Emotional Intelligence of School and Professional College Students: An Empirical Study

THESIS
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By
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Under the Supervision of
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CERTIFICATE

This is to certify that the thesis entitled **"Emotional Intelligence of School and Professional College Students: An Empirical Study"** and submitted by Shamira Soren Malekar ID.No. 2004PHXF442 for award of Ph.D. Degree of the Institute embodies original work done by her under my supervision.

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ABSTRACT

Emotional Intelligence (EI) is a subject of intensive and extensive investigations by academicians as well as management professionals. Many researchers have developed different models and measures over the last few years and a very large number of organizations have used them in different contexts. This thesis makes an attempt to assess and evaluate these models and measures to capture the varied perceptions and perspectives of EI and to provide some significant learning to facilitate researchers and professional managers for better understanding.

There is a continuing debate regarding how big a role emotional intelligence (EI) plays in helping people to be successful in life. Our proposition is that if EI is developed properly at an early age and career of school and college students, they might successfully meet life's challenges and societal requirements and might contribute to human capital formation. This thesis aims at studying the applications of emotional intelligence (EI) for schools and professional college students. It is found from literature that a few studies are available relating to the applications of EI among school students. This thesis attempts to identify critical determinants of EI for school and professional college students representing the diversity of India. Such a study will be useful in providing feedbacks about the potentials and limitations of each individual to the parents, teachers and other stakeholders. An empirical analysis has been conducted to derive some meaningful conclusions for furtherance of research.

Even though the primary attention of education is academic performance, there is simply too much convincing evidence that schools and colleges should not and cannot neglect the development of EI skills. Emerging trends necessitate new studies and applied research on the contributions of the emotional mind and the emotional domain of learning. Building healthy and productive students requires the active and intentional development of EI skills and competencies as normal and integral part of the process of education. To achieve this balanced perspective, the youth framework model of Bar – On (1997[a]) is reviewed and discussed. This study would be instrumental in assessing and analyzing the EI of school and professional students so that teachers and parents to better meet the future needs of the society. Impact of exogenous variables like age, gender, parental upbringing, and family income etc. influences on EI scores is also analyzed. The impact of communication on EI of school students is also tested. Individuals communicate for their personal purpose. In students, they learn the different

aspects of communication daily as they are in the development and learning phase of life. Since students are the future of our organizations, it is essential to measure their understanding in communication (UC) and level of responsibility in communication (RC). Communication, being an aspect of EI as specified by Goleman (1995) is important for everyday interactions. The aspects of measuring the level of UC and RC have not been reported in contemporary EI literature.

The idea behind our total approach is that the students will grow into what they are capable of becoming, provided we create awareness in them about EI and the school environment and parents create the proper conditions for that growth of intelligence. This research is not aimed at determining whether individual student becomes effective or ineffective. It is about exploring the linkages and relationships between EI and its constituent determinants along with understanding and level of responsibility in communication. It is also about formulating EI radars and ladders to facilitate competency development.

This thesis adopts an exploratory type of research design, which aims at obtaining complete and accurate information. There is enough provision for protection against biases and prejudices and even for a-priori perceptions, which help in improving reliability of data. Using purposive quota sampling technique for this exploratory design, instruments collected data from students (9 – 14 years). However a random sampling method was used by conducting open workshops for professional students (21 -27 years). A survey was conducted, which comprises of a cross sectional study in relation to the collection of data by deploying questionnaires and structured interventions with many variables to detect patterns of associations. Cross sectional study facilitates examination of relationships between multiple variables. Hypothesis-based research to test the hypotheses of causal relationships between variables was deployed. Such studies require procedures that will reduce bias and increase reliability. This research incorporates numerous hypothesis statements, which are statistically validated. A variety of statistical methods such as reliability testing, correlation analysis, regression analysis, discriminant analysis, testing of hypothesis by independent sample T test and ANOVA and cluster analysis are deployed to derive meaningful and substantive conclusions.

Bar-On (1997[b]) outlines that EI scores can be measured by using five composites scales decomposed into fifteen subscale scores such as: intrapersonal EQ-i (comprising self-regard, emotional self-awareness, assertiveness, independence, and self-actualization), interpersonal

EQ-i (comprising empathy, social responsibility, and interpersonal relationship), stress management EQ-i (comprising stress tolerance and impulse control), adaptability EQ-i (comprising reality testing, flexibility, and problem solving), and general Mood EQ-i (comprising optimism and happiness). This research uses the same scales and subscales for testing students in the age group 9 – 14 years and 21 – 27 years.

The emotional quotient inventory: youth version (EQ-i YV) by Bar –On and Parkar (2000) is selected for 9 -14 years along with communication questionnaires by Rosakis (1995). Bar- On's (1997^{b}) instrument – the emotional quotient inventory (EQ-i) is selected for 21 – 27 years. The inventory includes the following four validity indicators: omission rate (the number of omitted responses), inconsistency index (the degree of inconsistency between similar types of items), positive impression (the tendency to give an exaggerated positive response), and negative impression (the tendency to give exaggerated negative response).

A sample size of 5464 students in the age group of 9-14 years were selected representing different types of schools and students drawn from a variety of socio- economic, cultural and ethnic background. In a similar manner, 752 samples were drawn from the age group 21- 27 years representing different professional educational disciplines. Data were collected from February to September in 2006. To ascertain accuracy and consistency, workshop for students along with personal interviews for teachers and parents were conducted. Additional data to check the predictive validity of the regression analysis were collected in Jan - July 2008 (375 students: 9 -14 years and 253 students: 21 – 27 years).

Descriptive analysis of the data suggests that the targeted sample was appropriate and the various items developed for the performance measures are significant. Further, the data obtained from the survey is subjected to statistical analysis using statistical computing package SPSS® 11.5 for MS Windows®. This study follows the relational model of database systems development that organizes and represents data in the form of tables and relations.

In this study, reliability for EQ-i YV and UC and RC in the form of Cronbach Alpha was found to be 0.69 to 0.86 for the seven factors and an overall average internal consistency of 0.78. The empirical analysis revealed that intrapersonal EQ-i ($r = 0.604$), interpersonal EQ-i ($r = 0.656$), stress management EQ-i ($r = 0.542$) and adaptability EQ-i ($r = 0.712$) have high degree of association with the EI construct. At 0.01 levels, UC and RC do not correlate with intra personal EQ-i, interpersonal EQ-i, stress management EQ-i, adaptability EQ-i and general mood EQ-i.

Excellence and reasoning in communication are difficult to be identified at such a tender age and would probably increase sharply with age.

Regression equation has been established to predict EI. Four explanatory variables - intrapersonal EQ-i, interpersonal EQ-i, stress management EQ-i and adaptability EQ-i are significant factors affecting EI. General mood EQ-i along with UC and RC are not significantly affecting EI and hence cannot be considered as a factor. Since the R square value was found to be 0.835, further sophistication of the equation was sort with gender and logarithmic exponential with no change in value. Predictive validity of the equations was sort with additional sample of 375 students and results indicate that regression equation developed is reasonably good. Discriminant analysis revealed an equation that could predict the category of the student 99.2% accurately – low EI, high EI and very high EI. Cluster analysis revealed the formation of four distinct clusters. Clusters led to the formation of EI radar which could help navigate the student with low scores of EI. Correlation results lead to the EI competency ladder development. The EI radar and EI competency ladder together lead to the development of twenty seven curricula codes for students (9 – 14 years). Fifty nine hypotheses statements are tested, which include statements for age, gender and the socio- economic background of the students.

A similar analysis is conducted for professional students in age group of 21- 27 years. Reliability for EQ-i in the form of Cronbach Alpha was found to be in the range of 0.79 to 0.87. Correlation analysis revealed intrapersonal EQ-i ($r = 0.842$) has highest correlation with EI followed by General mood EQ-i ($r = 0.841$). Subsequent subscales correlate highly with their corresponding factors of EI. Two equations measuring EI and category of student's EI are proposed. Cluster analysis leads to the formation of EI radar, which directs academicians and practitioners with the level of the factor scores of EI. Based on the EI radar and EI ladder, curricula can be devised to increase the scores of factors of EI and ultimately the total EI score.

Eleven hypotheses statements are tested, which include statements for age, gender and the socio- economic background of the students. The empirical analysis revealed the association and the strength of association of each of the factors. Five factors had the maximum degree of association with EI for both age groups of students (9- 14 years and 21 – 27 years). The correlation with communication ability was low but it signifies symptomatic relationship in terms of its association with interpersonal ability. Regression analysis found four of the five

factors (excepting general mood) significant for 9 – 14 year students and all the five factors significant for 21 – 27 years age group. The predictive power of the equation yields similar results. Discriminant analysis established the equation predicting the categories of EI whether very high EI (scores above 110), high EI (scores between 90 and 110) and low EI (scores below 90). Four clusters were formed using cluster analysis lead to formation of EI radar, which along with EI competency ladder created the basis for EI curricula. EI radar with EI ladder leads to the formation of EI curricula that is proactive in providing feedback and an effective tool in coaching and counseling. This research concludes that EI is the aggregation of the innate characteristics and the knowledge and skills that individuals acquire and develop throughout their lifetime. There is undoubtedly evidence-identifying EI as important in predicting personal and school success, and this has potential implications for students. However, educators need to be cautious in making claims until more research evidences are available from the EI community. The study highlighted to develop students in ways that are personally meaningful, as well as constructive and meaningful for society. Education, training, and counseling approaches aimed at developing personal excellence in individuals will provide a widely applicable model for making the world a better place. Even though the primary attention of education is academic performance, there is simply too much convincing evidence that schools and colleges should not and cannot neglect the development of EI skills. Emerging trends necessitate new studies and applied research on the contributions of the emotional mind and the emotional domain of learning. Building healthy and productive students requires the active and intentional development of EI skills and competencies as normal and integral part of the process of education. Thus the final purpose of the research is to create a platform that can practically be used to measure EI and its significant factors and thus provide guidance in the development of youths pursuing career oriented studies to build modern India.

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LIST OF ABBREVIATIONS

Symbol/ Abbreviations	Description
AD	Adaptability
AES	Assessment of emotional skills
AICTE	All India Council for Technical Education
AS	Assertiveness
CBSE	Central board of Secondary education
CEO	Chief executive officer
DBMS	Database management systems
ECI	Emotional Competence Inventory
ECI-2	Emotional Competence Inventory, Version 2
EI	Emotional Intelligence
EM	Empathy
EQ	Emotional Quotient
EQ-i	Emotional Quotient Inventory
EQ-i YV	Emotional Quotient Inventory- Youth Version
ES	Emotional self-awareness
FL	Flexibility
GM	General mood
GPA	Grade Point Average
HA	Happiness
HC	Human capital
HCD	Human capital development
HDI	Human Development Index
HRD	Human Resource Development
IC	Impulse control
ICSE	Indian Central Board schools
IFEIL	Indian forum for emotional intelligence learning.
IN	Independence
IQ	Intelligence quotient
IR	Interpersonal relationship
INT	Interpersonal ability
IT	Intrapersonal ability
MBA	Master's in business administration
MCA	Master's in computer application
MEIS	Multi-factor Emotional Intelligence Scale
MSCEIT	Mayer-Salovey- Caruso Emotional Intelligence Test
MSCEIT - YV	Mayer-Salovey- Caruso Emotional Intelligence Test – Youth Version

OP	Optimism
PS	Problem solving
RC	Responsibility in communication
RE	Social responsibility
RT	Reality testing
SA	Self-actualization
SI	Social Intelligence
SM	Stress Management
SR	Self-regard
SSC	Secondary School Certificate Examination
SSRI	Schutte Self-Report Inventory (SSRI)
ST	Stress tolerance
SUEIT	Swinburne University Emotional Intelligence Test
TEIQue	Trait Emotional Intelligence Questionnaire
TMMS	Trait Meta-Mood Scale
UC	Understanding in communication
WEIP	Workgroup Emotional Intelligence Profile
WLEIS	Wong and Law Emotional Intelligence Scale

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CHAPTER 1

INTRODUCTION

This chapter briefly introduces the importance of emotional intelligence (EI) as a field of study and presents the background, rationale, significance, objectives, scope and methodologies adopted to undertake the research.

1.1 INTRODUCTION

Emotional intelligence (EI) is a relatively new and growing area of behavioral science research, having caught the attention of the general public, the management professionals and the academic community. The evolution of EI during the past several years has led to the publication of a variety of predominantly popular research papers and books. Emotional intelligence also connects with several cutting-edge areas of psychological science, including the neuroscience of emotion, self-regulation theory, studies of Meta cognition, and the search for human cognitive abilities beyond "traditional" academic intelligence. Most publications relate to the explanations, modeling, measurement and applications of EI in the context of individuals and corporations. Corporations have used EI for organizational development as well as for enhancing managerial effectiveness (Lowe et al., 1996). EI improves management practices and also helps in leadership development (Druskat and Wolffe, 2001). EI has been instrumental in motivating and creating a culture of high performing workplace. EI applications in the workplace include organizational initiatives like recruitment, leadership development, team building, succession planning, organizational effectiveness and performance management. Harrison (1997) has portrayed EI as a core competency of many corporations. EI has strong linkage with sustainable competitive advantage (Beinhocker, 2000). EI facilitates innovations in the work place and also

helps in enhancing employee creativity and risk taking ability (Eisenhardt, 1999). Cherniss and Goleman (2001) claimed that EI has emerged as the most influencing concept in the contemporary corporate world and has made profound impact on the areas of societal development, education, and health care. Thus it seems that research and the majority of organizations believe that emotional intelligence skills are critical.

1.1.1 Background

EI literature provides enough evidences that a number of empirical studies (Newsome et al, 2000; Petrides and Furnham 2001, 2004; Rubin, 1999) are available to measure EI and testing its validity with business organizations. An attempt is made in this research study to model, measure and test the EI in the education sector of a society. EI has been used in education to lay the foundations to build the culture of a school / college committed to learning (Parker et al 2004[a]). This is achieved through emotionally intelligent parents and teachers - the building blocks of the school system. However, relatively small numbers of evidences are found in the area of application for school students. There are studies (Parker et al, 2004[b]) that demonstrate the link between EI and academic achievement in students making transition from high school to a post secondary environment. A finding by Newsome et al. (2000) and Van der Zee et al. (2002) prove that EI is uncorrelated to cognitive ability relating to academic performance (cited in Petrides et al., 2004). Another study by Reiff et al. (2001) showed that students with learning disabilities had lower EI scores than their non-disabled counterparts. A very few studies are available to demonstrate the significant determinants of EI amongst students. This study deals with students of schools and professional colleges as they represent the future human capital (HC) of any nation. Yet, while companies are allotting significant amounts of their budget to this cause, the school systems are still in the beginning stages of implementing programs oriented toward emotional and social

learning. These programs are still in their infancy. It may be that even with the research base indicating the importance of emotional intelligence for career success; some school system administrators may still possess the traditional view of emotion and intelligence as polar opposites. This is problematic because research suggests that learning new skills, such as emotional intelligence, is easier when one is young (Goleman, 1995). Even many governments support the acquisition of work-related skills when young.

1.1.2 Significance

Academic and cognitive developments are the primary goals of schools and colleges. It might prove disastrous, if the emotional and affective domain is neglected as an important and necessary role for schools and communities. A blending of academic (cognitive), behavioral (action), and affective (emotional) dimensions is needed to address the complex issues facing education (Low et al., 2004). To understand these issues and challenges of public education, there is a need to develop responsible and emotionally healthy students and teachers. Emotional skills development and personal responsibilities need to be embraced and examined with academic and behavioral dimensions.

Educators have tried to predict academic achievement of students since the early days of standardization of group achievement and scholastic ability tests. Extensive studies at schools and organizational levels indicate that emotional intelligence skills are essential to achievement, leadership, and personal health (Goleman, 1995; 1997). Further, Goleman indicates that when high levels of leadership are required, emotional intelligence is a much greater predictor of success than traditional measures of intelligence. In studying the world's best educational practices, Dryden and Vos (1994) reported that personal and emotional developments are at the very center of these programs. Their findings indicate that the emotional intelligence skills of self-esteem and personal

confidence are essential to all learning. They declare that education that fails to address these factors (i.e. personal/emotional domain) will fail in its other tasks as well (Dryden and Vos, 1994). Leading educators have identified and emphasized the importance of a healthy school climate for student learning and achievement (McQuary, 1983). Schools are much more than settings for producing specific learning outcomes. A healthy school climate is much more than an environment conducive for teaching academic content. It is also a learning environment for teaching personal and social development, successful career strategies, and healthy emotional development. Emotional intelligence skills and competencies are the important determinants to creating and maintaining a healthy and productive school climate.

In recent years, low-test scores and accountability standards have been the focus of education reform and criticism directed to public education at all levels. The broader mission of education becomes clouded when effectiveness is defined solely on the basis of performance on standardized assessment models (Low et al., 2004). Test scores reflect the narrow emphasis of schooling rather than the broader mission of education. A healthy school climate focusing on academic, career, and leadership development requires an emphasis on affective or emotional learning as much as on academic or cognitive learning.

In addition to state and national academic performance indicators, there are several other issues that are indicators for change, reform, and renewal. School violence, physical - emotional safety, abuse and dropout and retention rates are current examples. A major challenge for education is to provide safe campuses, healthy learning climates, and rigorous academic curricula taught by qualified teachers for interested and motivated learners. Healthy and safe learning environments are necessary for students and teachers to perform at their highest levels.

Changes in the nature of work and productivity demands of a global economy necessitate additional restructuring and reform efforts. As schools and colleges prepare students for careers and productive employment, education will continue to modify its programs and instruction. As colleges prepare students for positions of responsibility and leadership, there will be an increased interest and recognition of the importance of the contributions of the emotional mind. To adequately prepare children for future employment, we need to teach a broader range of skills and competencies than is currently addressed in schools. Schools are moving toward a preventative approach to promote student social and emotional development. Researchers seem to agree that the best approach is comprehensive so as to develop a broad range of social and emotional skills that can be generalized to many settings (Fleming and Bay, 2004) and to integrate programs into the curriculum, not as an instructional unit but as a caring learning context that is a comprehensive, multiyear program. In short, learning and applying emotional intelligence skills contribute to academic and career success.

This research puts forth an effort to synthesize and integrate some of the major findings of some studies on emotional intelligence skills, as they relate to the goals of education and human development. The main goal of these studies is to provide a coherent and practical approach to human emotional behavior that students can learn and apply to stay healthy both physically and mentally, think of career progression, and enhance individual and collective productivity.

The use of EI to aid the student development process can address non-academic life challenges. Fostering EI can assist students in adapting to the environmental demands (Sternberg, 1985) and pressures of the school environment. Investing in the emotional development of students also impacts leadership effectiveness, both on campus and in the future career. EI skills are vital to human performance and the management of successful learning organizations. Even though the

primary attention of education is academic performance, there is simply too much convincing evidence that schools and colleges should not and cannot neglect the development of EI skills and other personal and social factors. Emerging trends necessitate new studies and applied research on the contributions of the emotional mind and the emotional domain of learning. Building healthy and productive students requires the active and intentional development of EI skills and competencies as normal and integral part of the process of education. To achieve this balanced perspective, the student framework model of Bar – On (1997[a]) is reviewed and discussed.

This study would be instrumental in assessing the state–of–the–art of EI. It also analyzes the EI of school and professional students so that academics and parents to better meet the future needs of the society will use it. Impact of exogenous variables like age, gender, parental upbringing, and family income etc. influences on EI scores is tested.

The next aspect of this research is the impact of communication on EI of school students. Communication is a social need of an individual. It is the lifeblood for an organized life. Individuals communicate 70% of their waking time. An organization communicates 90% of its working time (Chaturvedi, 2006). Individuals communicate for their personal purpose. Communication in organization is for business purposes - bringing all aspects of business together – employers, customers, suppliers, and intermediaries, public and so on. That is why it is needed to understand communication at - the individual level and also at the organizational level. Since students are the future of our organizations, it is essential to measure their understanding in communication (UC) and level of responsibility in communication (RC). Communication, being an aspect of EI as specified by Goleman (1995) is important for everyday interactions. In students, they learn the different aspects of communication daily as they are in the development and learning phase of life. Communication helps in interactions with parents,

teachers, peers, elders and friends, thus building strong interpersonal relationship. It is also an important aspect in motivating others and displaying empathy. People, who tend to be task driven, routinely demonstrate loss of patience during listening and signal detachment from the process in a variety of ways, verbal or non – verbal (Elium et al., 2000). Children are expected to spend a large chunk of their time listening and learning from what they assimilate. They are also the most malleable in terms of modification of behavior that leads to positive results. The key really is in the inputs that get communicated to them in their formative years (Elium et al., 2000).

The aspects of measuring the level of UC and RC have not been reported in EI literature. However, there is evidence that Thurstone (1920) pointed out IQ did not consider the aspects of communication such as reasoning, verbal comprehension etc.

This research is being conducted in Indian setting. Since India is a diverse country with various social backgrounds coupled with diverse cultural values, combined together present a very unique challenge to the education system of the nation. The human development index (HDI) of 0.619 portrays it as a developing country (HDI report, 2007). The key manifestations of underdevelopment are: low incomes, poor quality of life, massive poverty, severe unemployment and insufficient and unsustainable growth (Agrawal, 2003). Some common characteristics that are basic to most developing economies and are found in varying degrees are (Agrawal, 2003): economic backwardness, low income, underused natural resources, predominance of agriculture, predominance of primary exports, insufficient capital and traditional techniques, illiteracy and skill shortages, demographic pressure, underemployment and disguised unemployment, inappropriate institutions, fragmentation and distortion of society on caste, community and religion. It is postulated here that EI could be the tool to increase the HDI of India and place the country as one

of the developed countries in the world. According to the HDI report (2007), the higher values of 0.8 and above meant developed countries. For India, EI could be the ladder to human development.

1.1.3 Rationale

This research targets students–both of schools and professional colleges, as they are the future HC of the nation. HC represents the knowledge, skills and abilities that make it possible for people to do their jobs. Human capital development (HCD) is about recruiting, supporting and investing in people, using a variety of means, including education, training, coaching, mentoring, internships, organizational development and human resource management (LISC 2008). Students can be developed through EI–first step being testing their existing level of EQ and then building on their skills and abilities through EI. Schultz defined HC theory as "the knowledge and skills that people acquire through education and training as being a form of capital, and this capital is a product of deliberate investment that yields returns" (Nafukho et al., 2004). In 1961, Schultz wrote, "Although it is obvious that people acquire useful skills and knowledge, it is not so obvious that these skills and knowledge are a form of capital, or that this capital is in substantial part a product of deliberate investment". Schultz called the body of knowledge that sought to describe, explain, and validate this phenomenon HC theory (as cited in Baptiste, 2001). According to Becker (1993), schooling, training courses, medical care, and lectures on personal improvement are all capital too because these "improve health, raise earnings, or add to a person's appreciation of literature over his or her lifetime". Thus, Becker argued that these are investments in capital—HC. The formation of HC takes place by developing intelligent individuals in schools and colleges, who will be capable decision makers and leaders. Thorndike (1920) divided intelligent activity into three components: social intelligence, concrete intelligence, and abstract intelligence.

Beyond social intelligence, Gardner (1983) proposed his theory of multiple intelligences, which included both interpersonal and intrapersonal intelligences. He attributed both these domains to social intelligence. Gardner defined them as follows: Interpersonal intelligence is the ability to understand other people: what motivates them, how they work, how to work cooperatively with them. Intrapersonal Intelligence is a correlative ability turned inward. It is a capacity to form an accurate, veridical model of self and to be able to use that model to operate effectively in life.

The concepts of EI are stated to be based on extensive scientific and research evidence. However, little research has been conducted in the context of educational institutions (the building blocks of HC). The corporate applications are largely case descriptions and tend to be based on derivative arguments. Therefore, it is attempted here in this thesis to substantiate EI applications in schools and professional colleges of a pluralistic country like India. The idea is that EI may lead to personal and professional success has generated a great deal of excitement among the general public, managers, academics, and business consultants alike. According to popular opinion and work-place testimonials, EI affects individual performance. Proponents claim that increasing emotional intelligence can do everything from improving the general quality of work life to enhancing career success. Although much work has gone into the development and application of EI in people's lives, there has been a general lack of independent, systematic analysis of the claim that EI increases individual performance over and above the level expected from traditional notions of general intelligence. Therefore, in the present study, we examine EI of students of two different age groups (9- 14 years and 21 – 27 years)

1.2 OBJECTIVES

This thesis aims at the following:

1. To develop an understanding about the concepts, evolution and applications of EI from literature.

2. To adapt an instrument to measure EI, UC and RC of students (9-14 years) and measure EI of professional students (21 – 27 years).

3. To study the empirical relationships between EI, UC and RC.

4. To depict the commonalities and differences of EI scores and the associated factors between students (age 9-14 years) of schools and professional colleges (age 21-27 years).

5. To construct EI radars based on cluster analysis for both school and professional students.

6. To construct factor specific EI competency ladders for students to be trained in mastering EI competencies based on suitably devised curricula.

The idea behind our total approach is that the students will grow into what they are capable of becoming, provided we create awareness in them about EI and the school environment and parents create the proper conditions for that growth of intelligence. This research is not aimed at determining whether individual student becomes effective or ineffective. It is about exploring the linkages and relationships between EI and its constituent determinants along with understanding and level of responsibility in communication.

1.3 SCOPE

Schools and colleges play an important role in the overall development of a child from a very early age. There are several factors that generally determine the quality of a school like infrastructure, academic results, extra-curricular activities and quality of teaching staff. In this study we have sampled schools and colleges in Maharashtra. The aim of the present study is to

measure EI, UC and RC of Indian school students (age 9-14 years) coming from different socio-economic backgrounds and different schooling contexts. Similarly, EI of students of professional colleges (age 21-27 years) is measured.

1.4 METHODOLOGY

The objectives outlined earlier are achieved through the accomplishment of the following tasks:

a) A review of literature related to EI of students with thematic representation of the phases of development of intelligences. The different models are also discussed and evaluated.
b) Development of a theoretical framework for EI based on review of literature and identifying questionnaires for testing EI, UC and RC.
c) Design and development of a Data Base Management System (DBMS) to compute EI scores of students.
d) A comparative study of students in the age group 9 – 14 years and 21 – 27 years by using correlation analysis, Independent 'T' test and analysis of variance.
e) Development of regression and discriminant equations predicting EI of students
f) Formulation of EI radars using cluster analysis
g) Constructions of EI ladder using significant factors of correlation analysis.

1.5 ORGANIZATION OF THE THESIS

Chapter 1 introduces the theme of research and discusses the rationale and significance of the theme chosen. The objectives, scope and methodologies adopted are presented.

Chapter 2 presents the history and evolution of EI in different stages. The various definitions and benefits of applications of EI are explained.

Chapter 3 briefly reviews the models and measures of EI. A critical analysis of these models along with various measurement tools is also presented. A comparative evaluation of the measures of EI is carried out and discussed.

The rationale of the choice of model and measure selected for this study is discussed in Chapter 4. The various factors that affect EI as presented in literature are also discussed in this chapter.

The research design is outlined in Chapter 5. The various steps of the research design are elaborated in this chapter.

Chapter 6 presents the various statistical analyses for school students in the age group – 9 -14 years. Descriptive statistics, reliability assessment of the various items in the questionnaire, correlation analysis and regression analysis, cluster analysis, discriminant analysis along with detailed results are discussed in this chapter.

Chapter 7 proposes a number of hypotheses statements for school students in the age group 9-14 years. The various hypotheses are tested and the significant hypotheses are only presented along with discussions.

Similarly, statistical analyses for students in the age group 21 – 27 years are discussed in Chapter 8 and in Chapter 9 the hypotheses statements are proposed and tested.

Chapter 10 provides a comparative evaluation of results for both types of students.

Chapter 11 introduces the concept of EI radar. The radars are formulated by taking the inputs from cluster analysis carried out for both type of students. The radars provide a cognitive as well as a diagnostic map and from which the competency ladders are developed in order to facilitate training and development.

Summary, conclusions and significant contributions of this research are outlined in chapter 12.

This chapter also provides the limitations and the scope for furtherance of research.

CHAPTER 2

STRUCTURING THE EVOLUTION OF EI

2.1 INTRODUCTION

In this chapter, different definitions of EI are presented. The history and evolution of "intelligence" and its transition to EI as a field of study is explained by review of contemporary literature. EI applications in different aspects of human resource development are outlined.

2.2 DEFINITIONS

Sociology and psychology are the two disciplines from where the study of emotion has primarily been evolved. Each of this discipline has been studied and evaluated from varied perspectives. Emotional intelligence has its roots within the discipline of psychology. For an individual trying to know about EI means a combination of two components – emotion and intelligence. Emotion is defined as a mental state of readiness that arises from cognitive appraisal of events or thoughts; has a phenomenological tone; is accompanied by physiological processes; is often expressed physically (for example, in gestures, posture, facial features); and may result in specific actions to affirm or cope with the emotion, depending on its nature and meaning for the person having it (Bagozziet et al., 1999). Emotions are organized responses that include physiological, cognitive, motivational, and experiential systems (Salovey and Mayer, 1990). A few basic examples of such emotions are happiness, fear, surprise, anger, and disgust. When discussing emotions, it not only refers to those extreme emotions, such as intense anger, but the everyday emotions of living and communicating. An organization may use selection, socialization, and rewards to encourage the display of certain emotions that they desire (Rafaeli and Sutton, 1987). For example, displaying any anger toward unreasonable customers is

discouraged in a customer service organization, so an organization may reward its members who effectively work with these customers and never show anger, or it may punish through reprimand or termination those customer service agents who do show anger. The role of expressed emotion, then, is significant in the workplace and is part of the work role.

Detterman (1986) defined intelligence as a “finite set of independent abilities operating as a complex system”. He described success in understanding this system of intelligence as directly related to our ability to obtain independent measures of the various parts of the system. EI is proposed to be one of those parts of the larger construct of intelligence. Weschler (1940) defined intelligence as “the aggregate or global capacity of the individual to act purposefully, to think rationally, and to deal effectively with his environment”. Intelligence, then, could be described as the umbrella, with various elements of intelligence underneath. Emotion is a psychological construct. Emotions often allow more intelligent thinking. Individuals monitor emotions and discriminate intelligently emotional choices in order to make decisions. Therefore, emotions can act as a source of information for decision-making. Epstein, instead views emotions not as a way of thinking but as a consequence of preconscious automatic thinking. Mayer and Salovey (1993) have argued that they could have labeled the concept as ' Emotional Competence' but preferred the term 'Emotional Intelligence'. Their use of the word 'intelligence' implied that the process referred to a mental aptitude since they have conceptualized it as such. Therefore in making such a distinction they wished to convey that intellectual problems might either contain or require emotional information in order to make rational decisions.

It was in 1995, Goleman popularized the concept of EI through his book.

Some of the important definitions of EI as propounded by various pioneering authors are as follows:

- Goleman (1998) defined EI as the capacity for recognizing our own feelings and those of others, for motivating ourselves, and for managing emotions well in us and in our relationships. EI describes abilities distinct from, but complementary to, academic intelligence or the purely cognitive capacities measured by IQ.
- Mayer and Salovey (1997) defined EI as the ability to perceive emotions, to access and generate emotions so as to assist thought, to understand emotions and emotional knowledge, and to reflectively regulate emotions so as to promote emotional and intellectual growth.
- Bar –On (2004) defined EI as a cross - section of inter-related emotional and social competencies that determine how effectively we understand and express ourselves, understand others and relate with them, and cope with daily demands and pressures.
- Martinez (1997) stated that emotional intelligence is an array of non-cognitive skills, capabilities and competencies that influence a person's ability to cope with environmental demands and pressures.
- Freedman (1998) stated that emotional intelligence is a way of recognizing, understanding and choosing how we think, feel and act.

The above definitions explain the same aspect of EI, which shapes our interaction with others and our understanding of self. It defines how and what is learnt, it allows us to set priorities, it determines the majority of our daily actions. However, there are some distinctions observed in these definitions. Goleman's definition denotes EI, as the combination of factors that allow a person to feel, be motivated, regulate mood, control impulse, persist in the face of frustration, and thereby succeed in day-to-day living. His definition includes a number of personality and social factors. EI is a different way of being smart. Salovey and Mayer mention EI as 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. The authors consider EI as a process oriented trait. According to the Salovey and Mayer's definition that uses the Bar – On's broader definition makes no direct reference to the acquisition, retrieval and instantiation through appropriate behaviors of emotional information. (Zeidner et. al., 2003). Bar –On appears to exclude cognitive skills, which might contribute to emotional management although he lists apparently cognitive abilities such as problem solving and reality testing as components of EI. Conversely Bar- On's definition emphasizes on adaptation to environmental demands. Martinez deals with EI as an array of non-cognitive skills with which one can cope life's pressure with ease as a person is well equipped to face the challenges ahead. Freedman stated that EI is a way of recognizing, understanding and choosing how we think, feel and act which meant one could fully recognize and choose our behavior.

Broadly speaking, EI is a synthesis of emotions and intelligence and is the degree to which an individual can use his or her emotions, feelings, moods, and those of others, in a way that helps that person adapt and navigate effectively. EI is a combination of intellectual and cultural capital of an individual. It is a psychological state of mind whose core focus is to create and sustain trust, loyalty, commitment, productivity, and innovation in an individual. We make an attempt here to examine some of these definitions available in literature from three different perspectives namely: cognitive, non cognitive and neurological.

As depicted in Table 2.1 different perspectives of EI are:

a. ***Cognitive perspective*** considers EI as a set of abilities related to verbal intelligence.

b. ***Non-Cognitive perspective*** considers EI as a set of traits related to emotional and social knowledge.

c. ***Neurological perspective*** considers EI to be associated with both the primitive mind and rational mind.

Table 2.1: Different Perspectives of EI

Perspective	Primary focus	Authors
Cognitive	* EI has been operationalised as a set of abilities	Mayer and Salovey (1997)
		Mayer and Geher (1996)
	* EI is related to verbal intelligence at a low to moderate level	Schutte et al. (1998)
		Salovey et al. (1995)
		Jordan et al., (2002)
		Wong and Law (2002)
Non-cognitive	* EI has been conceptualized as traits and abilities related to emotional and social knowledge	Cooper (1998)
		Bar - On (1997[a])
		Goleman (1998)
		Gardner and Stough (2002)
Neurological	* Research in neurobiology has divided the brain into 'rational mind' and 'primitive mind'.	Berry (2002)
	* Planning, Learning and remembering is a part of the rational mind centered in the neo- cortex. Primitive mind is the emotional mind associated with basic emotions such as anger, fear and surprise. Harmony between emotional and rational mind constitutes EI	Sen (2008)

2.3 EVOLUTION OF EI

EI as a field of extensive study and research emerged after Goleman's publication in 1995. But EI has its generic origin before. In the 17th century, Descartes discussed that a person's intelligence was responsible for creating knowledge and validating the truth (PSI Psychology tutor, 2007). He recognized that intelligence is at least partly responsible for what it is that makes each person unique. He also maintained that mind and body are separate entities. In the same century, another English philosopher - Locke believed that a person was born as a blank slate and that intelligence was the ability to reason built up over time by interactions with the environment (PSI Psychology tutor, 2007).

Spinoza (1677) believed for the measurement of cognition, emotion and intellect together. He

asserted that cognition comprised of emotional cognition, intellectual cognition and some level of intuition. Despite the introduction of the concept of 'intelligence', there was low empirical evidence and introduction of psychometric testing.

Appendix- I summarize the sequence of evolution from 1900 –2008 chronologically.

We can classify the sequence of continuous evolution of EI in four distinct phases explained in a time frame as depicted in Fig 2.1.

2.3.1 First phase (1900 – 1919) Theme: Development of IQ measurement scale

This phase is the nascent stage of the development of intelligences. In this phase, 'intelligence' was explained.

Intelligence testing began in earnest in France, when in 1904 psychologists Binet and Simon were commissioned by the French government to find a method to differentiate between children who were intellectually normal and those who were inferior. The purpose was to put the intellectually inferior students into special schools, where they would receive more individual attention. This led to the development of the Simon-Binet Scale. The test had children do tasks such as follow commands, copy patterns, name objects, and put things in order or arrange them properly. Binet gave the test to Paris school children and created a standard based on his data. For example, if 70 percent of 8-year-olds could pass a particular test, then success on the test represented the 8-year-old level of intelligence. Following Binet's work, the phrase 'intelligence quotient' or 'IQ' entered the vocabulary. The tests were soon available for widespread use. In 1916 Stanford and Binet modified the IQ test with the exclusion and inclusion of relevant components. Thurstone (cited in Gardner, 1983) believed the existence of a small set of primary mental factors that are relatively independent of one another and are measured by different tasks. Thurstone nominated seven such factors: verbal

comprehension, word fluency, numerical fluency, spatial visualization, associative memory, perceptual speed and reasoning. Identifying these flaws in IQ, psychologists researched further.

2.3.2 Second phase (1920 – 1972) Theme: Expansion of the theories of intelligence

This was the developmental phase of intelligences. This phase markedly showed a lot of research conducted on the development of IQ, introduction of personality parameters and social intelligences. The roots of EI can be traced back to the concept of 'social intelligence' coined by Thorndike (1920) to refer to the ability to understand, manage and act wisely in human relations. Thorndike (1920) first identified the concept of 'social intelligence' (SI). He defined SI as the ability to understand and manage men and women, boys and girls - to act wisely in human relations. From 1920 through 1937 (cited in Thorndike and Stein, 1937), seven of the ten published studies discussed a measure of SI known as the George Washington SI test, developed by Moss and his colleagues at George Washington University. Thorndike and Stein (1937) criticized the test as there was no data to indicate impact of personality, interests, or academic / abstract intelligence from the social intelligence scores. Also the test was found to be heavily loaded in verbal ability resulting in its similarity to the existing measures of academic intelligence. These 17 years were the only serious attempt to measure social intelligence, which unfortunately did not succeed.

Wechsler (1940) observed the impact of non-cognitive and cognitive factors of what he referred as 'Intelligent behavior'. Maslow (1954) wrote about the enhancement of emotional, physical, spiritual and mental strengths in people. His work set to life the 'Human Potential Movement' and to the development of many new sciences of human capacity in the 1970s and 80s. Other researchers Cattell and Butcher (1968) tried to predict both school achievement and

creativity from ability, personality, and motivation. The authors succeeded in showing the importance of personality in academic achievement. Studies to more fully assess the relative importance of both ability and personality variables in the prediction of academic achievement were also conducted. There was identification of cognitive as well as non-cognitive behavior. Researchers succeeded in showing the importance of personality in academic achievement. One contribution of this stage: Ability as well as trait personality dimensions are responsible for individual's success.

2.3.3 Third phase (1973 – 1995) Theme: Development of EI

There is an identification of limitations of cognitive abilities in an individual in this phase. Existence of multiple intelligences in an individual is identified and concluded with the introduction of EI. McClelland (1973) launched an entirely new approach to the measure of intelligence proposing a set of specific competencies including empathy, self-discipline and initiative. Research in seventies focused on high academic achievement and the reasons for the same. Gardner (1983) discussed intelligence to entail a set of skills of problem solving – enabling the individual to genuine problems or difficulties that one encounters when appropriate to create an effective product. It must also entail the potential for finding or creating problems that lays the groundwork for the acquisition of new knowledge. Gardner (1983) includes intrapersonal and interpersonal intelligences in his theory of multiple intelligences. Intrapersonal intelligence includes attributes leading to self-understanding and mastery with awareness of feelings, psychological insight, ability to manage emotions and behave in ways that meet ones needs and goals (Gardner, 1983; 1993; Goleman, 1995). Interpersonal intelligence involves social competence with the capacity for empathy, altruism, and emotional intimacy (Gardner 1983, 1993; Goleman, 1995).

Gardner (1983) proposed that there are seven primary types of intelligence: verbal, mathematical-logical, spatial, kinesthetic, musical, intra physical abilities (insight, inner contentment) and personal intelligences. The personal intelligences consist of interpersonal intelligence, the ability to understand others, and intrapersonal intelligence, the ability to develop an accurate model of the self and use it effectively to operate throughout life. Gardner (1983) noted that the IQ tests have predictive power for success in schooling but relatively lesser predictive power outside the school context. This is applicable especially when more potent factors like social and economic back ground are considered. Gardner introduced his theory of the various frames of mind, which opened doors to other theories.

Triarchic theory as developed by Sternberg (1985) stated that in addition to academic performance, adaptation to environment, experience and the internal world of the individual was equally important. The triarchic theory comprised the following:

a. Intelligence and the internal world of the individual

b. Intelligence and experience and

c. Adaptation to the environment

Each part of the theory highlights a different aspect of intelligence that is applicable to different groups as well as individuals. Sternberg's theory also included the concept of practical intelligence (Sternberg, 1993; Sternberg et al., 1995). Practical intelligence depends on tacit knowledge that is acquired through day-to-day practical experiences and is basically – what to do in a given situation. Sternberg's theory focuses beyond the cognitive aspect of intelligence and acknowledges Meta intelligence comprising of social, practical and emotional aspects. The theories of Gardner and Sternberg were seen as expansive theories of intelligence and with these

base researchers on EI have considered system theory account of intelligence more than the cognitive theories.

The first of the three major theories on EI to emerge was that of Bar-On (1988). In his doctoral dissertation he coined the term emotional quotient (EQ), as an analogue to intelligence quotient (IQ). In 1990, Salovey and Meyer described that over the last few decades the beliefs about emotions and intelligence have both changed. Intelligence was once perfection, and the people soon recognized that there was more than intelligence to life. Whereas emotion was once perdition and people were recognizing that it might have substantive value. Goleman published his famous book on EI 'Emotional Intelligence: 'why it can matter more than IQ' in 1995 which lead to mass awareness. Additionally a paper published in Harvard Business Review vitalized the concept.

Thereafter, articles on EI began to appear with increasing frequency with empirical work on the construct along with scientific theoretical literature with academic interests.

Any science has its detractors and no science is complete without its fair share of them. EI pioneers founded their theories at different times and on a different platform. Salovey and Bar-On framed their theories as general theories of social and EI and EI respectively, Goleman's theory is specific to the domain of work performance. Salovey and Mayer's theory along with Bar-On's theory was considered for its suitability in children and adolescents.

2.3.4 Fourth phase (1996 – 2008) Theme: Corporate Cognition

The theme of the fourth phase is "corporate cognition". Cognition is a concept used in different ways by different disciplines, but is generally accepted to mean the process of thought.

Path-breaking introduction of EI marked this phase. Many accreditation programs, corporate training programs, training students have been developed to enhance cognitive as well as non-

cognitive skills of individuals. EI is being recognized as a set of competencies to develop leaders and decision makers. Emotionally intelligent leadership appears to be one key contributor to the development of a psychologically healthy workplace. Leaders are directly influencing morale, retention, commitment, satisfaction and perceptions of stress. A variety of approaches are being tried by corporations to consider deploying EI in the development of a healthy workplace. Formation of a consortium for research on EI for the western countries and IFEIL (Indian forum for emotional intelligent learning) in India concentrates on research, education, corporate training and generating social awareness of EI. Six Seconds in USA and Javelina's A and M Texas University has programs devised for enhancing the EI of students. In 2006, Kelkar established 'Equip Kids' in Thane, India with a commitment to raising EI of students, using thoroughly proven scientific methods. The name Equip Kids has its origin from its mission of imparting kids with the EQ skills, through research based, experiential, fun activities. This study is also in collaboration with 'Equip kids' as the initial step to understanding the present level of EI is achieved and it can be raised through the above-mentioned activities of Equip kids. Hence this study tests the EI levels of students of the age group 9 – 14 years and 21 – 27 years.

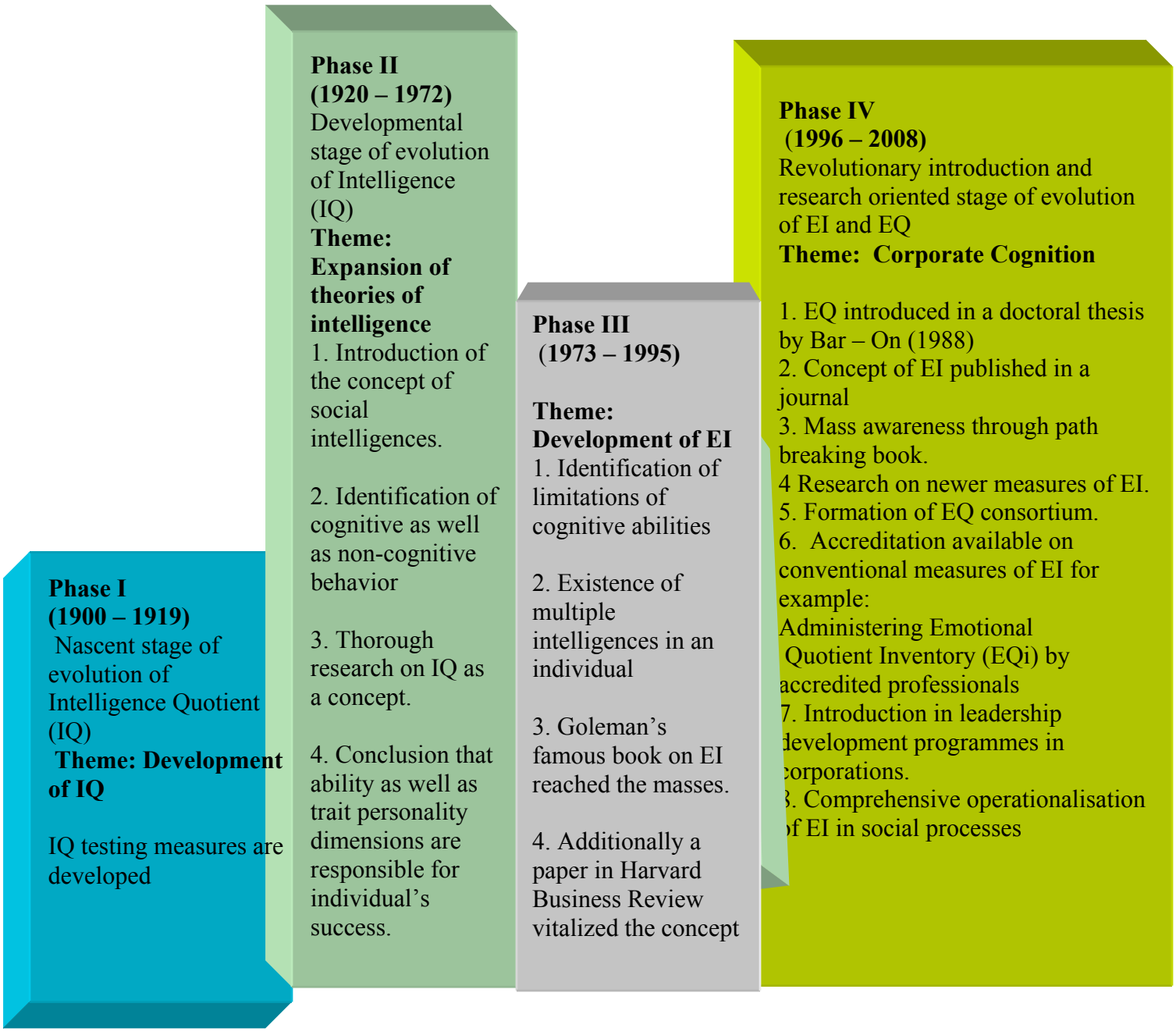

Fig 2.1: Stages of Development of EI

2.4 BENEFITS OF EI APPLICATIONS

EI has been used as a developmental tool in many human activities. Usage of EI as a human resource development tool has benefited many business corporations. EI has also found applications in social sector, education sector, and healthcare sector etc. We present only a few of these applications in the subsequent sections.

2.4.1 Workplace effectiveness

Application of EI has been most frequently documented in the professional workplaces. Organizations have traditionally had better human resource management systems as compared to those at the individual level because of a far more evolved research base on organizational behavior. (Bastian et al., 2005) Organizations manage HC through recruitment, training and performance review and recognition/ reward mechanisms. With EI, organizations have become far more alive to the emotional engagement that they offer their employees. From assigning tasks to engaging people is a journey that most organizations have embarked upon, after understanding EI. Human resource managers strive to attract good people by measuring EI, and retain them by developing EI. Beinhocker (2000) and Rijamampianina and Maxwell's (2002) study mentions that EI of a company is an aggregate of EI of individuals. Beinhocker (1997) in a study mentioned that effective and continuously appropriate decision-making leads to long-term superior performance. Firm needs innovation acquired by development and adaptation of competitive advantage. This is achieved by focusing on flexibility, adaptability and creativity - the three innate characteristics of the people in an organization - the methods to gain competitive advantage (Beinhocker, 2000; Eisenhardt, 1999).

