in and around the city. Coimbatore is a centre for higher education and the city has got a good number of educational institutions having a very high

reputation in India and abroad. Coimbatore has an average literacy rate of 78 per cent, higher than the national average of 59.5 per cent. Male literacy is 81 per cent and female literacy is 74 per cent with 11 per cent of the population under 6 years of age.

The prevalence of a pleasant climate along with the availability of good standard education in the city, it attracts students from different parts of the state, hence a study conducted in Coimbatore, may well represent the situation in the whole of Tamil Nadu. The Colleges of Education which provided the sample for the present study were found to have students representing different districts of Tamil Nadu and hence may be taken as a representative sample of the population of Tamil Nadu state.

3.5 SAMPLE FOR THE STUDY

According to Best and Khan (2003), "the primary purpose of research is to discover principles that have universal application, but to study a whole population to arrive at generalizations would be impracticable, if not impossible". In this sense the most important factor in determining the generalisability of research results is the selection of sample which will provide the research data. A sample is a small proportion of a population selected for observation and analysis. A sample reflects the characteristics which define the population from which it is selected.

When the researcher started her field survey during the year 2006, there were five institutions in Coimbatore city namely, Avinashilingam

University for Women, Government College of Education for Women, Sri Ramakrishna Mission Vidyalaya College of Education, Bharathi College of Education and PPG College of Education offering Bachelor of Education Course. All the available teacher trainees from all these five Colleges of Education were included in the survey. The respondents comprised both men and women, graduates and post graduates and hailed from different parts of the state.

The Tables 3.1, 3.2 and 3.3 provide the background information about the sample selected for the study. Figures 3.1 and 3.2 presents the personal and academic profile of teacher trainees.

TABLE – 3.1

GENDER-WISE DISTRIBUTION OF THE SAMPLE

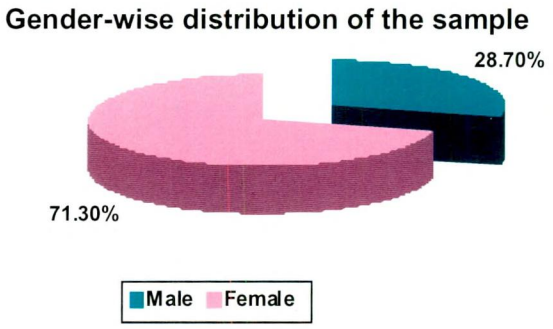
Gender	Number of teacher trainees	Percentage
Male	144	28.70
Female	358	71.30
Total	**502**	**100.00**

TABLE – 3.2

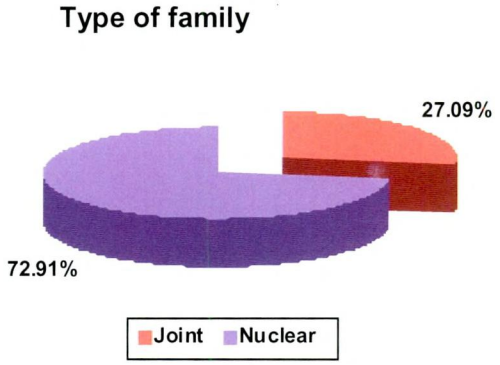
PERSONAL PROFILE OF THE SAMPLE

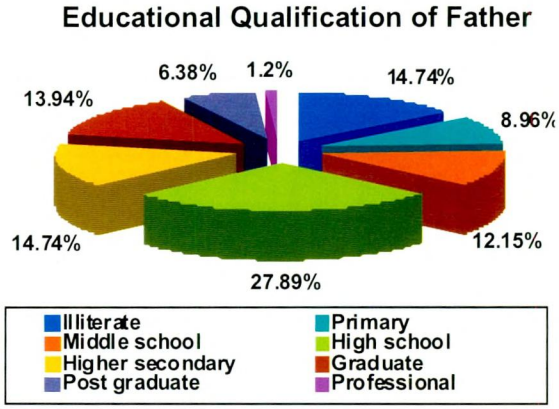
Particulars		Number	Percentage
Type of family	Joint	136	27.09
	Nuclear	366	72.91
Educational qualification of father	Illiterate	74	14.74
	Primary	45	8.96
	Middle school	61	12.15
	High school	140	27.89
	Higher secondary	74	14.74
	Graduate	70	13.94
	Post graduate	32	6.38
	Professional	6	1.20
Educational qualification of mother	Illiterate	130	25.90
	Primary	59	11.75
	Middle school	84	16.73
	High school	138	27.49
	Higher secondary	53	10.56
	Graduate	26	5.18
	Post graduate	12	2.39
Number of siblings	None	24	4.78
	One	183	36.45
	Two	154	30.68
	Three	74	14.74
	Four	40	7.97
	Five and above	27	5.38
Order of birth	First	211	42.03
	Second	156	31.08
	Third	74	14.74
	Fourth	32	6.37
	Fifth and above	29	5.78
*Family income (monthly)	Economically weaker section – upto Rs.2100	103	20.52
	Low income – Rs.2101-4500	197	39.24
	Middle income – Rs.4501-7500	114	22.71
	High income – Rs.7501 and above	88	17.53

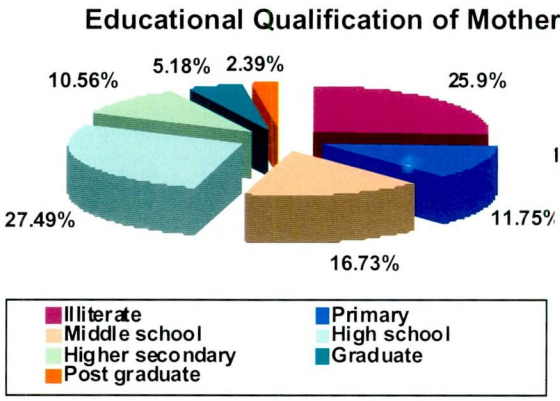
* Based on HUDCO (2004) income classification.

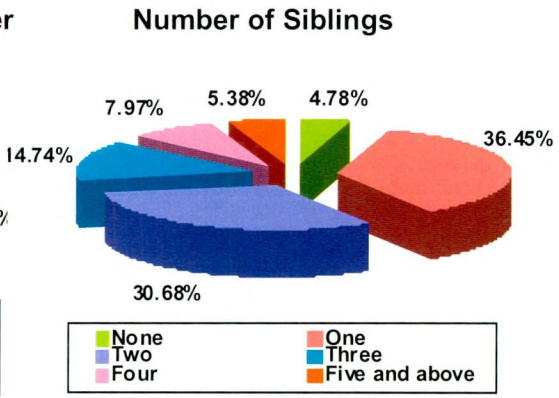


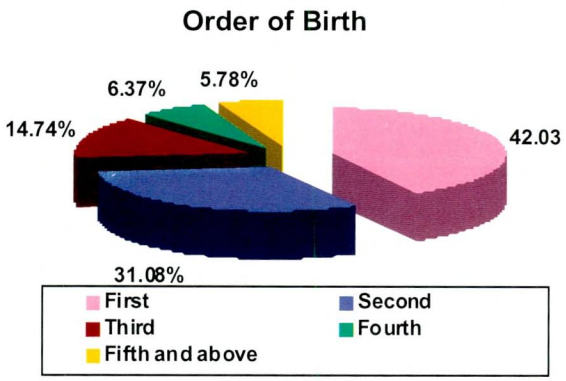
Family Details of the Sample











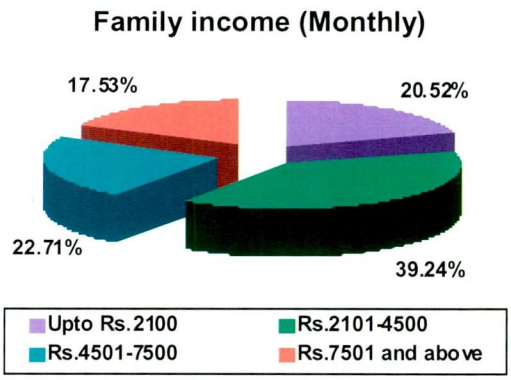


FIGURE 3.1

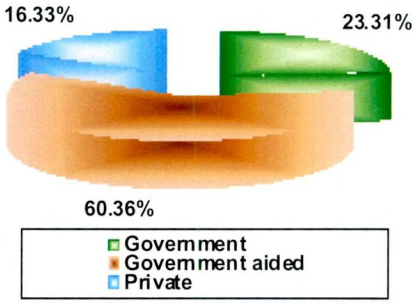
PERSONAL PROFILE OF THE SAMPLE

TABLE – 3.3

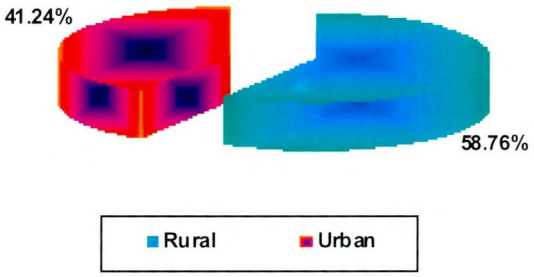
ACADEMIC PROFILE OF THE SAMPLE

Particulars		Number	Percentage
Type of institution	Government	117	23.31
	Government aided	303	60.36
	Private	82	16.33
Locality of the institution	Rural	295	58.76
	Urban	207	41.24
Subject specialization	Arts	125	24.90
	Science	377	75.10
Academic performance (Percentage of marks in B.Ed.)	50 – 59	387	77.09
	60 – 69	109	21.71
	70 and above	6	1.20
Hostel experience	Yes	401	79.88
	No	101	20.12
Number of years in hostel	Nil	101	20.12
	1 year	182	36.25
	2 years	31	6.18
	3 years	47	9.36
	4 years	54	10.76
	5 years	14	2.79
	Above 5 years	73	14.54