2.4.2 Managerial effectiveness

Organizations have traditionally had better human resource management systems as compared

to those at the individual level because of a far more evolved research base on organizational behavior. (Bastian et al., 2005) Organizations manage HC through recruitment, training and performance review and recognition/ reward mechanisms. With the evolution of the theory of EI, organizations have become far more alive to the emotional engagement that they offer their employees. From assigning tasks to engaging people is a journey that most organizations have embarked upon, after understanding the impact of the emotional context. Assessments of EI dimensions have facilitated training and development modules for customer service skills, conflict management strategies, and stress management programs (Parker et al., 2004[a]; Cherniss, 2000). Similarly, HRD professionals have used EI measures as components in individual development plans (Cummings and Worley, 2005; Kunnanatt, 2004), organization wide competency models (Gowing et al., 2005), and executive coaching interventions (Peterson, 1996).

2.4.3 Leadership development

High levels of EI create a climate of trust where healthy risk taking and learning flourish; on the contrary, low EI creates a climate of fear and anxiety. EI is carried through the organizations like electricity through the wires. Also, EI is sine qua non of leadership without which a leader would not be effective. With this in view, identification and enhancement of EI competencies among managers/marketing professionals have been receiving considerable attention during recent times (Stein, 2007). Positive association is noted between leadership and EI hence with EI intervention, leadership abilities of an individual can be enhanced (Gardner and Stough, 2002; Sivanathan and Fekken, 2002). Joseph (2006) studied the relationship between EI and leadership in the corporate sector, which is applicable to students in India.

2.4.4 Entrepreneurship development

Entrepreneurs are those who excel themselves, shine and succeed beyond the set standards. Cross and Travaglione (2003) had proved in an Australian sample that entrepreneurs had high scores on all the scales of the Mayer and Salovey model (1990) as well as Goleman's model (1998) of EI. To summarize, there are other applications in organizational settings like recruitment, succession planning and performance management among other things.

2.4.5 Applications in the social sector

The high EI individual (Merlevede et al., 2001) relative to others, is less apt to engage in problem behaviors, and avoids self-destructive, negative behaviors such as smoking, excessive drinking, drug abuse, or violent episodes with others. The high EI person is more likely to have possessions of sentimental attachment around the home and to have more positive social interactions, particularly if the individual scored highly on emotional management. Such individuals may also be more adept at describing motivational goals, aims, and missions.

They're particularly good at establishing positive social relationships with others, and avoiding conflicts, fights, and other social altercations. They're particularly good at understanding psychologically healthy living and avoiding such problems as drugs and drug abuse (Stein and Lebeau-Craven, 2002). It seems likely that such individuals, by providing coaching advice to others, and by directly involving themselves in certain situations, assist other individuals and groups of people to live together with greater harmony and satisfaction.

2.4.6 Child development

Freedman (1998) shows that emotion is not just important, but absolutely necessary for us to make good decisions, take action to solve problems, cope with change, and succeed. Children are unaware of how they are feeling and what it's called. So if a person doesn't have these

skills, he or she can get into trouble, especially as a child transitions into adulthood. If a person does have these abilities or EI, they can help one throughout life. These abilities affect everything from success in marriage to how well one does on the job.

Emotional skills also help students academically (Roberts et al 2001). Such skills as delaying satisfaction or enjoyment when searching for long-term goals are helpful to children academically. Children who can stick with tasks and finish homework or assignments do much better later in life than those children who are easily distracted and go off to do something else. Rubin (1999) proved that their peers rate school students, who are high on EI, as less aggressive and more social. They are also less likely to engage in tobacco and alcohol consumption (Trinidad and Johnson, 2002). A study by Ciarrochi et al. (2002) proves that EI moderates the link between stress and mental health particularly depression, hopelessness and suicidal ideas. To summarize, research shows that through EI screening and coaching, one can ensure student success and curtail drop out rate.

2.4.7 Parenting

Parenting is one of the most challenging tasks of all human purpose. Children can be difficult and frustratingly stubborn at times to parents. Children often think the same of parents. A different context of EI is at work. Children behave and conform to norms that they imbibe from their social systems. It is important for parents and teachers to understand what these social norms are and how they affect the minds of children and hence influence their behavior. Although children are born with different temperaments, EQ helps parents and teachers work with these qualities so children can better cope in the world. For example, instead of protecting shy children from the world and catering to them, parents encouraged their young children to participate in challenging situations (meeting new kids, going to new places). EI has been used

as a predictor of ability by parents as it has been found to be a predictor of life satisfaction, healthy psychological adaptation, positive interactions with peers and family, and higher parental warmth (Warwick and Nettelbeck, 2004).

2.4.8 Applications in Education sector

Pediatric psychologists have started using measuring tools that now have a platform built on their EI. There is an evolving understanding of how the emotional context is probably an even more significant impact-creating driver. Reactions to children's failures and successes at home and at school are being shaped by these assessments and there is a far lesser categorization of children into the standard straitjackets of good or bad, intelligent or slow as well as sharp or obtuse. It is clearer now that the same child can be both in different emotional circumstances and the key to that child's success is in the right emotional environment that accepts the child's capabilities. To summarize, EI has been used in education to lay the foundations to build the culture of a school / college committed to learning (Parker 2004[a]). This is achieved through emotionally intelligent parents and teachers - the building blocks of a school.

In this section the myriad applications of EI are discussed, that enhance the effectiveness of an individual's life as well as organizational processes – public sector or private. From American Express to Johnson and Johnson to Zydus Cadila, businesses have begun to embrace the concepts of EI. Schools, hospitals, and government agencies worldwide are adopting EQ practices.

Every child enters the world with a unique combination of components of EI such as: emotional sensitivity, emotional memory, emotional processing and problem solving ability, emotional learning ability (Mayer et al., 2000[a]). The way a child is raised can dramatically affect what happens to the potential in each of these components. For example, if a child is born with a high

potential for the arts, but is never given a chance to develop that potential, the world may miss out on this person's special gift. Children raised in an emotionally abusive home or from a lower economic strata home may use their emotional potential in destructive ways later in their lives (Parker et al 2004[a]). Hopfl and Linstead (1997) highlighted the importance of how children learn and demonstrate that children learn value of emotions. He specified that children learnt to value work, relate to peers and feel towards their teachers. The way a child is raised can dramatically affect what happens to the potential in each area. For example, if a child is born with a high potential for the arts, but is never given a chance to develop that potential, the world may miss out on this person's special gift.

On the basis of this research on school students in the western context, EI has been found, among other things, to be positively correlated with relations with others, perceived parental support and fewer negative interactions with close friends (Lopes et al., 2003); pro-social behavior, parental warmth and positive peer and family relations (Mayer et al., 2002); more optimism (Schutte et al., 1998); higher empathic perspective taking and self-monitoring in social situations, higher social skills (Schutte et al., 2001). Rozell (2002) studied the impact of EI on the undergraduate business management students of US Universities and reported lower EI scores of students representing developing countries. Mclin (2006) studied the EI of school students and the findings could be instrumental in designing interventions for those students who need to either reduce socially inappropriate emotion or induce socially appropriate emotions in themselves for social success. Opengart (2007) reviewed the content of existing social–emotional learning programs in the American K-12 curriculum and the relationship between the school-based programs and the needs of the American workplace. There was a comparison done also with critical emotional intelligence skills for the workplace on the basis of which areas for training

programs in emotional intelligence could be considered. In this research for professional students – EI is tested and for school students along with EI their level of understanding and responsibility in communication is tested.

2.5 CONCLUDING REMARKS

In this chapter, the definitions of EI are enumerated. This chapter makes a synoptic review of emotion and intelligence and different perspectives of EI. It is noted that cognitive perspective deals with individual's abilities, potentials and intelligences. It could be seen that non-cognitive perspective has a major impact on the life of an individual and deals with individual's traits and personalities. Neurological perspective deals with linkages with the primitive mind and the rational mind. The right combination of these two minds is EI. Next the evolutions of EI along with thematic classifications of four phases of development of intelligence as a concept are explained. Phase I discusses the development of IQ and the identification of the various flaws in its measurement. Phase II markedly showed a lot of research conducted on the development of IQ, introduction of personality parameters, social intelligences and identification of cognitive as well as non-cognitive behavior. Phase III denoted the limitations of cognitive abilities in an individual. Existence of multiple intelligences in an individual is identified and concluded with the introduction of EI. Phase IV comprised of accreditation programs, corporate training programs and ongoing publications in journals and books. The benefits of EI applications are discussed and include gaining competitive advantage for a firm, and lower incidences of depression and suicide cases. Lastly it is concluded that benefits include positive parental influence on students who are the building blocks of the nation. The literature of studies conducted on students is also discussed. The next chapter discusses the models and measures of EI available.

CHAPTER 3

REVIEW OF MODELS AND MEASURES OF EI

In this chapter, different models of EI are reviewed. A critical evaluation of EI measures is carried out in terms of their potentialities and limitations

3.1 INTRODUCTION

EI has found applications in many organizational settings and has been immensely popular as proclaimed by Petrides and Furnham (2000; 2006) and Day and Livingstone (2005). However, particularly in terms of conceptual clarity, number of models and definitions mean that vastly different constructs exist under the same label known as EI. They lead to varied and sometimes conflicting claims about what EI predicts.

Despite some recent criticisms about EI (confusion about the definition, diverse approach to measurement, overstated claims, overlap with personality), developing highly effective leaders who are involvement oriented, relationship focused and capable of managing their emotions appear to have strong associations with both performance and retention of high potential talent. Despite exactly how EI is conceptualized and measured, effective leadership makes a difference to the bottom line and will continue to be important for companies to be competitive in a global market today. Due to the varied nature of models, and continuous introduction of newer models, it is observed that many human resource professionals lack a comprehensible and systemic understanding of the models and measures of EI thus resulting in confusion about the concepts and measurement. Also there is no shortage of information regarding the validity or lack of validity of various EI tests. However, it is scattered across a host of articles, technical reports, book chapters, and unpublished articles, which makes comparison among measures a difficult task. Moreover, existing research is a piecemeal in perspective as each paper typically examines

just one or two tests along one or two types of validity.

Therefore, this chapter aims at explaining the following:

- What are the different models of EI?
- How is EI measured for adults above 18 years?
- How is EI measured for children and adolescents in the age group of 7 – 18 years?

3.2 MODELS OF EI

As there was controversy in the definitions and conceptualization of EI, Salovey and Caruso (2000) categorized models of EI into two types namely:

a) Ability model (Mayer and Salovey 1997) and
b) Mixed trait ability (or personality) model (Bar-On 2001; Goleman 1995, 1998).

In 2001, Petrides and Furnham classified EI in two types:

a. Ability EI (Mayer and Salovey's model 1997)

b. Trait EI (Goleman's (1995, 1998) model and Bar- On's (1997[a]) model)

Three major models and their associated measures are identified

a) Salovey and Mayer's (1990; Mayer and Salovey, 1997), four-dimensional ability model of emotional perception, appraisal, and expression, emotional facilitation of thinking, understanding emotions and regulating emotions.
b) Goleman's (1995, 1998) four-dimensional trait-based model of self-awareness, self-management, social awareness and social skills.
c) Bar-On's (1997[a]) five-dimensional trait-based model of intrapersonal, interpersonal, adaptability, stress management and general mood.

3.3 MODELS OF EI: A COMPARATIVE EVALUATION

3.3.1 Ability EI

In this model, EI is often characterized as a cognitive ability, which involves cognitive processing of emotional information. This model treats EI as a traditional intelligence. Ability EI is measured using ability-type tests (Mayer et al., 2000[b]).

Table 3.1 depicts the comparison of the models in terms of authors, features, potentialities and limitations.

a) Model elements

Mayer et al. (2000[a]) proposed a four-branch model of EI consisting of the following psychological processes:

a. An awareness of one's own and others' emotions and an ability to monitor emotions and express them appropriately;
b. An ability to use emotions to facilitate thought and to guide selective attention, for example, adopting different emotional states to enable oneself to adopt different perspectives on a painting;
c. An ability to understand emotions, for example, why certain emotions arise in certain situations and how different emotions relate to one another, and
d. The ability to regulate emotions, for example, knowing how to calm oneself and others down following anger or anxiety.

b) Characteristic features

They are a conceptually related set of mental abilities with emotions and processing of emotional information. Emotional perception and expression, emotional facilitation of thinking, emotional understanding and emotional regulation are the essential elements of the

ability model. It contributes to logical thought and intelligence in general. Ability EI proposes that emotions can make thinking more intelligent and one can intelligently handle emotions. EI according to this model has a number of similarities to other types of intelligences and abilities and develop with age and experience.

c) Importance

Research supports linkage between EI and life success, research finds the relationship of EI and a range of social factors. Trait EI and ability EI are strongly related to measures of social adjustment in older adolescents and adults (Schutte et al., 2001; Lopes et al., 2003; Saklofske et al., 2003; Engelberg and Sjoberg 2004; Chapman and Hayslip 2005), with those low on EI scoring higher on loneliness and depression than their peers.

3.3.2 Trait EI

In comparison, trait EI approach proposes that EI involves emotion-related self-perceptions and dispositions. (Petrides and Furnham 2001)

a) Model elements

Trait EI defines EI as a mixture of emotion related competencies and personality traits. Trait EI approach also makes references to abilities in the processing and use of emotional information but combines these abilities with other traits and characteristics such as optimism, motivation and social relationships. (Bar-On 2000[a]; Goleman 1995)

b) Characteristic features

Trait EI approach is important as they acknowledge the importance of multiple aspects of personality that may pertain to emotion. They do not relate to the concept of emotion specifically. A trait EI approach includes facets such as optimism, happiness, social competence and self-esteem and has EI partly or fully a personality-like trait, or behavioral disposition.

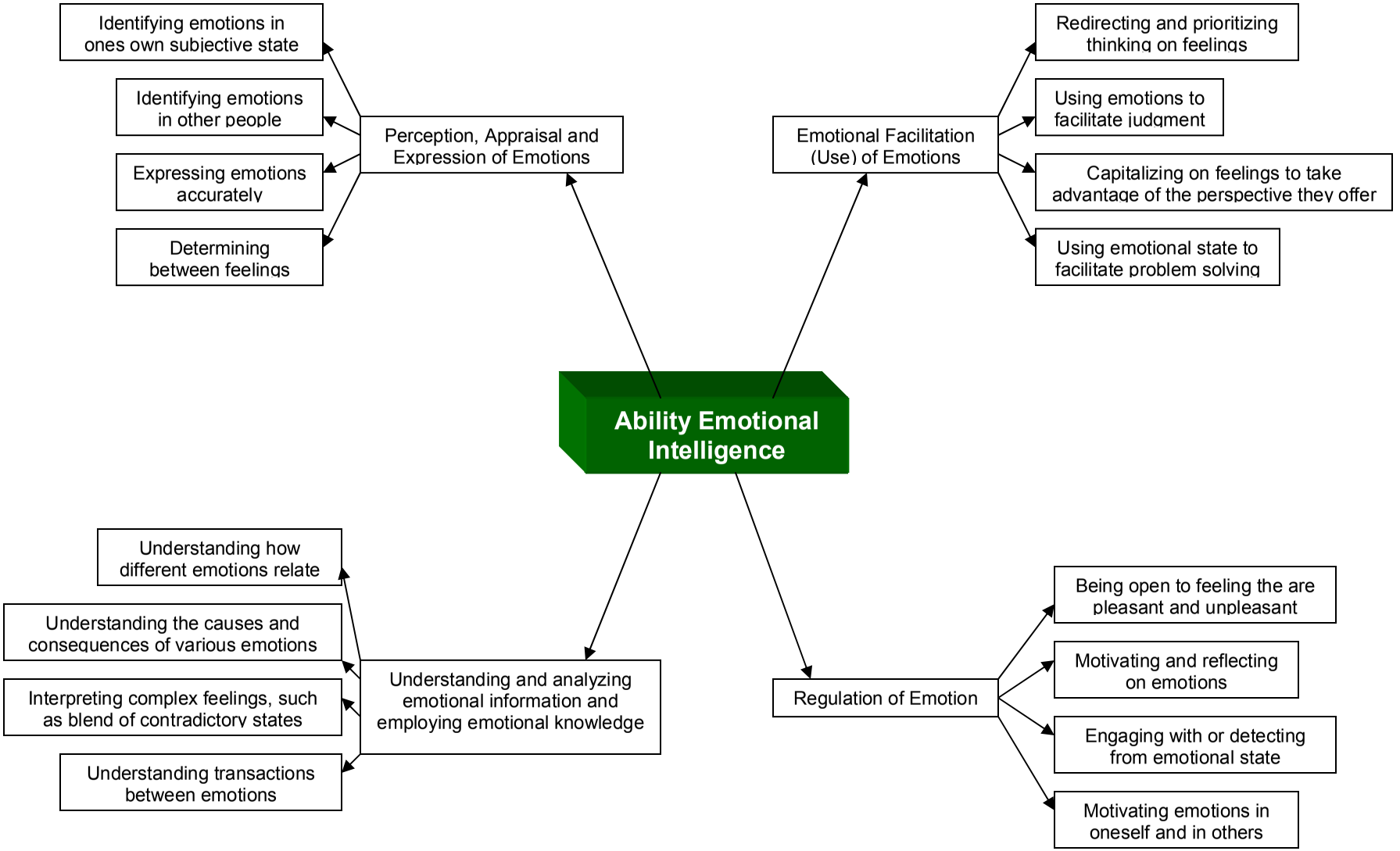

Fig 3.1: Ability EI model (adapted from Bastian, 2005 unpublished thesis)

Trait models of EI are regarded as consisting of a dispositional tendency similar to personality and are measured by self-report measures. Such scales for example - the Emotional Quotient Inventory (EQ-i) essentially seek an assessment of individual's typical level of functioning by asking an individual to rate the extent to which a series of descriptive statements are indicative of themselves.

c) Importance

Research shows that trait EI moderates the link between stress and mental health, particularly depression, hopelessness and suicidal ideation (Ciarrochi et al., 2002). Similarly, low trait EI has been linked to low self-esteem (Salovey et al., 2002), anxiety (Parker et al., 2006), poor impulse control (Schutte et al., 1998) and greater alcohol and drug-related problems (Riley and Schutte, 2003). Conversely, high EI has been theoretically linked to increased satisfaction with life (Palmer et al., 2002; Bastian et al., 2005; Livingstone and Day 2005; Gignac 2006).

EI has been viewed to be important in predicting academic success. Unfortunately there are some studies that prove that EI is not a strong predictor of academic achievement regardless of whether ability or trait EI measures are used (Newsome et al. 2000; O'Connor Jr. and Little 2003; Woitaszewski and Aalsma 2004). It is perhaps unlikely that broadly defined EI will predict general academic success, but the specific traits and/or abilities may be important. Research supports this view, as trait EI factors - intrapersonal abilities, adaptability and stress management have been shown to predict academic success among university students (Lam and Kirby, 2002; Parker et al., 2004[b]) and among younger adolescents (Parker et al., 2004[a]). Whereas the ability EI is seen as relating to the field of intelligence, trait EI approach relates more closely to the field of personality. Since debate over the nature of EI continues, including the distinctiveness of the

EI construct compared with previously investigated psychological constructs; the differences in the two approaches are discussed in the next section.

3.3 Distinctions between Trait and Ability Models

There is clear evidence indicating the importance of both ability and trait EI for success in life. Petrides and Furnham (2000; 2001) provide theoretical arguments regarding the distinction of trait and ability. Table 3.1 describes the features, potentialities and limitations of models.

Table 3.1: Features, Potentialities and Limitations of Models

Model	Authors	Features	Potentialities	Limitations
Ability EI	Mayer and Salovey (1997)	4 branches includes ability to: I Perceive emotions II Utilize emotions III Understand emotions and IV Manage emotions.	Social adjustment in older adolescents and adults	a. Linkages with cognitive intelligences is high
Trait EI	a. Bar On (2000) b. Goleman (1995)	a. Bar- on has identified 5 sub scales: I Intrapersonal ability II Interpersonal ability III Stress management IV Adaptability V General mood b. Goleman views EI as a meta ability and comprises of 5 competencies: I Self awareness II Self regulation III Motivation IV Empathy V Social skills	Linkages with stress and mental health, particularly depression, hopelessness and suicidal ideation	a. Inclusion of personal factors contributing to life success b. Inclusion of personality and social factors c. Mattews et al (2002) state that Goleman's theory represent cultural norms rather than scientific principles.

Also there are differences between the ability and Trait EI approach:

a) Since trait EI is conceptualized as a non - cognitive capability (Bar-On, 1997[a]; Petrides and Furnham 2001; Saklofske et al., 2003), there are non-significant associations between measures of trait EI and intelligence (Newsome et al., 2000; Derksen et al., 2002;

Saklofske et al., 2003; Zeng and Miller, 2003). This contrasts with findings of a positive, although still relatively weak, association between ability EI and measures of crystallized intelligence (Mayer, Salovey and Caruso 1999; Roberts et al., 2001; Zeidner et al., 2003) and verbal IQ (Mayer et al. 1999; Barchard and Hakstian 2004). Mayer and Salovey (1997) argue that although ability EI is correlated with other intelligences, the correlation is not so strong as to suggest that the two are measures of the same thing.

b) Trait EI has been found to portray a degree of association with various factors of personality. (Saklofske et al., 2003) This is similar in case of ability EI (Roberts et al., 2001; Lopes et al., 2003). The relationships between trait EI and personality traits ascertain the relatively lesser difference between trait EI and personality.

3.4 A CLASSIFICATION OF THE MEASURES OF EI

The EI measures based on ability model include the Mayer-Salovey- Caruso Emotional Intelligence Test (MSCEIT; Mayer et al., 2002) and the EI measures based on trait EI model include the Emotional Competency Inventory (ECI -2; Sala, 2002), the Emotional Quotient Inventory (EQ-i; Bar-On, 1997[a]). There are a number of self-report measures based on the Mayer and Salovey (1993, 1997) model such as tests created by Schutte et al. (1998), Salovey et al. (1995), Jordan et al. (2002), and Wong and Law (2002). Similarly, there are a number of self-report measures based on the Trait EI models of Goleman and Bar-On such as tests created by Gardner and Stough (2002) and Cooper (1998). A self-report measure based on the blending of Mayer and Salovey (1990, 1997) model and Bar- On (1997[a]) and Goleman model (1995, 1998) is the test created by Petrides and Furnham (2003). From among these measures, three tests are thoroughly reviewed and critiqued: the MSCEIT, ECI-2 and EQ-i. This study has narrowed the measures to a set to these three by using five criteria:

a. The measure has received sufficient research attention such that there are empirical data and information on test validity available in the peer-reviewed research literature.
b. The measure focuses on individual EI and can thus be compared to other such measures.
c. The measure has been used for EI assessment in organizational applications and in the education field.
d. The measure is derived from well-known, established EI theories or models.
e. The measure has the potential application for human resource development (HRD) that can be estimated on the basis of empirical tests.

3.4.1 Validity of Tests

Test validity is an important quality. A test is valid if it measures what it is supposed to measure (Mc Enrue and Groves 2006). Nunnally and Bernstein (1994) offer a thorough explanation of test construction, measurement, and assessment. The following discussion provides a brief summary of the evidence typically used to estimate the validity of a test: content, construct, face, predictive or concurrent and external validity.

a. **Content validity** refers to the extent to which the items on a test are a representative sample of the content domain the test is intended to measure (Nunnally and Bernstein, 1994). The question is whether the test measures all of the dimensions of EI as defined in the model. For example, Bar- On's (1997[a]) model of EI incorporates five factors: intrapersonal, interpersonal, adaptability, stress management and general mood. Assessing the test's content validity would involve identifying whether the test contained items that tapped each of these competencies.
b. **Construct validity** refers to whether the concept of interest is empirically related to other concepts theoretically similar to it and is empirically independent from those different

from it (Nunnally and Bernstein, 1994). For example, Bar-On (1997[a]) measure is empirically related to other measures of EI and unrelated to tests of cognitive intelligence. This proves that the Bar-On's EQ-i, has construct validity.

c. **Face validity** refers to whether a test and the items that comprise it are valid from the perspective of those who take it (Nunnally and Bernstein, 1994). Basically the test should appropriately answer the following:

   - Does the test appear valid?
   - Does it challenge common sense?

   For example, MSCEIT includes items that ask respondents to identify the extent to which three emotions (challenged, isolated, and surprised) are like three sensations (cold, slow, and sharp). Some HRD professionals question whether items such as these are relevant in comparison to other questions that might have more merit when estimating the EI of an individual. Thus, the test would have little or no face validity from their perspective.

d. **Predictive validity or concurrent validity** refers to the extent one can predict some outcome for example individual behavior on the basis of test scores (Nunnally and Bernstein, 1994). For example, an empirical relationship between an individual's self-reported ability to perceive emotion and the relation to his or her performance in recognizing facial expressions of emotion is an evidence of predictive validity (Austin, 2004).

e. **External validity** refers to the extent to which it is possible to generalize beyond the characteristics of a single study or set of studies to the population at large (Nunnally and Bernstein, 1994). For example, Dulewicz and Higgs (1999) examined whether there were any differences in scores on a test of EI between managers from the United Kingdom and

from non-U.K. firms. Test results obtained across sets of individuals and across sites had little difference in their scores. Thus the measure has a high level of external validity.

It is important that a test can have a high level of face validity and a low level of construct validity. It could appear to measure emotional intelligence but actually measure something else altogether. It can have a high level of face validity but a low level of predictive validity. Scores on it do not predict important outcomes like customer satisfaction or sales performance. It can have a high level of face validity and a low level of external validity. Thus, results obtained apply only to the individuals tested under the context within which the testing occurred. In short, whether a test appears to measures EI is an insufficient basis for establishing its validity.

3.4.2 Measures of EI for the age group above 18 years

Measures of EI for age group above 18 years similar to ability EI and trait EI models are classified as:

a. performance based measure of EI

b. self-report measures of EI.

Performance based measures of EI pertain to ability models for instance Mayer, Salovey, Caruso Emotional Intelligence Test (MSCEIT). Self-report measures are pertaining to mixed models of EI. They are determined to assess emotions within the personality framework and to assess cross - situational consistencies in behavior (Petrides and Furnham, 2000) for instance: emotional quotient inventory (EQ-i), Emotional Competence Inventory (ECI) and the latest version ECI-2, the Schutte Self-Report Inventory (SSRI), the Workgroup Emotional Intelligence Profile (WEIP), the Swinburne University Emotional Intelligence Test (SUEIT), the Trait Meta-Mood Scale (TMMS), the Wong and Law Emotional Intelligence Scale (WLEIS), the Trait Emotional Intelligence Questionnaire (TEIQue) and the EQ -Map

a. Mayer, Salovey, Caruso Emotional Intelligence Test (MSCEIT).

The named authors based on a previous test they had created, the Multi-factor Emotional Intelligence Scale (MEIS), developed the MSCEIT.

Salient features

The MSCEIT is a 141 item, performance based measure which is computer administered. This measure based on ability EI, focuses on measuring responses to specific emotional tasks, rather than a self-report of emotional responding. The MSCEIT is designed to yield an overall emotional intelligence score, as well as subscale scores for perception, facilitation, understanding, and management.

Each branch includes several subscales, some of which are described below.

Branch 1: Perception of Emotion:

The MSCEIT contains three subtests measuring the perception of emotion: in faces, in landscapes, and in abstract designs. In this subscale, the person views the design (or face, or landscape) and must then report the amount of emotional content in it, judging, for example, how much happiness, how much sadness, how much fear, and so on.

Branch 2: Emotional Facilitation:

The MSCEIT contains several subscales assessing whether people use emotion to facilitate cognitive activities. Most central to this measurement is the synesthesia subscale, which asks participants to judge the similarity between emotional feelings. For example similarity between love and other internal experiences as temperatures and tastes is judged. The logic is that internal comparisons indicate that emotions are sensed, perceived and processed in a meaningful way.

Branch 3: Understanding Emotions:

The third group of MSCEIT tasks examines the understanding of emotion. These tasks include blends, wherein a person tries to match a set of emotions, such as joy and acceptance, to another, single, emotion that is closest to it. Responses are in a multiple-choice format. One item might ask which alternative combines "joy and acceptance, (a) guilt, (b) challenge, (c) mania, (d) love, or (e) desire."

Branch 4: Managing Emotion:

The managing emotions tasks concern the best way to regulate emotions in oneself and other people. Each item of the managing emotion cluster of items describes a person with a goal of changing or maintaining a feeling, such as staying happy or feeling better.

The participant must choose a given alternative that describes a course of action that might satisfy the goal. For example, if a sad person wanted to cheer up, the alternatives might "involve talking to some friends," "seeing a violent movie," "eating a big meal," or "taking a walk alone," Some alternatives are more are scored more highly according to consensus criterion as they are likely to lead to cheering the person up more than others. The managing emotion in situations subscale is similar. The scoring in this measure is difficult and unlike cognitive ability tests where there is one known correct answer. There are two scoring systems available: a. correct answers based on experts decisions b. correct answer based on consensus of what people think is correct. The authors recommend using consensus scoring (Mayer et al., 2002[a]).

Reliability assessments

The reliability for the MSCEIT range from $r = 0.91$ to $r = 0.93$ (Mayer et al., 2002[a]). Reliability for the subscales range from $r = 0.81$ to $r = 0.88$ for the Emotion Perception scales, $r = 0.65$ to $r = 0.71$ for the Emotional Facilitation of Thought subscales, $r = 0.66$ to 0.70 for the Understanding

Emotions subscales, and $r = 0.67$ to $r = 0.69$ for the Managing Emotions subscales. The overall reliability is good. Comparison across groups and decision with specific individuals based on their scores cannot be ascertained.

Unfortunately, test-retest data on the MSCEIT is sparse, with only an overall test - retest score reported (Bracket and Mayer 2003) as being $r = 0.86$. Though this is good test-retest reliability, no data is presented on the subscales (MacCann et al., 2003). The MSCEIT does not correlate significantly with "Big Five" measures of personality, which suggests that it is a distinct concept. The initial, research version of the MSCEIT had branch score Cronbach alpha's from .59 to .87 (based on 277 participants). The internal consistencies of the MEIS and MSCEIT are comparable to many standard tests of intelligence.

Validity assessments

a. **Content Validity:** In the Mayer and Salovey (1997) model, the test items appear to measure some skills and sub skills better than others. It appears as though the test items primarily address identification of emotions in other people and objects, understanding and analyzing emotional information, employing emotional knowledge, and judging the in formativeness, utility, and methods of changing a feeling. The test does not clearly tap the ability to identify one's own emotions, express emotions accurately and discriminate between accurate and inaccurate or honest and dishonest expressions of feelings. Similarly managing one's own emotions, redirecting and prioritizing one's thinking based on one's feelings; or encouraging different problem-solving approaches are not deeply discussed. In other words, there appears to be a gap between the model and what the test measures. If these are important competencies in a position, the MSCEIT may not

provide HRD professionals with the information they need to assess and develop EI among employees.

b. **Construct Validity:** Independent reviews of MSCEIT indicate that it demonstrates both discriminant and convergent validity (Daus and Ashkanasy, 2005; Brackett and Mayer, 2003; Brackett et al., 2005). The MSCEIT User's Manual (Mayer et al., 2002[b]) supplies information regarding the extent to which the test provides distinctive rather than redundant information relative to other tests used to measure intelligence, EI, and personality. In general, the test is distinct from others that measure different cognitive and physical phenomena. The test demonstrates a small positive relationship with IQ and is too moderately related to personality traits such as extroversion, agreeableness, and sensitivity (MacCann et al., 2004). It correlates at a low level with other tests of EI (for example - .12 to .29).

c. **Face Validity:** Mayer et al. (2002[b]) report examination of items suggests that individuals in business might have genuine concerns about the value of completing items. For example those dealing with emotions are elicited by abstract pictures or questions concerning sensations and emotions. For example, asking respondents to identify the extent to which an emotion such as surprise represents three sensations (cold, blue, sweet) appears unrelated to the EI of managers and employees at work.

d. **Predictive Validity:** Initial studies that examined the relationship between MSCEIT scores and job performance produced contrasting results (Pusey, 2000; Bradberry and Greaves, 2004). Recently additional predictive validity studies have demonstrated the relationships between MSCEIT scores and police officer performance (Daus et al., 2004), customer service performance (Daus et al., 2004; Daus, 2002), financial analyst and

clerical performance (Lopes et al., 2005), leader emergence and transformational leadership (Daus and Harris, 2003; Rubin et al., 2005), individual performance in jobs characterized by high emotional labor (Wong and Law, 2002), and group-level performance and organizational citizenship behavior (Day and Carroll, 2004). Overall, there is growing evidence that MSCEIT scores predict a range of meaningful organizational outcomes (Daus and Ashkanasy, 2005).

e. **External Validity:** The MSCEIT User's Manual (Mayer et al., 2002[b]) indicated that scoring of the MSCEIT is based on North American data. People from emerging or non-Western nationals taking the test, and non-native English language speakers, should be alert to the fact that cultural variation can lower scores on the MSCEIT.

b. Emotional Competence Inventory (ECI) and the latest version (ECI -2).

Salient features

Goleman et al., (2002) developed an EI model based on Goleman's (1995, 1998) original EI model along with the results of research on management competencies. The measure for this EI model is the Emotional Competence Inventory, Version 2 (ECI-2). It contains eighteen competencies arrayed in four clusters: Self- Awareness, Self-Management, Social Awareness, and Social Skills. Sala (2002) with ECI-2 modified emotional Competence Inventory (ECI) (Boyatzis et al., 2000). The ECI is a 110 item self-report measure that assesses 20 competencies in the same four clusters. The first - self-awareness includes measures of emotional self-awareness, accurate self-assessment, and self-confidence. The second cluster - self-management measures self-control, trustworthiness, conscientiousness, adaptability, achievement orientation and initiative. The third - social awareness consists of empathy, organizational awareness, and service orientation. The fourth - social skills includes measures of developing others, leadership,

influence, communication, change catalyst, conflict management, building bonds and teamwork and collaboration.

ECI -2 has 4 clusters and measures eighteen competencies. For both measures, there are also versions that can be completed by a manager, peers, and subordinates and the use of these reports are strongly encouraged by the developers. ECI and ECI-2 can be administered through online and paper versions. Similar to the EQ-i, the ECI was developed to measure a construct distinct from personality and is a measure of behavior. The competencies share a common theoretical orientation and wordings with concepts and items on the Five-Factor model of personality (MacCann et al., 2003).

Reliability assessments

For the self-assessment, internal consistency ranges from poor to adequate for the cluster scores *(r* = 0.61 to *r* = 0.85; Sala 2002). Individual subscales for the self-assessment are generally poor *(r* = 0.47 to *r* = 0.76) and should not be used for analysis. For assessments completed by others for example supervisors and associates, the internal consistency for the cluster scores ranges from adequate to good *(r* = 0.76 to *r* = 0.96). The self-assessment ratings do not correlate strongly with the ratings of others and causes a problem in establishing an overall rating.

Test-retest reliability for the self-assessment is poor (average *r* = 0.36). Test retest for the other assessments is better *(r* = 0.59). There are substantially fewer items in the ECI-2 (72 versus the original 110). Boyatzis and Sala (2004) report that a key reason the test was shortened was to increase ease of use and utilization.

Validity assessments

a. **Content Validity:** The definition and measurement of EI captured in the ECI-2 and its precursor (ECI-1) use a broad conception of EI, including competencies like initiative,

achievement, maintaining standards of honesty and integrity, customer service orientation, change catalyst, and flexibility in handling change. Several appear to be the product of EI rather than dimensions of it. Furthermore, the measure appears to assess competencies that are not necessarily emotional, such as serving as a change catalyst or flexibility in handling change. The ECI-2 does not measure some competencies that emotionally intelligent people probably demonstrate. For example, it does not appear to measure whether, how, or when to neither express emotions, nor does it measures the ability to express emotions. It does not deal with deciding whether to recognize or not recognize emotions expressed by others such as calming a frightened group of employees or ignoring feigned anger. In addition, the test does not discriminate between accurate and inaccurate or honest and dishonest expressions of feelings; redirect and prioritize one's thinking based on one's feelings; or generate emotions to facilitate one's own and others' decision making. In short, the test does not appear to directly measure the effect of emotions on perceptions of issues and people, how individuals think about issues, choices a manager makes including allocation of his or her time and attention, and the actions managers take.

b. **Construct Validity:** The technical manual for the ECI-2 provides no information regarding the extent to which the test provides distinctive rather than redundant information relative to other tests for measuring cognitive intelligence, emotional intelligence, personality traits, or other phenomena. Boyatzis and Sala (2004) provide some evidence regarding the issue of construct validity. They recently described a series of studies that assessed the ECI-2's construct validity relative to several measures of personality (Diamantopoulu, 2001; Burckle, 2000; Murensky, 2000). The cumulative

results of these studies revealed that the ECI-2 competencies are significantly related to many existing personality tests. This suggests that the ECI-2 offers little incremental value over existing tests already available on the market.

c. **Face Validity:** The technical manual does not offer any information concerning the face validity of the ECI-2.

d. **Predictive Validity:** Sala (2002) describes researchers reporting a strong relationship between self-reported ECI-2 scores and the performance of thirty-three area development managers and correlations of small to moderate size between ECI-2 scores received from others for sixty-seven firefighters and officers and several job performance ratings (Stagg and Gunter, 2002). More recently, Gowing et al. (2005) described a series of field studies in which ECI-2 scores differentiated high-performing employees in government and private sectors according to supervisor, peer, and direct report ratings. Overall there is somewhat limited evidence of the measure's predictive validity.

e. **External Validity:** The technical manual for ECI-2 does not include normative data for the test (Sala, 2002). Moreover, it does not identify the age, gender, ethnicity, cultural background, or other demographics, such as occupation, of respondents. Therefore, it may or may not be appropriate to use with individuals operating in different cultures where, for example, the concept of "face" or the value of maintaining smooth, pleasant interpersonal relationships are foremost concerns.

c. Emotional Quotient Inventory (EQ-i).

Salient features

The first measure of Emotional Intelligence created was the Emotional Quotient Inventory, created by Bar-On (1997[a]), is a 133-item self-report measure that takes approximately 30

minutes to complete. It consists of fifteen subscales, each containing between seven and eleven items. The measure produces an overall score as well as 5 composite scores. It can be administered online or through a paper and pencil format. The five composite areas include Intrapersonal ability, Interpersonal ability, Stress Management, Adaptability, and General Mood. Although Bar-On (2004) indicates that the measure is designed to be distinct from personality, MacCann and colleagues (2003) have documented the theoretical similarity and even item wording similarity between the EQ-i and the Five-Factor model.

Reliability assessments

The internal consistency of the overall EQ-i ranges from 0.76 to 0.97 ((Bar-On 1997[a]; Bar-On 2000; Petrides and Furnham 2001). Test re test reliability is adequate, being 0.85 after 1 month and 0.75 after four months (Bar- On, 1997[a]). Reliability measures for the subscales are poor and suggest that these should not be examined on an individual level. They should not be used for hiring / acceptance decisions (Bar-On 1997[a]).

The EQ-i reports strong correlations with the Five-Factor model of personality. This strong correlation has caused many to question whether the whole concept of Emotional Intelligence is just studying personality characteristics by a new name (Davies et al., 1998). The EQ-i correlates most strongly with Neuroticism, with correlations ranging from -0.29 to -0.77 (Dawda and Hart 2000; MacCann et al., 2003). Correlations with the Conscientiousness, Extraversion and Agreeableness scales were also high (ranging from r = 0.30 to r = 0.56). Given these high correlations, it would be difficult to justify the use of this measure in place of the personality measures.

Validity assessments

a. **Content Validity:** The content of the items in the EQ-i appears to match the concepts included in Bar-On's model. Logically, however, why Bar-On defines problem solving, flexibility, or reality testing as social and emotional competencies and there is no theoretical justification for including or excluding these. Furthermore, several competencies that emotionally intelligent people likely demonstrate are missing from Bar-On's model. For example, the test does not appear to measure whether, how, or when to express emotions. In addition, the test does not appear to clearly tap the ability to discriminate between accurate and inaccurate or honest and dishonest expressions of feelings, to redirect and prioritize one's thinking based on one's feelings, or to generate emotions to facilitate one's own and others' decision making. Many of the scales in the EQ-i appear to measure products of EI such as establishing satisfying relationships and working cooperatively with others, not emotional intelligence per se. Finally, the scales appear biased toward positive affect, as there is no room for grief, guilt, rage, or any other painful emotions that may be perfectly intelligent and natural feelings to experience or acknowledge.

b. **Construct Validity:** Bar-On has examined the extent to which the EQ-i provides information that is distinctive from or duplicates that generated by other measures of personality characteristics, emotional competence, and cognitive intelligence. Others have done so as well. Some research suggests considerable overlap between what the EQ-i measures and that which can be obtained from existing personality tests, including the Big Five and 16PF (Dawda and Hart, 2000; Newsome et al., 2000; Brackett and Mayer, 2003). In fact, O'Connor and Little (2003) contend that EQ-i essentially measures

personality traits. Bar –On cited results of a meta-analysis conducted by Van Rooy and Viswesvaran (2003) to support his claim. However, their analysis does not break out the EQ-i. Consequently, it is not a good test of the potential incremental value of the EQ-i in predicting work phenomena above and beyond the contribution of personality factors. Many studies have examined the relationship of EQ-i scores, measures of cognitive intelligence, and other EI measures. According to a wealth of research described in Bar-On (2004), only minimal overlap exists between the EQ-i and a wide range of cognitive intelligence measures. The technical manual for the MSCEIT indicates that correlations between it and the EQ-i range from .13 to .18. Correlations with other tests are considerably higher.

c. **Face Validity:** The EQ-i appears to have adequate face validity. Dulewicz et al. (2003) suggest that face validity is of paramount importance to staff and managers operating in the world of work.

d. **Predictive Validity:** Bar-On (2004) and other researchers report a series of studies that examined the ability of the EQ-i to identify and predict occupational performance in the workplace. The study looked at the power of EQ-i scores to predict the performance of military recruiters in the U.S. Air Force in achieving their annual recruitment quotas. Researchers found a significant difference in EQ-i scores between high and low performers. Further analysis indicated that the following seven factors of fifteen were significant predictors of performance: assertiveness, interpersonal relationship, happiness, empathy, stress tolerance, social responsibility, and problem solving. Second study by Bachman et al. (2000) examined the connection between EI and successful collection of debt by account officers. They found that successful account officers scored significantly

higher than less successful account officers on all dimensions of the EQ-i except impulse control and empathy. In addition, Slaski and Cartwright (2002) reported that managers in a large retail organization with higher scores on the EQ-i received higher performance ratings by their immediate managers.

e. **External Validity:** Bar-On (2004) reports no differences between males and females on overall scores. However, significant gender differences were reported on twelve of the scales. Females scored higher than males in some scales. In contrast, males scored higher than females in some scales. Older groups generally scored significantly higher than younger groups, but no significant differences in EI appeared between the various ethnic groups that were compared. Overall, research evidence has demonstrated a moderate level of external validity for the EQ-i.

3.4.3 Relationship between Ability and Trait EI

Comparing the MSCEIT scores with those of the Bar-On EQ-i, a self-report measure of emotional intelligence (Bar-On, 1997[a]), the overall test-to-test correlation in 137 respondents was r - .36, which indicates the two tests share about 10 percent of their variance in common

3.4.4 Other measures of EI

Several other measures of EI exist. MacCann et al. (2003) have already researched and reviewed the three major measures of EI. In this section, a brief overview and summary of the available information on measures of EI is discussed. This summary will cover each measure separately, referring to the reliability, validity and cost of each measure. Though minimal research is available on these measures, a few of them are reviewed here with comparison displayed in Table 3.2.

a. The Schutte Self-Report Inventory (SSRI; Schutte et al., 1998) is a 33-item self-report

measure based on the Salovey and Mayer (1990) theory of Emotional Intelligence. Schutte et al. (1998) report an internal consistency of 0.90 for the overall scale. There is no test-retest data presented. Significant correlations between the SSRI and the Five-Factor model have also been reported wherein $r = 0.21$ to $r = 0.51$, (MacCann et al., 2003).

b. The Swinburne University Emotional Intelligence Test (SUEIT) is a 65-item self-report measure with five subscales. The coefficient alpha for the total scale is good *(*$r = 0.88$ to $r = 0.91$). Coefficient alphas for the subscales vary from fair to good *(*$r = 0.70$ to $r = 0.91$). Authors, Gardner and Stough (2002) have found a significant relationship between self-reported leadership style and Emotional Intelligence.

c. The Trait Meta-Mood Scale (TMMS; (Salovey et al., 1995) is a 48-item self-report measure with three subscales, based on the Mayer and Salovey model of EI. The overall scale coefficient alpha is adequate *(*$r = 0.82$) with the subscales ranging from fair to adequate *(*$r = 0.66$ to $r = 0.83$).

d. The Wong and Law Emotional Intelligence Scale (WLEIS; (Wong and Law 2002) is a 16-item self-report measure with four subscales based on the Mayer and Salovey model of EI. The internal consistency is adequate *(*$r = 0.78$ to 0.89) with similar consistency for the subscales.

e. The Workgroup Emotional Intelligence Profile (WEIP; (Jordan et al., 2002) is a 27-item self-report measure with adequate internal consistency *(*$r = 0.86$). It is based on the Mayer and Salovey model of EI.

f. The Trait Emotional Intelligence Questionnaire (TEIQue, Petrides and Furnham 2003) is a 144-item self-report measure based on a blending of the Bar-On, Goleman and Mayer

and Salovey models of EI. It has 15 subscales. Internal consistency for the overall scales is adequate *(r* = 0.86), with subscales ranging from poor to good *(r* = 0.61 to *r* = 0.91).

g. Another self-report scale, the EQ - Map (Cooper, 1997, 1998) also divides emotional intelligence into five factors. The first - current environment measures life pressures and life satisfactions. The second - emotional literacy includes measures of emotional self-awareness, emotional expression, and emotional awareness of other. The third - EQ competencies, includes internationality, creativity, resilience, interpersonal connections, and constructive discontent. The fourth - EQ values and attitudes, includes outlook, compassion, intuition, trust radius, personal power, and integrated self. Finally, the outcomes area of the EQ Map measures explicit outcomes of emotional intelligence: general health, quality of life, relationship quotient, and optimal performance.

3.4.5 Major findings

A comparison between measures leads us to the following important remarks:

a) It is encouraging that the majority of the measures demonstrate adequate to good reliability for the overall scores. Most of the subscales do not demonstrate adequate reliability for use in any individual manner.

b) Another difficulty in using EI measures is that very little research with these EI measures has been done in an educational context. It is doubted whether results found within a business context would translate easily to an educational context.

c) The available reviews (MacCann et al., 2003; Conte 2005) suggest that the MSCEIT does not overlap as much with personality factors. It is a clearly defined theory and has a relationship to accepted definitions of intelligence.

Table 3.2: Comparison of the Various Measures of EI

Measure	Format of administration	No of Items	Time taken to complete test	Reliability of scales	Reliability of sub scales	No of scales and sub-scales	Cost
Emotional Quotient Inventory (EQ-i).	Online or paper and pencil	133	30 minutes	Test Re Test reliability = 0.85	Poor reliability of sub scales	5 – scales 15- sub scales	$23
Emotional Competence Inventory (ECI-2)	Paper and online.	72	40 minutes	No test – retest data available	No test – retest data available	5 – scales 18 - subscales	$25
Mayer Salovey Caruso Emotional Intelligence Test (MSCEIT)	Online only	141	45 minutes	0.91 - 0.93	0.86	4 - subscales	$32
The Schutte Self-Report Inventory (SSRI)	Paper and Pencil	33	20 minutes	No test – retest data available	No test – retest data available	No subscales	Free
The Swinburne University Emotional Intelligence Test (SUEIT)	Paper and Pencil	65	30 minutes	0.88 - 0.91	0.70 - 0.91	5 - subscales	Free
The Trait Meta-Mood Scale (TMMS)	Paper and Pencil	48	30 minutes	0.82	0 .66- 0.83	3 - subscales	Free
The Wong and Law Emotional Intelligence Scale (WLEIS)	Paper and Pencil	16	20 minutes	0.78 - 0.89	0.78 - 0.89	3 - subscales	Free
The Workgroup Emotional Intelligence Profile (WEIP)	Paper and Pencil	27	20 minutes	0.86	No test – retest data available	4 – subscales	Data un-availa ble
The Trait Emotional Intelligence Questionnaire (TEIQue)	Paper and Pencil	144	45minutes	0.86	0.61 - 0.91	Combination of the model of the 3 pioneers. 15 –subscales	Free

d) The MSCEIT is expensive and the most distinct measure of EI and the prediction of success in academics and other areas could be done with other EI measures.

e) All self-report measures are susceptible to underreporting of low skill scores based on social desirability and defensive responding (Weber, 2004). A second limitation deals with the generalizability of the results. The generalizability of the results to students was enhanced by the extent to which the study was able to include these populations; hence a huge sample size was considered for this study.

3.4.6. Measures of EI for the age group 7 – 18 years

A number of assessment devices purporting to measure EI have been developed. The devises differ in two significant ways: a. they are based on different conceptual frameworks and b. they use different measurement approaches including performance tests, self report inventories or observer ratings.