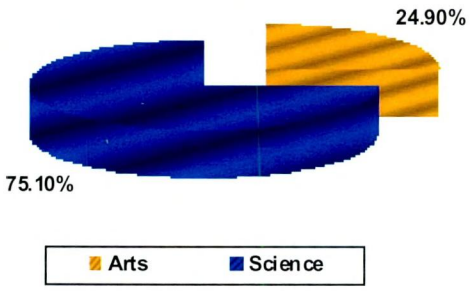
Type of Institution



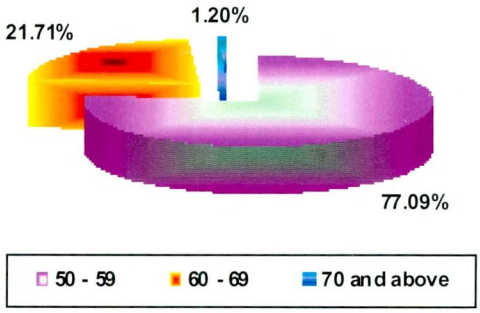
Locality of the Institution



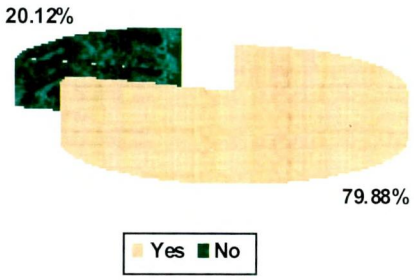
Subject specialization



Academic performance
(Percentage of marks in B.Ed.)



Hostel experience



Number of years in hostel

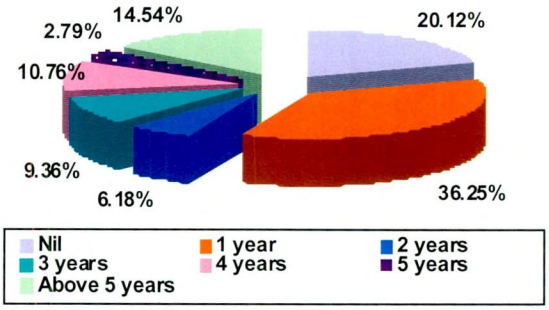


FIGURE 3.2

ACADEMIC PROFILE OF THE SAMPLE

3.6 CONSTRUCTION OF THE TOOL

Any research work in education or social sciences, for its success, depends upon appropriate tools for measuring the required variables. A great variety of research tools are widely employed for collecting relevant data. The selection of suitable tool is a necessary condition for any successful research.

The tools used for the present study are :

1. Personal Data Sheet (prepared by the investigator)
2. Emotional Intelligence Scale (prepared by the investigator)

3.6.1 Personal Data Sheet

The personal data sheet is meant to collect information regarding the personal variables like gender, type of family, educational level of parents, number of siblings, order of birth, monthly income of the family, details of hostel experience, type of institution, locality of institution, subject specialization and percentage of marks scored in the Bachelor of Education Course (Appendix – I).

3.6.2 Emotional Intelligence Scale (EIS)

The present investigation on emotional intelligence necessitated the need for constructing a valid and reliable emotional intelligence scale to be used on teacher trainees. This is the major tool used in this study. Consistent with the theoretical underpinnings of extant research on emotional intelligence, the basis of the items was derived from Bar-On's (1997)

conceptualization of the dimensions of emotional intelligence. A careful study of literature on emotional intelligence from various resources like books, journals, leading dailies and a discussion with a panel of experts in the field of education and psychology helped the investigator to develop the present tool.

The major steps followed in the construction of the Emotional Intelligence Scale include :

a. Planning of the tool
b. Item writing
c. Pilot study
d. The final tool.
e. Establishing reliability and validity

a. Planning of the Tool

A tool should never be lopsided. To avoid over representations or neglect of any specific area, advance planning is necessary. After thoroughly analyzing the different views on emotional intelligence (Appendix – II) and referring literature from journals and books on emotional intelligence and educational psychology, the items for the present tool were decided. The details of the dimensions selected for the study are described below :

(i) Intrapersonal Ability

The first component, intrapersonal ability, assesses the inner self. It is the ability to be aware of and understand oneself, one's emotions and to

express one's feelings and ideas. Individuals who score high on this section are considered to be in touch with their feelings, they feel good about themselves, and they feel positive about the way things move in their lives.

Persons who possess this ability do not hide their weaknesses. They can talk about fear, frustration, excitement and envy. They can understand and speculate about the feelings of others.

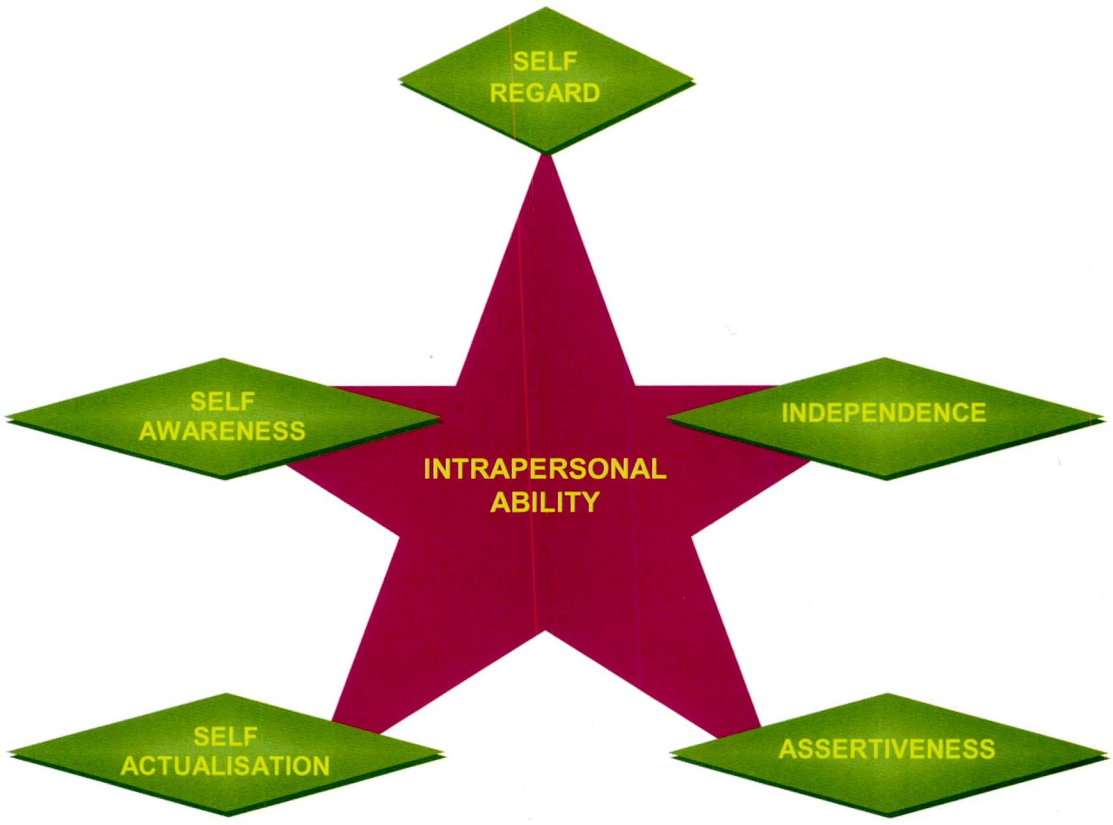


FIGURE 3.3
INTRAPERSONAL ABILITY

Intrapersonal ability allows us to tap into our being – who we are, what feelings we have, and why we are this way. Core competencies include emotional self-awareness, assertiveness, self-regard, independence and self-actualisation (Figure 3.3). A strong intrapersonal ability can lead to self-esteem, self-enhancement and a strength of character that can be used to solve internal problems.

Introspection, meditation, keeping a daily journal for recording our thoughts, dreams and feelings, reading self-help books, engaging in positive self-talk are some of the ways to enhance intrapersonal ability.

(ii) Interpersonal skill

It is the ability to be aware of, understand and to appreciate others' feelings as well as to establish and maintain mutually satisfying and responsible relationships with others. These are the characteristics of responsible and dependable individuals who have good people skills. Individuals who score high on this scale understand, interact and relate well with others.

It is the ability to get on well with other people as well as enjoying one's own company and the core competencies include empathy, social responsibility and interpersonal relationship (Figure 3.4).

Good interpersonal relationships can be developed by giving and receiving affection. When we feel that there are many persons around us to

love and help, we feel self confident and this contributes to our personal development.