Thus there has been a lot of debate concerning the most suitable method to be used for measuring EI. Some have argued that measurement approach rather than the theoretical approach ultimately determines the nature of EI model being assessed (MacCann et al., 2004; Petrides and Furnham, 2000). It is argued that performance measures are more valid if EI is a type of ability, whereas self-report instruments can be used if EI is viewed of comprising a number of non ability related traits or attributes (Goldenberg et al., 2006). Thus the measures of EI similar to ability EI and trait EI models are classified as:

a. Performance based measure of EI.

b. Self-report measures of EI.

a. Performance based measures of EI pertain to ability models for instance Mayer, Salovey, Caruso Emotional Intelligence Test (MSCEIT YV) by Mayer et al. (2005) which is available to academic researchers only.

b. Self-report measures are pertaining to mixed models of EI. They are determined to assess emotions within the personality framework and to assess cross - situational consistencies in behavior (Petrides and Furnham, 2000) for instance: emotional quotient inventory: Youth Version (EQ-i YV) by Bar-On and Parker (2000[a]). The details of this method are given in section 5.2.1.In this research, Bar–On and Parker's questionnaire of EI is tested in the Indian school students of different ethnic groups and differentiated the EQ levels of school students (9-14 years) primarily focusing upon to provide a relationship between its factors.

3.5 CONCLUDING REMARKS

This chapter discusses the models and measures of EI. Five types of validity are discussed for every measure of EI. The commonalities and differences between various models and measures are explained. The next chapter discusses the model and measures selected for experimentation with the various factors of EI.

CHAPTER 4

A FRAMEWORK FOR PROPOSED RESEARCH

This chapter presents the conceptual model and measure selected for our experimentation and discusses the various measurement scales and sub scales of EI used in this research.

4.1 INTRODUCTION

Goleman (1995) suggested that EI could predict academic success better than the traditional measures of intelligences. Zeidner et al. (2004) correctly pointed out that there hasn't been sufficient research to fully understand the impact EI has on academic success. On further research, it has been proved that there is conflicting evidence regarding the relationships between EI and academic success measured as grade point average (GPA). Possibility of greater variability in the measures of EI could have resulted in conflicting evidences. Using the Mayer- Salovey – Caruso emotional intelligence test (MSCEIT) has not observed any correlations between EI and academic achievement (O'Connor and Little, 2003; Bastian et al., 2005). In case of associations between EI and GPA, the results have been found to be inconsistent. In a study made by Parker et al. (2004[a]) with the emotional quotient inventory – youth version (EQ-i -YV) significant correlations were found between 3 subscales – stress management, adaptability and intrapersonal EQ-i. However, overall EI scores did not correlate with GPA. Newsome et al. (2000) used the EQ-i measure and found no correlations between academic achievement and EI. Similarly, Petrides and Furnham (2004) examined the role of trait emotional intelligence on academic performance. They tested in individuals with low intelligence quotient (IQ) relative to individuals with high IQ. The results suggested that trait EI was related to academic performance only in individuals with low IQ scores. Specifically the study

concluded with stating that high trait EI was more important for academic success in individuals with low IQ. Similarly numerous studies were conducted examining the relationship between emotional intelligence and cognition (Barchard, 2003; Brackett and Mayer, 2003) personality (Bastian et al., 2005; Van der Zee et al., 2002) and academic transitions (Parker et al., 2006) of students.

The pioneers of EI also claim that family socialization practices determine the development of EI in children (Rubin, 1999; Schutte et al., 2001; Salovey, and Sluter, 1997). Parental socializations have been found to impact directly child's social and emotional competency as well as work indirectly on the understanding of emotions and gaining social knowledge (Zeidner et al., 2002). Parental socializations take effect through explicit lessons or informal conversations about regulation of emotion. Parental influences also occur through the child's observational capacity. The basic assumption is that a child whose parent displays constructive EI related behavior in everyday life is most likely to implement it as a part of its own behavior. In addition to parents, school setting is one of the most important contexts for learning emotional skills and competencies (Mayer and Salovey, 1997). In the process of emotional learning the individual develops the aptitudes, skills, attitudes and values necessary to acquire higher emotional intelligence. Mayer and Geher (1996) hypothesized that those who are low in emotional intelligence could be educated to recognize, express and regulate their feelings better. It can be specified that EI is the aggregation of the innate abilities and the knowledge and skill that individuals acquire and develop throughout their lifetime. EI includes physical, intellectual and psychological capacities. EI is non tradable and

intrinsically possessed by an individual. Individuals do not always control the channels and pace by which they acquire EI either formally or informally (Goleman, 1997).

In this study, Bar–On and Parker's questionnaire of EI in the Indian students in the age group of 9 -14 years is tested and differentiated. The EI levels of students (9-14 yrs and 21 – 27 years) primarily focus to provide a relationship between its factors. An attempt is to identify these factors, which could be implemented for directing students to attain higher EI.

4.2 MODEL SELECTED FOR EXPERIMENTATION

A specified set of skills Low et al (2004) that students need to be successful in the workplace are listed below:

a. Career and job search skills.
b. Appropriate personal competence skills
c. Appropriate social competence skills

The first set of skills that student's need is career and job search skills, which helps in developing career management skills. Counselors often begin by administering and interpreting a variety of career assessments, exploring irrational thinking students are engaged in, matching personal characteristics with similar occupations, teaching decision-making skills and helping in the decision-making process. They also teach job search skills and help students adjust to the workplace and develop an appropriate lifestyle consisting of a balance between work, leisure, family, and education.

The second set of skills that student's need is appropriate personal competence skills. In helping students develop these skills, the counselor can administer assessments to make students more aware of their personal competence strengths and weaknesses, increase

their self-esteem by focusing on strengths they possess, enhance their personal responsibility for their career development. They discuss the importance of being trustworthy and dependable in the workplace.

The third set of skills that student's need is appropriate social competence. In helping students develop these skills, the counselor can help students learn to be more cooperative, be supportive of coworkers, take the initiative to lead when called upon, be a good follower of leadership, communicate effectively, value diversity, and relate well to people.

The EI construct has important clinical and therapeutic implications because it has emerged from an amalgamation of research findings on how people appraise, communicate and use emotion (Salovey and Mayer, 1990). The ability to identify and describe internal mental states and the ability to link specific mental events with particular behaviors and situations are core dimensions in most models of emotional intelligence. Bar-On's model of emotional intelligence relates to the potential for performance and success, rather than performance or success itself, and is considered process-oriented rather than outcome-oriented (Bar-On, 2002). It focuses on an array of emotional and social abilities, including the ability to be aware of, understand, and express oneself, the ability to be aware of, understand, and relate to others, the ability to deal with strong emotions, and the ability to adapt to change and solve problems of a social or personal nature (Bar-On, 1997[a]). In his model, Bar-On outlines five components of emotional intelligence: intrapersonal, interpersonal, adaptability, stress management and general mood.

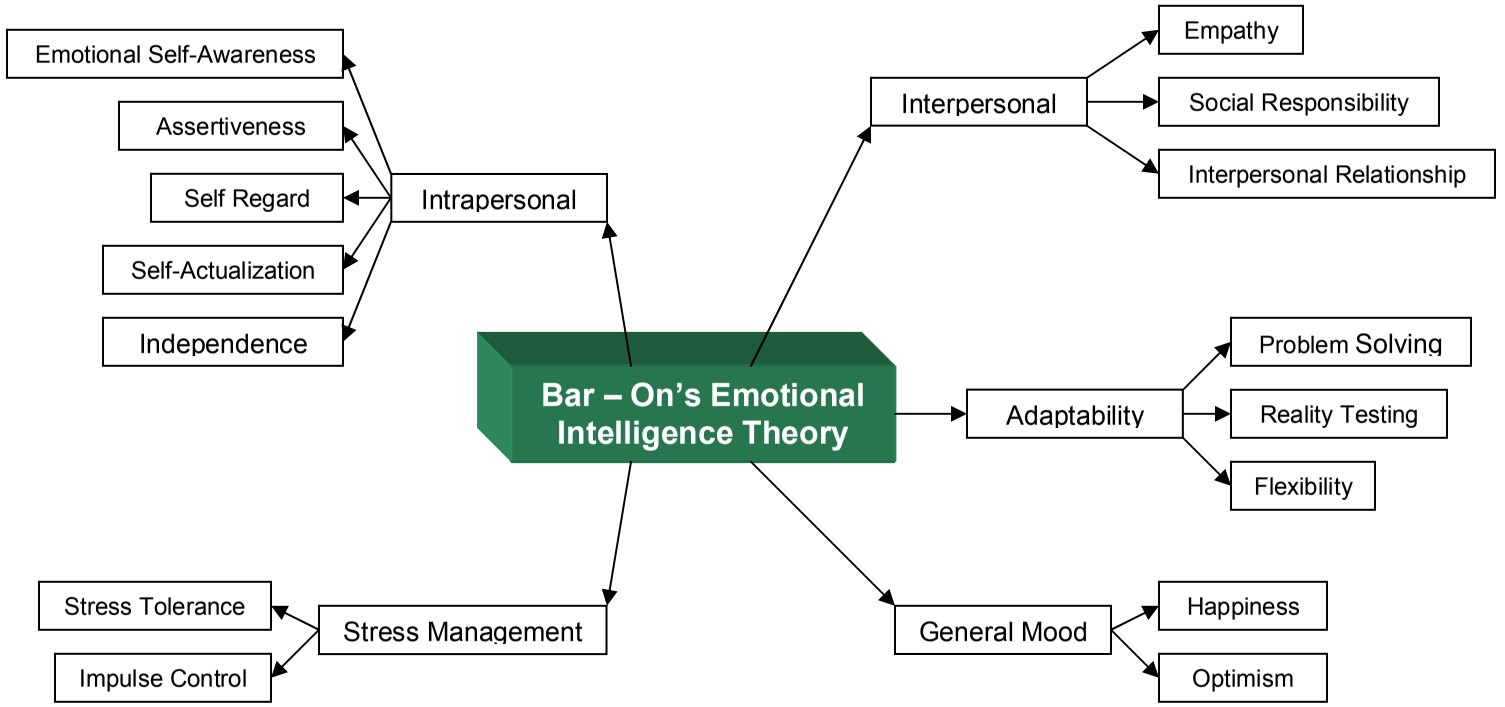

Fig 4.1: Bar – On's EI Model (adapted from Bastian, 2005 unpublished thesis)

Within these components are sub-components; Bar-On posits that emotional intelligence develops over time and that it can be improved through training, programming and therapy (Bar-On, 2002). Bar-On hypothesizes that those individuals with higher than average EI are in general more successful in meeting environmental demands and pressures. He also notes that a deficiency in emotional intelligence can mean a lack of success and the existence of emotional problems. Problems in coping with one's environment is thought, by Bar-On, to be especially common among those individuals lacking in the subscales of reality testing, problem solving, stress tolerance, and impulse control. In general, Bar-On considers emotional intelligence and cognitive intelligence contribute equally to a person's general intelligence, which then offers an indication of one's potential to succeed in life (Bar-On 2002). The study of students in the age group of 21 -27 years has utilized Bar-On's model without any modifications. In our study of students in the age group of 9 - 14 years, we consider communication as an important aspect. Bar-On's model is modified with addition of UC and RC.

Figure 4.2 discusses the model construed for this study of students in the age group of 9 - 14 years with the inclusion of UC and RC in Bar- On's model.

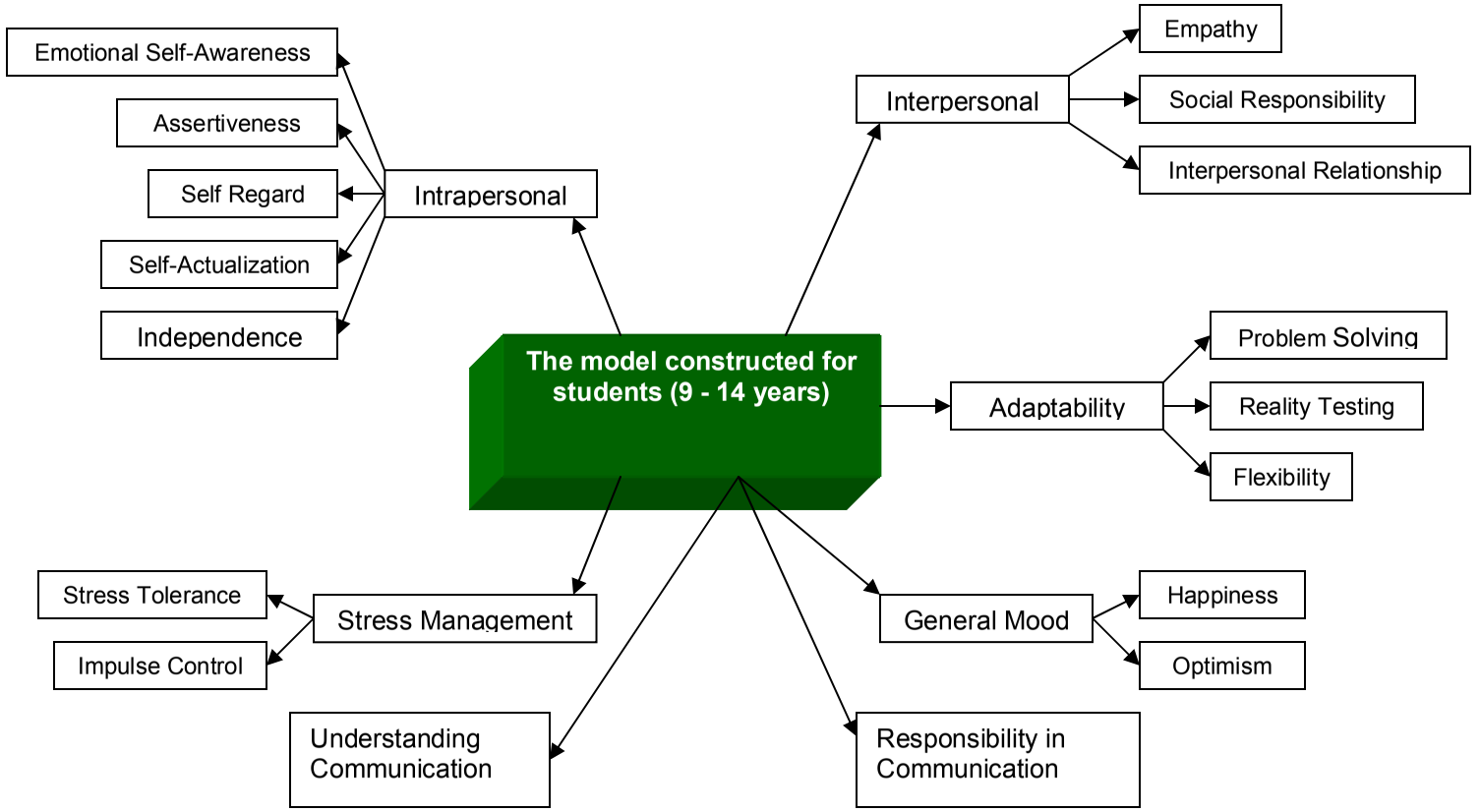

Fig. 4.2: The Model constructed for Students (9 - 14 years)

4.3 MEASURE SELECTED FOR EXPERIMENTATION

The first consideration in evaluating a measure of emotional intelligence is the aspect of mental life it measures (Bar-On, 1997[b]). The content of emotional intelligence tests varies greatly due to the fact that interpretations of the meaning of the term emotional intelligence vary widely.

In this study, Bar – On and Parker's Emotional Quotient Inventory - Youth Version (EQ-i; YV) (2000[a]) measuring the emotional intelligence of students was administered to students in the age group of 9 - 14 years. Two communication questionnaires developed by Rozakis (1995). Both the questionnaires were combined. The entire test was conducted with these 3 Questionnaires clubbed together. Details of the EQ-i YV and communication questionnaires are discussed in section 5.3.1. Similarly, for students of different professional colleges, Bar – On's Emotional Quotient Inventory EQ-i (Bar-On 1997[b]) measuring the emotional intelligence of students was administered. Details of the EQ-i YV and communication questionnaires are discussed in section 5.3.2.

The EQ-i has a total EQ score and the following five EQ composite scale scores comprising fifteen subscale scores: (1) Intrapersonal EQ-i (comprising self-regard, emotional self-awareness, assertiveness, independence, and self-actualization), (2) Interpersonal EQ-i (comprising empathy, social responsibility, and interpersonal relationship), (3) Stress Management EQ-i (comprising stress tolerance and impulse control), (4) Adaptability EQ-i (comprising reality testing, flexibility, and problem solving), and (5) General Mood EQ-i (comprising optimism and happiness). The inventory includes the following four validity indicators: Omission Rate (the number of omitted responses). Inconsistency Index (the degree of inconsistency between similar types of items), Positive Impression (the tendency to give an exaggerated positive response), and Negative Impression (the tendency to give and exaggerated negative response

The fifteen subscales on the EQ-i are defined by Bar –On (1997 [b]) as follows: self-regard (SR) is the ability to be aware of, understand, accept, and respect oneself; emotional self-awareness (ES) is the ability to recognize and understand one's emotions; assertiveness (AS) is the ability to express feelings, beliefs, and thoughts, and to defend one's rights in a non destructive manner; independence (IN) is the ability to be self-directed and self-controlled in one's thinking and actions and to be free of emotional dependency; self-actualization (SA) is the ability to realize one's potential and to do what to do, enjoys doing, and can do; empathy (EM) is the ability to be aware of, understand, and appreciate the feelings of others; social responsibility (RE) is the ability to demonstrate oneself as a cooperative, contributing, and constructive member of one's social group; interpersonal relationship (IR) is the ability to establish and maintain mutually satisfying relationships that are characterized by emotional closeness, intimacy, and by giving and receiving affection; stress tolerance (ST) is the ability to withstand adverse events, stressful situations, and strong emotions without '' falling apart'' by actively and positively coping with stress; impulse control (IC) is the ability to resist or delay an impulse, drive, or temptation to act, and to control one's emotions; reality testing (RT) is the ability to assess the correspondence between what is internally and subjectively experienced and what externally and objectively exists; flexibility (FL) is the ability to adjust one's feeling, thoughts, and behavior to changing situations and conditions; problem solving (PS) is the ability to identify and define personal and social problems as well as to generate and implement potentially effective solutions; optimism (OP) is the ability '' to look at the brighter side of the life'' and to maintain a positive attitude, even in the face of adversity; happiness (HA) is the ability to feel satisfied and with one's life, to enjoy oneself and others, and to have fun and express positive emotions. The difference with the youth version of the EQ-i is that the sub scales are not considered.

Thus this study considers the EQ-i for evaluating the professional student's level of EI and EQ-i YV for the students in the age group of 9 - 14 years. The only other measure available MSCEIT YV was in the sampling stage when this study was initiated and hence unavailable for worldwide researchers. Other unsuitability criteria of MSCEIT and MSCEIT YV are that they have to be administered online. Schools in India have limited computers, with tribal, rural schools in this study having no accessibility to computers. Since our sample is large it was difficult to conduct an online test and hence a test with paper and pencil was preferred.

4.3.1 Interscale Correlations

The EQ-i subscales were examined for the degree of intercorrelation. This was done to examine the level of correlation between the Positive Impression Scale and the other inventory subscales in order to assess the level of social desirability response bias, as well as to examine the inter correlations among the subscales them selves. The overall inter correlation among the subscales and the Positive Impression Scale proved to be 0.19, indicating that the subscales is not strongly socially biased. It can, thus, be concluded that the subscales and the inventory as a whole are relatively independent from a social desirability factor. It means that they are contributing unique information.

The average inter correlation of the fifteen subscales is 0.50; this indicates a fairly high inter correlation among factors, which was expected. The optimism subscale demonstrated the highest degree of inter correlation with the other factors (an average of 0.61). Other interesting high correlations among the subscales are worthy of comment. For example, the highest inter correlation was observed between the social responsibility and the empathy subscales (0.80). This may mean that responsible behavior is highly dependent on one's ability to be aware of and appreciate the feelings of others; and a lack of empathy may help to better explain psychopathic

behavior. Especially high inter correlations also appeared between assertiveness and independence (0.60) and between self-regard and self-actualization (0.67), optimism (0.75) and happiness (0.71). Finally, the high correlation between optimism and stress tolerance (0.76) suggests that optimism most likely is a significant factor in one's ability to cope with stress and could very well be an important facilitator of this important component of emotional intelligence.

4.3.2 Internal Consistency

The internal consistency of the EQ-i scales was examined on several population samples around the world. The average Cronbach alpha coefficients are high for all of the subscales, ranging from a low of 0.69 (social responsibility) to a high of 0.86 (self-regard), with an overall average internal consistency coefficient of 0.76 for the seven countries examined in the EQ-i technical manual (Bar-On, 1997[b]). Additional studies have produced similar internal consistency results on large population samples (for example, approximately 9,500 children and adolescents in the United states and Canada, 5000 late adolescents and young adults in Israel, and 1,700 adults in the Netherlands).Average to above average scores on the EQ-i suggest that individual who is potentially effective in emotional and social functioning (that is, one who is most likely emotionally and socially intelligent), the higher the scores, the more positive the prediction for effective functioning in meeting environmental demands and pressures. On the other hand, inability to succeed in life and possible existence of emotional social or behavioral problems are suggested by low scores. Low scores on the following subscales are considered more problematic for coping with one's environment; stress tolerance, impulse control, reality testing and problem solving (Bar-On, 1997 [b]).

4.4 FACTORS OF EI

Goleman (1995) identified five factors that affect EI. They are self-awareness, self-regulation, motivation, empathy and social skills. These factors continue to be analyzed extensively by many researchers. These are also the core dimensions measured by the Emotional Competencies Inventory.

Goleman's study (1995) stated that EI accounts for more than 85% of exceptional achievement. It is universally accepted that even though technical skills are necessary for productivity, these are insufficient to explain the difference between high and mediocre performers. As the complexity of tasks increases high performance individuals show higher emotional intelligence. Goleman's (1995,1998) study agreed that individuals with high emotional intelligence are aware of self, motivated, self disciplined, strong socially, aspire to excel, and continually seek re-skilling, learning and adding value. This helps in long-term business development and builds a high morale organizational culture.

Self-aware individuals have a deep understanding of their own emotions, strengths, weaknesses, needs and drives. They are neither overly critical nor unrealistically optimistic; instead they are honest with themselves and with others. McLagan's study (2002) stated that self-awareness extends to an understanding of values, goals and other drivers of behavior and performance and are able to reduce cognitive dissonance by operating in agreement with their values, and influence others through demonstration of these values. In this drive for self-improvement, a culture of constructive feedback is created that fosters personal growth.

Goleman (1995, 1998) described self-regulation as the ability to choose to respond to an event rather than reacting; reasonable people create an environment of trust and fairness, effectively managing politics and infighting by example. Such organizations attract and retain talent, leading

to competitive advantage in addition to coping well in ambiguous business environments. Bryan (2002) stated that as they operate from a place of authenticity and integrity they are able to model solid corporate citizenship and governance in changing conditions. Self-regulators think strategically and delay gratification in short-term results, which results in more sustainable alternative of investment in long-term growth.

Empathy along with social skills is important in appreciation of teams, group dynamics, diversity and diversity management. The fundamentals of this is component of EI are rapid globalization, increase in competitive requirements for specialized talents, and relevance of flexible, temporary project teams. Social skills enhance coaching and mentoring relationships, improve performance, increase job satisfaction and reduce employee turnover. Social skill also helps in gaining agreement on a new policy or system and building enthusiasm for a new product launch. The essential characteristics of managerial competence are visible when an individual building broad networks, knows intuitively how to persuade, understand the importance of collaboration and are adept at managing teams.

However, many managers use four clusters of emotional competency. They are:

- Self-Awareness: defined by emotional self-awareness, accurate self-assessment, and self-confidence.
- Self-Management: defined by self-control, transparency, achievement, initiative and optimism.
- Social Awareness: defined by empathy, organizational awareness, service orientation
- Relationship Management: defined by inspiration, influence, developing others, change catalyst, conflict management, teamwork and collaboration.

Similarly, Bar- On (2000[a]) has identified 5 factors, such as intrapersonal EQ-i, interpersonal EQ-i, stress management EQ-i, adaptability EQ-i and general mood EQ-i. These five factors are further divided into 15 subscales as discussed in section 3.3. Thus placing all competencies such as achievement orientation, impulse control and adaptability EQ-i that are components of self-regulation, we can conclude that such concepts confuse rather than clarify the role of emotional competencies in the workplace. Since the field of EI remains relatively new, many of these factors, which have been studied in organizational psychology for some time, now are much better understood than the concept of EI. Re-conceptualization of these factors as forms of EI may lead to further confusion and dealing with distinct interrelated competencies are more tractable for research and practical uses.

Mayer et al. (2000[b]) described EI as a component of emotional perception, emotional facilitation of thought, emotional understanding and emotional management. Their concept has gained popularity since the theory is performance oriented and empirically based. They have alternative scoring procedures in order to discriminate right from wrong answers on performance-based measures of EI.

To summarize, Goleman (1995) identified 5 factors that affect EI. They are: self-awareness, self-regulation, motivation, empathy and social skills. He has also mentioned the influence of communication on all these factors. Similarly, Bar- On (2000) has identified 5 factors, such as intrapersonal EQ-i, interpersonal EQ-i, stress management EQ-i, adaptability EQ-i and general mood EQ-i. This study considers factors outlined by Bar-On to find out the relationship of emotional intelligence with intrapersonal EQ-i, interpersonal EQ-i, stress management EQ-i, adaptability EQ-i, general mood EQ-i and their level of understanding and responsibility in communication.

Similarly for students of professional colleges factors outlined by Bar-On are utilized to find out the relationship of emotional intelligence with intrapersonal EQ-i, interpersonal EQ-i, stress management EQ-i, adaptability EQ-i, general mood EQ-i along with the subscales discussed in section below.

4.4.1 Intrapersonal EQ-i

According to Bar – On (1997[b]) intrapersonal EQ-i includes emotional awareness and the ability to identify them correctly. Individuals scoring high on intrapersonal EQ-i tend to understand their emotions and are able to express and communicate their feeling and needs. Shearer (2006) defined intrapersonal EQ-i as an ability to think about and understand one's self, to be aware of one's strengths and weaknesses and to plan effectively to achieve personal goals, reflecting on and monitoring one's thoughts and feelings and regulating them effectively. It's the ability to monitor one's self in interpersonal relationships, be aware of and understand one's emotions, feelings, and ideas and to act with personal efficacy. It consists of related abilities like recognizing and labeling one's feelings. Intrapersonal EQ-i comprises of 5 subscales described below:

a. Self Regard (Measured by the EQ-i SR subscale)

Self Regard is an important resource for managing averse affect (Parke and Ladd, 1992). Self-regard is related to our self worth and our value. Building esteem is a first step towards our happiness and a better life. Self-regard increases confidence. If one has confidence one will respect self. If one respects self one can respect others, improve relationships, achievements and happiness. Self-esteem is the experience of being competent to cope with the basic challenges of life and of being worthy of happiness.

b. Emotional Self - awareness (Measured by the EQ-i ES subscale)

Goleman (1998) defined self-awareness as the ability to recognize and understand personal moods and emotions. It drives their effect on others. Hallmarks of self-awareness include self-confidence, realistic self-assessment, and a self-deprecating sense of humor. Basically it is being aware of our moods as we are having them. Self-aware people have higher degree of sophistication about their emotional lives. These people are extremely sure of their own boundaries and are as a result in good health. They have a positive attitude towards life. Self-aware people get into a bad mood at times but they don't ruminate neither are obsessed with it and they are able to get out of it sooner.

c. Assertiveness (Measured by the EQ-i AS Subscale)

According to Bar-On (1997[b]) assertiveness is the ability to express one-self and one's emotions. It is a very important component required in conceptual models that attempt to describe emotional intelligence and closely related concepts. It is, therefore, encouraging noting a fairly high correlation (+. 60) between the EQ-i AS subscale and the 16PF Factor (Bar-on, 1997[b]) confirming that AS subscale is tapping the ability to be assertive and express one in general.

d. Independence (Measured by the EQ-i IN subscale)

Tapping the various aspects of self-directive thinking and behavior, the ability to be independent is apparently dependent on one's degree of self-confidence, as well as desire to meet expectations and obligations without becoming a slave to them. Tap the feeling that one is in control and one can influence difficult situations. It is important to reiterate that independence and self-directiveness in one's thinking and ability to relate with others correlates with emotionally and socially intelligent behavior

e. Self-Actualization (Measured by the EQ-i SA subscale).

Self-actualization is defined within the Bar-On model, is apparently tapping what has been referred to as achievement drive. This is one of the key cognitive factors considered by Wechsler to play an important role in facilitating intelligent behavior, probably by supplying emotional energy, which helps motivate the individual to do his or her best. The ability to actualize one-self requires drive and emotional energy.

4.4.2 Interpersonal EQ-i

According to Bar – On (1997[b]) interpersonal EQ-i deals with the relationship with peers, subordinates and superiors. Those high on the interpersonal EQ are likely to have satisfying interpersonal relationships, are good listeners and are able to understand and appreciate the feelings of others. It is defined by Shearer (2006) as the ability to recognize the feelings of other people that are facilitated by linguistic skill. It's the ability to be aware of and understand others' emotions and feelings. Skill in managing relationships with other people is also a factor in one's overall mood and emotional well-being. It consists of related abilities like identifying emotions in others and having empathy towards others. Interpersonal EQ-i comprises of 3 subscales described below:

a. Empathy (Measured by the EQ-i EM subscale).

Another extremely important component that has surfaced in most conceptual models that have attempted to describe emotional and social intelligence over the years is empathy (the ability to be aware of and understand the feelings and needs of others). These correlations are moderate in magnitude. They help to define the EM subscale and match fairly closely with the way the underlying construct (empathy) was conceptualized within an emotional and social

intelligence framework. The lack of empathy may be an important factor in aggressive antisocial behavior, which may prove to have both diagnostic and remedial applicability.

b. Social Responsibility (Measured by the EQ-i RE subscale)

Social responsibility subscale is related to identifying and understanding feelings in addition to being considerate and concerned about others and their feeling (Dawda and Hart, 2000). Demonstrating responsibility (Bar-On, 1997[b]) and being cooperative and willingness to contribute to the group orientation and social responsibility component are described as respect and consideration for others and are responsible for both the success and failure of the organization.

c. Interpersonal Relationship (Measured by the EQ-i IR subscale).

The EQ-i IR subscale tap a wide area often referred to as social skills, considered by many to represent an important component of emotional and social intelligence defined as the ability in form and maintain relations characterized by the capacity for giving and receiving emotional closeness. The ability to give and receive emotional closeness in relations is not only dependent on the ability to be aware of emotions, but also on the ability to understand feelings and emotions within those relations. The IR subscale also correlates well with a number of other scales that measure various aspects of interpersonal relationships.

4.4.3 Stress Management EQ-i

It is defined as the ability to be flexible and alter one's feelings with changing situations (Day and Livingstone 2005). It consists of abilities like delaying or resisting an impulse. Those with high stress management are generally calm and work well under pressure; they are rarely impulsive and can usually respond to a stressful event without an emotional outburst. Stress management EQ-i comprises of two subscales described below:

a. Stress Tolerance (Measured by the EQ-i ST subscale)

The results from a number of studies clearly indicate that the EQ-i ST subscale assesses one's ability to effectively manage stress and anxiety-provoking conditions. The importance of stress management for emotional intelligence can be seen in the way it is related to identifying feelings (Bar- On 1997[b]). This factor has to do with the ability to deal with environmental demands; to influence stressful events and to actively do something to improve the immediate situation and the inability to cope with stress will most likely lead to anxiety.

b. Impulse control (Measured by the EQ-i IC subscale)

The Impulse control subscale according to Bar-On (1997[b]) measures acceptance of one's aggression. It is also the ability to be composed and to control aggression, hostile, aggressive, and irresponsible behavior. These scales measure a tendency toward impulsiveness, low frustration tolerance, abusiveness, unpredictable behavior, anger control problems, loss of self-control, and explosive behavior.

4.4.4 Adaptability EQ-i,

Adaptability according to Bar –On (1997[b]) involves skills related to management of change. Managing change involves the ability to manage stressful situations in a relatively calm and proactive manner. Individuals who score high on this dimension are impulsive rarely and work well under pressure (Bar –On 1997[b], 2000[a], 2002). Day and Livingstone (2005) defined adaptability as the ability to be flexible and alter one's feelings with changing situations. It consists of abilities like being to adjust one's emotions and behavior to changing situations or conditions. Individuals with high adaptability scores are flexible, realistic and effective in managing change; good at finding positive ways of dealing with everyday problems.

a. Reality Testing (measured by the EQ-i RT subscale).

The reality testing subscale (Bar-On 1997[b]) shares a common domain with these particular measures that tap disturbances in perception, affect, and cognition characterized by an impaired ability to validate that which one perceives, feeling, or thinking. This suggests that the ability to accurately identify and understand feelings is dependent on accurate reality testing. This could also mean that reality testing plays an important role in the cognitive processing of emotions, a point that has not yet been fully addressed in the emotional intelligence literature. Reality testing possibly acts as a ‘’rudder’’ in keeping the cognitive processing of emotions on track; this also might explain what happens in psychotic behavior.

b. Flexibility (Measured by the EQ-i FL subscale)

Bar-On (1997[b]) suggests that people who score low on the flexibility subscale most likely exhibit rigidity in their thinking and behavior, which is characteristic of both disturbances (American Psychiatric Association, 1994). In addition to thinking and behaving in rigid patterns, those with neurosis exhibit rigidity in the way they emotionally react to certain events. People who receive a low score on the FL subscale resist change in general and in their own self in particular.

c. Problem Solving (Measured by the EQ-i PS subscale)

Bar –On (1997[b]) implied that it is important to understand emotions in order to solve problems or, at least, problems of a more emotional nature (for example, problem solving with specific emotional or affective content is most likely facilitated by possessing knowledge of one’s and others’ feelings). Impairment in problem solving is also observed in anxiety and depression.

4.4.5 General mood EQ-i

It is defined as the ability to feel and express positive emotions and remains optimistic (Bar –On 1997[b]). It represents the ability to enjoy life and maintain a positive disposition. Higher levels on

general mood feel satisfied with their lives and maintain a positive outlook. Happiness and Optimism are two aspects of general mood including maintenance of positive aspects and brighter side of life.

a. Optimism (Measured by the EQ-i OP subscale)

Wechsler considered optimism (together with drive and positive mood) to be part of the cognitive factors that he thought facilitated intelligent behavior. These factors were considered to be motivational in nature rather an integral part of intelligence itself (Wechsler, 1940).

b. Happiness (Measured by the EQ-i HA subscale)

Happiness is "barometric in nature" - it both monitors one's overall well being and interjects positive mood into the way one copes with daily demands. In a way, it helps us do what we want to do and then tells us how well we are doing. It is this positive mood that fuels the emotional energy required to increase one's motivational level to get things done. Markedly low score on the HA subscale may possess typical symptoms of depression, such as a tendency to worry, sadness, uncertainty about the future, withdrawal from one's immediate environment, lack of drive, depressive thoughts, guilt, dissatisfaction with one's life, and possible suicidal thoughts.

4.4.6 Communication

Goleman (1995) emphasized that communication is imbibed in emotional intelligence. Other researchers like Petrides and Furnham (2000; 2001), Brackett et al. (2003) and Low et al. (2004) specified communication as a factor in their research instruments. Some of the pioneering definitions of communication are as follows:

"Communication is the social process by which people in a specific situation construct meaning using symbolic behavior (Rozakis, 1995). Putting emphasis on the various processes of communication, Loius defines Communication as the sum of all the things one person does when

he wants to create understanding in the mind of another; it involves a systematic and continuous process of telling, listening and understanding (cited in Chaturvedi, 2006). Callahan (2008) mentions that in order to function effectively all social systems must establish formal and informal means of communication.

In this research, two aspects of communication are studied (questionnaires are discussed in section 5.3.1):

a. Level of understanding in communication: deals with the reasoning and excelling in communication
b. Level of responsibility in communication: deals with the responsibility and sensitivity in communication

The American philosopher McKeon (1998) says the world and all that is in it can be discussed by using four basic categories:

'Things – Thoughts – Actions – Words'.

Of these four categories, only words can bring the other three into existence. Things are conceived of in symbols, discussed in words and numbers, and constructed using instructions that are written, spoken, or mediated by communications technology. Thoughts are made known in the symbols used to represent them. Although thought processes are chemical and electrical in nature, one knows what one thinks when forming words to describe it. Actions are nonverbal sources of communication. One knows what others think, feel, and believe when others tell them, or show through facial expression; eye movement, gestures, and use of space-all of these realms make sense only in terms of the words one uses to make them attain meaning. So, in a philosophic sense, it can be concluded that words, or symbols, create the possibilities and understandings in every aspect of our lives. Communication is, as McKeon (1998) points out, the

architectonic, productive process. By architectonic, he means communication is the structure of our understanding because it structures our interpretations of symbols. There is not a subject that does not depend on communication to attain meaning. By productive McKeon means communication is goal-oriented, informed by purposes, given meaning in relation to what it can do. This study does not deal with oral, written, nonverbal aspects of communication. It deals with the importance of UC and RC.

4.5 CONCLUDING REMARKS

In this chapter, the model and measure selected for experimentation is discussed. The various factors affecting EI and the subscales are described and understood. These factors tend to facilitate one's overall ability to effectively cope with daily demands and pressures. The next chapter describes design of experiment used in this research.

CHAPTER 5

RESEARCH DESIGN

This chapter describes the research design used in this study. Research design involves the discussion on sampling method, questionnaires development and selection and administration of questionnaires on the targeted students both 9-14 years and 21 -27 years age group.

5.1 INTRODUCTION

Research design is a very important step to outline the plan and structure of issues to be investigated. It is the depiction of a framework or organization or configuration of the relationships among variables involved in the study and the systematic investigations to obtain empirical evidences.

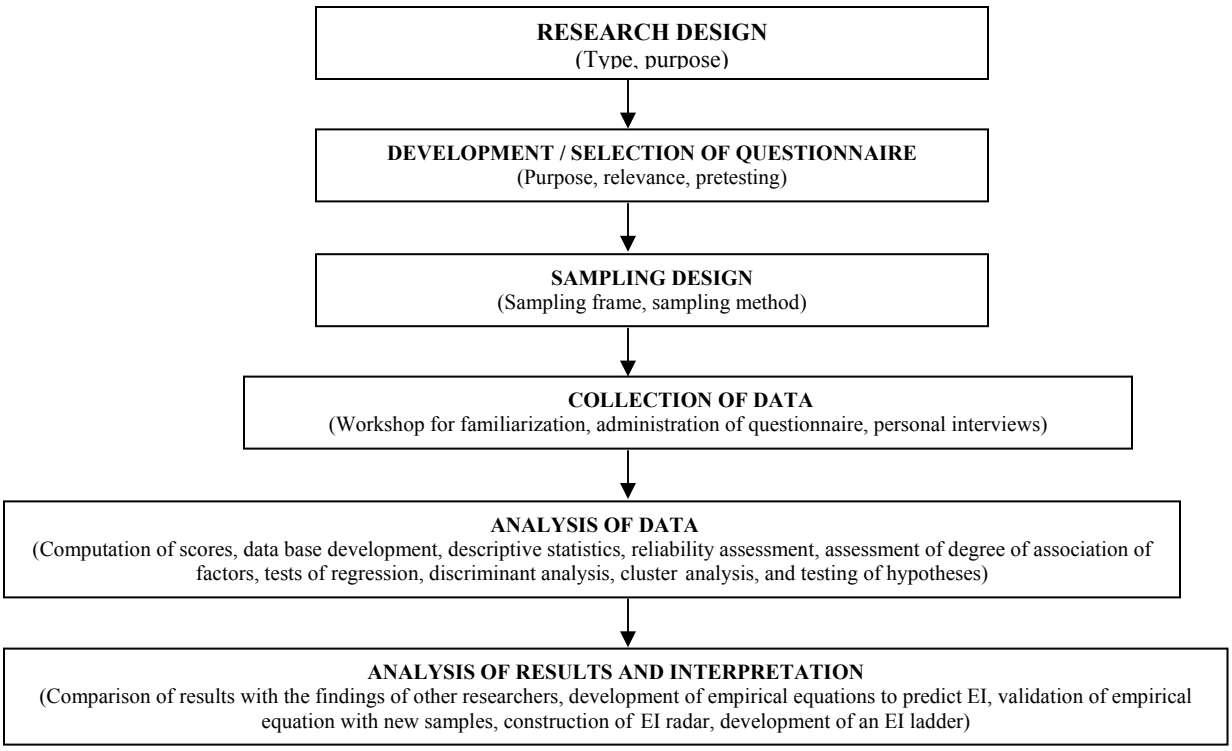

Fig 5.1: Research Design Process

The design involves instrument selection, data collection and analysis. We represent our research design in Fig. 5.1. The explanation of each step is presented in the subsequent sections.

5.2 RESEARCH DESIGN

Kothari (1999) defined research design as the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure. A research design must contain the clear statement of the research problem, procedures and techniques for gathering information, the population to be studied and the methods used in processing and analyzing data.

The essential features of a research design are:

a. An activity and time based plan, based on the research question.
b. A framework for specifying the relationships among the study's variables with a procedural outline for every activity.

The first step in the design process is to suitably position the type of research that we aim to attempt**.** There are multiple and differing prescriptions presented by various authors relating to the type of research design. Kothari (1999) presents the research design belonging to: exploratory, descriptive and diagnostic, hypothesis testing types. Zikmund (2005) and Cooper and Schindler (2007) mention the design type as: exploratory, descriptive and causal. Bryman and Bell (2006) mention differing typologies such as: experimental design, cross sectional design, longitudinal design, case study design, and comparative design

We propose a design, which incorporates the following features:

Our design is exploratory type. Exploratory research aims at obtaining complete and accurate information with enough provision for protection against bias and prejudices and even a-priori

perceptions, which helps in improving data reliability. The diagnostic research design enables to find appropriate method to be applicable to the target sample.

We are conducting a survey research which comprises a cross sectional design in relation to the collection of data by questionnaires and structured interviews for students in age group 9 – 14 years and 21 -27 years with many variables to detect patterns of associations (Bryman and Bell, 2006). With cross sectional design it is possible to examine relationships between variables because the researcher does not manipulate any of the variables. In a cross sectional design research, data on the variables of interest are collected simultaneously.

We also employ hypothesis-based research to test the hypothesis of causal relationships between variables. Such studies require procedures that will reduce bias and increase reliability. This research incorporates numerous hypothesis statements, which are statistically tested.

Table 5.1: Positioning of the Research Design

Sr. No	Category	Descriptor
1.	The degree of crystallization of the research question	Formal study
2.	Data collection method	Communication study
3.	Power of researcher to produce effects in the variables	Ex post facto
4.	Purpose of study	Descriptive
5.	The time dimension	Cross sectional
6.	Scope	Statistical
7.	Research environment	Field setting

With reference to table 5.1, we can conclude that it is a formal study with communication process type of data collection method. Formal study tests the hypothesis or answers the research question posed. Formal study begins with a hypothesis and involves precise procedures. In communication process type of method of data collection, the researcher questions the subjects and collects their responses. In this type self-report instrument is administered personally.

It is a cross sectional, field-setting study. Cross sectional studies are carried out once and represent a snapshot at one point in time. Our research has been conducted in real life situations; hence it is field setting statistical study. Statistical studies are designed for breadth rather than depth. They capture population's characteristics by making inferences from a sample's characteristics.

- **Purpose**

  Research design facilitates efficiency in research operations thereby yielding maximal information with minimal expenditure of effort, time and money. Research design stands for advance planning of the methods to be adopted for collecting data and techniques to be used in technical analysis. The researcher has to keep in mind the objective of research and the availability of staff, time and money. The research design helps the researcher to organize their ideas in a form whereby looking into flaws and inadequacies is possible.

5.3 DEVELOPMENT / SELECTION OF QUESTIONNAIRE

- **Purpose**

  Questionnaires are an efficient data collection mechanism when the researcher knows exactly what is required and how to measure the variables of interest (Sekaran, 2007). A questionnaire is a reformulated written set of questions to which respondents record their answers, usually within rather closely defined alternatives. Biases in research can be minimized if a questionnaire focuses on three areas: the wording of questions, general appearance of questionnaire and planning of issues of how the variables will be categorized, scaled and coded after receipt of the responses. It is important to conduct a thorough measurement analysis on survey instrument, which is used for research.

Measurement analysis provides the audience with assurance that the findings reflect accurate measures and the results are believable.

- **Relevance**

  To be successful, questionnaire should be short and simple (Kothari, 1999). Questions should proceed in a logical sequence moving from easy to more difficult ones. Technical terms and expression with numerous interpretations should be avoided. Reliable and valid instrument provides practitioners with a tool for self-assessment and continuous improvement. All psychological testing questionnaires must be reliable and valid hence a widely used measure of EI was selected for this study: Bar-On and Parker's EQi YV (for the age group 9-14 years) and Bar-On's EQi (for the age group 21-27 years). The reliability, internal consistency and different types of validity data for the questionnaires utilized for this study are discussed in chapter 3 earlier.

5.3.1 Compilation of the questionnaires for students of age group 9 – 14 years.

In this study, Bar – On and Parker's Emotional Quotient Inventory - Youth Version (EQ-i; YV) (2000[a]) measuring the emotional intelligence of students was administered to students. Two communication questionnaires developed by Rozakis (1995) are also administered. The entire test was conducted with these 3 Questionnaires clubbed together. The details of the questionnaires are given below:

a. The EQ-i; YV is a 60 item self-report measure of EI developed by Bar-On and Parker (2000[a]). Children and adolescents between the ages of 9 and 14 are asked to respond to the statements which best describe the way they feel, think, or act in most situations. Responses are rated by the participant on four-point Likert scales, ranging from 1 for "very seldom or not true of me," to 4 for "very often true or true of me." The instrument has a 6-item intrapersonal EQ-i scale, a 12-

item interpersonal EQ-i scale, a 12-item stress management EQ-i scale, and a 10-item adaptability EQ-i scale. Along with a total EI scale (the sum of the four previous scales), the EQ-i; YV also has a 14-item general mood EQ-i scale and a 6-item positive impression validity scale. A high score on any individual ability (or the total score) reflects a high level of social and emotional competency. Bar-On and Parker (2000[a]) report that the EQ-i; YV has a replicable factor structure (developed with a normative sample of 9172 school-aged children and adolescents); the various scales on the instrument correlate highly with comparable scales on the adult version of the inventory (Bar –On, 1997[b]). The EQ-i has a built-in correction factor that automatically adjusts the scale scores based on the Positive Impression and Negative Impression Scale scores. This is an important feature for self-report measures in that it reduces the distorting effects of social response bias, thereby, increasing the accuracy of the results obtained. A list of the inventory's items is included in the EQ-i technical manual (Bar-On, 1997[b]). The questionnaire also has the option of inconsistency index which is determined based on the differences in the options marked for specified questions. If the cumulative total is more than 10 then the results of that student is interpreted with caution.

b. The communication questionnaire comprised 2 questionnaires of 10 questions each as depicted in Appendix – 5.1. Students had to respond with a true or a false.

The first questionnaire examines the students for their level of understanding in communication, which includes testing the knowledge of students with respect to excelling (5 items) and reasoning in communication (5 items). The second questionnaire examines responsibility in communication, which identifies the level of responsibility (6 items) and sensitivity (4 items) of students in communicating. Additionally there is one more questionnaire for parents to

understand the income, occupation and literacy levels of each parent. Data was also obtained from the school authorities.

5.3.2 Selection of Bar- On EQ-i questionnaire for students of the age group 21 -27 years.

EI for students in the age group of 21 -27 years was measured using Bar - On (1997[b]) which consists of 133 statements measuring five EI factors: intrapersonal EQ-i, interpersonal EQ-i, adaptability EQ-i, stress management EQ-i and general mood EQ-i. The EQ-i is further divided into fifteen sections. The first, intrapersonal EQ-i includes measures of self-awareness, self-actualization and independence, the ability to assert oneself, and the ability to view oneself positively. The second, interpersonal EQ-i includes such skills as empathy, interpersonal relationships and social responsibility. The third, stress management EQ-i, includes skills such as stress tolerance and impulse control. The fourth, adaptability EQ-i includes flexibility, problem solving and reality testing. Finally, general mood EQ-i includes happiness and optimism.

Responses are rated by the participant on four-point Likert scales, ranging from 1 for "very seldom or not true of me," to 5 for "very often true or true of me." The final item is a self – report on honesty of responding and is not included in any scale. The scales and subscales are intrapersonal EQ-i (emotional self – awareness, assertiveness, self –regard, self – actualization, independence); interpersonal EQ-i (empathy, interpersonal relationships, social responsibility); adaptability EQ-i (problem solving, reality testing, flexibility); stress management EQ-i (stress tolerance, impulse control); general mood EQ-i (happiness, optimism). Higher scores indicate a higher level of emotional intelligence. EI scores were derived by using item scales as given in the manual.

5.3.3 Pre-testing

The purpose of pre-testing is:

i. To establish the most appropriate respondents

ii. To check whether the questions asked in the questionnaire are easy to understand

iii. To ascertain the effectiveness of the measuring instrument.