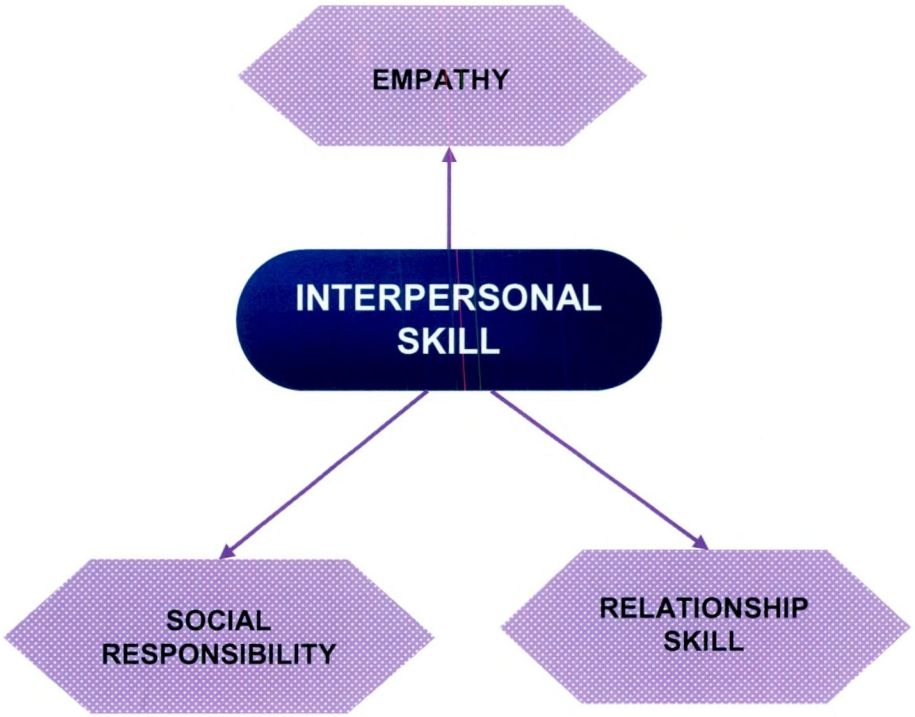


FIGURE 3.4
INTERPERSONAL SKILL

(iii) Adaptability

Adaptability refers to how successfully one copes with environmental demands and pressure and it is based on one's ability to effectively size up and deal with problematic situations. It concerns one's ability to size up and respond to a wide range of difficult situations. The core competencies include problem solving reality testing and flexibility (Figure 3.5).

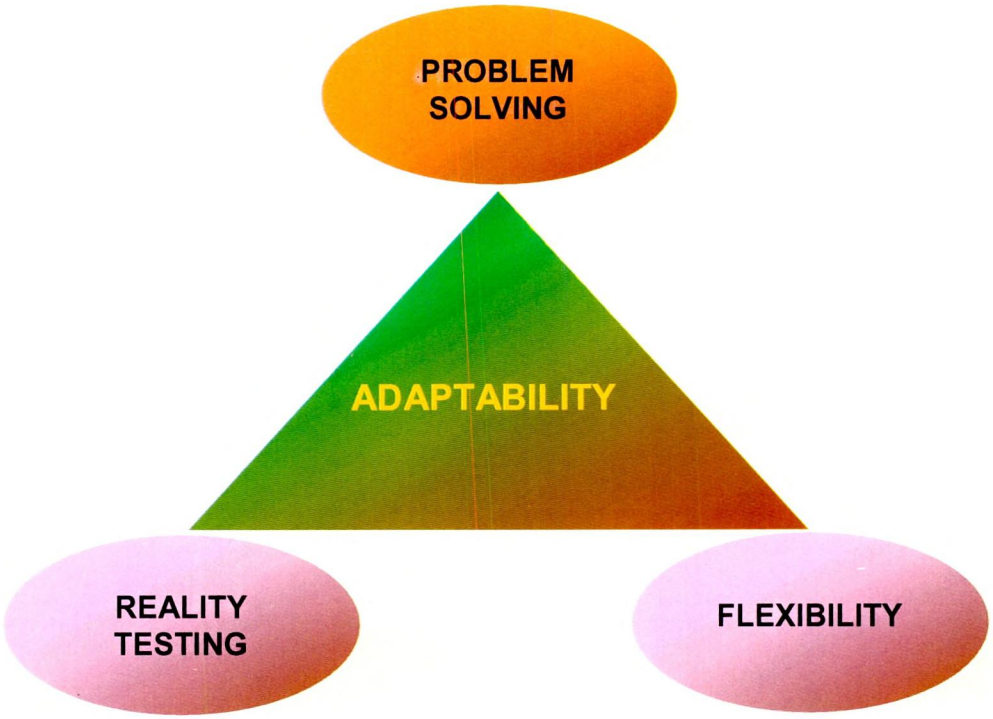


FIGURE 3.5
ADAPTABILITY

Problem solving involves sensing a problem and feeling confident and motivated to deal with it effectively. Reality testing means the ability to stay focused on the task at hand and seeing things objectively. Flexibility refers to the ability to remain open-minded to differing opinions and ways of thinking, and not to become too fixed on routines and learn new things easily and accept changes without much hassle. People strong in adaptability prefer to "go with the flow". They tend to be flexible, willing to adapt to new conditions and take things as they come.

(iv) Stress Management

Stress is a physical and mental demand that provokes responses that enable us to meet challenges or escape from danger. It involves the

continuous feelings of worry about our work or personal life that prevent us from relaxing properly. An optimum level of stress causes physiological arousal, alertness and prepares the body for vigorous activity, whereas too much stress can affect one physically and emotionally.

The ability to cope with stress and to control strong emotions is known as stress management. Stress management is concerned with the ability to withstand stress without falling apart, losing control, going under or caving in and also to resist or delay the impulsive drive. The core competencies of stress management are stress tolerance and impulse control (Figure 3.6).

FIGURE 3.6
STRESS MANAGEMENT

Stress tolerance is the ability to withstand adverse events and stressful situations and handle well the most difficult situations. Impulse control refers to the ability to tolerate frustration, control anger, and reduce explosive and unpredictable behaviour.

Stress could be managed to a greater extent by practicing yoga and doing exercise regularly taking healthy diet, getting enough sleep and by taking decisions after proper thinking.

(v) General Mood

The ability to be optimistic, to be content with oneself, enjoy the company of others, and to feel and express positive feelings constitute general mood. This dimension of emotional intelligence is an indicator of an individual's ability to enjoy life. The core competencies include happiness and optimism (Figure 3.7).

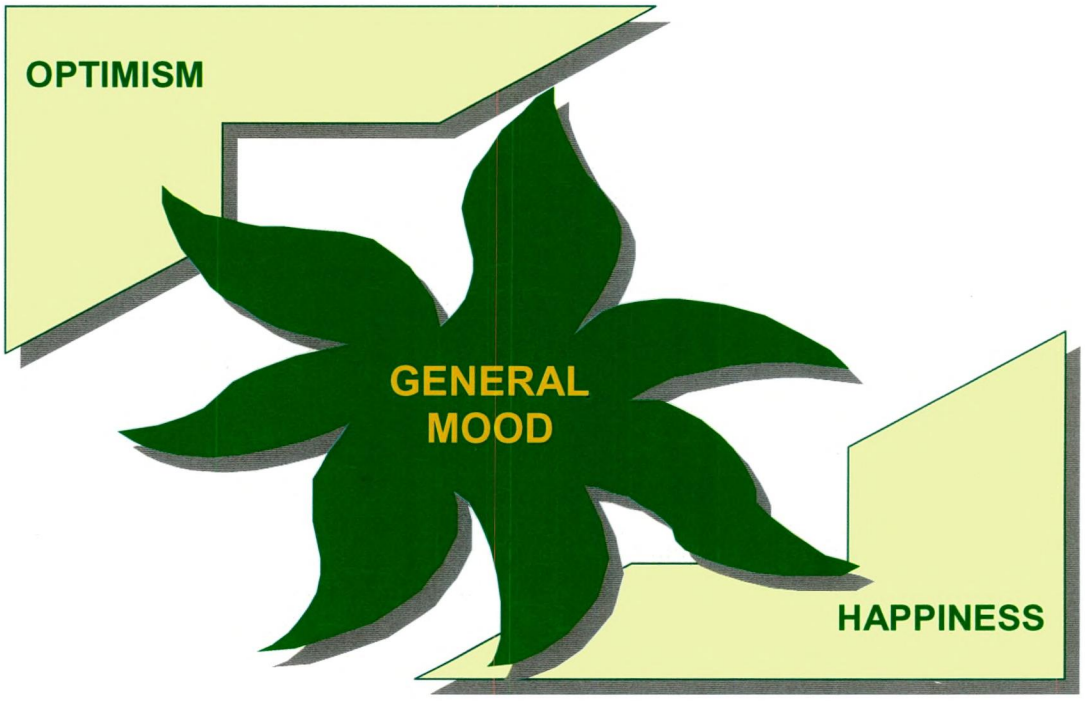


FIGURE 3.7

GENERAL MOOD

It measures one's general feeling of contentment and outlook on life. Happiness refers to the state of obtaining pleasure from life on a more consistent basis, feeling satisfied with one's life and enjoying the company of others. Optimism means a hopeful outlook on future.