Pre-testing was carried out in two stages. In the first stage, a draft of the questionnaire was provided to two academicians and they were requested to critically evaluate the items from the standpoint of item specificity and clarity of construction. Based on critique received, some items were revised to improve their specificity and clarity.

The second pre-test involved personal administration of the questionnaire to students. They were asked to complete the questionnaire and indicate any ambiguity or other difficulty they experienced in responding to the items, as well as to offer any suggestions they deemed appropriate. The pre-testing was done with the ten students each of a school and management institute. After second pre-test, the questionnaire was reviewed based on expert's comments and phrasings of some items were modified to make the final research instrument more effective. The questionnaires so compiled are given in Appendix B. The reliability of the questionnaires was ensured keeping in mind the stability and equivalence aspect. A pre-test for students in the age group of 9 – 14 years indicated a questionnaire completion time of 40-45 minutes as there were 3 questionnaires. Similarly for students in the age group of 21 – 27 years, time taken was 15- 20 minutes.

5.4 SAMPLING DESIGN

- **Sampling frame**

  A sampling frame is closely related to the population. It is a list of elements from which the sample is actually drawn (Cooper and Schindler, 2007). The selection of samples for this survey has been made based on the following criteria:

i. Participant should be in the age group of 9 – 14 years and 21 – 27 years. Adolescent age group of 9 – 12 years and the onset of teenage (13- 14 years)

ii. Parents of students in the age group of 9 – 14 years should complete a questionnaire to assess the family income levels and socio-economic status etc.

iii. School and professional college authorities give permission to administer the questionnaires in their premises.

- **Sampling method**

  A sample is a part of population, which is selected for obtaining the necessary information (Cooper and Schindler, 2007). Table 5.2 describes the different types of sampling methods and is basically classified as probability and non-probability sampling.

a. Probability sampling is based on the concept of random selection – a controlled procedure that assures each population element is given a known non - zero change of selection (Cooper and Schindler 2007). This procedure provides estimation of precision and is never haphazard.

b. Non-probability sampling is arbitrary and subjective and is done with a pattern or scheme in mind. Each member of the population does not have a known chance of being included.

Table 5.2: Types of sampling design (Adapted from Cooper and Schindler, 2007)

Elemental selection	Probability	Non Probability
Unrestricted	• Simple random	• Convenience
Restricted	• Complex random	• Purposive
	• Systematic	a. Judgment
	• Cluster	b. Quota
	• Stratified	• Snowball
	• Double	

Purposive Quota sampling method was used for collecting data for students – age was 9 – 14 years**.** Purposive sampling includes obtaining necessary group from specific target groups. The sampling is confined to certain types of people for two reasons:

a. They conform to some criteria set by the researcher. (Quota Sampling)

b. Some specific people have the information. (Judgement sampling)

Based on the above-mentioned reasons Quota sampling was the technique used in this research. Quota Sampling (Sekaran, 2007) ensures that certain groups are adequately represented in this study through the assignment of a quota. A quota is fixed for each subgroup based on the total number of each group in the population. Quota samples are stratified groups from which subjects are selected non - randomly (Sekaran, 2007).

5.4.1 Sample of students of age group 9-14 years

Schools were based on Maharashtra State Board of Secondary and Higher Secondary Examination pattern {Secondary School Certificate Examination (SSC)} and Indian central board schools {Indian School Certificate Examination (ICSE) and Central Board of Secondary Education (CBSE). In Mumbai different school types like missionary, municipal, private trusts and government aided, exclusively boys, girl's convent was considered. Schools having Muslim trusts and Jewish trusts were also included. Similarly there were 3 tribal and 3 residential schools students too in our sample. Data of students in schools of some rural areas and some cities of Maharashtra like Pune, Nasik and Nagpur were also considered.

Table 5.3: Criteria for Classification of Students (9 – 14 years).

Criterion	Type of school students
Examination pattern	SSC (state board) – ICSE and CBSE (central board)
Location	Urban – Rural
Ethnicity	Tribal – Non Tribal
Boarding	Residential – Non residential
Management of schools	Government aided – Privately managed trusts

To summarize, schools of different ethnic groups are considered. Our various classifications included urban- rural students, residential - non residential students, tribal – non tribal students, Government – private schools and schools adhering to central – state board pattern as shown in Table 5.3. These students represent diverse socio – economic background characterized by upbringing of students in a rural /urban area, along with differing levels of parental literacy, parental occupation and family income.

Table 5.4: Criteria for classification based on parental characteristics

Criterion	Parent	Level	Category
Literacy	Father	1	Upto 10^{th} standard
		2	Graduate
		3	Post graduates / professional education
	Mother	1	Upto 10^{th} standard
		2	Graduate
		3	Post graduates / professional education
Occupation	Father	0	Father has expired
		1	Father in lowly jobs
		2	Father in service
		3	Father manages business
		4	Father is a professional
	Mother	0	Mother has expired
		1	Mother is housewife
		2	Mother in service
		3	Mother manages business
		4	Mother is a professional
Family income	---	1	Upto Rs. 100,000 (low income group)
		2	Rs. 100,000 and 500,000 (medium income group)
	0	3	Above Rs. 500,000 (high income group)

These three parameters are also considered for classification of student type. Based on the data collected, parental categorizations are shown in Table 5.4. Literacy and occupation of each parent was considered. Based on the economic data for taxable incomes, categorisation of household income was done. As discussed earlier, purposive quota sampling technique was used for this study and the questionnaires have been administered amongst 5732 students.

268 students did not complete the main battery of tests and hence the sample size reduced to 5464 (61.035% of respondents were male and 38.965% female) in the age group of 9-14 years representing 28 schools as depicted in Table 5.5. Participants were asked if they would volunteer to study "emotional intelligence and communication". Participants completed the Bar-On Emotional quotient inventory: Youth Version Bar-On and Parker (2000[a]) in the period between July - October 2006.

The stability and equivalence aspect of reliability was maintained in the procedure for data collection by personally administering the questionnaires. Workshops and personal interviews too were conducted personally ensuring the authenticity of data collection. Also age group of 8 years was not considered as their comprehensibility of the questionnaire was doubtful. Similarly age group of 15 – 18 years too was not considered as they were likely to be studying in class tenth to twelfth which is academically crucial years of their life. Similarly age groups 21- 27 years would have engineering, management and Information technology students.

Students who participated completed the EQi-YV during a zero period and also completed the two communication questionnaires comprising 10 questions each in the premises of their school. In exchange for their participation, individuals were provided with a confidential feedback report on their results on each of the instruments.

Table 5.5: Ratio Analysis for 9 – 14 years

Age	Total	Ratios
9 years	120	2.19%
10 years	469	8.58%
11 years	948	17.34%
12 years	1015	18.57%
13 years	1254	22.95%
14 years	1658	30.34%

The results of the ratio analysis reveal that the quotas selected for this study are uniform. There is an increase observed in the number of fourteen year students as they are able to comprehend and understand the questionnaires better than nine year olds. Hence there was found to be uniform increase in the number of students as presented in table 5.5.

Students who participated completed the EQi-YV during a zero period and also completed the two communication questionnaires comprising 10 questions each in the premises of their school. In exchange for their participation, individuals were provided with a confidential feedback report on their results on each of the instruments.

Table 5.6: Classified Data of Students' (9 – 14 years) of 5464 samples

Criteria	Total	Urban Students	Rural Students	Non residential Students	Residential Students	Tribal students	Non tribal students	Government schools	Private schools
Male	3335	3035	300	3031	304	313	3022	1757	1578
Female	2129	2018	111	2101	28	211	1918	950	1179
Father's occupation									
0	20	18	2	17	3	1	19	8	12
1	1138	752	386	744	394	447	691	701	437
2	1661	1141	520	1535	126	44	1617	548	1113
3	2019	1735	284	1761	258	13	2006	450	1569
4	626	425	201	587	39	3	623	76	550
Mother's occupation									
0	9	6	3	9	0	1	8	2	7
1	4555	3446	1109	3904	651	502	4053	1640	2915
2	591	366	225	487	104	4	587	132	459
3	196	167	29	160	36	1	195	8	188
4	113	86	27	84	29	0	113	1	112
Father's Literacy level									
1	1403	992	411	1000	403	448	955	799	604
2	+3011	2416	595	2824	187	58	2953	833	2178
3	1050	663	387	820	230	2	1048	151	899
Mother's Literacy level									
1	2852	2179	673	2365	487	483	2369	1229	1623
2	2116	1595	521	1853	263	25	2091	546	1570
3	496	297	199	426	70	0	496	8	488
Family Income									
Upto 1,00,000	---	2261	961	2950	272	4041	1068	289	1782
1,00,000 to 5,00,000	---	1998	725	2068	655	34	1821	511	1351
Above 5,00,000	---	1455	1353	2411	397	0	2615	983	559

5.4.2 Sample of students of the age group 21-27 years

The sample size comprised a total number - 761 students from 7 different types of professional colleges. 9 students did not complete the main battery of measures could not be considered hence the main sample size reduced to 752 students – all of them belonging to age groups 21-27 yrs. 434 (57.712%) of respondents were male and 318 (42.288%) female.

Data of students in the age group of 21 – 27 years was collected from management institutes, engineering colleges and colleges providing Master's in Computer Application degrees. Two institutes provided residential courses and three institutes provided autonomous education. Table 5.6 depicts the criterion for classification for students (21 – 27 years) based on the courses offered by institutes, boarding type of students and differentiation of college students.

Table 5.7: Criteria for classification for students (21 – 27 years)

Criterion	Type
Degree/Diploma offered by institutes	University approved courses – AICTE approved autonomous diploma
Boarding	Residential – Non residential
Program	Management – Engineering - Computer application

These students represent diverse socio – economic background characterized by upbringing of students with differing levels of parental literacy, parental occupation and family income. The criterion for classification based on parental characteristics as shown in table 5.4 in section 5.4.1 is also considered for this sample of students (aged 21 – 27 years).

Table 5.8: Classified Data of Students' (21 – 27 years) of 752 samples

Criteria	Total number of Students	MBA Students	MCA Students	Engineering Students	Residential Students	Non Residential students	Mumbai University Affiliated colleges	AICTE approved Autonomous Institutions
Male	434	333	57	24	196	238	224	210
Female	318	290	26	2	69	249	208	110
Father's occupation								
0	7	5	2	0	1	6	4	3
1	132	101	29	2	18	114	54	78
2	146	95	42	9	18	128	82	44
3	397	293	94	10	116	281	209	188
4	69	44	20	5	20	49	34	35
Mother's occupation								
0	2	1	1	0	0	7	1	1
1	688	505	161	22	167	521	345	343
2	50	25	22	3	6	44	32	18
3	5	4	1	0	1	4	1	4
4	7	4	3	0	0	7	4	3
Father's Literacy level								
1	225	188	35	2	85	140	76	149
2	457	308	127	22	70	387	269	188
3	70	43	25	2	19	51	38	32
Mother's Literacy level								
1	431	347	66	18	126	305	182	249
2	309	185	116	8	47	262	194	115
3	12	7	5	0	1	11	7	5
Family Income								
Upto 1,00,000	752	539	187	26	174	578	383	369
1,00,000 to 5,00,000	161	119	40	2	21	140	69	92
Above 5,00,000	254	194	57	3	54	200	129	125

Table 5.7 depicts the category wise classification statistics for students (21 – 27 years) (n = 752) based on their gender, occupation of father and mother along with literacy levels of father and mother. Lastly the count of students based on family income is also considered. Ratio analysis revealed that of 623 MBA students, 53.4% were males. Of the 83 MCA students, 68.67% were males and of the 26 Engineering students, 92.3% were males. When open workshops were conducted, MBA students were more interested than MCA and engineering students.

5.5 COLLECTION OF DATA

A covering letter was drafted to the head of the institution –college and school, which included general information about the research work and instrument - purpose of the study, confidentiality of the responses and request for returning the filled questionnaire. Administering questionnaires from February to September 2006 collected data. A workshop for students along with personal interviews for teachers and the principal were two additional activities that were conducted. Additional data to check the predictive validity of the regression equation was collected in Jan - July 2008.

- **Workshop for students**

  A workshop is an educational seminar or series of meetings emphasizing interaction and exchange of information among a usually small number of participants (The American Heritage dictionary) Agreement of the principal led the researcher to conduct the test in their premises, a workshop was conducted for students to explain the contents of the questionnaire. The listening skills of the individuals were observed.

- **Personal interviews**

  Personal interview method requires a person known as the interviewer asking questions generally in a face-to-face contact to the other person or persons (Kothari, 1999). This sort of interview may be in the form of direct personal investigation or it may be an indirect oral investigation. In the case of direct personal investigations, the interviewer has to collect the information personally from the sources concerned. He has to be on the spot and meet people from whom data has to be collected and is suitable for intensive investigations. Direct personal investigations were conducted with teachers and the principals regarding the attitude and behavior of their students of their respective classes. Specific comments made by the teacher were noted.

5.6 ANALYSIS OF DATA

- **Computation of scores:** Technical manuals aided in computation of scores. Coding is done as SPSS® 11.5 for MS Windows® was utilized. Having a sample of tables redone checked the accuracy of the tabulation.
- **Data base development:** For easy retrieval of data of an individual student, data base development was done using Visual basic®. Microsoft access was used at the front end to construct form 1 and form 2. The curriculum to be followed for a particular student also featured in the program.
- **Descriptive statistics:** Descriptive statistics concern (Kothari, 1999) the development of certain indices from raw data. The statistical measures used in this research were measures of central tendency (mean) and measures of dispersion (standard deviation). Mean is the arithmetic average and is defined by

Kothari (1999) as the value we get by dividing the total of values of various given items in a series by the total number of items. Standard deviation is defined (Kothari, 1999) as the square root of the average of squares of deviation.

The standard deviation of sampling distribution of a statistic is known as its standard error. The objective of standard error is to provide information about the reliability and precision of a sample. If the standard error is small there is greater uniformity in the sampling distribution and hence reliability is greater.

- **Reliability assessment:** Reliability (Anastasi and Urbina, 2005) refers to the consistency of scores obtained by the same person when they are reexamined with the test on different occasions or different set of equivalent items or under other variable examining conditions. A measuring instrument is reliable if it provides consistent results. If the instrument satisfies the quality of reliability, it leads to sound measurement of the research question.
- **Assessment of the degree of association of factors:** This assessment determines the relationship between variables and is determined by correlation coefficient. The objective is to ascertain whether there is an association with two or more variables and if yes to what degree (Cooper and Schindler, 2007). Correlation coefficient (Anastasi and Urbina, 2005) expresses the degree of relationship between two sets of scores. This coefficient assumes the following (Kothari 1999):

a. There is a linear relationship between the two variables.
b. One of the variable is independent and the other one is dependent – means they are casually related.

c. A large number of independent causes are operating are operating in both variables which produces a normal distribution.

- **Tests of regression:** Regression (Kothari, 1999) is the determination of a statistical relationship between two or more variables. These tests are adopted when there is one dependent variable, which is presumed to be a function of two or more independent variables. Regression can interpret what exists physically and there must be a physical way in which independent variables affect dependent ones. The objective of this analysis is to make a prediction about the dependent variable based on its covariance with the independent variables
- **Discriminant analysis:** Cooper and Schindler (2007) describe discriminant analysis as a method to classify objects into 2 or more groups. Discriminant analysis joins a nominally scaled criterion or dependent variable with one or more independent variables that are interval or ratio scaled. This analysis is appropriate when the researcher has a single dependent variable, which can be classified into groups on the basis of some attribute. The objective of this analysis is to predict an entity's possibility of belonging to a particular group based on several variables.
- **Cluster analysis:** Cluster analysis described by Cooper and Schindler (2007) as a set of techniques for grouping similar objects and people. It identifies homogenous subgroups or clusters. It starts with an undifferentiated group of people, events or objects and reorganizes them into homogenous subgroups. This analysis is a multivariate procedure that involves combining similar objects like similar scores of EI and the factors, parental background, economic background.

- **Testing of hypotheses:** A hypothesis is defined (Kothari, 1999) as a proposition or a set of propositions set forth as an explanation for the occurrence of some specified phenomenon either asserted merely as a provisional conjecture to guide some investigation or accepted as highly probable in the light of established facts. Once the data is ready for analysis and the goodness of measures are established, testing of hypothesis is done with the already formulated statements.

5.7 ANALYSIS OF RESULTS AND INTERPRETATIONS

- **Comparison of results with the findings of other researchers:** A comparison of results obtained by correlation is done with the findings of measure inventors.
- **Development of empirical equations to predict EI:** Based on regression analysis and discriminant analysis, equations are framed to accurately predict EI.
- **Validation of empirical equation with new samples:** To test the predictive power of the constructed equation, there is a need to collect fresh samples and analyze the goodness of fit of the equation.
- **Construction of EI radar:** Based on scores of the factors of EI, EI radar is constructed to provide a direction to academicians and parents for the path they need to adopt for the development of EI in students.
- **Development of EI competency ladder:** Upon identification of the strengths and weaknesses of an individual, an EI competency ladder is created with stepwise introduction and mastery of a concept, which considered together, could lead to an individual with high EI.

Fig 5.2 presents a system flow diagram of the research design and development, which is the entire research in a nutshell. The explanation for each of the above steps is given above step by

step. Selection and administration is the first step followed by data entry with compilation of raw and standard scores. Classification of their scores category wise based on the school is followed by organization of their scores. Data base development and organization is the next step. After testing the reliability of the questionnaire in the Indian context different empirical analysis have been performed. If the reliability test would not have given higher values of Cronbach alpha the questionnaire would not be reliable and it would have lead to the remodeling of the questionnaire and retesting. Correlation analysis leads to the identification of the significant factors that lead to the development of EI competency ladder. Regression and discriminant analysis led to the construction of regression and discriminant equations; the predictive power of the former is assessed upon collection of fresh samples. Clustering was done next with formation of 4 clusters, which lead to the formation of EI radar. EI radar and EI competency ladder led to the development of EI curriculum for specific categories of students. The classifications of students were tested using analysis of variance technique. Data base development is represented in the attached compact disc with categories, scores of EI and curriculum codes assigned to specific students.

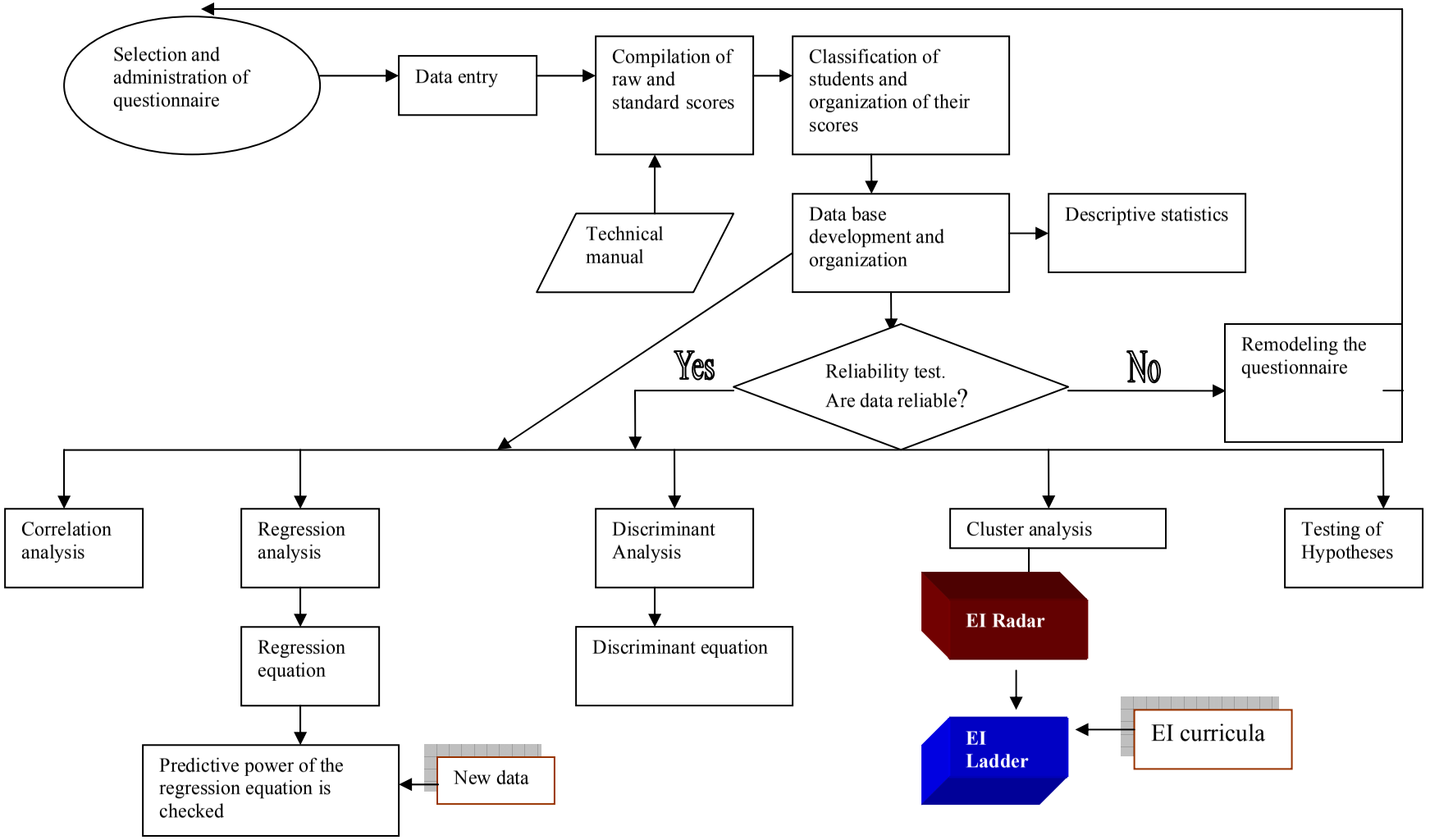

Fig. 5.2: Process Flow Diagram of the research design and development

5.8 CONCLUDING REMARKS

In this chapter, the research design selected for this study is described. The various steps of exploratory research are described comprehensively. Selection of the questionnaire and its contents are then described. Purposive Quota sampling is the type of sampling method selected for research of 9 – 14 years**.** The numbers of students are presented category wise. A very large sample is considered for this study as maximum assurance of authenticity is solicited. Various empirical analysis including correlation analysis, regression analysis, discriminant analysis, cluster analysis and analysis of variance is performed on the data scores for students in the age group of 9 – 14 years and 21 – 27 years. Data analysis is presented in the next chapter.

CHAPTER 6

ANALYSIS OF DATA, RESULTS AND DISCUSSION (FOR STUDENTS: 9 - 14 YEARS)

This chapter discusses the reliability of the questionnaires used in the study. Various statistical analyses such as; correlation, regression, discriminant, and cluster are explained for students in the age group of 9 – 14 years.

6.1 INTRODUCTION

EI has been studied in different organizational context during the past several years. However, there is not much research to explain the EI of students in the age group of 7 – 18 years. There is a continuing debate in the field regarding how big a role emotional intelligence (EI) plays in helping people to be successful in life. We postulate here that EI if developed properly at an early age and career of students, they might successfully meet life's challenges. This study attempts to analyze factors of EI such as: intrapersonal EQ-i, interpersonal EQ-i, stress management EQ-i, adaptability EQ-i, general mood EQ-i, UC and RC that affect emotional intelligence (EI) of students [9 -14 age group]. The empirical analysis revealed that intrapersonal EQ-i, interpersonal EQ-i, stress management EQ-i and adaptability EQ-i have high degree of association with the EI construct and accordingly a regression and discriminant equations have been established to predict EI.

6.2 COMPUTATION OF SCORES

As per the technical manual of the EQi YV the scores of students were computed. On calculation of the raw scores of EI and its factors, the standardized scores were calculated based on the gender and age of the students. Data sheets were compiled in Microsoft excel sheets and finally data was analyzed using the SPSS® 11.5 for MS Windows®.

6.3 DATA BASE DEVELOPMENT

A database is a collection of interrelated data items that can be processed by one or more application systems. A database system (Hansen and Hansen, 2006) is comprised of a database, general-purpose software called the data base management system (DBMS). DBMS manipulates the database and appropriate hardware. A DBMS is usually purchased from a software vendor and is the means by which an application program or an end user views and manipulates data in the database. A properly designed database system integrates data common to several functional units of an organization and facilitates the manipulation of data. In addition to simplifying the insertion, deletion and updating of records, database systems facilitate, identifying, and quantifying derived relationship between data items, compiling statistical summary information, and drawing inferences about business trends. So a database system transforms raw data into information. Data base systems eliminate problems with data redundancy and data control by supporting an integrated centralized data structure. For easy retrieval of data of an individual student, data base development was done using Visual basic®. Microsoft access was used at the front end to construct form 1 and form 2. Form 1 presented the data for professional students and form 2 presented data for school students. The EQ and factor scores along with the socio – economic background is obtained. The curriculum to be followed for a particular student also featured in the program. Fig. 6.1 shows the flow of data in this research. An attached CD explains the entire details. A pictorial representation is done in fig 6.1.

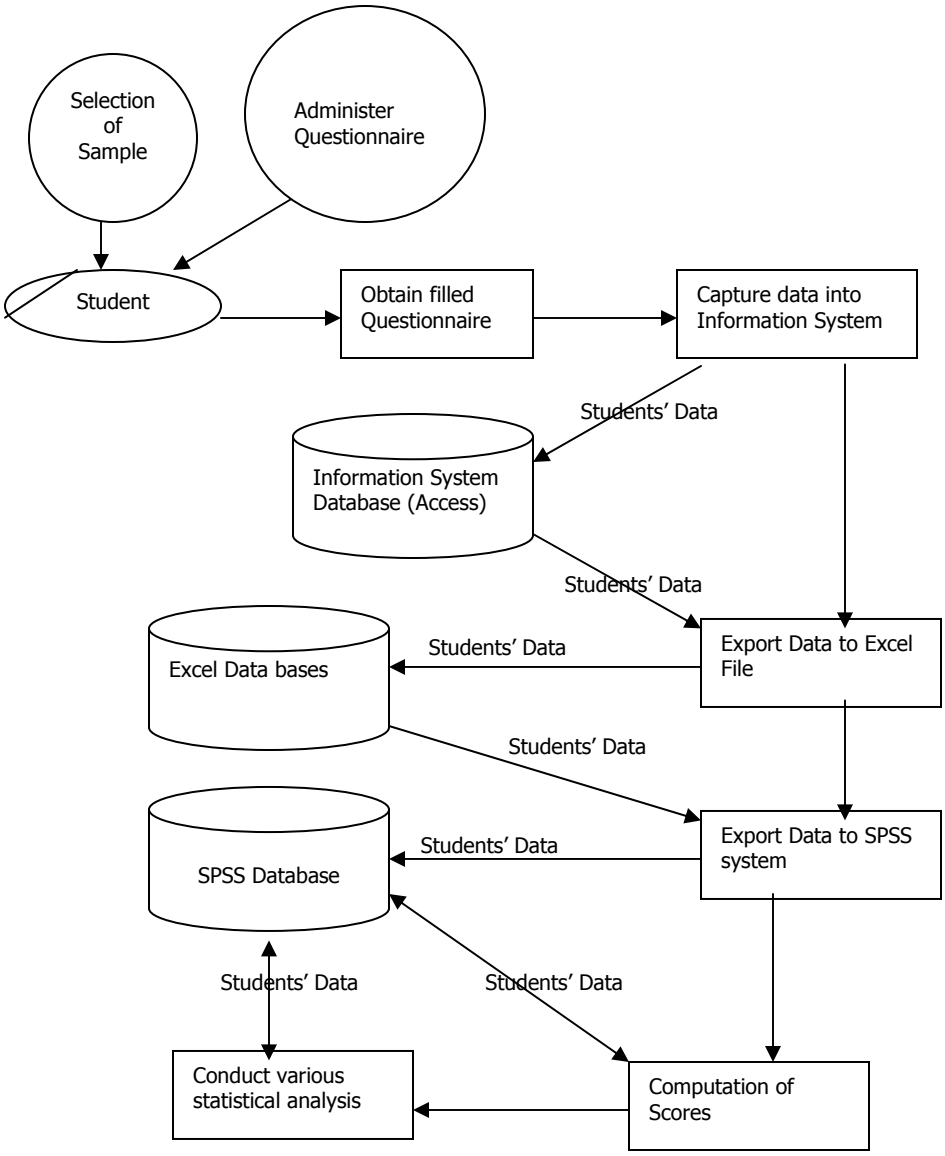

Fig 6.1: Data Flow Diagram

6.4 DESCRIPTIVE STATISTICS

In this step, scores were computed with the aid of SPSS® 11.5 for MS Windows®. UC and RC had scores out of 10 for each of the questionnaire calculated with the methodology developed by Rozakis (1995). EI scores had to be calculated by the methodology developed by Bar –On and Parker (2000[a]) for the youth version of the test. Table 6.1 describes the scores of the multiple factors along with EI. As per guidelines provided by the EQi YV the scores of EI (represented by

total EQ) and its factors were computed. Students ranged from 9-14 years of age; the mean age was 12.34 years (SD - 1.55) for males and 12.57 years (SD - 1.63) for females.

Table 6.1: Statistics for Students in the Age Group of 9 – 14 years

	Minimum		Maximum		Mean		Std. Deviation		Std. Error	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Age	9	9	14	14	12.41	12.55	1.55	1.63	0.20	0.30
EI	65	65	130	130	91.18	90.9	14.96	13.95	0.26	0.32
Intrapersonal EQ-i	65	65	130	130	97.85	96.32	14.42	14.02	0.24	0.30
Interpersonal EQ-i	65	65	125	125	90.06	90.88	16.94	17.98	0.29	0.36
Stress management EQ-i	65	65	126	126	88.31	87.55	13.47	12.54	0.22	0.28
Adaptability EQ-i	65	65	130	130	95.22	97.73	16.43	16.78	0.28	0.34
General mood EQ-i	65	65	122	122	87.92	88.54	15.09	15.87	0.26	0.31
Understanding Communication	0	0	10	10	4.09	5.06	1.87	1.077	0.03	0.03
Responsibility in Communication	0	0	10	10	6.19	7.34	2.43	2.54	0.04	0.05

Some features of the statistics similar to the results obtained in Parker et al (2004[a]) are:

a) 65 was lowest score in case of EI

b) For intrapersonal EQ-i and adaptability EQ-i - 130 is the maximum score.

c) In case of general mood EQ the maximum score is 122.

d) Stress management EQ-i and interpersonal EQ-i has maximum score of 126 each.

e) Understanding communication and responsibility in communication questionnaires had scores out of 10 and some students scored 0 points.

6.5 RELIABILITY ASSESSMENT

The concept of reliability has been used to cover several aspects of score consistency. Test reliability indicates the extent to which individual differences in test scores are attributable to "true" differences in the characteristics under consideration and the extent to which they are attributable to chance errors. These errors cannot be avoided or corrected through improved methodology. A youth version (EQ-i YV) (Bar-On and Parker, 2000[a]) for children from six to

twelve years of age and for adolescents from thirteen to seventeen years of age, was normed with a sample of 9172 students from United States and Canada (Bar –On and Parker 2002).

Table 6.2: Reliability of the Factors of EI

Factors of EI	Cronbach Alpha
Intrapersonal EQ-i	0.86
Interpersonal EQ-i	0.81
Adaptability EQ-i	0.82
Stress management EQ-i	0.83
General mood EQ-i	0.80
UC	0.69
RC	0.75

In this study, reliability for EQ-i YV and UC and RC in the form of Cronbach Alpha was found to be 0.69 to 0.86 for the 7 factors and an overall average internal consistency of 0.78. The values of Cronbach alpha for all the factors of EI are presented in the Table 6.2. The differences in the Cronbach alpha values may be due to the cultural differences as Bar- On and Parker's (2002) study had samples from USA and Canada and this study is in the Indian context.

6.6 ASSESSMENT OF THE DEGREE OF ASSOCIATION OF FACTORS

In order to test the association of EI and its factors a detailed set of statistical analysis was conducted first being a confirmatory Pearson's Correlation as seen in Table 6.3.

Table 6.3: Correlations of EI and its factors

Factors	2	3	4	5	6	7	8
1	0.604(**)	0.656(**)	0.542(**)	0.712(**)	0.532(**)	0.008	0.036
2		0.203(**)	0.368(**)	0.262(**)	0.245(**)	-0.093(**)	-0.062
3			0.159(**)	0.601(**)	0.639(**)	0.060	0.087(**)
4				0.234(**)	0.124(**)	0.011	0.006
5					0.554(**)	0.012	0.060
6						0.007	0.031
7							0.420(**)

** Correlation is significant at 0.01 level (2-tailed).

1 = Total EQ-i 2 = Intrapersonal ability EQ-i 3 = Interpersonal EQ-i 4 = Stress management EQ-i

5 = Adaptability EQ-i 6 = General mood EQ-i

7 = UC 8 = RC

There is a range of correlation coefficients between the factors as described below:

- Adaptability EQ-i has the highest correlation with EI followed by interpersonal EQ-i compared to the study conducted by Parker et al (2004[b]) where r = 0.712 for adaptability EQ-i and 0.656 for interpersonal EQ-i. In that study the former correlates highest with total EQ-i.
- Intra personal EQ-i correlates moderately with total EQ-i and the extent to which stress management EQ-i and general mood EQ-i correlate is nearly the same similar to the study conducted by Parker et al (2004[b]).
- There is no correlation between the UC and RC with EI along with subscales. At 0.01 levels, UC and RC do not correlate with intra personal EQ-i, interpersonal EQ-i, stress management EQ-i, adaptability EQ-i and general mood. EQ-i
- Interpersonal EQ-i is positively associated with RC. Significant correlation exists between interpersonal ability and RC, which signifies that an individual's responsibility and sensitivity in communication is associated with one's ability to interact with others. Excellence and reasoning in communication is difficult to be identified at such a tender age and would probably increase sharply with age.
- Adaptability EQ-i, stress management EQ-i and general mood EQ-i do not denote any significant correlation with UC and RC.
- Intrapersonal EQ-i is negatively associated with UC (-0.093). Significant correlation exists between intrapersonal EQ-i and UC which signifies that if an individual's excellence and

reasoning in communication is high his intra personal EQ is low. There is no significant association of intrapersonal ability and RC.

6.7 TESTS OF REGRESSION

6.7.1 Testing the overall significance of regression

Regression is the determination of a statistical relationship between two or more variables. In simple regression, there are only two variables; one variable (defined as independent) is the cause of the behavior of another one (defined as dependent variable). Regression interprets what exists physically i.e. there must be a physical way in which independent variable can affect dependent variable. As the objective of this study is to identify and assess the effect of factors on total EQ, the method of multiple regression analysis has been chosen, as it helps in assessing the individual and the combined effect of independent variables (interpersonal EQ-i, intrapersonal EQ-i, adaptability EQ-i, stress management EQ-i, general mood EQ-i, UC and RC) on the dependent variable (EI) measured as total EQ-i**.** A Levene's test of heteroscedasticity was conducted to test the homogeneity of the sample. The results showed no different in sample variances and hence the entire sample was found to be homogenous (p= 0.01).

In forward stepwise regression the algorithm adds one independent variable at a time – which explains most of the variation in the dependent variable 'Y'. The next step is of one more variable X_2, then rechecking the model to see that both variables form a good model. The process continues with addition of a third and more variables if it still adds up to the explanation of 'Y' (Nargundkar, 2002). The steps used in conducting the regression analysis on the above sample are as follows:

Firstly, School wise analysis with 7 factors (as explanatory variables) of total EQ-i was done. The regression equation for school wise analysis with 7 factors is as follows:

$$\mathbf{Y = A + B_1X_1 + B_2X_2 + B_3X_3 + B_4X_4 + B_5X_5 + B_6X_6 + B_7X_7 \ .....} \quad \mathbf{(1)}$$

Y = dependent variable representing the emotional intelligence

B_1, B_2, B_3, B_4, B_5, B_6 and B_7 are the coefficients of the regression equation

X_1 = Intrapersonal EQ-i X_2 = Interpersonal EQ-i

X_3 = Stress management EQ-i X_4 = Adaptability EQ-i

X_5 = General mood EQ-i X_6 = UC X_7 = RC A = Constant term

The regression was then tested for its significance using F-test for the regression as a whole, (i.e. to test whether the EI is dependent on the intrapersonal EQ-i, interpersonal EQ-i, stress management EQ-i, adaptability EQ-i, general mood EQ-i, communication ability and communication potential at 5% level of significance. This was followed by t-test to test the significance of each of the factors at 5% level of significance. The F-test results showed that the regression as a whole was significant for the first 4 factors. Hence, in order to improve and get more significant results it was essential to omit the factors that were not significant.

In this study it is sought to assess whether individual factor predicts variance in EI, over and above the variance predicted by other factors. Given the number of inter correlated factors present in the current analyses it is not feasible to force a large number of factors into the equation. Such an analysis would tend to mask the true effects, due to co linearity issues between the independent factors. Thus a stepwise regression analysis was conducted.

The first step of the analysis involves entering the factors into the model. The next step involved using a stepwise procedure to evaluate whether any of the factors should enter the model. The final step involved using a stepwise procedure to evaluate if any of the factors should enter into the model. All variables were standardized in order to reduce co linearity problems (Aiken and West, 1991). If a factor entered the model in step 2 then the competence that formed a part of

that interaction was forced into the model in step 3, as it is necessary for a well-structured model. The F-test results showed that the regression as a whole was significant for the first 4 factors. Hence, in order to improve and get more significant results it was essential to omit the factors that were not significant.

Table 6.4: Summary of Regression Analysis for four Factors of EI

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.712(a)	.507	.507	10.581
2	.834(b)	.695	.695	8.321
3	.878(c)	.770	.770	7.224
4	.914(d)	.835	.835	6.120

a. Model 1 consists of one independent variable - Adaptability EQ-i
b. Model 2 consists of two independent variables - Adaptability EQ-i, Intrapersonal EQ-i
c. Model 3 consists of three independent variables - Adaptability EQ-i, Intrapersonal EQ-i, and Interpersonal EQ-i.
d. Model 4 consists of four independent variables - Adaptability EQ-i, Intrapersonal EQ-i, Interpersonal EQ-i, Stress management EQ-i

Table 6.5: ANOVA for four Factors of EI

Model		Sum of Squares	Degrees of freedom	Mean Square	F	P
1	Regression	629613.786	1	629613.786	5623.252	.000(a)
	Residual	611782.926	5463	111.966		
	Total	1241396.713	5464			
2	Regression	863172.355	2	431586.177	6233.748	.000(b)
	Residual	378224.358	5462	69.234		
	Total	1241396.713	5464			
3	Regression	956336.648	3	318778.883	6108.082	.000(c)
	Residual	285060.065	5461	52.190		
	Total	1241396.713	5464			
4	Regression	1036846.795	4	259211.699	6920.341	.000(d)
	Residual	204549.918	5460	37.456		
	Total	1241396.713	5464			

Dependent Variable: Total EQ-i

a. Model 1 Predictors: (Constant), adaptability EQ-i
b. Model 2 Predictors: (Constant), adaptability EQ-i, intrapersonal EQ-i
c. Model 3 Predictors: (Constant), adaptability EQ-i, intrapersonal EQ-i, interpersonal EQ-i.
d. Model Predictors: (Constant), adaptability EQ-i, intra personal EQ-i, interpersonal EQ-i, stress management EQ-i

As seen in table 6.4 there is no difference in the R square and adjusted R square value. This is due to the sample 'n' being large – 5464 students in the age group of 9 – 14 years (Koutsoyiannis, 1977). From the t-ratios in the above regressions, it could be seen that general mood EQ-i, UC and RC were not significant factors of EI.

Further, the overall impact of general mood EQ-i; UC and RC can be overcome by using and calculating EI as a function of the intrapersonal EQ-i, Interpersonal EQ-i, stress management EQ-i and adaptability EQ-i by omitting general mood EQ-i, UC and RC. So, regression analysis with 4 factors (as explanatory variables) of EI was carried out with the following equation.

$$\mathbf{Y = A + B_1X_1 + B_2 X_2 + B_3 X_3 + B_4X_4 \ldots\ldots\ldots\ldots \quad (2)}$$

Adding the values of beta and the constant term from the regression Table 6.6, we get:

$$\mathbf{Y = -28.151 + 0.344(X1) + 0.334\ (X2) + 0.277\ (X3) + 0.363\ (X4) \ldots\ldots\ldots\ldots\ldots\ldots\ (3)}$$

Table 6.6: Coefficients of Regression Analysis for four Factors of EI

Model	**Factors**	**Unstandardized Coefficients**		**Standardized Coefficients**	**T**	***p***
		B	Std. Error	Beta		
1	(Constant)	27.720	.852		32.537	.000
	Adaptability EQ-i	.662	.009	.712	74.988	.000
2	(Constant)	-8.893	.920		-9.668	.000
	Adaptability EQ-i	.553	.007	.595	76.959	.000
	Intrapersonal EQ-i	.482	.008	.449	58.082	.000
3	(Constant)	-17.624	.825		-21.364	.000
	Adaptability EQ-i	.373	.008	.402	49.377	.000
	Intrapersonal EQ-i	.467	.007	.435	64.717	.000
	Interpersonal EQ-i	.304	.007	.338	42.251	.000
4	(Constant)	-32.137	.766		-41.966	.000
	Adaptability EQ-i	.337	.006	.363	52.237	.000
	Intrapersonal EQ-i	.369	.006	.344	57.062	.000
	Interpersonal EQ-i	.301	.006	.334	49.329	.000
	Stress management EQ-i	.316	.007	.277	46.362	.000

As the regression equation has R square value 0.835 we tried to increase the value by adding dummy gender variables. As shown in Table 6.7, there is no difference in the R square value.

Table 6.7 Coefficients of Regression Analysis with Gender

Factors	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	R	R Square	Std. Error of the Estimate
	B	Std. Error	Beta			.835	.835	6.113
(Constant)	-32.91	.828		-39.75	.000			
Intra personal EQ-i	.366	.007	.342	56.143	.000			
Interpersonal EQ-i	.290	.007	.323	42.337	.000			
Stress Management EQ-i	.317	.007	.278	46.494	.000			
Adaptability EQ-i	.332	.007	.357	49.848	.000			
General mood EQ-i	.023	.007	-.023	-3.180	.601			
UC	.130	.046	-.017	-2.800	.505			
RC	-.012	.037	-.002	-.311	.756			
Gender	-.206	.170	-.007	-1.211	.226			

Dependent Variable: Total EQ-i

Experiments with age are not conducted as it was considered in groups (9 -12 years and 13 to 14 years) and considered for cluster analysis. Table 6.4, 6.5 and 6.6 presents the results of regression analysis for 4 factors of EI. The following points are worth mentioning:

- The results were found to be significant in the data of 5464 students in the age group of 9 – 14 years.
- Four explanatory variables - intrapersonal EQ-i, interpersonal EQ-i, stress management EQ-i and adaptability EQ-i are significant factors affecting EI. General Mood EQ-i, UC and RC do not seem to impact EI.
- General mood EQ-i along with UC and RC are not significantly affecting EI and hence cannot be considered as a factor.

6.7.2 Testing the improvement of fit by additional regressions

*** The Logarithmic Exponential**

As the regression equation has R square value 0.835 we tried to increase the value by considering the logarithmic exponential of independent and dependent factors. As shown in Table 6.8, there is no difference in the R square value.

Table 6.8: Coefficients of Regression Analysis with Logarithms of Factors

	Unstandardized Coefficients		Standardized Coefficients	T	P	R Square	Adjusted R Square	Std. Error of the Estimate
	B	Std. Error	Beta					
(Constant)	-468.737	4.156		-112.7	.00	.835	.834	6.103
Log intra personal EQ-i	35.702	.715	.347	49.92	.00			
Log interpersonal EQ-i	26.335	.709	.336	37.14	.00			
Log stress management EQ-i	28.574	.690	.284	41.41	.00			
Log adaptability EQ-i	30.482	.718	.354	42.45	.00			
Log general mood EQ-i	2.422	.750	.028	3.22	.56			
Log UC	.584	.229	.017	2.55	.61			
Log RC	.308	.294	.007	1.04	.29			

Dependent Variable: Total EQ-i

6.7.3 Testing of significance of the difference between a single prediction and actual observation

The tests of significance between single prediction and the actual observation are this test of testing the predictive power of the equation (Koutsoyiannis, 1977). This test is frequently used as the basis for evaluation of the forecasting power of the model. In this test observed ‘T’ is compared with its theoretical value and decide whether the observed difference is significant. Sampling of 375 students was done for testing the predictive power of the equation in June / July 2008. In our test, actual value of ‘T’ is less than ‘T’, that is predicted value. The observation is compatible with the estimated relationship.

Table 6.9: Values of T actual and T Predicted for Four Significant Factors of EI.

Model	Factors	T (actual)	T (predicted)
1.	Adaptability EQ-i	74.988	73.88
2.	Adaptability EQ-i	76.959	72.1
	Intrapersonal EQ-i	58.082	58.02
3.	Adaptability EQ-i	49.377	49.21
	Intrapersonal EQ-i	64.717	62.5
	Interpersonal EQ-i	42.251	41.11
4.	Adaptability EQ-i	52.237	51.12
	Intrapersonal EQ-i	57.062	57.00
	Interpersonal EQ-i	49.329	49.21
	Stress management EQ-i	46.362	46.21

Dependent Variable: Total EQ-i

a. Model 1 Predictors: adaptability EQ-i
b. Model 2 Predictors: adaptability EQ-i, intrapersonal EQ-i
c. Model 3 Predictors: adaptability EQ-i, intrapersonal EQ-i, interpersonal EQ-i.
d. Model Predictors: adaptability EQ-i, intra personal EQ-i, interpersonal EQ-i, stress management EQ-i

In this case we accept that the predicted power of our equation is good. With reference to Table 6.6 we obtained the values of T actual on the basis of which the regression equation was framed. In Table 6.9 below, both values of T – actual and predicted based on the equation are presented. In our test the difference between the actual and forecasted value may be due to abnormal conditions in the period of forecast (Koutsoyiannis, 1977). In this case our equation is still valid and we do not need to modify it.

6.8 DISCRIMINANT ANALYSIS

In this study, the exact EQ score is calculated using the regression equation but the variance was 83.5%. In order to predict the accurate range of EQ scores, discriminant analysis was conducted. The objective is to establish a procedure to find the predictors that best classify objects. The EQ scores were classified as:

1. 65 – 89: low EQ

2. 90 – 110: high EQ
3. Above 111: very high EQ

A discriminant model is built and tested for its usefulness based on (Nargundkar, 2002):

a. The number of data points from the original data set the model classifies correctly. The closer it is to 100, the better the model. The drawback includes the classification accuracy will probably reduce when applied to fresh data.
b. A low value of Wilks' Lambda indicates high significance.
c. The F test should show p – value of less than 0.05.

Table 6.10: Eigen values of Standardized Canonical Discriminant Function Coefficients

Function	Eigen value	% Of Variance	Cumulative %	Canonical Correlation
1	2.221(a)	99.2	99.2	.830
2	.018(a)	.8	100.0	.133

From the output Table 6.10, the discriminant function obtained is able to classify 99.2% of the 5464 student's EI scores correctly.

Table 6.11: Variables in the Analysis of Standardized Canonical Discriminant Function Coefficients

Step		Tolerance	F to Remove	Wilks' Lambda
1	Adaptability EQ-i	1.000	1615.609	
2	Adaptability EQ –i	.966	1562.626	.691
	Intrapersonal EQ-i	.966	1172.047	.628
3	Adaptability EQ-i	.879	531.932	.437
	Intrapersonal EQ-i	.928	1328.493	.544
	Interpersonal EQ-i	.854	544.899	.439
4	Adaptability EQ-i	.875	503.116	.364
	Intrapersonal EQ-i	.927	978.233	.417
	Interpersonal EQ-i	.832	633.479	.378
	Stress management EQ-i	.955	521.832	.366

The model is a good pointer for future input data of EI scores of students assuming it to be relevant and scientifically collected. So our canonical discriminant function equation is

$$\mathbf{Y = d_0 + d_1X_1 + d_2 X_2 + d_3 X_3 + d_4 X_4 + d_5 X_5 + d_6 X_6 + d_7 X_7 \ .....} \quad \mathbf{(4)}$$

Y = dependent variable representing the range of EI of school student

d_1, d_2, d_3, d_4, d_5, d_6 and d_7 are the standardized canonical discriminant function coefficients. X's are the values of the discriminating variables used in the analysis.