b. Item writing

Keeping in view the five dimensions of emotional intelligence, namely, intrapersonal ability, interpersonal skill, adaptability, stress management and general mood, the items were prepared. Twenty items with almost equal number of positive and negative tones were prepared under each dimension. Thus a draft pool of items for assessing emotional intelligence was developed. It was prepared both in English and the regional language. The method used for item writing was the fixed response method. Here the respondent is expected to select his response, out of the given five responses, always, often, sometimes, rarely and never by putting a 'v 'mark in the appropriate column. These draft items were given to three teacher educators, four experts in the field of psychology, and two in linguistics. The language was made simple and clear. The suggestions from the experts resulted in the removal of certain items and modification of a few others. The exercise helped in the removal of repetition of ideas and redressal of ambiguity in language and meaning. At this stage, the items were reduced to 75.

c. Pilot Study

Pilot study was conducted by administering the tool for a sample of 400 teacher trainees of 2004-2005 batch studying in Colleges of Education in Coimbatore city. The data collected for the pilot study was used for the item analysis. The method of item analysis used in the present study is that of Mathew (1982), called the 'Mathew Item Analysis Table'. In this method, a sample size of 400 is considered to be ideal for item analysis. Hence in the pilot study 400 teacher trainees were taken as the sample.

(i) Item Analysis

Items were analysed both qualitatively and quantitatively. Qualitative analysis includes the consideration of content validity. Quantitative analysis is in terms of statistical properties. According to Oosterhof (1990), "Item analysis includes two levels of analysis-namely the level of item difficulty and the level of item discrimination." Item Analysis allows us to observe the characteristics of a particular item to ensure that the item is of an appropriate standard and select the same for test inclusion. 'Mathew Item Analysis Table', constructed on the basis of Guilford's formula was used for item analysis. The tool was administered and response sheets were collected. The response sheets were scored by assigning values 5, 4, 3, 2, 1 for positive statements in the order always, often, sometimes, rarely and never. The order of assigning scores was reversed for negative statements.

The response sheets were arranged in the order of the criterion score (the total score of the trial form of the test). Hundred response sheets each from highest and lowest criterion scores were taken as the upper tail and lower tail respectively.

The number of persons marking the middle answer 'sometimes' was counted separately and this number was divided and added to the frequencies in the dichotomous categories(items which can be scored as right or wrong and items which have one response as the keyed answer are called dichotomous items). There are five response categories (always, often, sometimes, rarely and never) in the emotional intelligence scale. Of the five the two responses getting the larger weightage were considered as the keyed (which is the correct answer in ability test and the answer which gets the higher weightage in dichotomous items in other types of test) and the other two response getting the smaller weightage indicated the non-keyed answer.

The final percentages needed for reading the item indices from the table were the following :

P_L : Percentage of individuals in the lower tail marking the keyed answer.

P_U : Percentage of individuals in the upper tail marking the keyed answer.

From the 'Mathew Item Analysis Table', for each item, the P_L value of the item was located first, then in that section, the P_U value of the item along the left margin was located and the corresponding phi and P values were noted.

(ii) Item Selection

The items having highest correlation values (phi values) and medium (in the middle range) P values were selected. One special feature of phi is that since phi value is found to be high for items having a medium P value, item selection based on phi alone would give the desired results. Items with phi values below the five per cent level of significance were not selected. It may be mentioned here that phi values were computed for every combination of P_L and P_U values using Guilford's formula. The P value is the mean of P_L and Pu values (Appendix III). The final scale consisted of 60 items which included both positive and negative statements.

The pilot study also helped to know about the time required to complete the draft scale of emotional intelligence and to incorporate certain necessary modifications in the tool. It was observed that 40-45 minutes time was taken by all the respondents to complete the draft scale.

d. The Final Tool

The final tool consisted of 60 items (Appendix IV) designed to assess the five dimensions associated with emotional intelligence namely, intrapersonal ability (12 items), interpersonal skill (12 items), adaptability (12 items), stress management (12 items) and general mood (12 items). For each of the 60 statements, respondents were required to put a 'tick' (v) mark indicating whether they 'always', 'often', 'sometimes', 'rarely' or 'never' think , feel, or act as specified in a given situation. The scale contains a

mixture of positively and negatively worded items which are randomly ordered. As these dimensions are interdependent and related to a composite ability, the total emotional intelligence score can be obtained by summing the scores on the five dimensions.

e. Establishing Reliability and Validity

Mostly, research in education is application oriented. The findings of the study become trustworthy, only when reliability and validity are established. As Merriam (1998) states, "regardless of the type of research, validity and reliability are concerns that can be approached through careful attention to a study's conceptualization and the way in which the data were collected, analysed and interpreted".

(i) Reliability of the Test

In the opinion of Best and Khan (2003), "A test is reliable to the extent that it measures whatever it is measuring consistently". The split-half method was adopted for the calculation of reliability co-efficient for the present tool. The items in the scale were split into two halves namely a list of odd numbered items and a list of even numbered items. The correlation was obtained between the scores of these two halves. The reliability test was administered on individual categories as well as the entire scale as a whole. The Spearman-Brown Prophecy formula was used to find out the reliability co-efficient and the values are presented in Table 3.4.

TABLE – 3.4

SPLIT- HALF RELIABILITY CO-EFFICIENT FOR EMOTIONAL INTELLIGENCE SCALE

Dimensions	Reliability co-efficient
Intra- personal ability	0.73
Inter- personal skill	0.66
Adaptability	0.69
Stress management	0.78
General mood	0.81
Complete scale	**0.74**

The high reliability coefficients of correlation show that the present tool is a reliable device to assess the emotional intelligence of teacher trainees.

(ii) Validity of the Test

According to Best and Khan (2003), "Validity is the quality of a data-gathering instrument or procedure that enables it to measure what it is supposed to measure". It is the efficiency with which a test measures what it attempts to measure.

In this study, the content validity was found by systematically analysing the content area under study. In the opinion of experts, this test possessed face validity. As the reliability co-efficient were high the test is considered to be valid (Garret, 2005).

3.7 CONDUCT OF THE STUDY

After establishing reliability and validity of the tool, the finalized Emotional Intelligence Scale was used to collect data from teacher trainees of 2005-2006 batch studying in different Colleges of Education in Coimbatore city. The colleges were personally visited by the investigator for the collection of data after seeking permission from the Principals of the concerned colleges.

Students were tested in groups of about 25-30 participants. Rapport was created with the respondents before the administration of the tools. Before filling the Emotional Intelligence Scale, all participants completed a brief questionnaire containing a few basic demographic questions on matters such as gender, family details, income, locality, hostel experience and subject specialization. After filling the personal data sheet, the investigator gave necessary directions to fill correctly all the items in the Emotional Intelligence Scale. The respondents were asked to fill all the items in each of the five sections by putting a 'tick' mark against any one of the options in the five point scale with anchors 'always' and 'never'. The time limit was fixed to be 40 minutes. After all the items were completed by all the students, the investigator carefully collected the response sheets. Academic records were collected from the office of the Controller of Examinations.

3.8 SCORING AND TABULATION

All the response sheets were scored systematically using the scoring key. In this scale, for all positive statements a score of 5, 4, 3, 2 or 1 is to be given respectively for the responses 'always', 'often', 'sometimes', 'rarely' or 'never'. After scoring, the data were organized and tabulated. The maximum score that could be attained in each section was 60. A high score on each section indicates the presence of the respective component of emotional intelligence.

The data obtained from the respondents were consolidated for the purpose of analysis. This was done by assigning an identification number for each participant in the coding sheet. Against that number, the details collected from personal data sheet and scores obtained in all the five dimensions of emotional intelligence and the total score obtained were noted. A break up of the individual scores on all five dimensions of emotional intelligence, total emotional intelligence scores and marks obtained in their academic performance are given in Appendix V.

3.9 DATA ANALYSIS PROCEDURE

Statistical analysis was done both quantitatively and qualitatively. The statistical procedure for quantitative analysis yielded statistical indices which were made use of in the interpretation of data and drawing conclusions. The major statistical procedures used in the study were as follows:

For the preliminary analysis of test scores, the basic statistical indices like mean, median, standard deviation, skewness and kurtosis were calculated.

Pearson's product moment coefficient of correlation was used to find out the relationship between the different dimensions of emotional intelligence and the relationship between emotional intelligence and academic performance of teacher trainees. Chi-square was applied to find out the association between emotional intelligence and academic performance.

Test of significance between means was used to compare the emotional intelligence of teacher trainees classified on the basis of factors like gender, type of family, locality of institution and subject specialization.

ANOVA was used to compare the emotional intelligence of teacher trainees in relation to the variables educational qualification of father, educational qualification of mother, number of siblings, order of birth, monthly income of family, number of years in hostel and type of institution.

Percentage analysis was used for analyzing the data qualitatively.

3.10 CONCLUSION

Having described the detailed methodology of the study in this chapter, a thorough analysis and interpretation of the data for the study is presented in Chapter IV.