X_1 = Intrapersonal EQ-i	X_2 = Interpersonal EQ-i
X_3 = Stress management EQ-i	X_4 = Adaptability EQ-i
X_5 = General mood EQ-i	X_6 = UC
X_7 = RC	d = Constant term

Table 6.12 denotes values of Wilks' Lambda. Since these values are closer to 0, it indicates better discriminating power of the model. So, based on 4 steps of variable in the analysis, our discriminant equation is:

$$\mathbf{Y = d_0 + d_1X_1 + d_2 X_2 + d_3 X_3 + d_4 X_4 \ .....} \quad \mathbf{(5)}$$

Table 6.12: Wilks' Lambda Significance Levels

Step	Number of Variables	Lambda	df1	df2	df3	Exact F			
						Statistic	df1	df2	Sig.
1	1	.628	1	2	5462	1615.609	2	5462.000	.000
2	2	.439	2	2	5462	1387.711	4	10896.000	.000
3	3	.366	3	2	5462	1186.642	6	10894.000	.000
4	4	.307	4	2	5462	1096.089	8	10892.000	.000

As depicted in table 6.11 'p' values are below 0.05 hence the discriminant model is highly significant. Substituting the values we obtain the final canonical discriminant equation

$$\mathbf{Y = Constant + 0.633\ X_1 + 0.530\ X_2 + 0.495\ X_3 + 0.491\ X_4 \ .....} \quad \mathbf{(6)}$$

The following points are worth mentioning:

- The results were found to be significant in the data of 5464 students.

- Four explanatory variables - intrapersonal EQ-i, interpersonal EQ-i, stress management EQ-i and adaptability EQ-i are significant variables predicting range of EI.

6.9 CLUSTER ANALYSIS

Cluster Analysis is a multi-variate procedure (Nargundkar, 2002) is a group of similar objects. Cluster analysis is an exploratory data analysis tool for solving classification problems. Its object is to sort cases (people, things, events, etc) into groups, or clusters, so that the degree of association is strong between members of the same cluster and weak between members of different clusters. Each cluster thus describes, in terms of the data collected, the class to which its members belong; and this description may be abstracted through use from the particular to the general class or type.

Cooper and Schindler (2007) have identified five basic steps:

a. Selection of sample to be clustered. b. Definition of the variables on which to measure the objects. c. Computation of the similarities through correlation. d. Selection of mutually exclusive clusters. e. Cluster comparison

Based on these steps EQ-i and its factor scores of students in the age group of 9 – 14 years were classified as presented in table 6.13

Table 6.13: Categories of EQi and its factors (Bar-On and Parkar 2000[a])

Student scores	Total EQi	Intrapersonal EQi	Interpersonal EQi	Adaptability EQi	Stress management EQi	General mood EQi
65 – 89	Low	Low	Low	Low	Low	Low
90 – 110	High	High	High	High	High	High
Above 111	Very high	Very high	Very high	Very high	Very high	Very high

The understanding communication (UC) and responsibility in communication (RC) scores were classified as:

1. 0 – 4: low UC / RC

2. 5 – 7: high UC / RC
3. 8 - 10: very high UC / RC

The basic clustering methods (Nargundkar, 2002) used in computer packages are Hierarchical clustering or Linkage methods and Non - hierarchical clustering or Nodal methods In this study the second type including the K- means approach is considered where the number of clusters is specified in advance. The specified number of nodes and points closest to them are used to form initial clusters and through an iterative rearrangement the final K clusters are determined by SPSS® 11.5 for MS Windows®. K–means procedure generally gives more stable cluster, since it is an interactive procedure compared with the single – pass hierarchical methods. Table 6.14 depicts the number of cases in each cluster and signifies that each cluster is determined by significant number of cases.

Table 6.14: Number of Cases in each Cluster

Cluster	1	1127.000
	2	1887.000
	3	979.000
	4	1411.000
Valid		5404.000
Missing		60.000

Final cluster centers describe the mean value of each variable for each of the 4 clusters. The brief description of each of the 4 clusters as presented in Table 6.15 is given below:

Cluster 1

Students belonging to this cluster are males in the age group - 13 to 14 years. They have low EQ-i, and low scores of intrapersonal EQ-i, interpersonal EQ-i, stress management EQ-i, adaptability EQ-i, general mood EQ-i and UC. They have high scores of RC. Unfortunately their father has expired but mother having undergone professional education results in family income below Rs.100, 000 per annum.

Cluster 2

Students belonging to this cluster are males in the age group of 9- 12 years. They have low EQ-i score and low scores of intrapersonal EQ-i, interpersonal EQ-i, stress management EQ-i, adaptability EQ-i, general mood EQ-i, UC. They have high scores of RC. Their father's manage a business and mothers are housewives. Both parents are graduates with total family income above Rs. 500,000 per annum

Table 6.15: Final Cluster Centers

	Cluster			
	1	2	3	4
Categories of total EQ –i	1	1	2	2
Age group	2	1	2	2
Category of intrapersonal EQ-i	1.64	1.64	2.27	2.12
Category of interpersonal EQ-i	1.26	1.31	2.12	2.10
Category of stress management EQ-i	1.35	1.34	1.70	1.65
Category of adaptability EQ-i	1.39	1.42	2.31	2.34
Category of general mood EQ-i	1.24	1.24	1.95	1.90
Category of UC	1.37	1.41	1.33	1.49
Category of RC	2.13	2.13	2.13	2.29
Father's Occupation	0	3	2	3
Mother's Occupation	4	1	1	3
Father's Education	2	2	1	2
Mother's Education	3	2	1	2
Income	1	3	1	3
Gender	1	1	2	1

Cluster 3

Students belonging to this cluster are adolescent females in the age group of 13- 14 years. They have high EQ-i scores and high scores of intrapersonal EQ-i, interpersonal EQ-i, adaptability EQ-i, and RC. The scores of stress management EQ-i, general mood EQ-i and UC are low. Their father is in service and mothers are housewives. Both parents are educated till the 10^{th} standard with their family income below Rs.100, 000 per annum.

Cluster 4

Students belonging to this cluster are adolescent males in the age group of 13- 14 years. They have high EQ-i scores and high scores of intrapersonal EQ-i, interpersonal EQ-i, adaptability EQ-i, and RC. The scores of stress management EQ-i, general mood EQ-i and UC are low. Both parents are graduates and are occupied in managing business. Their total family income is above Rs.500, 000 per annum.

6.10 RESULTS AND DISCUSSION

In this study, the factors affecting EI are reviewed from literature and have identified some factors by a pilot survey to understand the construct and its applicability in case of students. These factors have been statistically tested for their significance. The sample size is 5464 students, which represents diverse conditions including age, gender, parental occupation and literacy and family income. The Bar – On EQi YV questionnaire consisted of 60 items on Likert's scale and 5 factors were derived in an initial study by Bar- On and Parker (2000[a]). Correlation and regression analyses were performed in order to assess the strength of association of each of the factors.

The following remarks are worth mentioning:

a. Our results of correlation analysis do confirm with Parker et al (2004[b]). However, our ranking of degree of association is different. The findings are shown in Table 6.16 below. In our study, adaptability was found to be highly significant with EI symbolizing higher level of ability to make transitions from one state of mind to the other without displaying rigidity / resistance to change. Indian students are able to adjust one's emotions and behaviors to changing conditions, which may be attributed to Indian culture.

c. Secondly, correlation coefficient of interpersonal EQ-i with total EQ-i was found to be 0.656, which shows that the individual could understand peers and elders, displaying a considerable degree of maturity. In comparison, Parkar et al (2004[b]) revealed highest association with EI, which implied that the students were able to comprehend interpersonal ability better than Indian students.

Table 6.16: Comparative Order of Association of Factors

Order of Association	Our findings	Parker et al study (2004[b])
1.	Adaptability EQ-i: r = 0.712	Interpersonal EQ-i: r = 0.80
2.	Interpersonal EQ-i: r = 0.656	Stress management EQ-i: r = 0.75
3.	Intrapersonal EQ-i: r = 0.604	Adaptability EQ-i: r = 0.74
4.	Stress Management EQ-i: r = 0.542	Intrapersonal EQ-i: r = 0.702

d. Intrapersonal EQ-i was found to be moderately significant with EI (r = 0.604) Intrapersonal ability refers to understanding one's self and being aware of one's strength's and weaknesses and Indian students were found to possess higher levels of this skill.

e. In our study, stress management EQ-i was found to be moderately significant with EI (r = 0.542), which implied that Indian students are able to cope with stressful situations with ease. They were also able to delay or resist an impulse.

f. There are no considerable differences in the general mood of students irrespective of their country of origin.

g. RC has the least degree of correlation coefficient with EI. The study signifies that students (9 -14 years) are related minutely to their ability to communicate with a degree of responsibility and sensitivity.

h. There is no correlation of significance between UC and EI denoting that at a young tender age of 9 - 14 years their emotional mind is still developing. There possibly could be stability in their level of communication at a later stage. The knowledge of students with respect to excelling, reasoning in communication (UC) has no association with EI. The influencing elements are probably more intrinsic and intangible.

Hence it could be summarized as follows:

a. Higher EI is correlated to higher intrapersonal EQ-i.
b. Higher EI is correlated to higher interpersonal EQ-i.
c. Higher EI is correlated to higher general mood EQ-i.
d. Higher EI is correlated to higher adaptability EQ-i.
e. Higher EI is correlated to higher stress management EQ-i.
f. Similarly, inter factor correlations also exist.
g. Interpersonal EQ-i is correlated moderately to adaptability EQ-i and general mood EQ-i.
h. Moderate correlations exist between the other factors.

Regression equation would predict the total EQ-i scores of students 83.5% accurately, whereas discriminant equation would predict the range of total EQ-i scores 99.2% accurately. Lastly 4 clusters were formed categorizing a particular group of students in one single cluster.

6.11 CONCLUDING REMARKS

This chapter discusses the various empirical tests for students – reliability assessment, correlation coefficient test, regression test, discriminant analysis and cluster analysis. The next chapter describes the testing of hypotheses of the various statements proposed.

CHAPTER 7

TESTING OF HYPOTHESES FOR STUDENTS (AGE GROUP: 9 – 14 YEARS)

This chapter discusses the hypothesis statements proposed and explains with Independent samples 'T' test and analysis of variance (ANOVA).

7.1 BASIS FOR FORMULATION OF HYPOTHESES

This study investigated a number of hypotheses discussed in the sections below. With reference to section 5.4.1 and table 5.3 and 5.4, we have formulated 95 hypotheses.

Table 7.1: Basis for formulation

Variables	Urban / Rural school students	Residential / Non residential school students	Tribal / Non tribal	State board / Central board	Government aided / Privately owned schools
Father's occupation					
0	√	√	√	√	√
1	√	√	√	√	√
2	√	√	√	√	√
3	√	√	√	√	√
4	√	√	√	√	√
Mother's occupation					
0	√	√	√	√	√
1	√	√	√	√	√
2	√	√	√	√	√
3	√	√	√	√	√
4	√	√	√	√	√
Father's literacy					
1	√	√	√	√	√
2	√	√	√	√	√
3	√	√	√	√	√
Mother's literacy					
1	√	√	√	√	√
2	√	√	√	√	√
3	√	√	√	√	√
Family income					
1	√	√	√	√	√
2	√	√	√	√	√
3	√	√	√	√	√

Research done till date is considered prior to conceptualizing these statements and thus conclusions are drawn based on analyses of data collected. Variables age and gender are considered for formulating our first two hypothesis statements. Combinations of variables are considered while formulating ninety-seven hypotheses. The Table 7.1 above presents the methodology followed in framing the hypotheses.

7.2. INDEPENDENT 'T' TEST FOR HYPOTHESES RELATING TO AGE AND GENDER

7.2.1 Age and EI

a. Literature on EI and age

Age-related differences in EI have been found in a number of studies. As shown in Table 7.2, in relation to ability EI measures, Mayer et al. (1999) have found adults (N = 503; aged 17 -70 years) to have significantly higher scores on the MEIS for all scoring methods than did an adolescent sample (N = 229; aged 12 - 26 years). Kafetsio (2004) has also found significant age differences favoring older adults on three out four subscales of the MSCEIT, in a sample of 239 community members aged 19 - 66. However, contrary to these results, Day and Carroll (2004) in a sample of 246 university students aged 17-54 found only one significant, but weak, age related difference, which actually favored younger individuals (r =-.14).

Significant age related differences in EI favoring older adults have also been found with EQ-i. For example, Bar-On (1997[b]) has reported significant increases in EI with age from early adulthood to middle age; with individual's ages 40-49 having significantly higher total scores than individuals aged 20-29. Derksen et al. (2002) have also found EQ-i scores to increase with age in a community sample of 873 individuals aged 19-84 years. Scores were found to generally peak at 35-44 years of age and to decline thereafter, although the rate of increase and decline

with age varied somewhat according to the component scale. Derksen et al. (2002) have therefore concluded that different psychological factors must underlie EI and general intelligence. Based on these studies, it is possible that EI increases with age during middle adulthood. It should, however, be noted that these studies have been cross-sectional, not longitudinal and therefore it is possible that differences in EI in these instances may have been due to cohort, rather than age related effects. Having EI increase in this way, however, suggests that EI reflects a set of acquired skills rather than intrinsically innate abilities and thus it may be possible for at least some aspects of EI to be 'taught' and 'learnt' in some way.

Table 7.2: Literature on EI and Age

Sr. No	Author	Population	Sample size (N)	Assessment
1.	Mayer et al.(1999)	Community sample (Adolescents 12- 16; Adults 17 - 70)	503	MEIS
2.	Kafetsios (2004)	University and Adult Community Sample (aged 19 - 66)	239	MSCEIT
3.	Day and Caroll (2004)	College Students (aged 17 - 54)	246	MSCEIT
4.	Bar- On (1997[b])	Adult Community Sample (aged 20 - 49)		EQ-i

Based on research the hypothesis statement 1 is given below.

Statement 1: Consistent with previous research, it is predicted that EI will be significant to age i.e. as age increases - EQ increases.

b. Testing of the hypothesis statement of EI and age:

Based on previous research that EI increases with age, an Independent sample T test examined whether this was apparent in this study (hypotheses 1). Based on Table 7.3 the following is derived:

- Since the age group 9-12 years (M = 91.52, p= 0.026) have a high measure of EI than age group 13 -14 years our hypotheses 1 does not hold true.

- Also the intrapersonal EQ-i and stress management EQ-i in the age group 9 -12 years have higher measures {(M = 98.14, p= 0.001) and (M = 88.44, p= 0.015)}
- UC and RC have high scores in the age group 13 -14 years {(M = 4.08, p= 0.01) and (M = 6.63, p= 0.00)}

Table 7.3: Independent T test with Age

	Levene's Test for Equality of Variances		T - test for Equality of Means					
	F	Sig.	T	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
							Lower	Upper
Total EQ-i	.581	.446	1.831	.026	.750	.410	-.053	1.554
Intra personal EQ-i	.036	.849	3.461	.001	1.322	.382	.573	2.070
Interpersonal EQ-i	.279	.597	.097	.922	.044	.456	-.849	.938
Stress Management EQ-i	.018	.893	2.427	.015	.873	.360	.168	1.578
Adaptability EQ-i	.175	.675	-.485	.628	-.214	.441	-1.078	.650
General mood EQ-i	.000	.984	-.621	.534	-.254	.409	-1.056	.548
UC	30.146	.000	-3.403	.001	-.178	.052	-.281	-.075
RC	13.310	.000	-10.32	.000	-.667	.065	-.794	-.540

7.2.2 Gender and EI

a. Literature on EI and gender

It is a point of contention as to whether EI as a correlation with the gender of a child. Contrary to popular belief, some studies show that girls are not more emotionally intelligent as compared to boys (Hein 1996). They are emotionally intelligent in a variety of ways that boys are not due to a specific combination of the key components of EI. Girls on an average are more aware of their emotions, show more empathy and are adept interpersonally. Boys on the other hand are self – confident, optimistic, adaptable and handle stress better (Segal 1997).

In a study by Barret et al. (2000), it was observed that females were emotionally responsive and by experiencing and expressing emotions more intensely were more ‘emotional’ than men.

Gender differences indicated that females tend to experience and express higher levels of fear, anxiety, depression, guilt and happiness. Males were found to be high on anger (Barret et al., 2000).

Table 7.4: Literature on EI and Gender

Sr. No	Author	Population	Sample size (N)	Assessment
1.	Mayer, Caruso and Salovey (1999)	Adult Community sample	503	MEIS
2.	Ciarrochi et al. (2000)	College Students	120	MEIS
3.	Kafetsios (2004)	College Students	239	MSCEIT
4.	Brackett et al. (2003)	College Students	330	MSCEIT
5.	Brackett et al. (2005)	College Students	86	MSCEIT
6.	Reiff et al. (2001)	College Students	128	EQ-i
7.	Dawda and Hart (2000)	College Students	243	EQ-i
8.	Parkar et al. (2001)	College Students	734	EQ-i
9.	Schutte et al. (1998)	College Students	329	AES
10.	Charbonneau and Nicol (2002)	School Children	134	AES
11.	Ciarrochi et al. (2001)	School Children	131	Modified AES
12.	Saklofske et al. (2003)	College Students	354	Modified AES

Mayer et al (1999) observed that females scored higher than men when tested with MEIS (the earlier version of MSCEIT). Ciarrochi et al. (2000) have found that females scored higher than males on all scales of the MEIS. Kafetsios (2004) noted that females scored higher than males on the perception branch of the MSCEIT. The other subscales scores were not statistically significant. Similarly females scored significantly higher than males on the total MSCEIT score in a study by Brackett et al. (2003) and Brackett et al. (2005)

On the self-report measure testing, females were found to be significantly high on the interpersonal ability as studied on the EQi by Reiff et al. (2001) and Parkar et al. (2001). Other factor studies were non significant. Similarly on a population of college students Dawda and Hart (2000) have reported no significant differences on the scores of EQi. In addition, Schutte et al.'s (1998) study on a university student's sample and Charbonnaeu and Nicol (2002) on a sample of school students have reported significant differences favoring females with the AES. Ciarrochi et al. (2001a) have reported females scoring significantly higher than males on three sub scales – perception, utilization and regulation of other's emotions. The scores of the fourth scale - regulation of one's own emotions were not found to be significant. In other study by Saklofske et al (2003) on the modified AES reported females scoring higher than males on the subscales – appraisal of emotions and social skills. Surprisingly males scored higher than females on the subscales – utilization of emotions. To summarize, we can claim that on some aspects of EI, gender differences favor females. Hence, based on previous research that males are less sensitive to emotional considerations than females and that females have a high measure of EI than males. Thus the second hypothesis statement is:

Statement 2: Males will have significantly different EI scores than females on the EQi YV measure.

a. **Testing of the hypothesis statement of EI and gender:**

   Based on previous research that female tends to score higher on measures of EI than males do, an Independent sample T test examined whether this was apparent in this study (hypotheses 1). Since females ($M = 91.35$, $p= 0.009$) have a high measure of EI than males and hypotheses 1 holds true. In addition, females score higher than males in interpersonal

EQ-i (M = 90.93, p= 0.001), adaptability EQ-i (M = 95.81 p= 0.010) and general mood EQ-i (M = 88.85, p= 0.000).

Based on previous research that female tends to score higher on measures of EI than males do, an Independent sample T test examined whether this was apparent in this study (hypotheses 1). Since females (M = 91.35, p= 0.009) have a high measure of EI than males and hypotheses 1 holds true. In addition, females score higher than males in interpersonal EQ-i (M = 90.93, p= 0.001), adaptability EQ-i (M = 95.81 p= 0.010) and general mood EQ-i (M = 88.85, p= 0.000).

Table 7.5: Independent T test with Gender

	Levene's Test for Equality of Variances		*T-test for Equality of Means*						
	F	Sig.	T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	*95% Confidence Interval of the Difference* Lower	*Upper*
Total EQ-i	.353	.552	-2.607	5463	.009	-1.089	.418	-1.907	*-.270*
Intra personal EQ-i	1.332	.248	-.886	5463	.376	-.345	.390	-1.109	*.418*
Interpersonal EQ-i	1.908	.167	-2.926	5463	.003	-1.359	.464	-2.270	*-.449*
Stress Management EQ-i	.082	.774	.479	5463	.632	.176	.367	-.544	*.895*
Adaptability EQ-i	1.813	.178	-2.588	5463	.010	-1.163	.449	-2.044	*-.282*
General mood EQ-i	11.39	.001	-4.455	5463	.000	-1.855	.416	-2.671	*-1.038*
UC	.096	.757	2.187	5463	.029	.117	.053	.012	*.221*
RC	*6.864*	*.009*	*-2.678*	*5463*	*.007*	*-.178*	*.066*	*-.308*	*-.048*

Independent samples T test was conducted and the observations are depicted in Table 7.5. With reference to our analysis table, hypothesis statement 2 is accepted.

7.3 ANALYSIS OF VARIANCE OF DIFFERENT HYPOTHESES

Data was collected from 28 different schools in Maharashtra. Since there are different categories of school students have been split based on location, type of board or curriculum followed and other criteria mentioned in 5.4.1. Many studies reveal the impact of occupation, literacy level of

the individual on their EI score. This study discusses the impact of parent's literacy level, occupation of parents and family income on the EI of the different classifications of school students. 'M' denotes the mean of the students and 'p' denotes the significance.

7.3.1 Hypothesis statements

Statement 3: The EI scores of *urban school students* whose father has expired are significantly different from the EI scores of *rural school students* whose father has expired.

For testing the above-mentioned statement, an analysis of variance technique (ANOVA) was utilized for specifically those students studying in urban schools are not significantly different in EI scores of rural school students. Both the category of students has no father since he has expired. Total EQi was found to be insignificant and hence the hypothesis statement 3 is rejected.

We found that interpersonal EQi was found to be high for rural students ($p = 0.003$, $M = 114.5$) and UC were found to be high for urban students ($p = 0.039$, $M = 4.56$). It implies that rural school students are able to understand the feelings of others better in comparison to urban school students. It also implies that urban school students are better than rural school students in excellence and reasoning aspect of communication.

Statement 4: The EI scores of *urban school students,* whose father is working for lowly jobs, are significantly different from the EI scores of *rural school students* with father working for lowly jobs.

Tests of ANOVA revealed that for urban students whose father is working for lowly jobs have higher scores of EI in comparison to rural school students ($p= 00$, $M= 90.5$), hence hypothesis statement 4 is accepted.

Intrapersonal EQ-i (p= 00, M= 98.54), Interpersonal EQ-i (p = 0.001, M = 89.64), Adaptability EQ-i (p = 0.010, M = 95.36), Stress Management EQ-i (p = 0.018, M = 88.12), General Mood EQ-i (p = 0.049, M = 87.37) were found to be factors responsible for higher EI scores.

Statement 5: The EI scores of *urban school students*, whose father is in service, are significantly different from the EI scores of *rural school students* whose father is in service.

Tests of ANOVA revealed that for urban students whose father is in service are not significantly different in EI scores in comparison to students studying in rural schools. Total EQi was found to be insignificant and hence the hypothesis is rejected. However when the factors of EI were tested to find significant difference in their scores, we found that UC (p = 0.025, M= 4.00) and RC (p = 0.00, M = 6.49) were found to be high for urban students. It implies that urban school students are better than rural school students in excellence, reasoning, responsibility and sensitivity aspect of communication.

Statement 6: The EI scores of *urban school students*, whose father manages their own business, are significantly different from the EI scores of *rural school students* whose father manages their own business.

Tests of ANOVA revealed that for urban students whose father manages their own business have higher scores of EI in comparison to rural school students (p= 0.044, M= 90.62), hence hypothesis statement 6 is accepted.

Intrapersonal EQ-i (p = 0.011, M = 96.90) was found to be the factor responsible for higher EI scores. UC (p = 0.002, M = 4.08) and RC (p = 0.047, M = 6.41) were also found to be significant for urban students.

Statement 7: The EI scores of *non-residential school students*, whose father has expired, are significantly different from the EI scores of *residential school students* whose father has expired.

Tests of ANOVA revealed that for non-residential students whose father has expired do not have higher scores of EI in comparison to students studying in residential schools. Total EQi was found to be insignificant and hence the hypothesis is rejected.

However when the factors of EI were tested to find significant difference in their scores, we found that interpersonal EQi was found to be high for non-residential students ($p = 0.041$, $M = 88.06$). Similarly general mood EQi ($p = 0.037$, $M = 84.41$) was found to be high for non-residential students.

Statement 8: The EI scores of *non-residential school students*, whose father is working for lowly jobs, are significantly different from the EI scores of *residential school students* whose father is working for lowly jobs.

Tests of ANOVA revealed that for non-residential students whose father is working for lowly jobs have higher scores of EI in comparison to residential school students ($p = 0.00$, $M = 90.66$), hence hypothesis statement 8 is accepted. Intrapersonal EQ-i ($p= 0.004$, $M= 98.23$) interpersonal EQ-i ($p = 0.000$, $M = 89.83$), adaptability EQ-i ($p= 0.000$, $M= 95.91$), General Mood EQ-i ($p = 0.002$, $M = 87.75$) was found to be the factors responsible for higher EI scores. UC ($p = 0.001$, $M = 3.90$) and RC ($p = 0.021$, $M = 6.22$) also were significant for non-residential students.

Statement 9: The EI scores of *non-residential school students*, whose father is in service, are significantly different from the EI scores of *residential school students* whose father is in service.

Tests of ANOVA revealed that for non-residential students whose father is in service have higher scores of EI in comparison to residential school students (p = 0.013, M = 91.82), hence hypothesis statement 9 is accepted. Intrapersonal EQ-i (p = 0.004, M = 98.82) and interpersonal EQ-i (p = 0.000, M = 90.16) were found to be the factors responsible for higher EI scores. UC (p = 0.034, M = 4.90) was also significant for non-residential students.

Statement 10: The EI scores of *non-residential school students*, whose father manages their own business, are significantly different from the EI scores of *residential school students* whose father manages their own business.

Tests of ANOVA revealed that for non-residential students whose father manages their own business have higher scores of EI in comparison to residential school students (p = 0.000, M = 90.79), hence hypothesis statement 10 is accepted.

Adaptability EQ-i (p = 0.004, M = 95.30) and general mood EQ-i (p = 0.000, M = 87.89) were found to be the factors responsible for higher EI scores. Intrapersonal EQ-i (p = 0.004, M = 97.14) was found to be significant for residential students.

Statement 11: The EI scores of *non-residential school students*, whose father is professionally employed, are significantly different from the EI scores of *residential school students* whose father is professionally employed.

Tests of ANOVA revealed that for non-residential students whose father is professionally employed have higher scores of EI in comparison to residential school students (p= 0.003, M= 93.40), hence hypothesis statement 11 is accepted.

Intrapersonal EQ-i (p = 0.004, M = 98.75), Interpersonal EQ-i (p = 0.041, M = 93.07), Stress Management EQ-i (p = 0.003, M = 89.26) and general mood EQ-i (p = 0.002, M = 90.30), were found to be the factors responsible for higher EI scores. UC (p = 0.002, M= 5.18) and RC (p =

0.005, M = 7.62) were found to be significant for residential students, which implied that residential students were better in excellence, reasoning, sensitivity and responsibility in communication compared to non-residential students.

Statement 12: The EI scores of *non-tribal school students*, whose father is working for lowly jobs, are significantly different from the EI scores of *tribal school students* whose father is working for lowly jobs.

Tests of ANOVA revealed that for non tribal students whose father is working for lowly jobs have higher scores of EI in comparison to tribal school students (p = 0.000, M = 90.52), hence hypothesis statement 12 is accepted. Intrapersonal EQ-i (p = 0.004, M= 98.32) interpersonal EQ-i (p = 0.003, M = 89.60), adaptability EQ-i (p = 0.003, M = 95.61), General Mood EQ-i (p = 0.028, M = 87.53) was found to be the factors responsible for higher EI scores. UC (p = 0.015, M = 3.88) and RC (p = 0.003, M = 6.27) also were significant for non-tribal students.

Statement 13: The EI scores of *non-tribal school students*, whose father is in service, are significantly different from the EI scores of *tribal school students* whose father is in service.

Tests of ANOVA revealed that for non-tribal students whose father is in service have higher scores of EI in comparison to tribal school students (p = 0.009, M = 91.72), hence hypothesis statement 13 is accepted. Adaptability EQ-i (p = 0.012, M = 95.43), General Mood EQ-i (p = 0.021, M = 88.17) was found to be the factors responsible for higher EI scores. RC (p = 0.027, M = 6.33) was also significant for non-tribal students.

Statement 14: The EI scores of *non-tribal school students*, whose father manages their own business, are significantly different from the EI scores of *tribal school students* whose father manages their own business.

ANOVA revealed that for non tribal students whose father manages their own business did not have significant difference in the scores of EI in comparison to tribal school students hence the hypothesis statement 14 is rejected. But some of the factors of EI were significant and were found to high for non-tribal students - Intrapersonal EQ-i ($p = 0.002$, $M = 96.66$), Stress Management EQ-i ($p = 0.019$, $M = 87.66$). RC ($p = 0.032$, $M = 6.37$) was also found to be significantly high for non-tribal students.

Statement 15: The EI scores of *non-tribal school students*, whose father is professionally employed, are significantly different from the EI scores of *tribal school students* whose father is professionally employed.

Tests of ANOVA revealed that for non-tribal students, whose father is professionally employed, have higher scores of EI in comparison to tribal school students ($p = 0.009$, $M = 93.05$), hence hypothesis statement 15 is accepted. Adaptability EQ-i ($p = 0.034$, $M = 97.60$), Interpersonal EQ-i ($p = 0.005$, $M = 92.87$) was found to be the factors responsible for higher EI scores.

Statement 16: The EI scores of *government aided school students*, whose father is working for lowly jobs; are significantly different from the EI scores of students studying in *privately owned trust schools* whose father is working for lowly jobs.

Tests of ANOVA revealed that for government aided school students, whose father is working for lowly jobs do not have significantly different scores of EI in comparison to students studying in privately owned trust schools, and hence the hypothesis statement 16 is rejected. Adaptability EQ-i ($p = 0.012$, $M = 96.00$), Interpersonal EQ-i ($p = 0.031$, $M = 89.79$) was found to be the factors with significant high scores for students studying in privately owned trust schools. UC ($p = 0.025$, $M = 3.92$) and RC ($p = 0.010$, $M = 6.33$) were also found to be significantly high for students studying in privately owned trust schools.

Statement 17: The EI scores of *government aided school students*, whose father is in service, are significantly different from the EI scores of students studying in *privately owned trust schools* whose father is in service.

Tests of ANOVA revealed that for government aided school students, whose father is in service did not have significant difference in EI scores in comparison to students studying in privately owned trust schools; hence the hypothesis statement 17 is rejected. Interpersonal EQ-i ($p = 0.003$, $M = 91.60$) was found to be the factors with significant high scores for government aided school students.

Statement 18: The EI scores of *government aided school students*, whose father manages their own business, are significantly different from the EI scores of students studying in *privately owned trust schools*, whose father manages their own business.

Tests of ANOVA revealed that for government aided school students, whose father manages their own business did not have significant difference in EI scores as compared to privately owned trust schools students; hence the hypothesis statement 18 is rejected.

Interpersonal EQ-i ($p = 0.035$, $M = 90.63$) was found to be the factors with significant high scores for government aided school students. UC ($p = 0.025$, $M = 4.14$) and RC ($p = 0.010$, $M = 6.46$) were also found to be significantly high for students studying in privately owned trust schools.

Statement 19: The EI scores of *government aided school students*, whose father is professionally employed, are significantly different from the EI scores of students studying in *privately owned trust schools*, whose father is professionally employed.

Tests of ANOVA revealed that for government aided school students, whose father is professionally employed, in executive, managerial or higher levels are not significantly different

in scores of EI in comparison to students studying in privately owned trust schools, hence the hypothesis statement 19 is rejected. Adaptability EQ-i (p = 0.025, M = 98.02) was found to be the factor with significant high scores for students studying in privately owned trust schools. UC (p = 0.000, M = 4.5) and RC (p = 0.004, M = 6.77) were also found to be significantly high for students studying in privately owned trust schools.

Statement 20: EI scores of *students studying in schools adhering to central board certificate examination*, whose father has expired, are significantly different from the EI scores of *students studying in schools adhering to state board certificate examination*, whose father has expired.

Tests of ANOVA revealed that for students studying in schools adhering to central board certificate examination, whose father has expired, have higher scores of EI in comparison to students studying in schools adhering to state board certificate examination. (p = 0.030, M = 104.67), hence hypothesis statement 20 is accepted. Interpersonal EQ-i (p = 0.014, M = 105.00) was found to be the factor responsible for higher EI scores.

Statement 21: EI scores of *students studying in schools adhering to central board certificate examination*, whose father is working for lowly jobs, are significantly different from the EI scores of *students in studying in schools adhering to state board certificate examination*, whose father is working for lowly jobs.

Tests of ANOVA revealed that for students studying in schools adhering to central board certificate examination, whose father is working for lowly jobs have higher scores of EI in comparison to students studying in schools adhering to state board certificate examination. (p = 0.000, M = 90.46), hence hypothesis statement 21 is accepted. Intrapersonal EQ-i (p = 0.000, M = 98.47) interpersonal EQ-i (p = 0.001, M = 89.48), adaptability EQ-i (p = 0.001, M = 95.29),

stress management EQ-i (p = 0.009, M = 88.11) and general Mood EQ-i (p = 0.023, M = 87.39) was found to be the factor responsible for higher EI scores.

Statement 22: EI scores of *students studying in schools adhering to central board certificate examination*, whose father is professionally employed, are significantly different from the EI scores of *students in studying in schools adhering to state board certificate examination*, whose father is professionally employed.

Tests of ANOVA revealed that for students studying in schools adhering to central board certificate examination, whose father is professionally employed, have higher scores of EI in comparison to students studying in schools adhering to state board certificate examination. (p = 0.000, M = 95.40), hence we accept hypothesis statement 22. Intrapersonal EQ-i (p = 0.000, M = 100.15) interpersonal EQ-i (p = 0.001, M = 95.07) adaptability EQ-i (p = 0.000, M = 89.56) and general Mood EQ-i (p = 0.007, M = 91.25) were found to be the factors responsible for higher EI scores.

Statement 23: The EI scores of *urban school students*, whose mother has expired, are significantly different from the EI scores of *rural school students*, whose mother has expired.

Tests of ANOVA revealed that for urban students whose mother has a housewife have higher scores of EI in comparison to rural school students (p = 0.004, M = 93.96); hence hypothesis statement 23 is accepted. Intrapersonal EQ-i (p = 0.001, M = 100.15), stress management EQ-i (p = 0.048, M = 89.56) and general mood EQ-i (p = 0.019, M = 91.25) was found to be the factors responsible for higher EI scores.

Statement 24: The EI scores of *urban school students*, whose mother is a housewife, are significantly different from the EI scores of *rural school students*, whose mother is a housewife.

Tests of ANOVA revealed that for urban students whose mother is a housewife have higher scores of EI in comparison to rural school students (p = 00, M = 92.5), hence hypothesis statement 24 is accepted. Intrapersonal EQ-i (p = 0.003, M = 97.93) interpersonal EQ-i (p = 0.003, M = 90.45) stress management EQ-i (p = 0.016, M = 95.50) and general Mood EQ-i (p = 0.026, M = 88.24) were found to be the factors responsible for higher EI scores. UC (p = 0.010, M = 4.01) and RC (p = 0.002, M = 6.36) scores were also found to be significant.

Statement 25: The EI scores of *non-residential school students*, whose mother is in service, are significantly different from the EI scores of *residential school students*, whose mother is in service.

Tests of ANOVA revealed that for non residential students whose mother is in service with banks, in governmental organizations or private firms as officers, supervisors and other clerical positions have higher scores of EI (p = 0.000, M = 91.43) in comparison to residential school students, hence the hypothesis statement 25 is accepted. UC (p = 0.010, M = 4.14) scores were also found to be significant.

Statement 26: The EI scores of *non-residential school students*, whose mother are professionally employed; are significantly different from the EI scores of *residential school students,* whose mother is professionally employed.

Tests of ANOVA revealed that for non-residential school students, whose mother is professionally employed, have higher scores of EI in comparison to residential school students (p = 0.004, M = 96.61), hence hypothesis statement 26 is accepted. Interpersonal EQ-i (p = 0.018,

M = 95.69), adaptability EQ-i (p = 0.002, M = 100.46) and general Mood EQ-i (p = 0.012, M = 91.68) were found to be the factors responsible for higher EI scores. UC (p = 0.003, M = 5.69) and RC (p= 0.004, M= 7.69) scores were also found to be significant for residential students.

Statement 27: EI scores of *non-tribal school students* whose mother are a housewife; are significantly different from the EI scores of *tribal school students*, whose mother is a housewife.

Tests of ANOVA revealed that for non tribal school students whose mother is a housewife have higher scores of EI in comparison to tribal school students (p = 0.000, M = 91.36), hence hypothesis statement 27 is accepted. Intrapersonal EQ-i (p = 0.002, M = 97.81), Interpersonal EQ-i (p = 0.000, M = 90.45), Stress Management EQ-i (p = 0.036, M = 88.16), adaptability EQ-i (p= 0.000, M= 95.59) and general Mood EQ-i (p = 0.000, M = 88.26) were found to be the factors responsible for higher EI scores. UC (p = 0.001, M = 4.69) and RC (p = 0.000, M = 6.36) scores were also found to be significant for non-tribal students.

Statement 28: EI scores of *non-tribal school students* whose mother manage their own business; are significantly different from the EI scores of *tribal school students*, whose mother manages their own business.

Tests of ANOVA revealed that for non-tribal school students whose mother manages their own business have higher scores of EI in comparison to tribal school students (p = 0.003, M = 88.03), hence accept hypothesis statement 28 is accepted. Intrapersonal EQ-i (p = 0.002, M = 95.29), Interpersonal EQ-i (p = 0.000, M = 88.98), Stress Management EQ-i (p= 0.036, M= 86.64), adaptability EQ-i (p = 0.000, M = 93.74) and general Mood EQ-i (p = 0.000, M = 86.35) were found to be the factors responsible for higher EI scores. UC (p = 0.001, M = 4.20) scores were also found to be significant for non-tribal students.

Statement 29: The EI scores of *government aided school students*, whose mother is a housewife; are significantly different from the EI scores of *students studying in privately owned trust schools*, whose mother is a housewife.

Tests of ANOVA revealed that for government aided school students whose mother is a housewife have lower scores of EI ($p = 0.000$, $M = 91.48$) in comparison to privately owned trust school students, hence hypothesis statement 29 is accepted. Interpersonal EQ-i ($p = 0.000$, $M = 90.77$), adaptability EQ-i ($p = 0.000$, $M = 95.92$) and general Mood EQ-i ($p = 0.004$, $M = 88.43$) were found to be the factors responsible for higher EI scores. UC ($p = 0.000$, $M = 4.08$) and RC ($p = 0.000$, $M= 6.42$) scores were also found to be significantly high for privately owned trust schools.

Statement 30: The EI scores of *government aided school students*, whose mother is in service, are significantly different from the EI scores of *students studying in privately owned trust schools*, whose mother is in service.

Tests of ANOVA revealed that for government aided school students whose mother is in service with banks, in governmental organizations or private firms as officers, supervisors and other clerical positions have higher scores of EI ($p = 0.000$, $M = 92.80$) in comparison to privately owned trust school students, hence hypothesis statement 30 is accepted. Interpersonal EQ-i ($p = 0.002$, $M = 93.11$), adaptability EQ-i ($p = 0.040$, $M = 96.91$) and general Mood EQ-i ($p = 0.042$, $M = 88.64$) were found to be the factors responsible for higher EI scores of government aided school students. UC ($p = 0.048$, $M = 4.14$) and RC ($p = 0.003$, $M = 6.77$) scores were also found to be significantly high for privately owned trust schools.

Statement 31: EI scores of *students studying in schools adhering to central board certificate examination,* whose mother is professionally employed, are significantly different from the

EI scores of *students in studying in schools adhering to state board certificate examination*, whose mother is professionally employed.

Tests of ANOVA revealed that EI scores of students studying in schools adhering to central board certificate examination, whose mother is professionally employed, are significantly different from the EI scores of students in studying in schools adhering to state board certificate examination; hence the hypothesis statement 31 is accepted. EI scores of students studying in schools adhering to central board certificate examination are significantly higher ($p = 0.010$, $M = 99.00$) than the EI scores of students in studying in schools adhering to state board certificate examination. Interpersonal EQ-i ($p = 0.016$, $M = 95.69$), were found to be the factors responsible for higher EI scores. UC ($p = 0.003$, $M = 5.69$) and RC ($p = 0.007$, $M = 7.09$) scores were also found to be significant for students studying in schools adhering to central board certificate examination.

Statement 32: EI scores of *urban school students* whose father has studied till the 10^{th} standards are significantly different from the EI scores of *rural school students*, whose father has studied till the 10^{th} standard.

EI scores of urban school students ($p = 0.000$, $M = 91.14$) whose father has studied till the 10^{th} standards are significantly higher from the EI scores of rural school students; hence the hypothesis statement 32 is accepted. Intrapersonal EQ-i ($p = 0.000$, $M = 98.24$), Interpersonal EQ-i ($p = 0.001$, $M = 89.66$), stress management EQ-i ($p = 0.031$, $M = 88.119$) adaptability EQ-i ($p = 0.010$, $M = 95.33$) were found to be the factors responsible for higher EI scores.

Statement 33: EI scores of *urban school students* whose father is a graduate are significantly different from the EI scores of *rural school students,* whose father is a graduate.

EI scores of urban school students (p = 0.016, M = 91.13) whose father is a graduate are significantly higher from the EI scores of rural school students; hence the hypothesis statement 33 is accepted. UC (p = 0.000, M = 4.08), RC (p = 0.001, M = 6.51) have significantly higher scores for urban school students.

Statement 34: EI scores of *non-residential school students*, whose father has studied till the 10th standard, are significantly different from the EI scores of *residential school students* whose father has a postgraduate too.

EI scores of non-residential school students (p = 0.000, M = 91.04) whose father has studied till the 10th standards are significantly higher from the EI scores of residential school students; hence the hypothesis statement 34 is accepted. Intrapersonal EQ-i (p = 0.003, M = 98.10), Interpersonal EQ-i (p = 0.000, M = 89.80), general mood EQ-i (p = 0.001, M = 87.79) adaptability EQ-i (p = 0.000, M = 95.74) were found to be the factors responsible for higher EI scores. UC (p = 0.002, M = 4.08), RC (p = 0.034, M = 6.51) have significantly higher scores for non-residential school students.

Statement 35: EI scores of *non-residential school students*, whose father is a graduate, are significantly different from the EI scores of *residential school students* whose father is a graduate too.

EI scores of non-residential school students (p = 0.001, M = 91.04) whose father is a graduate are significantly higher from the EI scores of residential school students; hence the hypothesis statement 35 is accepted. General mood EQ-i (p = 0.040, M = 87.82) adaptability EQ-i (p = 0.049, M = 95.01) was found to be the factors responsible for higher EI scores.

Statement 36: EI scores of *non-residential school students* whose father are a postgraduate or have undergone professional studies are significantly different from the EI scores of *residential school students* whose father too, is a postgraduate.

EI scores of non-residential school students (p = 0.001, M = 92.95) whose father are a postgraduate or have undergone professional studies are significantly higher from the EI scores of residential school students; hence the hypothesis statement 36 is accepted. Intrapersonal EQ-i (p = 0.029, M = 98.92) adaptability EQ-i (p = 0.002, M = 97.30) interpersonal EQ-i (p = 0.000, M = 91.99), general mood EQ-i (p = 0.000, M = 89.82) stress management EQ-i (p = 0.009, M = 88.77) was found to be the factors responsible for higher EI scores. RC (p = 0.000, M = 6.59) scores were found to be high for non-residential students.

Statement 37: EI scores of *non tribal school students*, whose father has studied till the 10^{th} standard, are significantly different from the EI scores of *tribal school students* whose father has studied till the 10^{th} standard.

EI scores of non-tribal school students (p = 0.000, M = 90.95) whose father has studied till the 10^{th} standard, are significantly higher from the EI scores of tribal school students, hence the hypothesis statement 37 is accepted.

Intrapersonal EQ-i (p = 0.005, M = 98.12) adaptability EQ-i (p = 0.001, M = 95.56) interpersonal EQ-i (p = 0.001, M = 89.70), general mood EQ-i (p = 0.011, M = 87.65) was found to be the factors responsible for higher EI scores. UC (p = 0.016, M = 6.59) and RC (p = 0.004, M = 6.59) were found to be higher for non-tribal students.

Statement 38: EI scores of *non-tribal school students*, whose father is a graduate, are significantly different from the EI scores of *tribal school students* whose father is a graduate too.

EI scores of non-tribal school students (p = 0.011, M = 90.90) whose father is a graduate are significantly higher from the EI scores of tribal school students; hence the hypothesis statement 38 is accepted. Adaptability EQ-i (p = 0.049, M = 94.94), were found to be the factors responsible for higher EI scores. RC (p = 0.000, M = 6.41) was found to be higher for non-tribal students.

Statement 39: EI scores of *non-tribal school students*, whose father are a postgraduate or have undergone professional studies are significantly different from the EI scores of *tribal school students* whose father is a postgraduate too.

EI scores of non-tribal school students (p = 0.033, M = 91.85) whose father are a postgraduate or have undergone professional studies are significantly higher from the EI scores of tribal school students; hence the hypothesis statement 39 is accepted. Adaptability EQ-i (p = 0.045, M = 96.55) and interpersonal EQ-i (p = 0.030, M = 90.82) were found to be the factors responsible for higher EI scores.

Statement 40: EI scores of *government aided school students*, whose father is a graduate, are significantly different from the EI scores of *students studying in privately owned trust schools* whose father is a graduate too.

EI scores of government-aided school students (p = 0.027, M = 88.82) whose father is a graduate are significantly lower from the EI scores of students studying in privately owned trust schools (p = 0.027, M = 90.66); hence the hypothesis statement 40 is accepted.

Adaptability EQ-i (p = 0.004, M = 96.05) and interpersonal EQ-i (p = 0.021, M = 89.86) were found to be the factors responsible for higher EI scores of students studying in privately owned trust schools. UC (p = 0.000, M = 4.09) and RC (p = 0.000, M = 6.58) were found to be higher students studying in privately owned trust schools.

Statement 41: EI scores of *students studying in schools adhering to central board certificate examination,* whose father has studied till the 10th standard, are significantly different from the EI scores of *students studying in schools adhering to state board certificate examination* whose father has studied till the 10th standard too.

EI scores of students studying in schools adhering to central board certificate examination (p = 0.000, M = 90.73), whose father has studied till the 10th standard, are significantly higher than the EI scores of students studying in schools adhering to state board certificate examination, hence the hypothesis statement 41 is accepted. Adaptability EQ-i (p = 0.002, M = 95.39), intrapersonal EQ-i (p = 0.001, M = 98.13), stress management EQ-i (p = 0.010, M = 88.15), general mood (p = 0.037, M = 89.86) and interpersonal EQ-i (p = 0.001, M = 89.56), were found to be the factors responsible for higher EI scores of students.

Statement 42: EI scores of *students studying in schools adhering to central board certificate examination,* whose father is a post graduate or has undergone professional studies, are significantly different from the EI scores of *students studying in schools adhering to state board certificate examination* whose father is a post graduate too.

EI scores of students studying in schools adhering to central board certificate examination (p = 0.000, M = 95.43), whose father is a post graduate or has undergone professional studies, are significantly higher than the EI scores of students studying in schools adhering to state board certificate examination, hence the hypothesis statement 42 is accepted. Adaptability EQ-i (p = 0.000, M = 99.68), intrapersonal EQ-i (p = 0.003, M = 100.19), general mood (p = 0.000, M = 91.45) and interpersonal EQ-i (p = 0.000, M = 95.12) were found to be the factors responsible for higher EI scores of students. UC (p = 0.000, M = 4.51) and RC (p = 0.000, M = 6.85) scores

were found to be high for students studying in schools adhering to central board certificate examination.

Statement 43: EI scores of *urban school students,* whose mother has studied till the 10th standard, are significantly different from the EI scores of *rural school students* whose mother has studied till the 10th standard.

EI scores of urban school students (p = 0.000, M = 90.77) whose mother has studied till the 10th standard is significantly higher than the EI scores of rural school students; hence the hypothesis statement 43 is accepted. Intrapersonal EQ-i (p = 0.001, M = 97.91), Interpersonal EQ-i (p = 0.002, M = 89.72), stress management EQ-i (p = 0.012, M = 88.07), adaptability EQ-i (p = 0.009, M = 94.77) and general mood EQ-i (p = 0.007, M = 87.82) were found to be the factors responsible for higher EI scores.

Statement 44: EI scores of *non-residential school students*, whose mother is a graduate, is significantly different from the EI scores of *residential school students* whose mother is a graduate.

EI scores of non-residential school students (p = 0.000, M = 90.78) whose mother is a graduate are significantly higher than the EI scores of residential school students, hence the hypothesis statement 44 is accepted.

Statement 45: EI scores of *non residential school students*, whose mother is a post graduate or has undergone professional studies, is significantly different from the EI scores of *residential school students* whose mother is a post graduate.

EI scores of non-residential school students (p = 0.000, M = 95.97) whose mother is a postgraduate are significantly higher from the EI scores of residential school students; hence the hypothesis statement 45 is accepted. Interpersonal EQ-i (p = 0.000, M= 95.07), stress

management EQ-i (p = 0.018, M = 89.69), adaptability EQ-i (p = 0.000, M = 100.41) and general mood EQ-i (p = 0.000, M= 92.00) was found to be the factors responsible for higher EI scores. RC (p = 0.029, M = 6.77) was found to be high for non-residential school students.

Statement 46: EI scores of *non-tribal school students*, whose mother has studied till the 10th standard, is significantly different from the EI scores of *tribal school students* whose mother has studied till the 10th standard.

EI scores of non-tribal school students (p = 0.000, M = 90.61) whose mother has studied till the 10th standards are significantly higher than the EI scores of tribal school students; hence the hypothesis statement 46 is accepted. Intrapersonal EQ-i (p = 0.008, M = 97.74), Interpersonal EQ-i (p = 0.002, M = 99.63), adaptability EQ-i (p = 0.023, M = 94.64) and general mood EQ-i (p = 0.005, M = 87.75) was found to be the factors responsible for higher EI scores. RC (p = 0.002, M = 6.23) was found to be high for non-tribal school students.

Statement 47: EI scores of *non-tribal school students*, whose mother is a graduate, is significantly different from the EI scores of *tribal school students* whose mother is a graduate.

EI scores of non-tribal school students (p = 0.000, M = 90.86) whose mother is a graduate are significantly higher than the EI scores of tribal school students; hence the hypothesis statement 47 is accepted. Intrapersonal EQ-i (p = 0.011, M = 96.86), Interpersonal EQ-i (p = 0.000, M = 90.21), adaptability EQ-i (p = 0.001, M = 95.40) and general mood EQ-i (p = 0.015, M = 87.58) was found to be the factors responsible for higher EI scores. RC (p = 0.000, M = 6.53) was found to be high for non-tribal school students.

Statement 48: EI scores of *students studying in government aided schools,* whose mother has studied till the 10th standard, are significantly different from the EI scores of *students studying in private schools whose* mother has studied till the 10th standard.

EI scores of students studying in government aided schools, whose mother has studied till the 10th standard ($p = 0.000$, $M = 91.37$) are significantly higher than the EI scores of students studying in private schools whose mother has studied till the 10th standard, hence the hypothesis statement 48 is accepted.

Statement 49: EI scores of *students studying in government aided schools,* whose mother is a postgraduate or has undergone professional studies, are significantly different from the EI scores of *students studying in private schools* whose mother is a postgraduate.

EI scores of students studying in government aided schools ($p = 0.014$, $M = 91.03$) are significantly higher than the EI scores of students studying in private schools, hence the hypothesis statement 49 is accepted. Intrapersonal EQ-i ($p = 0.002$, $M = 90.21$), interpersonal EQ-i ($p = 0.023$, $M = 90.21$), stress management EQ-i ($p = 0.035$, $M = 95.40$) and general mood EQ-i ($p = 0.039$, $M = 87.58$) was found to be the factor responsible for higher EI scores. UC ($p= 0.001$, $M= 6.53$) and RC ($p = 0.002$, $M = 6.53$) were found to be high for students studying in privately owned trust schools.

Statement 50: EI scores of *students studying in schools adhering to central board certificate examination,* whose mother has studied till the 10th standard, are significantly different from the EI scores of *students studying in schools adhering to state board certificate examination* whose mother has studied till the 10th standard.

EI scores of students studying in schools adhering to central board certificate examination ($p = 0.000$, $M = 90.62$), whose mother has studied till the 10th standard, are significantly higher than

the EI scores of students studying in schools adhering to state board certificate examination, hence the hypothesis statement 50 is accepted. Intrapersonal EQ-i (p = 0.001, M = 97.85), interpersonal EQ-i (p = 0.023, M = 89.53), adaptability EQ-i (p = 0.023, M = 94.73) stress management EQ-i (p = 0.035, M = 88.08) and general mood EQ-i (p = 0.039, M = 87.69) was found to be the factor responsible for higher EI scores.

Statement 51: EI scores of *students studying in schools adhering to central board certificate examination,* whose mother is a postgraduate or has undergone professional studies, are significantly different from the EI scores of *students studying in schools adhering to state board certificate examination* whose mother is a postgraduate.

EI scores of students studying in schools adhering to central board certificate examination (p = 0.000, M = 96.59), whose mother is a post graduate or has undergone professional studies, are significantly higher than the EI scores of students studying in schools adhering to state board certificate examination, hence the hypothesis statement 51 is accepted. Interpersonal EQ-i (p = 0.023, M = 95.35), adaptability EQ-i (p = 0.023, M = 100.66) stress management EQ-i (p= 0.035, M= 89.98) and general mood EQ-i (p = 0.039, M = 92.3) was found to be the factor responsible for higher EI scores.

Statement 52: EI scores of *urban school students* whose parental annual income are below Rs. 100,000; are significantly different from the EI scores of *rural school students* with similar parental annual income.

EI scores of urban school students (p = 0.006, M = 91.93) whose parental annual income is below Rs. 100,000; are significantly higher than the EI scores of rural students, hence hypothesis 52 is accepted. Intrapersonal EQ-i (p = 0.000, M = 98.59), interpersonal EQ-i (p = 0.000, M = 90.24), adaptability EQ-i (p = 0.000, M = 95.08) stress management EQ-i (p = 0.000, M = 88.71)

and general mood EQ-i (p = 0.001, M = 88.01) was found to be the factor responsible for higher EI scores. RC (p = 0.018, M = 6.28) was found to be high for urban students.

Statement 53: EI scores of *urban school students* whose parental annual income is between Rs. 100,000 and 500,000 are significantly different from the EI scores of *rural school students* with similar parental annual income.

EI scores of urban school students (p = 0.000, M = 95.93) whose parental annual income is between Rs. 100,000 and 500,000, are significantly higher than the EI scores of rural students, hence hypothesis 53 is accepted.

Statement 54: EI scores of *urban school students* whose parental annual income are above Rs. 500,000; are significantly different from the EI scores of *rural school students* with similar parental annual income.

EI scores of urban school students (p = 0.000, M = 91.89) whose parental annual income is above Rs. 500,000; are significantly higher than the EI scores of rural school students, hence hypothesis 54 is accepted.

Statement 55: EI scores of *non-residential school students* whose parental annual income are below Rs. 100,000; are significantly different from the EI scores of *residential school students* with similar parental annual income.

EI scores of non-residential school students (p = 0.000, M = 91.89) whose parental annual income is below Rs. 100,000; are significantly higher than the EI scores of residential school students, hence hypothesis 55 is accepted. Intrapersonal EQ-i (p = 0.001, M = 98.37), interpersonal EQ-i (p = 0.000, M = 90.09), adaptability EQ-i (p = 0.001, M = 94.99) and general mood EQ-i (p = 0.001, M = 89.06) was found to be the factor responsible for higher EI scores.

UC (p = 0.000, M = 4.54) and RC (p = 0.004, M = 6.30) was found to be high for residential students

Statement 56: EI scores of *non-residential school students* whose parental annual income are above Rs. 500,000; are significantly different from the EI scores of *residential school students* with similar parental annual income.

EI scores of non residential school students (p = 0.000, M = 91.23 whose parental annual income is above Rs. 500,000; are significantly higher than the EI scores of residential school students, hypothesis 56 is accepted. Stress management EQ-i (p = 0.010, M = 88.11), interpersonal EQ-i (p = 0.000, M = 91.42), adaptability EQ-i (p = 0.000, M = 96.41) and general mood EQ-i (p = 0.000, M = 88.56) was found to be the factor responsible for higher EI scores. RC (p = 0.000, M = 6.88) was found to be high for residential students

Statement 57: EI scores of *non-tribal school students* whose parental annual income are below Rs. 100,000; are significantly different from the EI scores of *tribal school students* with similar parental annual income.

EI scores of non-tribal school students (p = 0.000, M = 91.40), whose parental annual income are below Rs. 100,000; are significantly higher than the EI scores of tribal school students; hypothesis 57 is accepted. Stress management EQ-i (p = 0.020, M = 88.52), interpersonal EQ-i (p = 0.000, M = 90.08), intrapersonal EQ-i (p = 0.001, M = 91.42), adaptability EQ-i (p= 0.006, M= 96.70) and general mood EQ-i (p = 0.001, M = 88.62) was found to be the factor responsible for higher EI scores. UC (p = 0.000, M = 4.08) and RC (p = 0.000, M = 6.37) were found to be high for residential students.

Statement 58: EI scores of *non-tribal school students* whose parental annual income are above Rs. 500,000; are significantly different from the EI scores of *tribal school students* with similar parental annual income.

EI scores of non-tribal school students (p = 0.000, M = 91.10), whose parental annual income is above Rs. 500,000; are significantly higher than the EI scores of tribal school students, hence hypothesis 58 is accepted.

Statement 59: EI scores of *students studying in schools adhering to central board certificate examination,* whose parental annual income is above Rs. 500,000; are significantly different from the EI scores of *students studying in schools adhering to state board certificate examination.*

EI scores of students studying in schools adhering to central board certificate examination (p = 0.00, M = 94.05), whose parental annual income is above Rs. 500,000; are significantly higher than the EI scores of students studying in schools adhering to state board certificate examination. Hence we accept statement 59. Stress management EQ-i (p = 0.001, M = 89.21), interpersonal EQ-i (p = 0.000, M = 89.79), intrapersonal EQ-i (p = 0.000, M = 99.07), adaptability EQ-i (p = 0.000, M = 98.18) and general mood EQ-i (p = 0.000, M = 90.08) was found to be the factor responsible for higher EI scores.

7.3.2 Discussion of results of Hypotheses Testing

Age group 9-12 years have a high measure of EI than age group 13 -14 years and intrapersonal EQ-i and stress management EQ-i in the age group 9 -12 years have higher measures. UC and RC have high scores in the age group 13 -14 years. Females have a high measure of EI, interpersonal EQ-i, adaptability EQ-i and general mood EQ-i than males.

Table 7.6: Accepted 57 hypotheses

Variables	Urban / Rural school students	Residential / Non residential school students	Tribal / Non tribal	State board / Central board	Government aided / Privately owned schools
Father's occupation					
0	√	√	√	√	×
1	√	√	√	√	√
2	√	√	√	×	√
3	√	√	√	×	√
4	×	√	√	√	√
Mother's occupation					
0	√	×	×	×	×
1	√	×	√	×	√
2	×	√	×	×	√
3	×	×	√	×	×
4	×	√	×	√	×
Father's literacy					
1	√	√	√	√	×
2	√	√	√	×	√
3	×	√	√	√	×
Mother's literacy					
1	√	×	√	√	√
2	×	√	√	×	×
3	×	√	×	√	√
Family income					
1	√	√	√	×	×
2	√	×	×	×	×
3	√	√	√	√	×

√ = Accepted
× = Rejected

Also urban schools students had higher EI as compared to rural students whose father was in lowly jobs, service or in business and mother was a housewife with parents studied upto the 10^{th} standard. Non residential school students with father working for lowly jobs, in services, who manages their business or who is a professional are having significantly higher scores of EI than residential school students with their mother being in service or a professional. Non tribal school

students with father working for lowly jobs, in services or who is a professional have significantly higher scores of EI than tribal school students with their mother being a housewife or manage business.

Students of schools adhering to the central board examination pattern with father working for lowly jobs or who is a professional have significantly higher scores of EI than students of schools adhering to the state board examination pattern with their mother being a professional. Students in privately owned trust schools with father working for lowly jobs do not have significantly higher scores of EI than students of government schools with their father having the same occupation.

Students of privately owned trust schools with a post graduate mother have significantly higher scores of EI than students of government schools with their mother having the same level of education. Urban school students with any of the 3 categories of family income had significantly higher scores of EI than a rural school student with similar levels of family income. Students of schools adhering to the central board examination pattern, non residential school students and non tribal students with family income above Rs. 500,000 have significantly higher scores of EI than students of schools adhering to the state board examination pattern, residential school students and tribal students with family income above Rs. 500,000 too.

7.4 CONCLUDING REMARKS

The importance of EI as a new psychological construct proves its relationship with age, gender of an individual. This chapter discusses the different hypothesis statements with different classifications of students in the age group of 9 – 14 years. Of the ninety hypotheses formulated fifty nine are accepted and they are presented in this chapter.

The next chapter discusses the empirical analysis for students in the age group of 21 – 27 years.

CHAPTER 8

ANALYSIS OF DATA, RESULTS AND DISCUSSION (FOR STUDENTS: 21-27 YEARS)

This chapter discusses correlation, regression, discriminant analysis and cluster analysis of EI and its factors for students of professional colleges and proposes equations to predict EI.

8.1 INTRODUCTION

A person with high EI can better perceive emotions, use them in thought, understand their meanings and manage emotions better, than others. Solving emotional problems requires less cognitive effort for this individual. The person also tends to be somewhat higher in verbal, social, and other intelligences, particularly if the individual scored higher in the understanding emotions portion of EI (Goleman, 1998). The individual tends to be more open and agreeable than others. The high EI person is drawn to occupations involving social interactions such as teaching and counseling more so than to occupations involving clerical or administrative tasks.

So, perhaps even more important than scoring high on an emotional intelligence test, knows one's level at this group of skills. Discovering one's level means that you can know whether and how much to be self-reliant in emotional areas and when to seek others' help in reading the emotional information that is going on around oneself. Whether one is high or low in emotional intelligence, is perhaps not as important as know that emotional information exists and that some people can understand it. Knowing just that (Goleman et al., 2002), one can use emotional information, by finding those who are able to understand and reason with it. This chapter aims at understanding the EI of students in the age group of 21 – 27 years and thus various tests are performed on our data of 752 students of various professional colleges.

8.2 COMPUTATION OF SCORES

As per the technical manual of the EQi the scores of students were computed. On calculation of the raw scores of EI and its factors, the standardized scores were calculated based on the gender and age of the students. Data sheets were compiled in Microsoft excel sheets and finally data was analyzed using the SPSS® 11.5 for MS Windows®.

8.3 DATA BASE DEVELOPMENT

As discussed in section 6.3, for easy retrieval of data of an individual student, data base development was done using Visual basic®. Microsoft access was used at the front end to construct form 1. The curriculum to be followed for a particular student also featured in the program.

8.4 DESCRIPTIVE STATISTICS

Table 8.1 describes the scores of students for the multiple factors along with EI. As per guidelines provided by Multi Health Systems the scores of students were computed and results compared with findings by Hemmati et al. (2004)

Table 8.1: Statistics for Students in the Age Group of 21 – 27 years

	Minimum		Maximum		Mean		Std. Deviation		Std. error	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Age	21	21	27	27	24.41	23.55	1.15	1.11	0.28	0.34
EI	76	79	130	130	94.18	96.9	14.68	13.51	0.26	0.31
Intrapersonal EQ-i	123	124	165	165	97.85	96.32	14.42	14.02	0.28	0.34
Interpersonal EQ-i	92	91	122	123	90.06	90.88	16.94	17.98	0.26	0.31
Stress Management EQ-i	42	44	80	81	88.31	87.55	13.47	12.54	0.03	0.03
Adaptability EQ-i	65	65	111	111	95.22	97.73	16.43	16.78	0.26	0.32
General mood EQ-i	51	52	69	75	87.92	88.54	15.09	15.87	0.26	0.31

a. EI and its factors had 65 as lowest score.
b. In case of EI, intrapersonal EQ-i and adaptability EQ-i scores are 120, 165 and 111 respectively.
c. In case of general mood EQ-i the maximum score is 75.
d. Stress management EQ-i and interpersonal EQ-i have maximum score of 81 and 123 respectively.

8.5 RELIABILITY ASSESMENT

The reliability for Bar –On EQ-i (1997[b]) was high for all of the subscales (α = 0.90 for interpersonal EQi, α = 0.94 for intrapersonal EQi, α = 0.89 for adaptability EQi, α = 0.85 for stress management EQi and α = 0.89 for general mood EQi). In this study the reliability assessment gave the results as depicted in the Table 8.2

Table 8.2: Reliability of the factors of EI

Factors of EI	**Cronbach Alpha**
Intrapersonal EQ-i	0.84
Interpersonal EQ-i	0.87
Adaptability EQ-i	0.85
Stress management EQ-i	0.80
General mood EQ-i	0.79

The differences in the Cronbach alpha values maybe due to the cultural differences as Bar- On's (1997[b]) study had samples from USA and Canada and this study is in the Indian context.

8.6 ASSESSMENT OF THE DEGREE OF ASSOCIATION OF FACTORS

In order to test the association of EI and its factors a detailed set of statistical analysis was conducted first being a confirmatory Pearson's Correlation as seen in Table 8.3. The table comprises of correlation between the subscales and factors given below:

Table 8.3: Correlations of EI, its Factors and Subscales

	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1	.634	.553	.579	.333	.386	.590	.344	.536	.466	.540	.552	.310	.577	.427	.716	.552	.571	.476	.564	.652
2		.495	.476	.412	.295	.473	.240	.452	.358	.310	.474	.232	.453	.420	.681	.400	.355	.378	.518	.636
3			.724	.449	.548	.523	.439	.761	.483	.548	.717	.461	.672	.783	.780	.584	.635	.658	.851	.807
4				.488	.383	.501	.355	.621	.487	.525	.530	.460	.567	.541	.822	.488	.584	.529	.685	.754
5					.126	.173	.074	.256	.486	.409	.451	.304	.311	.313	.613	.133	.325	.410	.397	.492
6						.557	.738	.530	.228	.220	.356	.014	.450	.585	.398	.827	.332	.240	.552	.538
7							.549	.537	.220	.304	.380	.252	.598	.505	.539	.845	.366	.371	.620	.661
8								.498	.154	.125	.321	.054	.334	.499	.308	.845	.329	.262	.422	.464
9									.431	.491	.706	.416	.513	.756	.603	.613	.704	.669	.706	.730
10										.508	.499	.415	.452	.348	.553	.232	.579	.511	.517	.554
11											.594	.474	.468	.416	.558	.264	.723	.569	.547	.564
12												.464	.498	.702	.622	.430	.663	.826	.719	.711
13													.352	.277	.430	.119	.511	.818	.413	.482
14														.549	.617	.564	.477	.497	.837	.659
15															.581	.587	.516	.568	.818	.730
16																.493	.520	.496	.754	.842
17																	.406	.343	.623	.663
18																		.708	.572	.575
19																			.617	.630
20																				.841

1 = Emotional self awareness
2 = Assertiveness
3 = Self-regard
4 = Self-actualization
5 = Independence
6 = Empathy
7 = Interpersonal relationship
8 = Social responsibility
9 = Problem solving
10 = Reality testing
11 = Flexibility
12 = Stress tolerance
13 = Impulse control
14 = Happiness
15 = Optimism
16 = Intra personal EQ-i
17 = Inter personal EQ-i
18 = Adaptability EQ-i
19 = Stress Management EQ-i
20 = General Mood EQ-i
21 = Total EQ-i

There is a range of correlation coefficients between the factors as described below:

- Intrapersonal EQ-i (r = 0.842) has highest correlation with EI followed by General mood EQ-i (r = 0.841). In comparison, the study by Hemmati et al. (2004) suggested a very high correlation of 0.95 for intrapersonal EQ-i and adaptability EQi with total EQ.
- Interpersonal EQ-i correlates moderately (r =0.663) with total EQ-i in contrast to a study by Hemmati et al. (2004) suggested a very high correlation of 0.91
- Stress management EQ-i and adaptability EQ-i correlates moderately with Total EQ-i {(r = 0.630) and (r = 0.575)}. In comparison, Hemmati et al.'s (2004) study revealed a high correlation of r = 0.87.
- Subsequent subscales correlate highly with their corresponding factors of EI.
- Inter sub-scale correlation was found to be moderate. In contrast, study by Hemmati et al. (2004) found very high inters sub-scale correlations.

8.7 TESTS OF REGRESSION

As the objective of this study is to identify and assess the effect of factors on EI, the method of multiple regression analysis has been chosen, as it helps in assessing the individual and the combined effect of independent variables (interpersonal EQ-i, intrapersonal EQ-i, adaptability

EQ-i, stress management EQ-i, general mood EQ-i) on the dependent variable – EI, measured as total EQ-i

8.7.1 Testing the overall significance of regression analysis

Steps used in conducting the regression analysis on the sample of professional college students are as follows:

Firstly, Institute wise analysis with 5 factors (as explanatory variables) of EQ was done. The regression equation for school wise analysis with 5 factors is as follows:

$$\mathbf{Y = A + B_1X_1 + B_2 X_2 + B_3 X_3 + B_4 X_4 + B_5 X_5 \ .....} \qquad \mathbf{(7)}$$

Y = dependent variable representing EI

B_1, B_2, B_3, B_4 and B_5 are the coefficients of the regression equation

X_1 = Intrapersonal EQ-i X_2 = Interpersonal EQ-i

X_3 = Adaptability EQ-i X_4 = Stress management EQ-i

X_5 = General mood EQ-i

A = Constant term

The regression was then tested for its significance using F-test for the regression as a whole. The F-test results showed that the regression as a whole was significant for all 5 factors as shown in Table 8.4. Substituting the values of beta and the constant term the regression equation of this study for students is:

$$\mathbf{Y = 7.952 + 0.350(X_1) + 0.153\ (X_2) + 0.171\ (X_3) + 0.169\ (X_4) + 0.266\ (X_5)\ldots\ldots\ (8)}$$

Table 8.4: ANOVA for five Factors of EI

	Sum of Squares	Df	Mean Square	F	Sig.	R	R Square	Adjusted R Square	Std. Error of the Estimate
Regression	122008.677	5	24401.735	1371.67	.00	.95	.902	.901	4.218
Residual	13271.140	746	17.790						
Total	135279.817	751							

Dependent Variable: Total EQ-i.

Table 8.5: Coefficients of Regression Analysis for five Factors of EI

Model	Factors	Unstandardized Coefficients		Standardized Coefficients	T	*P*
		B	Std. Error	Beta		
1	(Constant)	21.720	.82		32.37	.00
	Intrapersonal EQ-i	.662	.002	.767	78.9	.00
2	(Constant)	-8.893	.90		-9.668	.00
	Intrapersonal EQ-i	.553	.07	.552	76.959	.00
	Adaptability EQ-i	.482	.08	.498	58.8	.00
3	(Constant)	-17.624	.25		-21.4	.00
	Intrapersonal EQ-i	.373	.004	.426	49.77	.00
	Adaptability EQ-i	.467	.002	.457	64.7	.00
	Interpersonal EQ-i	.304	.008	.338	42.5	.00
4	(Constant)	-32.137	.66		-41.9	.00
	Intrapersonal EQ-i	.337	.005	.363	52.7	.00
	Adaptability EQ-i	.369	.004	.344	57.6	.00
	Interpersonal EQ-i	.301	.003	.334	49.9	.00
	Stress management EQ-i	.316	.005	.277	46.62	.00
5.	(Constant)	-32.137	.76		-43.9	.00
	Intrapersonal EQ-i	.350	.001	.393	51.7	.00
	Adaptability EQ-i	.369	.003	.314	55.6	.00
	Interpersonal EQ-i	.301	.005	.336	47.2	.00
	Stress management EQ-i	.316	.004	.237	44.69	.00
	General mood EQ-i	.312	.003	.265	43.12	.00

Table 8.5 denotes the coefficients of regression analysis for 5 factors of EI for professional college students.

The following points are worth mentioning:

- The results were found to be significant in the data of 752 students.
- All the five explanatory variables - intrapersonal ability, interpersonal ability, stress management, adaptability and general mood are significant factors affecting EQ.

As the sample comprised students in the age group of 21 – 27 years, regression analysis is also performed. Firstly, Institute wise analysis with 15-sub scale (as explanatory variables) of EQ-i was done. The regression equation for school wise analysis with 5 factors is as follows:

$$\mathbf{Y = A + B_1X_1 + B_2 X_2 + B_3 X_3 + B_4 X_4 + B_5 X_5 + B_6 X_6 + B_7 X_7 + B_8 X_8 + B_9 X_9 + B_{10} X_{10} + B_{11} X_{11} + B_{12} X_{12} + B_{13} X_{13} + B_{14} X_{14} + B_{15} X_{15} \ldots\ldots\ldots} \quad \mathbf{(9)}$$

Y = dependent variable representing EI

B_1, B_2, B_3, B_4, B_5, B_6, B_7, B_8, B_9, B_{10}, B_{11}, B_{12}, B_{13}, B_{14}, B_{15}, are the coefficients of the regression equation.

X_1 = Emotional self awareness
X_2 = Assertiveness
X_3 = Self-regard
X_4 = Self-actualization
X_5 = Independence
X_6 = Empathy
X_7 = Interpersonal relationship
X_8 = Social responsibility
X_9 = Problem solving
X_{10} = Reality testing
X_{11} = Flexibility
X_{12} = Stress tolerance
X_{13} = Impulse control
X_{14} = Happiness
X_{15} = Optimism
A = Constant term

The regression was then tested for its significance using F-test to test whether the EI is dependent on self-regard, emotional self-awareness, assertiveness, independence, self-actualization, empathy, social responsibility, interpersonal relationship, stress tolerance, impulse control, reality testing, flexibility, problem solving, optimism and happiness at 5% level of significance. The F-test results showed that the regression as a whole was significant for 12 sub scales as shown in Table 8.6. Substituting the values of beta and the constant term the regression equation of this study for students is:

$$\mathbf{Y = 0.052 + 0.147(X_2) + 0.115(X_4) + 0.051(X_5) - 0.077(X_6) - 0.127(X_8) - 0.082(X_9) + 0.110(X_{10}) + 0.071(X_{11}) + 0.209(X_{12}) + 0.303(X_{13}) - 0.086(X_{14}) + 0.130(X_{15})\ldots\ldots\ldots} \quad \mathbf{(10)}$$

Table 8.6: ANOVA for Subscales of EI

	Sum of Squares	Df	Mean Square	F	Sig.	R	R Square	Adjusted R Square	Std. Error of the Estimate
Regression	99598.797	20	4979.94	282.62	.00	.941	.885	.882	4.198
Residual	12880.425	731	17.620						
Total	112479.222	751							

Dependent Variable: Total EQ-i

Table 8.6 denotes the coefficients of regression analysis for 15 sub scales of EI for professional college students. The following points are worth mentioning:

- The results were found to be significant in the data of 752 students.
- 12 out of the 15 explanatory variables - assertiveness, independence, self-actualization, empathy, social responsibility, stress tolerance, impulse control, reality testing, flexibility, problem solving, optimism and happiness are significant factors affecting total EQ-i.

8.7.2 Testing of significance of the difference between a single prediction and actual observation

This test is similar as mentioned in section 6.7.4. Sample for testing the predictive power of the equation was collected in July 2008. In our test, actual value of 'T' is less than 'T', that is predicted value. The observation is compatible with the estimated relationship. In this case we accept that the predictive power of our equation is reasonably good. With reference to Table 8.5 we obtained the values of T actual on the basis of which the regression equation was framed. In Table 8.7 both values of T – actual and predicted based on the equation are presented.

In our test the difference between the actual and forecasted value may be due to abnormal conditions in the period of data collection (Koutsoyiannis, 1977). In this case our equation is still valid and we do not need to modify it.

Table 8.7: Values of T Actual and T Predicted for Four Significant Factors of EI.

Model	Factors	T (actual)	T (predicted)
1	Intrapersonal EQ-i	78.9	77.1
2	Intrapersonal EQ-i	76.959	73.5
	Adaptability EQ-i	58.8	52.8
3	Intrapersonal EQ-i	49.77	47.17
	Adaptability EQ-i	64.7	62.37
	Interpersonal EQ-i	42.5	41.3
4	Intrapersonal EQ-i	52.7	52.1
	Adaptability EQ-i	57.6	55.6
	Interpersonal EQ-i	49.9	42.4
	Stress management EQ-i	46.62	44.2
5.	Intrapersonal EQ-i	51.7	50.5
	Adaptability EQ-i	55.6	54.3
	Interpersonal EQ-i	47.2	46.1
	Stress management EQ-i	44.69	43.9
	General mood EQ-i	43.12	42.21

Dependent Variable: EI

a. Model 1 Predictors: intrapersonal EQ-i,
b. Model 2 Predictors: intrapersonal EQ-i, adaptability EQ-i
c. Model 3 Predictors: intrapersonal EQ-i, adaptability EQ-i, interpersonal EQ-i.
d. Model Predictors: intrapersonal EQ-i, adaptability EQ-i, interpersonal EQ-i, stress management EQ-i
e. Model Predictors: intrapersonal EQ-i, adaptability EQ-i, interpersonal EQ-i, stress management EQ-i and general mood EQi

8.8 DISCRIMINANT ANALYSIS

In this study, the exact EQi score is calculated using the regression equation but the variance was 83.5%. In order to predict the accurate range of EQ scores, discriminant analysis was conducted. The EQi scores were classified as: 65 – 89: low EQ, 90 – 110: high EQ and above 111: very high EQ.

Table 8.8: Eigen Values of Standardized Canonical Discriminant Function

Functions	Eigen value	% Of Variance	Cumulative %	Canonical Correlation	Wilks' Lambda	Chi-square	df	P
1	1.858	96.6	96.6	.806	.329	815.244	8	.00
2	.065(a)	3.4	100.0	.247	.939	45.949	3	.00

From the output Table 8.8, the discriminant function obtained is able to classify 96.6% of the 752 student's EI scores correctly. The model is a good pointer for future input data of EI scores of students assuming it to be relevant and scientifically collected. So our canonical discriminant function equation is

$$\mathbf{Y = d_0 + d_1X_1 + d_2 X_2 + d_3 X_3 + d_4 X_4 + d_5 X_5 \ .....} \qquad \mathbf{(11)}$$

Y = dependent variable representing the range of EI of students

d_1, d_2, d_3, d_4, d_5, d_6 and d_7 are the standardized canonical discriminant function coefficients.

X_1 = Intrapersonal EQ-i X_2 = Interpersonal EQ-i

X_3 = Adaptability EQ-i X_4 = Stress management EQ-i

X_5 = General mood EQ-i

A = Constant term

For students 'p' values are below 0.05 hence the discriminant model is highly significant. Substituting the values we obtain the final canonical discriminant equation

$$\mathbf{Y = Constant + 0.211\ X_1 + 0.083\ X_2 + 0.122\ X_3 + 0.490\ X_4 - 0.529\ X_5} \quad \mathbf{(12)}$$

The following points are worth mentioning:

- The results were found to be significant in the data of 752 students.
- Four explanatory variables - intrapersonal EQ-i, interpersonal EQ-i, stress management EQ-i, adaptability EQ-i and general mood EQ-i are significant variables predicting range of EI.

8.9 CLUSTER ANALYSIS

In this study there are 4 clusters of students according to the category of EQ-i scores and its factors. The EQ-i scores for 21 – 27 years were classified as presented in table 6.13 in section

6.9. Table 8.9 depicts the number of cases in each cluster and signifies that each cluster is determined by significant number of cases.

Table 8.9: Number of Cases in each Cluster

Cluster	1	227.000
	2	187.000
	3	196.000
	4	142.000
Valid		752.000
Missing		0.000

Final cluster centers describe the mean value of each variable for each of the 4 clusters. The brief description of each of the 4 clusters as depicted in Table 8.8 is given below:

Cluster 1

Students belonging to this cluster are 23-year males having high EQ-i score. They have high scores of intrapersonal EQ-i, interpersonal EQ-i, stress management EQ-i, adaptability EQ-i and general mood EQ-i. Their father manages their own business and mother is housewife. Father is a graduate and mother is studied till the 10^{th} standard with family income between Rs. 100,000 and 500,000 per annum.

Cluster 2

Students belonging to this cluster are 23-year-old males with high EQ-i score. They have high scores of intrapersonal EQ-i, interpersonal EQ-i, stress management EQ-i, adaptability EQ-i and general mood EQ-i. Their father is in service with banks, in governmental organizations or private firms as officers, a supervisor and other clerical positions and mother is housewife. Father is a graduate and mother is studied till the 10^{th} standard with family income between Rs. 100,000 and 500,000 per annum

Table 8.10: Final Cluster Centers

	Cluster			
	1	2	3	4
Age	23	23	25	23
Gender	1	1	2	1
Category of intrapersonal EQ-i	2.20	2.12	1.64	1.64
Category of interpersonal EQ-i	2.45	2.01	1.31	1.26
Category of stress management EQ-i	2.70	2.25	1.34	1.35
Category of adaptability EQ-i	2.41	2.34	1.42	1.39
Category of general mood EQ-i	2.05	2.6 0	1.24	1.24
Category of Total EQ-i	2	2	1	1
Fathers Occupation	3	2	1	3
Mothers Occupation	1	1	2	1
Father's Literacy level	2	2	2	2
Mother's Literacy level	1	1	2	1
Income	2	2	2	3

Cluster 3

Students belonging to this cluster are 25-year-old females with low EQ-i score. They have low scores of intrapersonal EQ-i, interpersonal EQ-i, stress management EQ-i, adaptability EQ-i and general mood EQ-i. Their father is working for lowly jobs such as peons, sweepers and watchman and mother is housewife. Both parents are graduates with family income between Rs. 100,000 and 500,000 per annum.

Cluster 4

Students belonging to this cluster are 23-year-old males with low EQ-i score. They have low scores of intrapersonal EQ-i, interpersonal EQ-i, stress management EQ-i, adaptability EQ-i and general mood EQ-i. Their father manages their own business and mother is housewife. Father is a graduate and mother is studied till the 10^{th} standard with family income above Rs. 500,000 per annum.

8.10 RESULTS AND DISCUSSION

In this study, the factors affecting EI are identified by making a thorough review of literature and have identified some factors by a pilot survey to understand the construct and its applicability in case of students. These factors have been statistically tested for their significance. The sample size is 752 students, which represents diverse condition including age, gender, parental occupation and literacy and family income. The Bar – On EQi questionnaire consisted of 133 items on likert's scale and 5 factors were derived in an initial study by Bar- On (1997[b]). Correlation and regression analyses were performed in order to assess the strength of association of each of the factors. The following remarks are worth mentioning:

a. Our results of correlation analysis do confirm with Hammeti et al. (2004) analysis. However, our ranking of degree of association is different. The findings are shown in Table 8.11 below:
b. Regression equation would predict the total EQ-i scores of students 90.2% accurately.
c. Discriminant equation would predict the range of total EQ-i scores 96.6% accurately. d. Lastly 4 clusters were formed categorizing a particular type of students in one cluster.

Table 8.11: Comparative Order of Association of Factors

Order of Association	Our findings	Hemmati et al.'s study (2004)
1.	Intrapersonal EQ-i: r = 0.842	Adaptability EQ-i: r = 0.95
2.	General mood EQ-i; r = 0.92	Intrapersonal EQ-i: r = 0.95
3.	Interpersonal EQ-i: r = 0.663	General mood EQ-i; r = 0.92
4.	Stress Management EQ-i: r = 0.630	Interpersonal EQ-i: r = 0.91
5.	Adaptability EQ-i: r = 0.575	Stress Management EQ-i: r = 0.87

8.11 CONCLUDING REMARKS

This study has identified factors affecting EI of students and measured them at aggregate level. However each factor can be disaggregated or factored into attributes at operational level. Such studies are available for adults (Bar-on, 1997[a]) by following the same methodology depicted in the self-report. It denotes that EI depends on these 5 factors and if we implement it in the form of training the future of India and our students will be bright. This chapter discusses the various empirical tests for students – reliability assessment, correlation coefficient test, regression test, discriminant analysis and cluster analysis. The next chapter describes the testing of hypotheses of the various statements proposed.

CHAPTER 9

TESTING OF HYPOTHESES FOR STUDENTS (AGE GROUP 21 – 27 YEARS)

This chapter discusses the hypothesis statements proposed and explains with independent samples 'T' test, and analysis of variance (ANOVA).

9.1 BASIS OF FORMULATION OF HYPOTHESES

This study investigated a number of hypotheses discussed in the sections below. Research done till date is considered prior to conceptualizing these statements and thus conclusions are drawn based on analysis of data collected.

Table 7.1: Basis for formulation of fifty-seven hypotheses

Variables	Management / Engineering / Computer application students	Residential / Non residential students	University approved / AICTE approved autonomous courses
Father's occupation			
0	√	√	√
1	√	√	√
2	√	√	√
3	√	√	√
4	√	√	√
Mother's occupation			
0	√	√	√
1	√	√	√
2	√	√	√
3	√	√	√
4	√	√	√
Father's literacy			
1	√	√	√
2	√	√	√
3	√	√	√
Mother's literacy			
1	√	√	√
2	√	√	√
3	√	√	√
Family income			
1	√	√	√
2	√	√	√
3	√	√	√

With reference to section 5.4.2 and table 5.4 and 5.6, we have formulated fifty-nine hypotheses as discussed in table 9.1 above with age and gender as variables too.

9.2 INDEPENDENT T TEST FOR HYPOTHESES RELATING TO AGE AND GENDER

9.2.1 Age and EI

Analysis of variance was employed to examine the effect of age and gender on EQ-i scores (Bar-On, 1997[b]). Although the results indicated numerous significant differences among the age groups and that were compared (Bar-On, 1997[b]), these differences are relatively small. In brief, the older group's scores significantly higher than the younger groups on most of the EQ-i scale scores, respondents in their late forties and early fifties received the highest means scores. A similar increase in emotional and social intelligence with age is observed in children and adolescents, based on a study conducted by Bar-On and Parker (2000[a]). Based on research as discussed in section 7.2.1 we can formulate the hypothesis statement given below.

Statement 1: Consistent with previous research, it is predicted that higher EI will be related to age i.e. as age increases - EI increases.

The literature review for students is presented in section 7.2.1. Table 9.1 presents the independent T test of EI and its factors with age. Our study is with students (age group 21 – 27 years) on previous research that EI increases with age, an Independent sample T test examined whether this was apparent in this study (hypotheses 1). Since the age group 21-24 years ($M = 91.52$, $p = 0.026$) have a high measure of EI than age group 25 -27 years our hypotheses 1 does not hold true. Also the intrapersonal EQ-i and stress management EQ-i in the age group 25 -27 years have higher measures {($M = 98.14$, $p = 0.001$) and ($M = 88.44$, $p = 0.015$)}

Table 9.2: Independent T Test of EI and its Factors with Age

	Levene's Test for Equality of Variances		T - test for Equality of Means					
	F	Sig.	T	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
							Lower	Upper
Total EQ-i	.51	.446	1.831	.067	.750	.40	-.03	1.54
Intrapersonal EQ-i	.06	.849	3.461	.001	1.322	.32	.53	2.00
Interpersonal EQ-i	.29	.597	.097	.922	.044	.46	-.89	.78
Stress Management EQ-i	.08	.893	2.427	.015	.873	.30	.18	1.58
Adaptability EQ-i	.15	.675	-.485	.628	-.214	.41	-1.08	.60
General mood EQ-i	.00	.984	-.621	.534	-.254	.40	-1.06	.58

9.2.2 Gender and EI

With respect to gender, no differences appeared between males and females regarding overall emotional and social competence. Significant gender differences, however, do exist for a few factorial components of this construct, but the effects are small for the most part. Based on the normative sample studies, females appear to have stronger interpersonal skills than males, but the latter have a higher intrapersonal capacity, are better at stress management, and are more adaptable. More specifically, women are more aware of emotions, demonstrate more empathy, relate better interpersonally, and act more socially responsible than men; on the other hand, men appear to have better self-regard, are more independent, cope better with stress, are more flexible, solve problems better, and are more optimistic than women. Similar significant difference related to social responsibility, interpersonal relationship, and stress tolerance between males and females have been observed in almost every other population sample that has been examined with the EQ-i around the world to date. Men's deficiencies in interpersonal skills, especially in the realm of empathy and social responsibility, could possibly explain why psychopath is observed much more frequently in men than in women (American Psychiatric

Association, 1994). On the other hand, significantly lower stress tolerance among women may possibly explain why they suffer more from anxiety-related disturbances than men (American Psychiatric Association, 1994). Based on research as discussed in section 7.2.2 the second hypothesis statement is given below.

Statement 2: Males will have significantly lesser EI scores than females on the EQi YV measure.

Testing of the hypothesis statement of EI and gender

Independent samples T test was conducted and the following were observed depicted in Table 9.2.

Table 9.3: Independent T test of EI and its Factors with Gender

	Levene's Test for Equality of Variances		T-test for Equality of Means						
	F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Total EQ-i	1.353	.020	-3.607	5463	.009	-1.089	.418	-1.907	-.270
Intra personal EQ-i	1.332	.248	-.886	5463	.376	-.345	.390	-1.109	.418
Interpersonal EQ-i	1.908	.167	-2.926	5463	.003	-1.359	.464	-2.270	-.449
Stress Management EQ-i	.082	.774	.479	5463	.632	.176	.367	-.544	.895
Adaptability EQ-i	1.813	.178	-2.588	5463	.010	-1.163	.449	-2.044	-.282
General mood EQ-i	11.39	.001	-4.455	5463	.000	-1.855	.416	-2.671	-1.038

Based on previous research that female tends to score higher on measures of EI than males do, an Independent sample T test examined whether this was apparent in this study (hypotheses 1). Since females (M = 91.35, p = 0.020) have a high measure of EI than males and our hypotheses 2 holds true. In addition, females score higher than males in interpersonal EQ-i (M = 90.93, p= 0.001) and general mood EQ-i (M = 88.85, p = 0.000). Referring to the analysis table, hypothesis statement 2 is accepted.

9.2.3 Analysis of variance of different hypotheses

The overall classification for students aged 21 – 27 years is discussed in section 5.4.2 and table 5.4 and 5.6.

Statement 3: EI scores of *postgraduate management students*, whose father has expired, are significantly different from the EI scores of *students studying for the engineering degree and masters in computer application course* whose father has expired.

For testing the above-mentioned statement, an analysis of variance technique (ANOVA) was utilized for specifically postgraduate management students, whose father has expired, than students studying for the engineering degree and masters in computer application course whose father has expired too. Total EQi was found to be insignificant and hence the hypothesis statement 3 is rejected. We found that impulse control was found to be high for MCA students ($p = 0.029$, $M = 34.9$). It implies that MCA students are able to control impulses better than MBA and engineering students.

Statement 4: EI scores of *residential professional college students*, whose father has expired, are significantly different from the EI scores of *non-residential college students* whose father has expired.

For testing the above-mentioned statement, an analysis of variance technique (ANOVA) was utilized for specifically residential professional college students, whose father has expired and non-residential college students whose father has expired too. Total EQi was found to be insignificant and hence the hypothesis statement 8 is rejected. However it was found that adaptability was found to be significantly high for residential professional college students ($p = 0.0049$, $M = 159.00$). Flexibility is found to be significant subscale with $p = 0.011$ and $M =$

40.00. It implies that residential students are able to adapt to an environment better than non-residential students.

Statement 5: EI scores of *students studying for university-approved courses*, whose father has expired, are significantly different from the EI scores of *students studying in colleges providing autonomous courses* whose father has expired.

EI scores of students studying for university approved courses, whose father has expired, are significantly different from the EI scores of students studying in colleges providing autonomous courses whose father has expired hence hypothesis 13 is accepted. Impulse control was found to be the significant subscale.

Statement 6: EI scores of *postgraduate management students*, whose mother is a housewife, are significantly different from the EI scores of *students studying for the engineering degree and masters in computer application course* whose mother is a housewife.

It was derived for postgraduate management students, whose mother is a housewife, are not significantly different from the EI scores of students studying for the engineering degree and masters in computer application course whose mother is a housewife too. Total EQi was found to be insignificant and hence the hypothesis statement 19 is rejected. However it was found that assertive subscale was found to be significantly high for engineering students ($p = 0.046$, $M = 24.5$). It implies that engineering students have higher degree positive and assertive communication.

Statement 7: EI scores of *students studying for university-approved courses*, whose mother is in service, are significantly different from the EI scores of *students studying in colleges providing autonomous courses* whose mother is in service.

It was derived for students studying for university approved courses, whose mother is in service, are not significantly different from the EI scores of students studying in colleges providing autonomous courses whose mother is in service. Total EQi was found to be insignificant and hence the hypothesis statement 30 is rejected. However it was found that adaptability was found to be significantly high for students of autonomous colleges ($p = 0.028$, $M = 101.5$) in contrast to students from the university. Flexibility the subscale of EI was also found significant with $p = 0.03$ and $M = 41.04$.

Statement 8: EI scores of *students studying for university approved courses*, whose mother is professionally employed, are significantly different from the EI scores of *students studying in colleges providing autonomous courses* whose mother is professionally employed.

It was derived for students studying for university approved courses, whose mother is professionally employed, are not significantly different from the EI scores of students studying in colleges providing autonomous courses whose mother is professionally employed. Total EQi was found to be insignificant and hence the hypothesis statement 32 is rejected. However, it was found that interpersonal EQ-i was found to be significantly high for students of university affiliated colleges ($p = 0.035$, $M = 101.5$) in contrast to students from autonomous colleges. Flexibility ($p = 0.008$, $M = 36$), social responsibility ($p = 0.030$, $M = 42.25$) and happiness ($p = 0.014$, $M = 40.5$) were the contributing subscales.

Statement 9: EI scores of *post graduate management students*, whose father has studied till 10^{th} standard, are significantly different from the EI scores of *students studying for the engineering degree and masters in computer application course* whose father has studied till 10^{th} standard.

It was derived for post graduate management students, whose father has studied till 10th standard, are not significantly different from the EI scores of students studying for the engineering degree and masters in computer application course whose father has studied till 10th standard. Total EQi was found to be insignificant and hence the hypothesis statement 33 is rejected. However it was found that adaptability EQ-i was found to be significantly high for engineering students (p = 0.028, M = 99.39). Flexibility the subscale of EI was also found significant with p = 0.038 and M = 31.99.

Statement 10: EI scores of *residential professional college students*, whose father has studied till 10th standard, are significantly different from the EI scores of *non-residential college students* whose father has studied till 10th standard.

It was derived for residential professional college students, whose father has studied till 10th standard, are not significantly different from the EI scores of non residential college students whose father has studied till 10th standard. Total EQi was found to be insignificant and hence the hypothesis statement 36 is rejected. However, it was found that adaptability was found to be significantly high for residential students (p = 0.035, M = 101.5). Flexibility (p = 0.048, M = 35), social responsibility (p = 0.039, M = 40.28) and happiness (p = 0.04, M = 42.5) were the contributing subscales.

Statement 11: EI scores of *students studying for university approved courses*, whose mother has studied till 10th standard, are significantly different from the EI scores of *students studying in colleges providing autonomous courses* whose mother has studied till 10th standard.

It was derived for students studying for university approved courses, whose mother has studied till 10th standard, are not significantly different from the EI scores of students studying in

colleges providing autonomous courses whose mother has studied till 10th standard. Total EQi was found to be insignificant and hence the hypothesis statement 48 is rejected. However, it was found that adaptability was found to be significantly high for students studying for university approved courses ($p = 0.015$, $M = 105.5$). Flexibility ($p = 0.038$, $M = 32.76$) and emotional self - awareness ($p = 0.034$, $M = 41.35$) were the significant subscales.

9.3 CONCLUDING REMARKS

The importance of EI as a new psychological construct proves its relationship with age, gender and location. Age group 21-24 years have a high measure of EI than age group 25 -27 years and factors intrapersonal EQ-i and stress management EQ-i in the age group 21 -24 years have higher measures. Females have a high measure of EI, interpersonal EQ-i and general mood EQ-i than males. Some subscales are found significant.

CHAPTER 10

COMPARATIVE ANALYSIS OF STUDENTS OF THE AGE GROUP 9 - 14 YEARS AND 21 - 27 YEARS

The chapter presents a comparative picture of EI in students in the age group of 9 – 14 years and 21 -27 years. The different perspectives of education are also presented in this chapter.

10.1 INTRODUCTION

As discussed earlier there are many potential personal, social, and societal benefits of incorporating a focus on emotional intelligence, which has been shown to be moldable, into higher education (Cohen, 1999; Goleman, 1995). The inclusion of extra classes on emotional intelligence in primary and secondary school curricula is responsible for raising emotional intelligence. It also reduces emotional and behavioral problems, which can interfere with the learning process (Caplan et al., 1992; Cohen, 1999).

Similarly at college level too one would expect good results. In addition, it has been found that the incorporation of such extra classes into the curricula results in higher scores on standardized curricula examinations (Hammett, 2007). It provides evidence for the view that processes previously thought to be purely cognitive in fact work synergistically with emotional processes.

10.2 STANDARDS OF PERFORMANCE AND ACCOUNTABILITY

Emerging trends, issues and public demands of global economy all point to the need for new accountability and outcome research to document the effectiveness of school and colleges. There is growing research that connects emotional intelligence and emotional skills to achievement, productivity, career success, personal health, resilience, and leadership (Gardner, 1983, 1993; Goleman, 1995, 1997; Salovey and Mayer, 1997; Epstein, 1998; Greenspan, 1997). A practical,

education- and research-based model of emotional intelligence may provide an important key for integrating student development with the academic mission of higher education.

Academic disciplines in education and psychology refer to three dimensions of human performance that are essential for academic, career, and personal development. Behavioral accountability standards (action domain are in effect and embraced at every level of education. For example, every school, college, or university has a written set of rules, regulations, codes of conduct, codes of ethics, and standards of behavior that describe what is acceptable and what is not acceptable. These rules are supported by sanctions and penalties as well as by laws. The behavioral dimension is very specific, and it is clearly supported by the general public. Personal responsibility for one's actions is very strong.

Emotional standards of performance (affective domain) are often vague, mysterious, misunderstood, or not well understood. The affective dimension may even be neglected or relegated to the professional fields of psychology, counseling, and mental health. With the emerging study and research on emotional intelligence and other non-traditional measures of human performance, a new opportunity is presented for student and human development. An education-and research-based framework of emotional intelligence that is easily understood, practical and organized around specific skills and competencies may provide a new structure for student development.

10.3 COMPARISON OF RESULTS

In this section, comparative results of correlation analysis, regression analysis, discriminant analysis and tests of hypotheses for both types of students undertaken in this study are presented.

10.3.1 A comparison of hypothesis statements results

The Table 10.1 below provides a comprehensive picture of the hypothesis statements made. If the alternate hypothesis is accepted then specifying 'significant' denotes it. The last column denotes the factors responsible for the significance of the hypothesis statement. A rejected alternate hypothesis is denoted by specifying 'non significant'. The last column denotes the factors, which are significant even if total EQi is not significant.

Table 10.1: Summary of Significance of the Hypothesis Statements Formulated for Students in the Age Group of 9 – 14 years

Statement No.	Significant / Not Significant	Factors responsible for high EI scores / factors which are significant
3.	Not Significant	Interpersonal EQ-i UC
4.	Significant	Intrapersonal EQ-i Interpersonal EQ-i Adaptability EQ-i Stress Management EQ-i General Mood EQ-i
5.	Not Significant	UC and RC
6.	Significant	Intrapersonal EQ-i UC and RC
7.	Significant	Interpersonal EQ-i General Mood EQ-i
8.	Significant	Intrapersonal EQ-i Interpersonal EQ-i Adaptability EQ-i General Mood EQ-i UC and RC
9.	Significant	Intrapersonal EQ-i Interpersonal EQ-i UC
10.	Significant	Adaptability EQ-i General Mood EQ-i RC
11.	Significant	Intrapersonal EQ-i Interpersonal EQ-i Stress Management EQ-i General Mood EQ-i UC and RC
12.	Significant	Intrapersonal EQ-i Interpersonal EQ-i Adaptability EQ-i General Mood EQ-i UC and RC
13.	Significant	Adaptability EQ-i General Mood EQ-i RC

14.	Not Significant	Intrapersonal EQ-i Stress Management EQ-i RC
15.	Significant	Interpersonal EQ-i Adaptability EQ-i
16.	Not Significant	Interpersonal EQ-i Adaptability EQ-i UC and RC
17.	Not Significant	Interpersonal EQ-i
18.	Not Significant	Interpersonal EQ-i UC and RC
19.	Not Significant	Adaptability EQ-i UC and RC
20.	Significant	Interpersonal EQ-i
21.	Significant	Intrapersonal EQ-i Interpersonal EQ-i Adaptability EQ-i Stress Management EQ-i General Mood EQ-i UC and RC
22.	Significant	Intrapersonal EQ-i Interpersonal EQ-i Adaptability EQ-i General Mood EQ-i
23.	Significant	Intrapersonal EQ-i Stress Management EQ-i General Mood EQ-i
24.	Significant	Intrapersonal EQ-i Interpersonal EQ-i Adaptability EQ-i General Mood EQ-i UC and RC
25.	Significant	UC
26.	Significant	Interpersonal EQ-i Adaptability EQ-i General Mood EQ-i UC and RC is significantly high for residential students
27.	Significant	Intrapersonal EQ-i Intrapersonal EQ-i Adaptability EQ-i Stress Management EQ-i General Mood EQ-i UC and RC
28.	Significant	Intrapersonal EQ-i Intrapersonal EQ-i Adaptability EQ-i Stress Management EQ-i General Mood EQ-i UC
29.	Significant for privately owned trust school students	Interpersonal EQ-i Adaptability EQ-i General Mood EQ-i UC and RC
30.	Significant	Interpersonal EQ-i Adaptability EQ-i General Mood EQ-i

		UC and RC
31.	Significant	Interpersonal EQ-i
		UC and RC
32.	Significant	Intrapersonal EQ-i
		Intrapersonal EQ-i
		Adaptability EQ-i
		Stress Management EQ-i
33.	Significant	UC and RC
34.	Significant	Intrapersonal EQ-i
		Interpersonal EQ-i
		Adaptability EQ-i
		General Mood EQ-i
		UC and RC
35.	Significant	Adaptability EQ-i
		General Mood EQ-i
36.	Significant	Intrapersonal EQ-i
		Interpersonal EQ-i
		Stress Management EQ-i
		Adaptability EQ-i
		General Mood EQ-i
		RC
37.	Significant	Intrapersonal EQ-i
		Interpersonal EQ-i
		Adaptability EQ-i
		General Mood EQ-i
		UC and RC
38.	Significant	Adaptability EQ
		RC
39.	Significant	Interpersonal EQ-i
		Adaptability EQ-i
40.	Significant	Interpersonal EQ-i
		Adaptability EQ-i
		UC and RC
41.	Significant	Intrapersonal EQ-i
		Interpersonal EQ-i
		Adaptability EQ-i
		Stress Management EQ-i
		General Mood EQ-i
42.	Significant	Intrapersonal EQ-i
		Interpersonal EQ-i
		Adaptability EQ-i
		General Mood EQ-i
		UC and RC
43.	Significant	Intrapersonal EQ-i
		Interpersonal EQ-i
		Stress Management EQ-i
		Adaptability EQ-i
		General Mood EQ-i
44.	Significant	No factor is significant
45.	Significant	Stress Management EQ-i
		Interpersonal EQ-i
		Adaptability EQ-i
		General Mood EQ-i and RC
46.	Significant	Intrapersonal EQ-i
		Interpersonal EQ-i
		Adaptability EQ-i

		General Mood EQ-i RC
47.	Significant	Intrapersonal EQ-i Interpersonal EQ-i Adaptability EQ-i General Mood EQ-i RC
48.	Significant	No factor is significant
49.	Significant	Intrapersonal EQ-i Interpersonal EQ-i Stress Management EQ-i General Mood EQ-i UC and RC
50.	Significant	Intrapersonal EQ-i Interpersonal EQ-i Stress Management EQ-i Adaptability EQ-i General Mood EQ-i UC
51.	Significant	Interpersonal EQ-i Stress Management EQ-i Adaptability EQ-i General Mood EQ-i
52.	Significant	Intrapersonal EQ-i Interpersonal EQ-i Stress Management EQ-i Adaptability EQ-i General Mood EQ-i UC
53.	Significant	Factors are not significant
54.	Significant	Factors are not significant
55.	Significant	Intrapersonal EQ-i Interpersonal EQ-i Adaptability EQ-i General Mood EQ-i UC and RC
56.	Significant	Interpersonal EQ-i Stress Management EQ-i Adaptability EQ-i General Mood EQ-i RC
57.	Significant	Intrapersonal EQ-i Interpersonal EQ-i Stress Management EQ-i Adaptability EQ-i General Mood EQ-i UC and RC
58.	Significant	Factors are not significant
59.	Significant	Intrapersonal EQ-i Interpersonal EQ-i Stress Management EQ-i Adaptability EQ-i General Mood EQ-i

Table 10.2: Summary of Significance of the Hypotheses Statements Formulated for Students in the Age Group of 21 – 27 years.

Statement No.	Significant / Not Significant	Factors responsible for significantly high EI scores: factors and / sub scales
3.	Not Significant	Impulse control significant for MCA students
4.	Not Significant	Adaptability EQ-i Flexibility
5.	Not Significant	Impulse control
6.	Significant	Assertiveness
7.	Significant	Adaptability, flexibility.
8.	Significant	Interpersonal EQ-i Empathy Social responsibility Happiness
9.	Significant	Adaptability EQ-i Flexibility
10.	Significant	Adaptability EQ-i Flexibility Social responsibility Happiness
11.	Significant	Adaptability EQ-i Emotional self awareness Flexibility

10.3.2 Correlation analysis results for students in the age group of 9 – 14 years and 21 – 27 years

Fig 10.1 is a diagrammatic representation of the degree of association of EI and its factors. The highest correlation is with adaptability EQ-i and general mood EQ-i with the least degree of association.

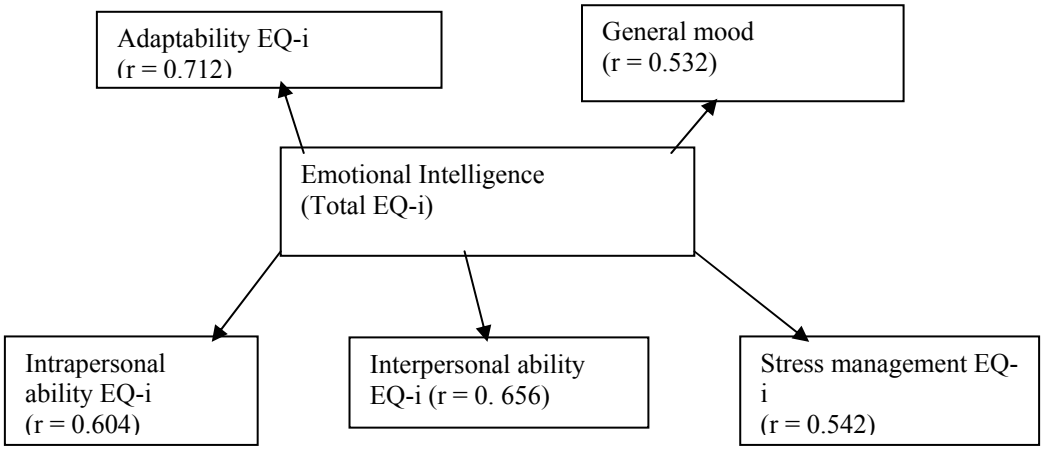

Fig 10.1: Correlation analysis for total EQ-i and its factors for students in the age group of 9 – 14 years

Fig 10.2 is a diagrammatic representation of the degree of association of EI and its factors. The highest correlation is with intra personal EQ-i and adaptability EQ-i with the least degree of association.

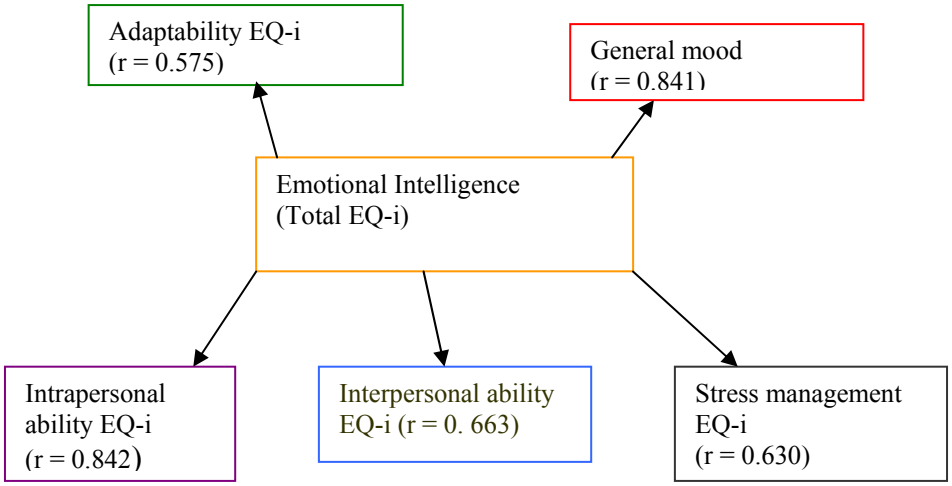

Fig 10.2: Correlation analysis for total EQ-i and its factors for students in the age group of 21 – 27 years

10.3.3 Results of the regression analysis

The regression equation for students in the age group of 9 – 14 years is:

$Y = A + B_1X_1 + B_2X_2 + B_3X_3 + B_4X_4$ ..... (1)

Substituting the values of beta and the constant term:

Y = -28.151 + 0.344(X1) + 0.334 (X2) + 0.277 (X3) + 0.363 (X4)……(2)

The regression equation for students in the age group of 21 – 27 years with 5 factors is as follows: $Y = A + B_1X_1 + B_2X_2 + B_3X_3 + B_4X_4 + B_5X_5$ ..... (3)

Substituting the values of beta and the constant term the regression equation of this study for students in the age group of 21 – 27 years is:

$Y = 7.952 + 0.350(X_1) + 0.153(X_2) + 0.171(X_3) + 0.169(X_4) + 0.266(X_5)$…… (4)

Predictive validity of the equation: Predictive validity is concerned with the extent to which a measuring instrument is related to an independent measure of the relevant criterion. The criterion-related validity is estimated using validity co-efficient, which is the correlation between predictor and criterion score. Validity co-efficient is an index of how well criterion scores can be predicted from the instrument score.

10.3.4 Discriminant analysis results for students

For students in the age group of 9 – 14 years, the discriminant equation explains 99.2% of the variance. The final equation is:

$$\mathbf{Y = Constant + 0.633\ X_1 + 0.530\ X_2 + 0.495\ X_3 + 0.491\ X_4 \quad ..... \quad (1)}$$

For students in the age group of 21 – 27 years, 'p' values are below 0.05 hence the discriminant model is highly significant. Substituting the values the final canonical discriminant equation is obtained which explains 96.6% of the variance.

$$\mathbf{Y = Constant + 0.211\ X_1 + 0.083\ X_2 + 0.122\ X_3 + 0.490\ X_4 - 0.529\ X_5 \quad ..... \quad (2)}$$

10.4 CONCLUDING REMARKS.

This chapter compares the empirical analysis performed for students of the age groups 9 – 14 years and 21 – 27 years. This study serves as a guide in suggesting that without the measure of more intrinsic and complex human behavior, setting up a correlation model for emotional intelligence with strongly influencing factors can actually be a longer journey involving a study of the evolution of human values as students grow physically and mentally.

CHAPTER 11

FORMULATION OF EI RADAR

The chapter discusses the formation of EI radar and EI competency ladder, which in conjunction form the EI curriculum that is student specific.

11.1 INTRODUCTION

There are important issues and challenges facing education at the public school level. While academic achievement and scholastic performance have been the primary thrust of recent reform efforts, other equally important issues have taken center stage in education. Physical safety, healthy emotional development, standards of excellence and equalitarianism, a global economy and world perspective, changing workforce demands and the nature of work, multi-cultural and diversity issues, retention through graduation, and personal/career needs of students and educators are just a few examples. These important issues require a different and more balanced perspective of accountability and quality standards – to include emotional learning and affective domain.

EI radar and EI ladder were formulated to address the above-mentioned issues to some extent.

Cluster analysis is the means to one of these tools of discovery (EI radar). It may reveal associations and structure in data that, though not previously evident, nevertheless are sensible and useful once found. The results of cluster analysis may contribute to the definition of a formal classification scheme, such as indicating rules for assigning new cases to classes for identification and diagnostic purposes. Thus we could summarize that cluster analysis is an exploratory data analysis tool which aims at sorting different objects into groups in a way that the degree of association between two objects is maximal if they belong to the same group and minimal otherwise.

Clustering techniques have been applied to a wide variety of research problems. In general, whenever one needs to classify a "mountain" of information into manageable meaningful piles, cluster analysis is of great utility. In section 6.9 and 8.9 cluster analysis revealed 4 clusters for school students (aged 9 -14 years) and professional students (aged 21 – 27 years). The formulation of the EI radar, ladder and curriculum could be specified in a figure 11.1 below.

11.2 FORMULATION OF EI RADAR

Radar is "radio, detection and ranging" (Wikipedia, 2008). Radar is a system that uses electromagnetic waves to identify the range, altitude, direction, or speed of both moving and fixed objects such as aircraft, ships, motor vehicles, weather formations, and terrain. In simple terms, a radar system is used to detect the position and / or movement of objects. Much like a map, our radar – EI radar displays the position of scores of EI and its factors for 4 clusters formed in cluster analysis. This tool presents and relates to all of the factors through which an individual can look for opportunities to increase EI. Based on the study conducted till date we have developed and applied a new framework called the EI radar.

The following are the objectives of EI radar

a. **Understanding:** Broaden and deepen the construct of EI.

b. **Managing:** Identify dimensions, which contribute to managing EI.

c. **Improving:** Identify best practices to improve EI related to culture, ethnicity of students.

d. **Institutionalizing:** Develop framework for enhancing EI of students.

The usages of EI radars are explained in section 11.2.3.

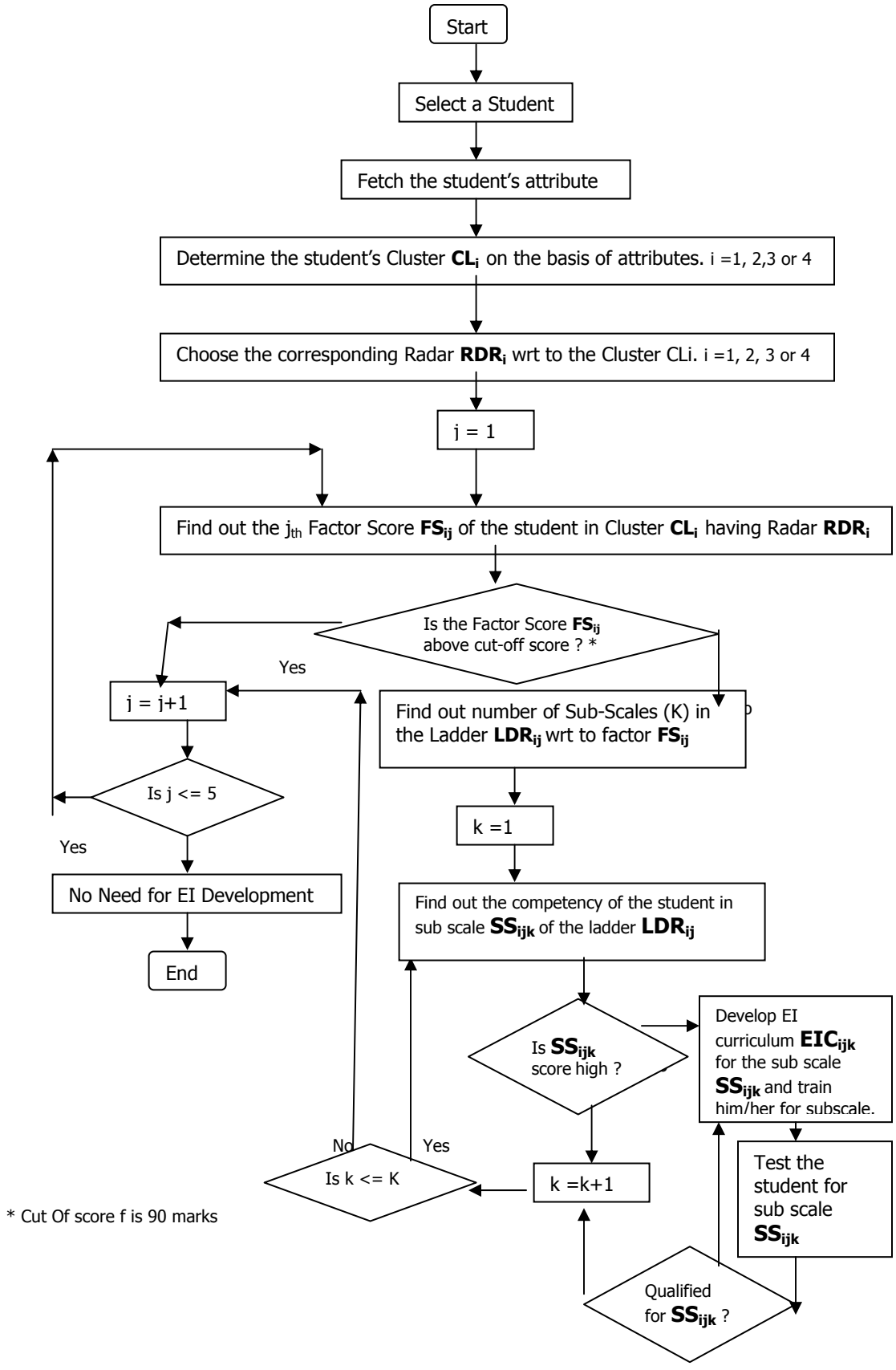

Fig. 11.1: Computer based Flow Diagram

11.2.1 Radar for school students (9 – 14 years)

Based on the empirical analysis as discussed in chapter 6 section 6.6, various factors affecting EI helped to identify and define the radar's 5 dimensions which were:

1. Intrapersonal EQ-i
2. Interpersonal EQ-i
3. Stress management EQ-i
4. Adaptability EQ-i
4. General mood EQ-i

We have identified 4 clusters and the cluster components are age, gender, father's occupation, mother's occupation, father's literacy, mother's literacy and income. Similar to a map, the EI radar consists of five factors that serve as anchors to guide academicians to identify a methodology that would surely increase EI. EI radars are shown in Fig 11.2 – 11.5 for students (age group 9- 14 years).

Radars 1 and 2 have low scores of all the five factors - intrapersonal EQ-i, interpersonal EQ-i, adaptability EQ-i and general mood EQ-i resulting in subsequent display in radar 1 and radar 2. (Fig 11.2 and Fig 11.3)

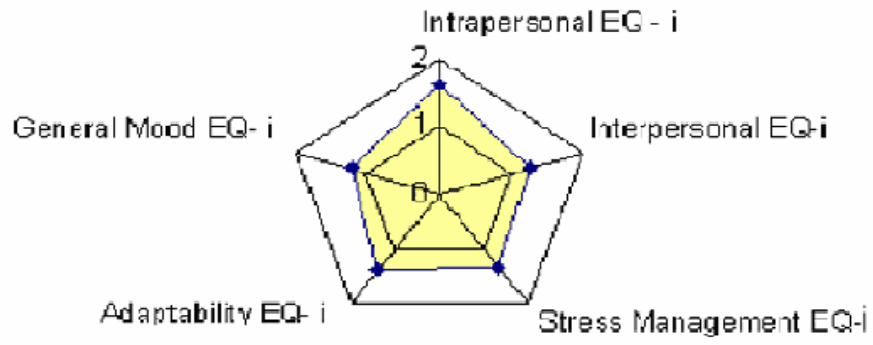

Fig 11.2: EI Radar for Students (9 – 14 years) in Cluster 1

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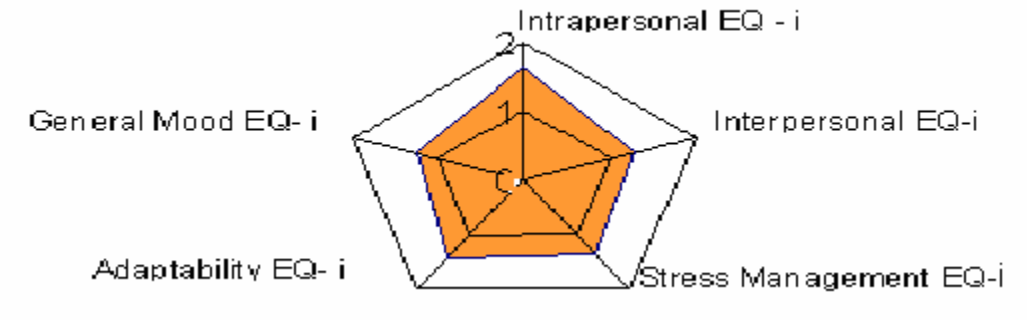

Fig 11.3: EI Radar for Students (9 – 14 years) in Cluster 2

Clusters 3 and 4 have high scores of intrapersonal EQ-i, interpersonal EQ-i, adaptability EQ-i and general mood EQ-i resulting in subsequent display in radar 3 and radar 4 (Fig 11.4 and Fig 11.5).

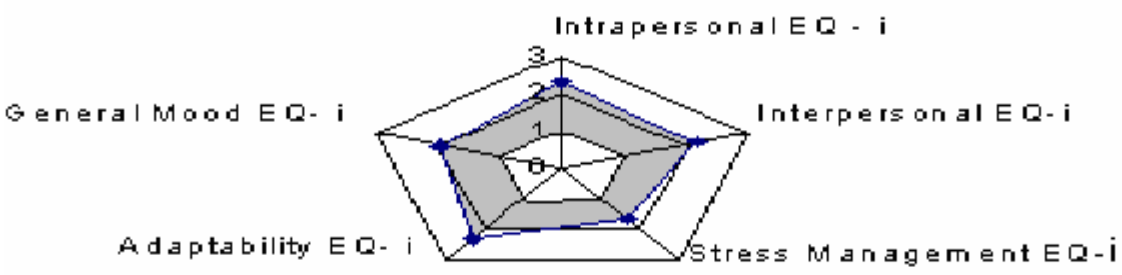

Fig 11.4: EI Radar for Students (9 – 14 years) in Cluster 3

We are also investigating how academicians and EI practitioners can use the EI radar to construct a strategic approach to improve EI of students.

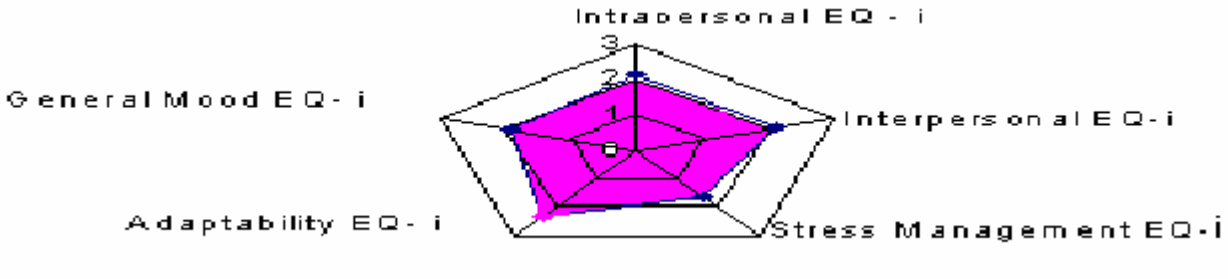

Fig. 11.5: EI Radar for Students (9 – 14 years) in Cluster 4

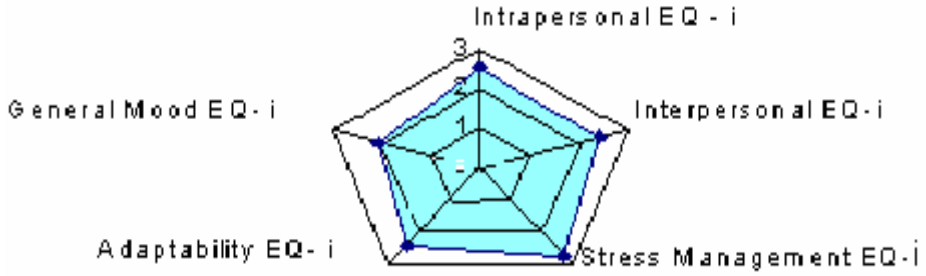

Fig. 11.6: EI Radar for Students (21 – 27 years) in cluster 1

Specifically, the radar could help identify the strengths and weaknesses of each student as well as any promising capabilities, those overlooked by their parents and teachers.

11.2.2 Radar for professional students (21 – 27 years)

Based on the empirical analysis as discussed in chapter 8 section 8.6, various factors affecting EI helped to identify and define the radar's 5 dimensions which were:

a. Intrapersonal EQ-i
b. Interpersonal EQ-i
c. Stress management EQ-i
d. Adaptability EQ-
d. e. General mood EQ-i

We have identified 4 clusters and the cluster components are age, gender, father's occupation, mother's occupation, father's literacy, mother's literacy and income. Similar to a map, the EI radar consists of five factors that serve as anchors to guide academicians to identify a

methodology that would surely increase EI. EI radars are shown in Fig 11.6 – 11.9 for students (age group 21- 27 years).

Radars 5 and 6 have high scores of all the five factors - intrapersonal EQ-i, interpersonal EQ-i, adaptability EQ-i and general mood EQ-i resulting in subsequent display in radar 5 and radar 6. (Fig 11.6 and Fig 11.7)

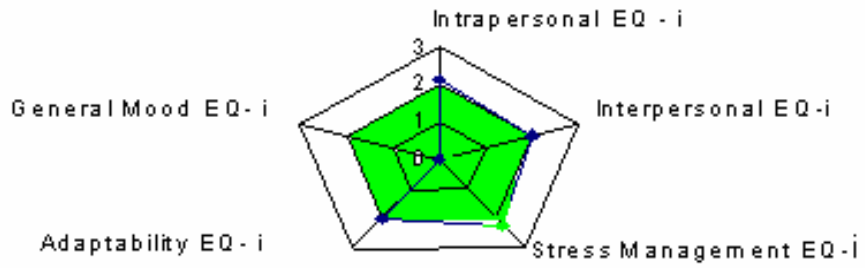

Fig. 11.7: EI Radar for Students (21 – 27 years) in Cluster 2

Radars 5 and 6 have low scores of all the five factors - intrapersonal EQ-i, interpersonal EQ-i, adaptability EQ-i and general mood EQ-i resulting in subsequent display in radar 7 and radar 8. (Fig 11.8 and Fig 11.9)

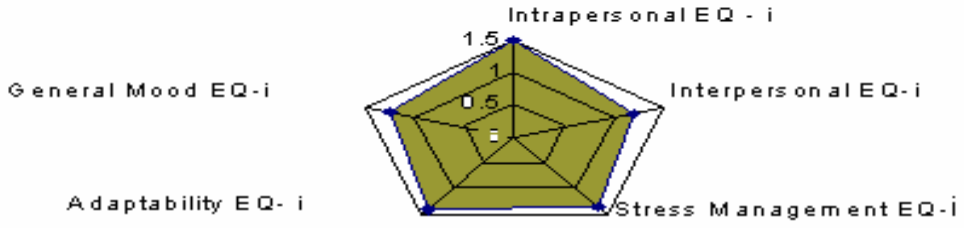

Fig. 11.8: EI Radar for Students (21 – 27 years) in Cluster 3

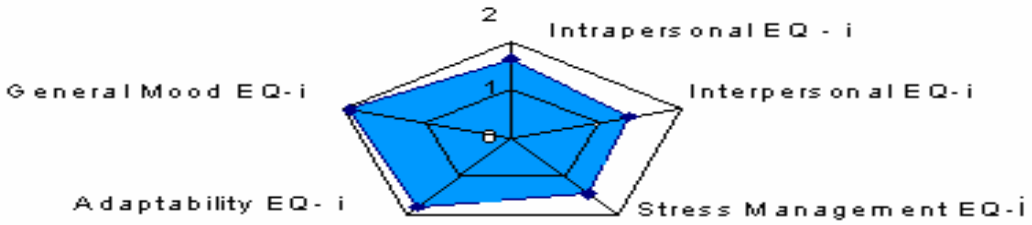

Fig. 11.9: EI Radar for Students (21 – 27 years) in Cluster 4

11.2.3 Usages of EI radar

In this research, we are investigating how schools can use the EI radar to construct a strategic approach to competency and skills development. Specifically, the radar could help a school determine how it's current scores of EI and the driving factors stacks up. Using that information, the schools could then identify opportunities and prioritize on which dimensions to focus its efforts. Such analyses can reveal the strengths and weaknesses of each student as well as any promising opportunities, particularly those overlooked by the schools and parents as a whole. Traditionally, most schools do not engage in identifying the EI of students are the result of simple inertia or ignorance. But when a school identifies and pursues neglected EI dimensions, it can change the basis of human development, because each dimension requires a different set of capabilities that cannot be developed or acquired overnight. And developing along one dimension often influences choices with respect to other dimensions. Summarily, we can use the EI radar to visualize systematically, to brainstorm and explore the dimensions of EI , to diagnose and identify students with low scores and to prescribe and suggest a curriculum for EI development. This radar may facilitate, develop and navigate the position of each individual student to identify the strengths and weaknesses. This radar will promote a thorough understanding of EI. As discussed earlier, prior research has taken views on EI that tend to focus

on what constitutes EI. We need to consider the how, who and where of EI applications. This EI radar makes each factor of EI operational and is a pragmatic methodology for creating EI maps for each and every individual student. We have created a holistic conceptual framework through construction of radar to visualize, diagnose and improve the EI of an individual student. Ultimately, the EI radar could guide the way academicians manage the increasingly complex student behavior and add value by building HC. In doing so, the framework of EI radar then EI ladder discussed in the subsequent section could become an important tool for students, EI trainers and EI practitioners — anyone seeking development through EI.

11.3 EI COMPETENCY LADDER

Spencer and Spencer (1993) defined competency as an underlying characteristic of an individual that is causally related to criterion – referenced effective and / or superior performance in a job or situation. Underlying characteristic means the competency is a fairly deep and enduring part of a person's personality and can predict behavior in a wide variety of situations and job tasks. "Causally related" means that a competency causes or predicts behavior or performance. "Criterion referenced" means that the competency actually predicts who does something well or poorly as measured on a specific criterion or standard. Boyatzis (1982) defines a competency as an underlying characteristic of a person, which results in effective or superior performance. Competence is also defined as a set of behavior patterns that an incumbent needs to bring to a position in order to perform its tasks and functions in the delivery of desired results and outcomes. (Bartram et al, 2002). A competency is a characteristic of an individual, which can be measured. It differentiates between superior and average or between effective and ineffective performances. To summarize competencies are certain characteristics and abilities that enable an individual to perform appropriate actions. To increase the EI of students a competency ladder is

constructed based on the degree of association found between EI and its factors with correlation analysis. Goleman (1995) identified EI as a set of competencies by Goleman (1995). Similarly, our research has identified 5 competencies of EI: intrapersonal ability, interpersonal ability, stress management, adaptability and general mood.

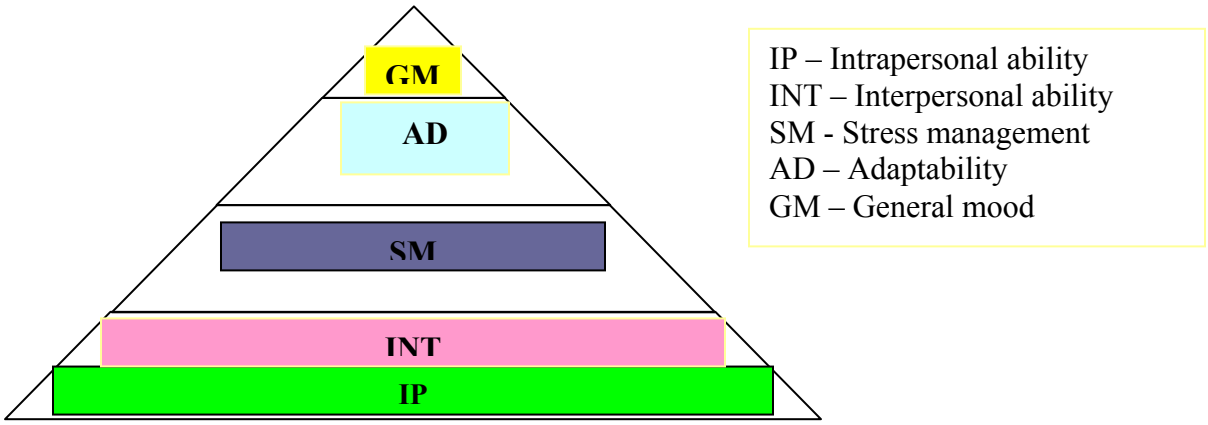

Fig 11.10: Importance of Factors of EI

Fig 11.10 portrays the priority order of factors of EI for students. The priority is established based on correlation analysis.

Based on the earlier figure of importance of factors of EI, an EI competency ladder is constructed as presented in Fig 11.11 that discusses the steps of the ladder, which one needs to master one by one.

Each competency identified earlier is further characterized by specific skills.

- To master the competence of IP one needs to master the art of assertive communication (step 1) and build high self-esteem (step 2).
- To master the competence of INT one needs to master the self independence (step 3) and empathetic listening (step 4). Building social skills and strengthening relationships (step 5) is also crucial if one needs to master the competence of INT.

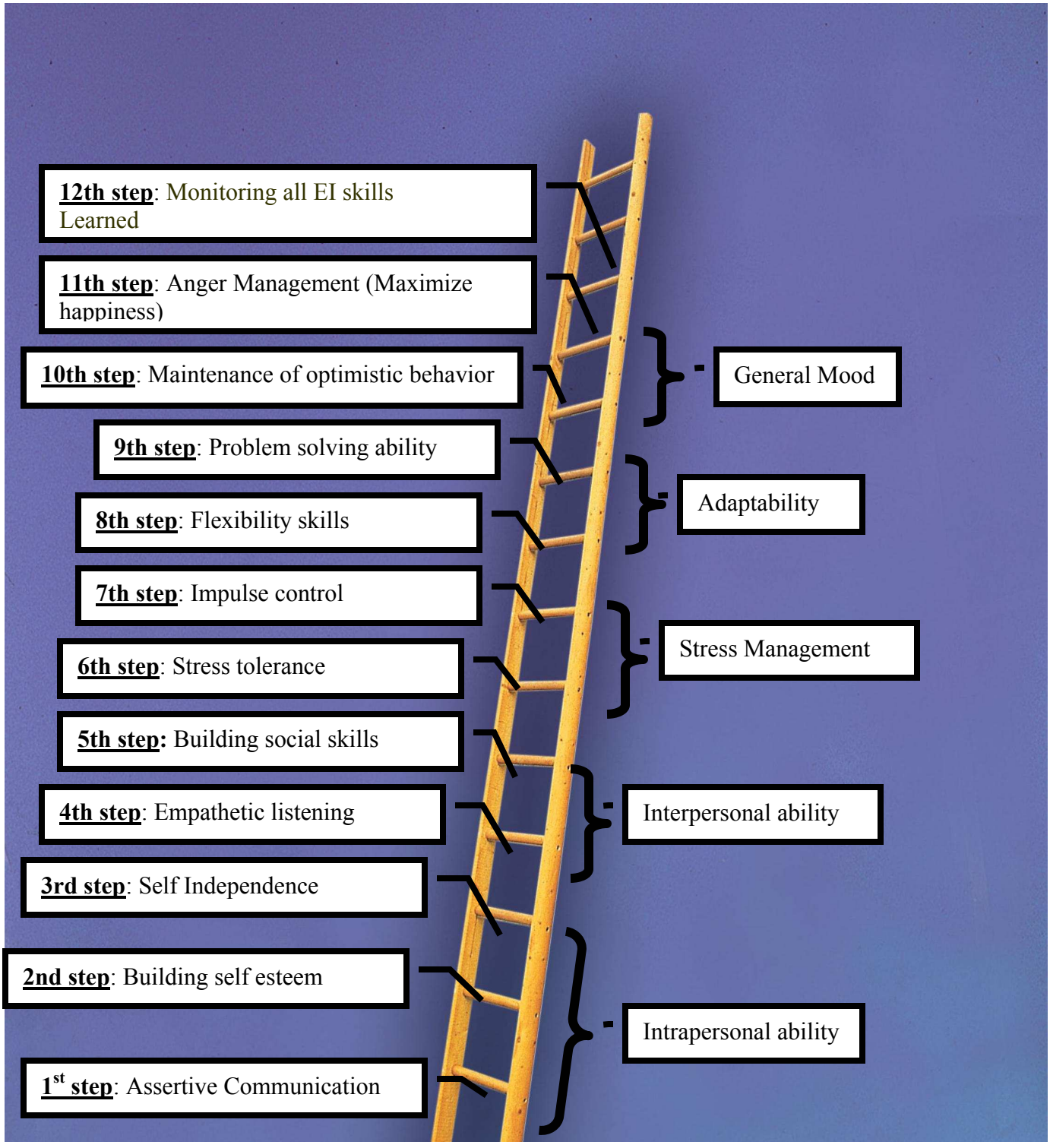

Fig 11.11: EI Competency Ladder

- To master the competence of SM, which discusses methodology of tolerating and managing stress, we need to climb step 6 and step 7, which are stress tolerance and impulse control respectively.
- To master the competence of AD we need to climb step 8 – flexibility skills and step 9 – problem solving ability.
- To master our last competence – GM we need to maintain optimistic behavior (step 10) and manage anger (maximize happiness) (step 11).
- The last step analyzes the level of incorporation of the 11 steps in an individual and thus monitors the level attained with practical suggestions. The EI radar and the EI ladder in conjunction form different curricula, which are student specific.

11.4 EI CURRICULA

Based on the dimensions identified in the EI radar and competencies in the EI competency ladder, an EI curriculum is designed to raise the EI scores of students.

Methodology: These steps would be incorporated in students with the help of case studies, exercises, live demonstrations and lectures

Duration: The steps vary in duration as the omission of a particular step depends on the individual's EI score.

**** The following are the curriculum codes for students in the age group of 9 -1 4 years***:

The data base representation on the compact disc comprises of the description of the student with curriculum code C1 – C 27. Table 11.1 represents the rationale for elimination of steps if the scores are high.

Table 11.1: Rationale of Assignment of Curriculum Codes for Students (9 – 14 years)

Curriculum code	Intra personal ability	Inter personal ability	Stress Management	Adaptability	General mood
C 1	< 90	> 89	> 69	> 89	> 69
C 2	< 90	< 90	> 69	> 89	> 69
C 3	< 90	< 90	< 70	> 89	> 69
C 4	< 90	< 90	< 70	< 90	> 69
C 5	< 90	< 90	< 70	< 90	< 70
C 6	> 89	< 90	> 69	> 89	> 69
C 7	> 89	< 90	< 70	> 89	> 69
C 8	> 89	< 90	< 70	< 90	> 69
C 9	> 89	< 90	< 70	< 90	< 70
C 10	> 89	> 89	< 70	< 90	> 69
C 11	> 89	> 89	< 70	> 89	> 69
C 12	> 89	> 89	< 70	< 90	< 70
C 13	> 89	> 89	> 69	< 90	> 69
C 14	> 89	> 89	> 69	> 89	< 70
C 15	> 89	> 89	> 69	< 90	< 70
C 16	< 90	> 89	< 70	> 89	> 69
C 17	< 90	> 89	> 69	< 90	> 69
C 18	< 90	> 89	> 69	> 89	< 70
C19	> 89	< 90	> 69	< 90	> 69
C 20	> 89	< 90	> 69	< 90	< 70
C 21	> 89	> 89	> 69	> 89	> 69
C 22	< 90	< 90	> 69	< 90	> 69
C 23	< 90	> 89	< 70	< 90	< 70
C 24	< 90	> 89	< 70	< 90	< 70
C 25	> 89	< 90	> 69	< 90	> 69
C 26	< 90	< 90	> 69	< 90	< 70
C 27	< 90	< 90	< 70	< 90	> 69

. **** The following are the curriculum codes for students in the age group of 21 -27 years**:*

One follows and masters the step and then goes to the next step.

a. If intrapersonal ability scores are high, step 1, 2 and 3 could be omitted. Step 4 – 12 is to be followed.

b. If interpersonal ability scores are high, step 4 and 5 could be omitted. Step 1, 2 and then step 6 - 12 is to be followed

c. If stress management scores are high, step 6 and 7 could be omitted. Step 1 - 5 and then step 8 - 12 is to be followed. .

d. If adaptability scores are high, step 8 and 9 could be omitted. Step 1 - 7 and then step 10 - 12 is to be followed.

Table 11.2: Table showing the Rationale of Assignment of Curriculum Codes for Students (21 – 27 years)

Curriculum code	Intra personal ability	Inter personal ability	Stress Management	Adaptability	General mood
C 1	< 140	< 100	< 90	> 59	> 59
C 2	> 139	< 100	< 90	< 60	> 59
C 3	> 139	> 99	< 90	< 60	> 59
C 4	> 139	> 99	< 90	> 59	> 59
C 5	< 140	> 99	< 90	> 59	> 59
C 6	< 140	> 99	> 89	> 59	< 60
C 7	> 139	> 99	< 90	> 59	< 60
C 8	> 139	> 99	> 89	> 59	> 59
C 9	> 139	> 99	< 90	> 59	> 59
C 10	> 139	> 99	> 89	< 60	> 59
C 11	< 140	> 99	> 89	< 60	< 60
C 12	< 140	< 100	< 90	> 59	< 60
C 13	< 140	> 99	< 90	> 59	< 60
C 14	> 139	< 100	< 90	> 59	< 60

e. If the scores for general mood are high then, step 10 could be omitted. Step 1 - 9 and then step 11 - 12 is to be followed.

Table 11.2 represents the rationale for elimination of a step if the scores are high for students in the age group of 21 -27 years.

One follows and masters the step and then goes to the next step.

a. If intrapersonal ability scores are high, step 1 and 2 could be omitted. Step 3 – 12 is to be followed.
b. If interpersonal ability scores are high, step 3, 4 and 5 could be omitted. Step 1, 2 and then step 6 - 12 is to be followed.

c. If stress management scores are high, step 6 and 7 could be omitted. Step 1 - 5 and then step 8 - 12 is to be followed.
d. If adaptability scores are high, step 8 and 9 could be omitted. Step 1 - 7 and then step 10 - 12 is to be followed.
e. If the scores for general mood are high then, step 10 could be omitted. Step 1 - 9 and then step 11 - 12 is to be followed.

EI understands cognitively why they engage in effective and ineffective behaviors, and apply this wisdom in their daily lives and in the workplace.

The following are the five steps career counselors can use in helping their students gain personal, social and career competence skills (discussed in section 4.3):

a. Understand the importance of EI skills. It is important to talk to the student about the importance of EI skills in attaining a job and succeeding in today's workplace. Students can benefit from seeing the EI framework and by identify situations in which these EI skills might be helpful.
b. Identify deficits in EI skills. At this point, trying to assess the student's EI weaknesses is critical. This can be accomplished by administering an EI assessment such as the Emotional Quotient Inventory (Bar-On 1997a) for college students and Emotional Quotient Inventory youth version (Bar-On and Parker 2000).
c. Assess the effect of EI skill deficits on career development. Once a skill deficit area is identified, a student usually needs assistance in exploring how lack of this skill is affecting their career development and how it could keep them from being successful in the workplace.

d. Usage of EI skills more effectively. In the career counseling process, students need help in learning to be more effective using the El skill. The role of the career counselor becomes one of a teacher and a model for the skill.

e. Practice of the EI skill. Social learning theorists (Vygotsky, 1978) believe that the best learning takes place not in isolation but in various social settings. On school and college campuses, there are immense opportunities to practice EI skills. Participation in hobbies, in leisure activities, in clubs and organizations can provide excellent opportunities for students to practice EI skills. In addition, interactions with others on campus or in residence halls can be opportunities to practice interpersonal skills.

To conclude, the overall physical health of such students would most likely be superior to students low in EI. If academia were indeed to incorporate an explicit focus on emotional intelligence, via what avenues could such a focus be implemented? One avenue is to require one or more classes on emotional intelligence, most likely as a lower division requirement, just as some universities require courses on critical thinking. Another avenue is to encourage the inclusion of a focus on emotional intelligence into existing courses where such a focus might be directly relevant (for example, teaching conflict management skills in a psychology or sociology class).

In summary, the inclusion of a focus on emotional intelligence as part of the standard curriculum could lead to a variety of positive personal, social, and societal outcomes. Increasing emotional intelligence may not only facilitate the learning process, improve career choice and likelihood of success, but could also enhance the probability of better personal and social adaptation in general.

The educational experience would tend to be more balanced or holistic, as it would focus on educating the whole person. There could also be beneficial effects on the university milieu, improving the environment in which the educational experience occurs.

Emerging interdisciplinary research and studies from education, business, psychology, and behavioral medicine are showing clear and significant contributions of EI to human performance, personal health, and resilience.

Emotional knowledge, skills, and intelligence hold a major key to improving education and helping students, teachers, faculty, and student development professional attain higher degrees of achievement, career success, leadership, and personal well being.

11.5 CONCLUDING REMARKS

EI radars are constructed based on cluster analysis of students. Based on significant factors of EI, sets of competencies are identified that increases EI scores. These competencies are presented as EI competency ladder.

The steps of the EI competency ladder will be useful to coach and counsel the students at a very young age to upgrade to higher level of EI. Accordingly, educational policy framework can be formulated for students to make them successful in life. Thus the study contributes towards the HCD of India. These findings could be instrumental in designing interventions for those students who need to either reduce socially inappropriate emotion or induce socially appropriate emotions in themselves for social success. Further research, building from this model, must investigate the aspect of validating the scoring range of the instrument (very high, high and low) in defining one's level of emotion management ability. A training manual should be developed using emotion management techniques and strategies, as an intervention or as social curriculum training

CHAPTER 12

SUMMARY AND CONCLUDING REMARKS

12.1 SUMMARY

Although much work has gone into the development and applications of EI, there has been a general lack of systematic analysis of the claim that EI increases individual performance over and above the level expected from traditional notions of general intelligence. Therefore, in the present study, we have examined the impact of EI on individual performance analyzing the relation of EI with its factors.

The theme of the thesis undertaken here is explained in terms of significance, rationale and contemporary importance. We identified major objective of this thesis as advancing the frontier of knowledge in EI by way of enriching the literature and focusing our attention to a very rarely studied area of EI of students in a developing country like India. We concentrated on delineation of factors affecting EI in Indian academic and socio-economic environment of a variety of schools and colleges and establishing empirical relationships between EI and the driving factors. We delved into the state-of-the-art of EI and traced the history, evolution of intelligence in different stages; and myriad definitions and benefits of applications of EI as propounded by very eminent researchers and practitioners. Models and measures of EI were critically assessed. Of the two types of models reported in literature – ability and trait; we have followed the latter. A comparative analysis of the measures of EI was attempted.

Our study is concerned with school and college students of India, who are academically being developed to contribute to the human capital inventory. Our postulate is that human capital inventory of a nation comprises of many items, but the most important item is EI. We presume that EI can be nurtured in the students at an early age. Our basic proposition is that in knowledge

based, globally interconnected society we require individuals and teams who will demonstrate personal and professional competencies in the workplace. One of the primary objectives of this thesis is to establish a pioneering direction for the Indian education sector to prepare youths to be outstanding professionals.

Researchers have proved that when students are not appropriately developed, the societal cost increases. Higher levels of unemployment, lower earnings and increased health problems are the primary reasons for the lack of appropriate human development. So researchers have created awareness of the need to study a broader range of potential predictors of intelligence. Socio economic factors, peer relationships and the quality of the institutions have all been linked to the academic success of the students. Bar-On has conducted studies along with Parkar as well as with other researchers to investigate this aspect. So we made a deliberate and rational choice of Bar – On's model for our study.

This study is a diagnostic research. In such a diagnostic research, self-report instrument is administered personally. It is a cross sectional, field-setting study. Cross sectional studies are carried out once and represent a snapshot at one point in time. Our research has been conducted in real life situations. Hence, it is field setting statistical study, covering 5464 school students (9 -14 years) and 752 college students (21 -27 years) representing the Indian pluralistic diversity of the socio-economic conditions, parental back grounds, institutional administrative structure and processes, academic instruction and examination pattern, ethnicity, religious beliefs and gender. These samples statistically explain the relevance, significance, magnitude and dimensions of the thesis undertaken here.

The statistical analysis for students in the age group of 9 -14 years were performed. Reliability assessment of EI, UC and RC and a detailed correlation analysis followed by regression analysis

were conducted to determine the strength of each factor and then to construct a predictive equation to represent EI. Many regression experiments were conducted to strengthen the R square value. Next, the category of EI of students was determined by discriminant analysis. Lastly cluster analysis was carried out, which lead to grouping of students based on homogeneity. The hypotheses statements for different classifications of school students were formulated and tested with an independent sample 'T' test for gender and age group followed by analysis of variances for examining significant differences of EI scores in the various classifications of students.

Similarly, statistical analysis was conducted for students in the age group 21 – 27 in a similar manner starting with descriptive statistics, assessment of reliability, correlation analysis, regression tests, discriminant analysis, cluster analysis and hypotheses formulation and validation.

A comparative analysis of statistical results obtained for students in the age group 9 – 14 years and 21 – 27 years was carried out. Marked differences were observed in case of the factors predicting the regression equation for both types of students.

Many researchers have viewed EI as critical to life success. Viewed from this perspective, we postulated that EI would be the compass by which the students may set their direction and the schools preparing them may adopt EI as its core curriculum to progress forward. EI will be the center of success of an individual and hence investment is necessary to teach students about the various factors of EI and the strategies for mastering them. Cluster analysis revealed that there are four clusters signifying the variances in family income, parental occupation and education, age, gender etc. This analysis is a pointer to the educational policy makers to appropriately understand the imperatives of each cluster and innovate school and college curricula accordingly. The formation of clusters is the most focal points for description and study of factors that drive EI of students that represent diversity and plurality of India.

We constructed a framework called the EI radar. This presents and relates all of the factors through which a school can look for opportunities to navigate the position of a student from time to time. We also constructed an EI competency ladder.

The purpose of this research is threefold. First, based on our evaluation of the available EI models and measures according to their utility, we made a choice of instruments ideally suited for school and college students. Secondly we set out to study the statistical significance of these instruments and established empirical relationships representing significant drivers of EI. Finally, we formulated an EI radar and EI ladder to guide the educators, parents, students and policy makers, which can facilitate future human capital formation in a rapidly developing economy like India.

12.2 CONCLUSIONS

The notion of EI with its wide applicability to many organizational issues such as performance, commitment, leadership etc. has considerable appeal to researchers. However, a few academic studies have been conducted to establish empirical relationships of EI with significant factors for students pursuing school and college education. Although attempts have been made by some researchers in the past to define adequate predictors of educational and career success, no empirical findings and prediction equations are available. Standardized tests have been used to measure both mathematical and language related skills, other types of intelligence such as interpersonal, intrapersonal, adaptability, general mood and stress management have not been adequately validated.

The primary purpose of this thesis was to empirically assess the efficacy of EI and its drivers for students representing diverse conditions of India. Thus the final purpose of the research is to create a platform that can practically be used to measure EI and its significant factors and thus

provide guidance in the development of youths pursuing career oriented studies to build modern India.

Our conceptualization and the research design included appraisal of factors identified by Bar – On. The following remarks are significant in our research:

- Three different perspectives of EI such as cognitive perspective, non-cognitive perspective and neurological perspective relating to emotion and intelligence were explained in the literature review. Cognitive perspective deals with individual's abilities, potentials and intelligences, non-cognitive perspective deals with individual's traits and personalities and neurological perspective deals with the linkages with the primitive mind and the rational mind.
- Intelligence has evolved in four stages since 17th century till date. The four stages are termed as: development of IQ scale, expansion of theories of intelligence, development of EI and corporate cognition.
- Self-report measures assume that nobody apart from the individual is the best judge of self and their behavior and therefore self-assessments provide appropriate evaluation. However assumptions are challenged.
- This study follows the relational model of database systems that organizes and represents data in the form of tables and relations. For easy retrieval of data of an individual student, data base development was done using Visual basic®.
- Significant factors are derived from literature such as intrapersonal, interpersonal, stress management, adaptability and general mood This study also emphasizes the importance of two aspects of communication namely – level of understanding communication ability concentrating on the excellence and reasoning in communication and level of

responsibility in communication concentrating on the responsibility and sensitivity of the individual in communicating.

- The empirical analysis revealed the association and the strength of association of each of the factors. Correlation analysis leads to the formation of EI competency ladder. Five factors had the maximum degree of association with EI for both age groups of students (9- 14 years and 21 – 27 years). The correlation with communication ability was low but it signifies symptomatic relationship.
- Regression analysis found four of the five factors (excepting general mood) significant for 9 – 14 year students and all the five factors significant for 21 – 27 years age group. The predictive power of the equation yields similar results.
- Discriminant analysis established the equation predicting the categories of EI whether very high EI (scores above 110), high EI (scores between 90 and 110) and low EI (scores below 90).
- 4 clusters were formed using cluster analysis lead to formation of EI radar, which along with EI competency ladder created the basis for EI curriculum.
- EI radar with EI ladder leads to the formation of EI curriculum that is proactive in providing feedback and an effective tool in coaching and counseling.
- The EI scores are assessed for the various classifications of students by framing varied hypotheses.

a. Age and EI:

✓ Age group 9-12 years have a high measure of EI than age group 13 -14 years and intrapersonal EQ-i and stress management EQ-i in the age group 9 -12 years have higher measures. It could be attributed to the physical and mental changes in the teen age

leading to lesser EI, intrapersonal EQ-i and stress management EQ-i as compared the age group 9 –14 years. In contrast factors UC and RC have high scores in the age group 13 - 14 years as level of UC and RC develops and matures with time.

- ✓ Age groups 21 - 24 years have a high measure of EI than age group 25 - 27 years and factors intrapersonal EQ-i and stress management EQ-i in the age group 21 - 24 years have higher measures.

b. Gender and EI:

- ✓ Females (age group 9 – 14 years) have a high measure of EI, interpersonal EQ-i, adaptability EQ-i and general mood EQ-i than males. This is coherent with results obtained in previous studies.
- ✓ Females (age group 21 – 27 years) have a high measure of EI, interpersonal EQ-i and general mood EQ-i than males of the same group.

c. Father's occupation and EI of their child (9- 14 years):

- ✓ Urban school students with father working for lowly jobs or who manages their business have significantly higher scores of EI than a rural school student with their father having the same occupation. It might be attributable to the degree of exposure, the sophistication, influence of western culture being more in urban areas in comparison to the rural areas.
- ✓ A student of non residential school with father working for lowly jobs, in services, who manages their business or who is a professional have significantly higher scores of EI than a residential school student with their father having the same occupation.
- ✓ Non tribal school students with father working for lowly jobs, in services or who is a professional have significantly higher scores of EI than tribal school students with their father having the same occupation.

- ✓ Students of schools adhering to the central board examination pattern with father working for lowly jobs or who is a professional have significantly higher scores of EI than students of schools adhering to the state board examination pattern with their father having the same occupation.
- ✓ Students of privately owned trust schools with father working for lowly jobs have significantly higher scores of EI than students of government schools with their father having the same occupation.

d. Mother's occupation and EI of their child (9- 14 years):

- ✓ Professional mothers have their child having higher EI scores in comparison to a child whose mother is a housewife, is in service or manages their own business.
- ✓ Urban school students with mother as a housewife have significantly higher scores of EI than a rural school student whose mother is a housewife too
- ✓ A student of non residential school with mother is in service or who is a professional have significantly higher scores of EI than a residential school student with their mother having the same occupation.
- ✓ Non-tribal school students with mother as a housewife or who manages a business have significantly higher scores of EI than tribal school students with mother being a housewife or a businesswoman.
- ✓ Students of schools adhering to the central board examination pattern with mother as a professional have significantly higher scores of EI than students of schools adhering to the state board examination pattern with their mother too being a professional.

- ✓ Students of privately owned trust schools with mother as a housewife or in service have significantly higher scores of EI than students of government schools with their mother having the same occupation.

e. Father's occupation and EI of their child (9- 14 years):

- ✓ Urban school students with father studied till the 10^{th} standard or who is a graduate have significantly higher scores of EI than a rural school student with their father having the same level of education.
- ✓ A student of non residential school with father studied till the 10^{th} standard or who is a graduate / post graduate have significantly higher scores of EI than a residential school student with their father having the same level of education.
- ✓ Non tribal school students with father studied till the 10^{th} standard or who is a graduate / post graduate have significantly higher scores of EI than tribal school students with their father having the same level of education.
- ✓ Students of schools adhering to the central board examination pattern with father studied till the 10^{th} standard or who is a post graduate have significantly higher scores of EI than students of schools adhering to the state board examination pattern with their father having the same level of education.
- ✓ Students of privately owned trust schools with a graduate father have significantly higher scores of EI than students of government schools with their father having the same level of education.

f. Mother's occupation and EI of their child (9- 14 years):

- ✓ Urban school students with mother studied till the 10th standard have significantly higher scores of EI than a rural school student with their mother having the same level of education.
- ✓ A student of non-residential school with mother as a graduate / postgraduate have significantly higher scores of EI than a residential school student with their mother having the same level of education.
- ✓ Non tribal school students with mother studied till the 10th standard or who is a graduate / post graduate have significantly higher scores of EI than tribal school students with their mother having the same level of education.
- ✓ Students of schools adhering to the central board examination pattern with mother studied till the 10th standard or who is a post graduate have significantly higher scores of EI than students of schools adhering to the state board examination pattern with their mother having the same level of education.
- ✓ Students of privately owned trust schools with a post graduate mother have significantly higher scores of EI than students of government schools with their mother having the same level of education.

g. Family income and student's EI (9- 14 years)

- ✓ Urban school students with any of the 3 categories of family income had significantly higher scores of EI than a rural school student with similar levels of family income.
- ✓ Students of schools adhering to the central board examination pattern, non residential school students and non tribal students with family income above Rs. 500,000 have significantly higher scores of EI than students of schools adhering to the state board

examination pattern, residential school students and tribal students with family income above Rs. 500,000 too.

h. Students (age group 21 – 27 years) and EI**.**

There wasn't a significant difference in the EI scores of students in the age group of 21 – 27 years. The factors and subscales were found to be varying for the different category of students.

- ✓ EI scores of postgraduate management students, whose father has expired, are significantly different from the EI scores of students studying for the engineering degree and masters in computer application course whose father has expired. MCA students were found to be high in impulse control.
- ✓ Residential students are able to adapt to an environment better than non-residential students with high levels of adaptability with flexibility as the significant subscale. In residential and non - residential students their father had expired.
- ✓ EI scores of students studying for university-approved courses, whose father has expired, are found to be significantly different from the EI scores of students studying in colleges providing autonomous courses whose father has expired with impulse control being the important subscale.
- ✓ Engineering students whose mother is housewives have higher degree positive and assertive communication as compared to Management and MCA students.
- ✓ Adaptability was found to be significantly high for students studying for university approved courses whose mother has studied till 10^{th} standard as compared to the scores of students studying in colleges providing autonomous courses. Flexibility and emotional self-awareness were the significant subscales.

This study also concludes that EI is the aggregation of the innate characteristics and the knowledge and skill that individuals acquire and develop throughout their lifetime. There is undoubtedly evidence-identifying EI as important in predicting personal and school success, and this has potential implications for students. However, educators need to be cautious in making claims until more research evidence is available from the scientific community. The study highlighted to develop students in ways that are personally meaningful, as well as constructive and meaningful for society. Education, training, and counseling approaches aimed at developing personal excellence in individuals will provide a widely applicable model for making the world a better place as Maslow (1999) put it, by improving individual health emotionally.

In efforts to create institutional success it seems that outstanding leaders remain mindful that healthy, successful organizations and cultures are not possible without the individual health of the people who comprise them. By focusing on excellence, emotionally intelligent students will help the country in healthy ways – raising the HDI of India, developing the HC.

12.3 CONTRIBUTIONS

This thesis deals with the study of EI of students (in the age group of 9 – 14 years and 21 – 27 years) in the pluralistic diversified Indian education sector. The purpose was to advance the state of the art of EI as applicable to the education sector hitherto not studied in proper perspective. The literature is found to be scanty. We made an attempt here to measure the EI of school and professional students. Validity of the trait EI model of Bar –On (1997a) have been undertaken to establish the soundness and rationality of the contemporary pioneering research work of this great researcher in the field.

The following are the contributions of this research:

- **Evolution of EI:** Four stages of development of intelligences are conceptualized namely: Development of IQ scale.
    a. Expansion of theories of intelligence
    b. Development of EI
    c. Corporate Cognition
- Goleman has considered communication excellence as a determining factor of EI in his work performance model. Studies made by Low (2004) and Petrides and Furnham (2000; 2001) has considered communication as a factor of EI. This study considers two aspects of communication excellence – UC and RC, which deals with excellence, reasoning, responsibility and sensitivity of an individual.
- **Relational Data base Management systems:** This study followed the relational model of database systems that is a systemic proactive instrument to represent data in the form of tables and relations.
- **Forecasting of EI**:

a. A regression equation is developed based on 5464 students (9-14 years age group) and 752 students (21 – 27 years). Further the predictive validity has been tested after a time gap of one year on fresh samples.
b. A canonical discriminant equation for estimating the range of EI for both age groups has been developed.

Development of regression and discriminant equations are definitely meant to bring an objective dimension to EI literature.

- **Cluster Development:** Four unique clusters were developed leading to the formulation of EI radar useful in classifying the enormous sample of this study.

- **Radar Formulation:** EI radar will promote a thorough understanding of EI, as it is a structural framework for navigating and positioning the students of diverse backgrounds and classes. This EI radar aims to make each factor of EI operational and is a pragmatic methodology for creating EI maps for each and every individual student. We have created a holistic conceptual framework through construction of radar to visualize, diagnose and improve the EI of an individual student.
- **Ladder Development:** EI Competency Ladder is constructed to give support to an individual to climb step by step so as to attain the goal of life success through EI. This ladder consists of 12 steps derived from the important factors of EI achieved by correlation.
- **Curriculum Development:** EI curriculum is framed based on EI radar and EI ladder. Here care is taken to observe individual scores of all factors of EI and if one of the factors was found to be high we do not undergo training of that step in the ladder.

Although, these are the very essence of our contributions to the field of EI, we submit here that they are not exhaustive. In terms of finality in refinement of our postulates and propositions, further studies are necessary to advance the frontier of knowledge in the field. Although, this research has some potentialities in terms of its contributions to the state of the art, there are a few limitations that are discussed in the next section.

12.4 LIMITATIONS

A. The limitations of this research with respect to the EI construct include:

- Understanding the relationship of El to other intelligences and other personality traits
- Understanding the processes underlying El.

- Determination of the desirable effects teaching emotional knowledge has on behavioral outcomes and might change El itself,
- Expanding El measurement to a wider range of age groups to better understand its developmental course

B. EI is claimed to contribute to 67% of life success. IQ claims to contribute to 20% of life success. This study does not combine measures of IQ and EQ to predict life success of an individual.

C. There is relatively a very little evidence that EI traits or competencies can be learned, or by teaching EI will improve other areas of functioning. Research suggests that currently used measures of EI are culturally biased, given that it is difficult to understand the results of an EI measure outside of its western cultural context. On a multicultural organizational context, this might pose difficulties. Use of EI measures as recruitment criteria or for other evaluative / predictive purposes will be appropriate with measures, which are not, biased culturally and demonstrate predictive validity.

D. EI of parents weren't tested to establish a relationship of commonalities of emotional levels of the parent and child.

E. Curriculum was based on a general guidelines obtained in the course of research. Its content on hourly basis / standardization / role and qualifications of instructors needs to be worked on.

12.5 SCOPE FOR FURTHERANCE OF RESEARCH

- There are problems with the current conceptualization of EI. Even though there are theoretical and statistical arguments suggesting that trait and ability EI should be seen as two separate constructs, this argument is likely to continue, given recent evidence

that trait and ability EI predict similar life successes. Certainly, additional studies are needed to examine the validity of ability and trait EI models in various settings.

- The increase in the HDI of India and HCD due to EI intervention needs to be studied.
- The analysis presented here may guide to a considerable extent in shaping the EI of the students at a young age. However, such a study has not considered the value system of parents and the EI scores of parents. The debate still remains – is there an association between the EI of parents and their children?
- Curricula for increasing EI of students are developed. Further studies need to be done to benchmark the curriculum against an existing validated EI curriculum.

Finally, we would like to mention that this thesis is only an attempt to study the EI of students in India and determine some empirical relationships. We have made in-depth analysis to predict and validate EI of students. A prerequisite for success in future competition is that students to be engaged and motivated. The fundamentals lie in embracing all factors. It means that the ability to use student potentials becomes more evident. It means taking responsibility for the further development of the school and college curricula. It means that decisions need to be taken when it happens, at the level where it happens by navigating. These schools and colleges in India show little interest in searching and grooming individuals for the future leadership requirements. Goleman (1998) defined emotional competencies as a "Learned capability based on EI which results in outstanding performance at work." This statement of Goleman has been validated to some extent in this thesis by conceptualizing EI radar and ladder. More research is needed to formulate and validate these conceptualizations by way of more empirical studies across different cultures and nations. We hope this thesis may be utilized to understand EI and will make use of the radar and the competency ladder.

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Appendix 2.1: Chronological Evolution of EI

The chronological evolution of IQ and EQ is seen below:

* **2,000** years ago - Plato wrote about all learning's having an emotional base".

***1677 -** Spinazo talked about cognition comprises of emotions and intellect.

* **1872** – Charles Darwin did the early work on the importance of emotional expression for survival and adaptation.

* **1904** – A test to measure Intelligence Quotient is developed.

* **1920** – Thorndike described social Intelligence and its importance for human performance.

* **1943** – Wechsler observed the impact of non-cognitive and cognitive factors of what he referred as 'Intelligent behavior'

* **1954** - Abraham Maslow wrote about the enhancement of emotional, physical, spiritual and mental strengths in people. His work set to life the Human Potential movement and to the development of many new sciences of human capacity in the 1970s and 80s.

* **1968** - Cattell and Butcher tried to predict both school achievement and creativity from ability, personality, and motivation. The authors succeeded in showing the importance of personality in academic achievement.

* **1972** - Barton, Dielman and Cattell conducted a study to more fully assess the relative importance of both ability and personality variables in the prediction of academic achievement.

* **1973** – McClelland launched an entirely new approach to the measure of intelligence proposing a set of specific competencies including empathy, self-discipline and initiative.

* **1983** - Gardner introduced his theory of Multiple Intelligences, which opened doors to other

theories like EI.

*** 1988** - The first of the three major theories to emerge was that of Bar-On. In his doctoral dissertation he coined the term emotional quotient (EQ), as an analogue to intelligence quotient (IQ).

*** 1990** - Salovey and Meyer described that over the last few decades the beliefs about emotions and intelligence have both changed. Intelligence was once perfection, and the people were recognizing that there was more to life. Whereas emotion was once perdition and people were recognizing that it might have substantive value.

*** 1993** – Gardner wrote about 'Multiple Intelligence' and proposed that 'intrapersonal' and 'interpersonal' intelligences are as important as the type of intelligence measured by IQ.

*** 1995** - Emotional intelligence was popularized when psychologist Daniel Goleman wrote his book, Emotional Intelligence: Why It Can Matter More Than IQ.

*** 1998** - Goleman's 2nd book: Working with Emotional Intelligence, was published and attracted the maximum attention. It brought the concept of Emotional Intelligence to the fore. Goleman's work was focused on organizations and its application in organizational life brought a different dimension to the management of human capital in organizations.

*** 2002** – The consortium for research on emotional Intelligence in organizations is formed and has taken the responsibility to carry out quality research on Emotional Intelligence.

*** 2003 -** Singh and Chadha researched on EI and found 3 subscales: emotional competence, emotional maturity and emotional sensitivity.

*** 2008 -** Formation of FEIL (Indian Forum for emotional intelligence learning) is established in India, aimed at development, research and training in EI.

APPENDICES

Appendix 5.1 A: Questionnaire to be filled by school students (9 – 14 years)

1. NAME: _____

2. PREFERRED NAME: _____ ROLL NO: _____

3. ADDRESS: _____

_____

STATE: _____ PIN: _____

4. TEL NO: _____ GENDER: _____

5. STANDARD: _____

6. AGE: _____YRS 7. DATE OF BIRTH: _____

8. NAME OF SCHOOL: _____

9. CASTE: _____10. CREED: _____

10. LANGUAGES KNOWN: _____

11. MOTHER TONGUE: _____

12. FATHER'S NAME: _____OCCUPATION:_____

13. MOTHER'S NAME: _____OCCUPATION:_____

14. FATHER'S EDUCATION: _____

15. MOTHER'S EDUCATION: _____

16. ANNUAL FAMILY INCOME: BELOW INR*: _____

INR – 500,000: _____

Above INR 500,000: _____

17. DID YOU EVER HEAR ABOUT EMOTIONAL INTELLIGENCE? YES /NO

18. IF YES? WHAT IS EMOTIONAL INTELLIGENCE? _____

19. WHO IS YOUR ROLE MODEL? WHY? _____

_____

20. HOW DO YOU THINK THIS EVALUATION WILL HELP YOU?

_____

21. DATE: _____ SIGNATURE: _____

* INR = Indian Rupee, 1 USD = 44 INR

BarOn EQ-I : YV

		Very Seldom	Seldom	Often	Very Often	
Q.No		True of Me	True of Me	True of Me	True of Me	**Q.No**
1	I enjoy having fun.	1	2	3	4	**1**
2	I am good at understanding the way other people feel.	1	2	3	4	**2**
3	I can stay calm when I am upset.	1	2	3	4	**3**
4	I am happy.	1	2	3	4	**4**
5	I care what happens to other people.	1	2	3	4	**5**
6	It is hard to control my anger.	1	2	3	4	**6**
7	It is easy to tell people how I feel.	1	2	3	4	**7**
8	I like everyone I meet.	1	2	3	4	**8**
9	I feel sure of myself.	1	2	3	4	**9**
10	I usually know how other people are feeling.	1	2	3	4	**10**
11	I know how to keep calm.	1	2	3	4	**11**
12	I try to use different ways of answering hard questions.	1	2	3	4	**12**
13	I think that most things I do will turn out okay.	1	2	3	4	**13**
14	I am able to respect others.	1	2	3	4	**14**
15	I get too upset about things.	1	2	3	4	**15**
16	It is easy for me to understand new things.	1	2	3	4	**16**
17	I can talk easily about my feelings.	1	2	3	4	**17**
18	I have good thoughts about everyone.	1	2	3	4	**18**
19	I hope for the best.	1	2	3	4	**19**
20	Having friends is important.	1	2	3	4	**20**
21	I fight with people.	1	2	3	4	**21**
22	I can understand hard questions.	1	2	3	4	**22**
23	I like to smile.	1	2	3	4	**23**
24	I try not to hurt other people's feelings.	1	2	3	4	**24**
25	I try to stick with a problem until I solve it.	1	2	3	4	**25**
26	I have a temper.	1	2	3	4	**26**
27	Nothing bothers me.	1	2	3	4	**27**
28	It is hard to talk about my deep feelings.	1	2	3	4	**28**
29	I know things will be okay.	1	2	3	4	**29**
30	I can come up with good answers to hard questions.	1	2	3	4	**30**
31	I can easily describe my feelings.	1	2	3	4	**31**
32	I know how to have a good time.	1	2	3	4	**32**
33	I must tell the truth.	1	2	3	4	**33**
34	I can come up with many ways of answering a hard question when I want to.	1	2	3	4	**34**
35	I get angry easily.	1	2	3	4	**35**
36	I like doing things for others.	1	2	3	4	**36**
37	I am not very happy.	1	2	3	4	**37**
38	I can easily use different ways of solving problems.	1	2	3	4	**38**
39	It takes a lot for me to get upset.	1	2	3	4	**39**
40	I feel good about myself.	1	2	3	4	**40**
41	I make friends easily.	1	2	3	4	**41**
42	I think I am the best in everything I do.	1	2	3	4	**42**
43	It is easy for me to tell people what I feel.	1	2	3	4	**43**
44	When answering hard questions, I try to think of many solutions.	1	2	3	4	**44**
45	I feel bad when other people have their feelings hurt.	1	2	3	4	**45**
46	When I am mad at someone, I stay mad for a long time.	1	2	3	4	**46**
47	I am happy with the kind of person I am.	1	2	3	4	**47**
48	I am good at solving problems.	1	2	3	4	**48**
49	It is hard for me to wait my turn.	1	2	3	4	**49**
50	I enjoy the things I do.	1	2	3	4	**50**
51	I like my friends.	1	2	3	4	**51**
52	I do not have bad days.	1	2	3	4	**52**
53	I have trouble telling others about my feelings.	1	2	3	4	**53**
54	I get upset easily.	1	2	3	4	**54**
55	I can tell when one of my close friends is unhappy.	1	2	3	4	**55**
56	I like my body.	1	2	3	4	**56**
57	Even if things get hard, I do not give up.	1	2	3	4	**57**
58	When I get angry, I act without thinking.	1	2	3	4	**58**
59	I know when people are upset, even when they say nothing.	1	2	3	4	**59**
60	I like the way I look.	1	2	3	4	**60**

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Transfer Each Circled number below into the box that looks like this ☐

Transfer Each Circled number below into the box that looks like this ☐

Item #					A	B	C	D	E	F	G					Item #
31	4	3	2	1								1	2	3	4	1
32	4	3	2	1								1	2	3	4	2
33	4	3	2	1								1	2	3	4	3
34	4	3	2	1								1	2	3	4	4
35	1	2	3	4								1	2	3	4	5
36	4	3	2	1								4	3	2	1	6
37	1	2	3	4								1	2	3	4	7
38	4	3	2	1								1	2	3	4	8
39	4	3	2	1								1	2	3	4	9
40	4	3	2	1								1	2	3	4	10
41	4	3	2	1								1	2	3	4	11
42	4	3	2	1								1	2	3	4	12
43	4	3	2	1								1	2	3	4	13
44	4	3	2	1								1	2	3	4	14
45	4	3	2	1								4	3	2	1	15
46	1	2	3	4								1	2	3	4	16
47	4	3	2	1								1	2	3	4	17
48	4	3	2	1								1	2	3	4	18
49	1	2	3	4								1	2	3	4	19
50	4	3	2	1								1	2	3	4	20
51	4	3	2	1								4	3	2	1	21
52	4	3	2	1								1	2	3	4	22
53	1	2	3	4								1	2	3	4	23
54	1	2	3	4								1	2	3	4	24
55	4	3	2	1								1	2	3	4	25
56	4	3	2	1								4	3	2	1	26
57	4	3	2	1								1	2	3	4	27
58	1	2	3	4								4	3	2	1	28
59	4	3	2	1								1	2	3	4	29
60	4	3	2	1								1	2	3	4	30
					A	B	C	D	E		G					

To calculate "F", divide eachof the scale totals (A to D) by its corresponding number beneath the column, calculate the equation provided, and write the result in the box marked "F".

(round to one decimal place) ÷ 6 + ÷ 12 + ÷ 12 + ÷ 10 = ☐ X 5 = F (Round to the nearest whole number)

BarOn EQ-I : YV Male

M1 = Males 7 to 9 years of age	A. Intrapersonal Scale
M2 = Males 10 to 12 years of age	B. Interpersonal Scale
M3 = Males 13 to 15 years of age	C. Stress Management Scale
M4 = Males 16 to 18 years of age	D. Adaptability Scale
	E. General Mood Scale
	F. Total EQ
	G. Positive Impression Scale

	A				B				C				D				E				F				G			
SS	M1	M2	M3	M4	M1	M2	M3	M4	M1	M2	M3	M4	M1	M2	M3	M4	M1	M2	M3	M4	M1	M2	M3	M4	M1	M2	M3	M4	SS
130	24	22+	23+	23+					48	48	48				40	40					75+	73+	72+	71+	24	22+	21+	21+	130
129	23	-	-	-					47	-	-	48			39	39					74	72	-	-	-	-	-	20	129
128	-	-	22	22				48	-	47	47	-		40	-	-					-	-	71	70	23	21	20	-	128
127	-	21	-	-				-	46	-	-	47		-	-	-					73	71	-	-	-	-	-	-	127
126	22	-	-	-				-	-	46	46	-	40	-	38	38				56	72	-	70	69	-	-	-	-	126
125	-	-	-	-			48	47	46	-	-	46	-	39	-	-				-	-	70	-	-	-	-	-	125
124	-	-	21	21			-	-	-	45	45	-	-	-	-	-				-	71	-	69	68	-	-	-	19	124
123	-	20	-	-		48	-	-	44	-	-	45	39	38	37	37				55	-	69	-	-	22	20	19	-	123
122	21	-	-	-		-	47	46	-	44	-	-	-	-	-	-			56	-	70	-	68	-	-	-	-	-	122
121	-	-	-	-	48	-	-	-	-	-	44	44	-	-	-	-			-	54	-	68	-	67	-	-	-	-	121
120	-	-	20	20	-	47	-	-	43	43	-	-	38	37	36	36	56	-	55	-	69	-	67	-	-	-	-	-	120
119	-	19	-	-	-	-	46	45	-	-	43	43	-	-	-	-	-	56	-	-	-	67	-	66	-	-	-	-	119
118	20	-	-	-	47	46	-	-	42	42	-	-	37	-	-	-	-	-	-	53	68	-	66	-	21	19	-	18	118
117	-	-	-	-	-	-	-	-	-	-	42	42	-	36	35	35	56	55	54	-	-	66	-	65	-	-	18	-	117
116	-	-	19	19	46	-	45	44	41	41	-	-	-	-	-	-	-	-	-	52	67	65	65	-	-	-	-	-	116
115	-	18	-	-	-	45	-	-	-	-	41	41	36	-	-	-	54	54	53	-	-	-	-	64	-	-	-	-	115
114	19	-	-	-	-	-	-	-	40	-	-	-	-	35	34	34	-	-	-	-	66	64	64	-	-	-	-	-	114
113	-	-	-	18	45	-	44	-	-	40	-	40	-	-	-	-	53	53	-	51	65	-	-	63	20	18	-	17	113
112	-	-	18	-		44		43	-	-	40	-	35	34	-	-	-	-	52	-	-	63	-	-	-	-	17	-	112
111	-	17	-	-	-	-	-	-	39	39	-	39	-	-	33	33	-	52	-	50	64	-	63	62	-	-	-	-	111
110	18	-	-	-	44	43	43	-	-	-	39	-	34	-	-	-	52	-	51	-	-	62	-	-	-	-	-	-	110
109	-	-	-	17	-	-	-	42	38	38	-	38	-	33	-	-	-	-	-	-	63	-	62	61	-	-	-	-	109
108	-	-	17	-	43	-	-	-	-	-	38	-	-	-	32	32	51	51	50	49	-	61	-	-	19	17	-	-	108
107	17	16	-	-	-	42	42	-	37	37	-	37	33	-	-	-	-	-	-	-	62	-	61	60	-	-	-	16	107
106	-	-	-	-	-	-	-	41	-	-	37	-	-	32	-	-	-	50	-	48	-	60	-	-	-	-	16	-	106
105	-	-	-	16	42	-	-	-	36	36	-	36	-	-	31	31	50	-	49	-	61	-	60	59	-	-	-	-	105
104	-	-	16	-	-	41	41	-	-	-	-	-	32	31	-	-	-	49	-	-	-	59	-	-	-	-	-	-	104
103	16	15	-	-	-	-	-	40	35	35	36	35	-	-	-	-	49	-	48	47	60	-	59	58	18	16	-	-	103
102	-	-	-	-	41	-	-	-	-	-	-	-	31	-	30	30	-	48	-	-	-	58	-	-	-	-	-	-	102
101	-	-	-	15	-	40	40	-	-	34	35	34	-	30	-	-	48	-	-	46	59	-	58	57	-	-	-	15	101
100	-	-	15	-	40	-	-	39	34	-	-	-	-	-	-	-	-	-	47	-	58	57	-	-	-	-	15	-	100
99	15	14	-	-	-	39	-	-	-	33	34	33	30	-	29	29	-	47	-	-	-	-	57	-	-	-	-	-	99
98	-	-	-	14	-	-	39	-	33	-	-	-	-	29	-	-	47	-	46	45	57	56	-	56	17	15	-	-	98
97	-	-	-	-	39	-	-	-	-	-	33	32	-	-	-	-	-	46	-	-	-	55	56	-	-	-	-	-	97
96	-	-	14	-	-	38	-	38	32	32	-	-	29	-	28	28	46	-	-	-	56	-	-	55	-	-	-	14	96
95	14	13	-	-	-	-	38	-	-	-	-	31	-	28	-	-	-	45	45	44	-	54	55	-	-	-	14	-	95
94	-	-	-	-	38	-	-	-	31	31	32	-	28	-	-	-	45	-	-	-	55	-	-	54	-	-	-	-	94
93	-	-	-	13	-	37	-	37	-	-	-	30	-	27	27	27	-	44	44	43	-	53	54	-	16	14	-	-	93
92	-	-	13	-	37	-	37	-	30	30	31	-	-	-	-	-	-	-	-	-	54	-	-	53	-	-	-	-	92
91	13	12	-	-	-	36	-	-	-	-	-	29	27	-	-	-	44	43	-	-	-	52	-	-	-	-	-	-	91
90	-	-	-	12	-	-	-	36	-	29	30	-	-	26	26	26	-	-	43	42	53	-	53	52	-	-	-	13	90
89	-	-	-	-	36	-	36	-	29	-	-	-	-	-	-	-	43	-	-	-	-	51	-	-	-	-	13	-	89
88	12	-	12	-	-	35	-	-	-	28	29	28	26	-	-	-	-	42	42	41	52	-	52	51	15	13	-	-	88
87	-	11	-	-	-	-	-	35	28	-	-	-	-	25	25	25	42	-	-	-	51	50	-	-	-	-	-	-	87
86	-	-	-	11	35	-	35	-	-	27	-	27	25	-	-	-	-	41	-	-	-	-	51	50	-	-	-	-	86
85	-	-	-	-	-	34	-	-	27	-	28	-	-	24	-	-	-	-	41	40	50	49	-	-	-	-	-	12	85
84	11	-	11	-	34	-	-	34	-	26	-	26	-	-	24	24	41	40	-	-	-	-	50	49	-	-	12	-	84
83	-	10	-	-	-	33	34	-	26	-	27	-	24	-	-	-	-	-	40	39	49	48	-	-	14	12	-	-	83
82	-	-	-	10	-	-	-	-	-	25	-	25	-	23	23	-	40	39	-	-	-	-	49	48	-	-	-	-	82
81	-	-	-	-	33	-	-	-	-	-	26	-	-	-	-	23	-	-	-	-	48	47	-	-	-	-	-	-	81
80	10	-	10	-	-	32	33	33	25	-	-	24	23	-	-	-	-	38	39	38	-	-	48	47	-	-	-	-	80
79	-	9	-	9	-	-	-	-	-	24	25	-	-	22	22	-	39	-	-	-	47	46	-	-	-	-	-	11	79
78	-	-	-	-	32	-	-	-	24	-	-	23	22	-	-	22	-	-	38	37	-	45	47	46	13	11	11	-	78
77	-	-	-	-	-	31	32	32	-	23	-	-	-	21	-	-	38	37	-	-	46	-	-	-	-	-	-	-	77
76	9	-	9	-	-	-	-	-	23	-	24	22	-	-	21	-	-	-	37	-	-	44	46	45	-	-	-	-	76
75	-	8	-	8	31	30	-	-	-	22	-	-	21	-	-	21	37	36	-	36	45	-	-	-	-	-	-	-	75
74	-	-	-	-	-	-	31	31	22	-	23	21	-	20	-	-	-	-	-	-	44	43	45	-	-	-	-	10	74
73	-	-	-	-	30	-	-	-	-	21	-	-	-	-	20	-	-	35	36	35	-	-	-	44	12	10	10	-	73
72	8	-	8	-	-	29	-	-	21	-	22	20	20	-	-	20	36	-	-	-	43	42	44	-	-	-	-	-	72
71	-	7	-	7	-	-	30	30	-	20	-	-	-	19	-	-	-	34	35	-	-	-	-	43	-	-	-	-	71
70	-	-	-	-	29	-	-	-	-	-	21	19	19	-	19	-	35	-	-	34	42	41	43	-	-	-	-	-	70
69	7	-	-	-	-	28	-	-	20	19	-	-	-	-	-	19	-	-	-	-	-	-	-	42	-	-	-	-	69
68	-	-	7	-	-	-	29	29	-	-	-	18	-	18	-	-	34	33	34	33	41	40	-	-	11	-	-	9	68
67	-	6	-	6	28	-	-	-	19	18	20	-	18	-	18	-	-	-	-	-	-	-	42	41	-	9	9	-	67
66	-		-		-	27	-	-	-	-	-	17	-	17	-	18	-	32	33	-	40	39	-	-	-	-	-	-	66
65	6		6		≤27	≤26	≤28	≤28	≤18	≤17	≤19	≤16	≤17	≤16	≤17	≤17	≤33	≤31	≤32	≤32	≤39	≤38	≤41	≤40	≤10	≤8	≤8	≤8	65

BarOn EQ-I : YV Female

F1 = Females 7 to 9 years of age
F2 = Females 10 to 12 years of age
F3 = Females 13 to 15 years of age
F4 = Females 16 to 18 years of age

A. Intrapersonal Scale
B. Interpersonal Scale
C. Stress Management Scale
D. Adaptability Scale
E. General Mood Scale
F. Total EQ
G. Positive Impression Scale

	A				B				6+				D				E				F				G			
SS	F1	F2	F3	F4	F1	F2	F3	F4	F1	F2	F3	F4	F1	F2	F3	F4	F1	F2	F3	F4	F1	F2	F3	F4	F1	F2	F3	F4	SS
130	23+	23+	23+	24					47+	48	48	48		40	39+	38+					74+	73+	72+	72+	24	22+	21+	20+	130
129	-	22	-	-					-	-	47	-	-	-	-	-					-	-	-	-	23	-	20	-	129
128	-	-	-	-					-	-	-	47	-	-	-	-					73	72	71	71	-	21	-	-	128
127	-	-	22	23			48		.	47	46	-	40	39	38	-					-	-	-	-	-	-	-	-	127
126	22	-	-	-			-		.	-	-	-	-	-	-	-					72	71	70	-	-	-	-	-	126
125	-	21	-	-			-		45	46	45	46	-	-	-	37					-	-	-	70	-	-	-	-	125
124	-	-	-	-			-		-	-	-	-	39	38	37	-			56	56	71	70	69	-	22	-	-	19	124
123	-	-	21	22			47	48	44	45	44	45	-	-	-	-			-	-	-	-	-	69	-	20	19	-	123
122	21	-	-	-			-	-	-	-	-	-	-	-	-	36			-	55	70	69	68	-	-	-	-	-	122
121	-	20	-	-	47	48	-	-	-	44	43	44	38	37	36	-			55	-	-	-	-	68	-	-	-	-	121
120	-	-	-	-	-	-	46	47	43	-	-	-	-	-	-	-	56		-	-	69	68	67	-	-	-	-	-	120
119	-	-	20	21	-	47	-	-	-	43	-	43	-	-	35	35	-		54	54	-	-	-	67	-	-	-	-	119
118	20	-	-	-	47	-	-	-	42	-	42	-	37	36	-	-	-	56	-	-	68	67	66	-	21	19	18	18	118
117	-	19	-	-	-	-	45	-	-	42	-	42	-	-	-	-	55	-	-	53	-	-	-	66	-	-	-	-	117
116	-	-	-	20	46	46	-	46	41	-	41	-	-	35	34	34	-	55	53	-	67	66	65	-	-	-	-	-	116
115	-	-	19	-	-	-	-	-	-	41	-	41	36	-	-	-	54	-	-	52	-	-	-	65	-	-	-	-	115
114	19	-	-	-	-	-	44	-	40	-	40	-	-	-	-	-	-	54	52	-	66	65	64	-	-	-	-	-	114
113	-	18	-	-	45	45	-	45	-	40	-	-	35	34	33	33	-	-	-	51	-	-	-	-	20	-	-	-	113
112	-	-	18	19	-	-	-	-	-	-	39	40	-	-	-	-	53	53	51	-	65	64	63	64	-	18	17	17	112
111	-	-	-	-	-	44	43	-	39	39	-	-	-	-	-	-	-	-	-	-	-	63	-	-	-	-	-	-	111
110	18	-	-	-	44	-	-	44	-	-	-	39	34	33	32	32	52	52	-	50	64	-	62	63	-	-	-	-	110
109	-	17	-	18	-	-	-	-	38	-	38	-	-	-	-	-	-	-	50	-	-	62	-	-	-	-	-	-	109
108	-	-	17	-	-	43	-	-	-	38	-	38	-	-	-	-	-	51	-	49	63	-	61	62	19	-	-	-	108
107	-	-	-	-	43	-	42	-	37	-	37	-	33	32	31	31	51	-	49	-	-	61	-	-	-	17	16	16	107
106	17	-	-	-	-	-	-	43	-	37	-	37	-	-	-	-	-	-	-	48	62	-	60	61	-	-	-	-	106
105	-	16	-	17	-	42	-	-	36	-	36	-	-	-	-	-	50	50	-	-	61	60	-	-	-	-	-	-	105
104	-	-	16	-	42	-	41	-	-	36	-	36	32	31	30	30	-	-	48	47	-	-	59	60	-	-	-	-	104
103	-	-	-	-	-	-	-	42	-	-	35	-	-	-	-	-	-	49	-	-	60	59	-	-	18	-	-	-	103
102	16	-	-	-	-	41	-	-	35	35	-	35	-	-	-	-	49	-	47	46	-	-	58	-	-	16	-	-	102
101	-	15	-	16	41	-	40	-	-	-	34	-	31	30	29	29	-	48	-	-	59	58	-	59	-	-	15	15	101
100	-	-	15	-	-	40	-	41	34	34	-	-	-	-	-	-	48	-	46	-	-	-	57	-	-	-	-	-	100
99	-	-	-	-	-	-	-	-	-	-	-	34	30	-	-	-	-	47	-	45	58	57	-	58	-	-	-	-	99
98	15	-	-	15	40	-	39	-	33	33	33	-	-	29	28	-	-	-	-	-	-	-	56	-	17	-	-	-	98
97	-	14	-	-	-	39	-	-	-	-	-	33	-	-	-	28	47	46	45	44	57	56	-	57	-	15	-	-	97
96	-	-	14	-	39	-	-	40	-	32	32	-	29	28	-	-	-	-	-	-	-	-	55	-	-	-	-	-	96
95	-	-	-	-	-	-	-	-	32	-	-	32	-	-	27	-	46	-	44	43	56	55	-	56	-	-	14	14	95
94	14	-	-	14	-	38	38	-	-	31	31	-	-	-	-	27	-	45	-	-	-	-	54	-	-	-	-	-	94
93	-	13	13	-	38	-	-	39	31	-	-	31	28	27	-	-	-	-	-	42	55	54	-	55	16	-	-	-	93
92	-	-	-	-	-	37	-	-	-	30	30	-	-	-	26	-	45	44	43	-	-	53	53	-	-	-	-	-	92
91	-	-	-	13	-	-	37	-	30	-	-	30	-	-	-	26	-	-	-	-	54	-	-	-	-	14	-	-	91
90	13	-	-	-	37	-	-	38	-	-	-	-	27	26	-	-	44	43	42	41	-	52	52	54	-	-	13	-	90
89	-	12	12	-	-	36	-	-	29	29	29	29	-	-	25	-	-	-	-	-	53	-	-	-	-	-	-	13	89
88	-	-	-	-	-	-	36	-	-	-	-	-	-	-	-	25	-	42	41	40	-	51	51	53	-	-	-	-	88
87	-	-	-	12	36	-	-	-	-	28	28	-	26	25	-	-	43	-	-	-	52	-	-	-	15	-	-	-	87
86	12	-	-	-	-	35	-	37	28	-	-	28	-	-	24	-	-	41	-	39	-	50	50	52	-	13	-	-	86
85	-	11	11	-	-	-	35	-	-	27	27	-	25	-	-	24	42	-	40	-	51	-	-	-	-	-	-	-	85
84	-	-	-	-	35	34	-	-	27	-	-	27	-	24	-	-	-	40	-	38	-	49	49	51	-	-	12	12	84
83	-	-	-	11	-	-	-	36	-	26	26	-	-	-	23	-	-	-	39	-	50	-	-	-	-	-	-	-	83
82	11	-	-	-	-	-	-	-	26	-	-	26	24	-	-	23	41	-	-	-	-	48	48	50	14	-	-	-	82
81	-	10	10	-	34	33	34	-	-	25	25	-	-	23	-	-	-	39	-	37	49	-	-	-	-	12	-	-	81
80	-	-	-	10	-	-	-	-	-	-	-	25	-	-	22	-	40	-	38	-	-	47	47	-	-	-	-	-	80
79	-	-	-	-	-	-	-	35	25	24	-	-	23	-	-	22	-	38	-	36	48	-	-	49	-	-	11	-	79
78	10	-	-	-	33	32	33	-	-	-	24	24	-	22	-	-	-	-	37	-	-	46	46	-	-	-	-	11	78
77	-	9	9	-	-	-	-	-	24	23	-	-	-	-	21	-	39	37	-	35	47	-	-	48	13	-	-	-	77
76	-	-	-	9	-	31	-	34	-	-	23	-	22	21	-	21	-	-	36	-	-	45	45	-	-	11	-	-	76
75	-	-	-	-	32	-	32	-	23	22	-	23	-	-	-	-	38	36	-	34	46	-	-	47	-	-	-	-	75
74	9	-	8	-	-	-	-	-	-	-	22	-	21	-	20	-	-	-	-	-	-	44	44	-	-	-	-	-	74
73	-	8	-	8	31	30	-	33	22	21	-	22	-	20	-	20	-	35	35	-	45	43	-	46	-	-	10	-	73
72	-	-	-	-	-	-	31	-	-	-	21	-	-	-	-	-	37	-	-	33	-	-	43	-	12	-	-	10	72
71	-	-	-	-	-	-	-	-	-	20	-	21	20	-	19	-	-	-	34	-	44	42	-	45	-	-	-	-	71
70	8	-	7	-	30	29	-	-	21	-	-	-	-	19	-	19	36	34	-	32	-	-	42	-	-	10	-	-	70
69	-	7	-	7	-	-	-	32	-	19	20	20	-	-	-	-	-	-	33	-	43	41	-	-	-	-	-	-	69
68	-	-	-	-	-	-	30	-	20	-	-	-	19	-	18	-	-	33	-	31	-	-	41	44	-	-	-	-	68
67	-	-	-	-	29	28	-	-	-	18	19	19	-	18	-	-	35	-	-	-	42	40	-	-	11	-	9	-	67
66	7	-	6	-	-	-	-	31	19	-	-	-	-	-	-	18	-	32	32	30	-	-	40	43	-	-	-	9	66
65	6	6	-	6	≤28	≤27	≤29	≤30	≤18	≤17	≤18	≤18	≤18	≤17	≤17	≤17	≤34	≤31	≤31	≤29	≤41	≤39	≤39	≤42	≤10	≤9	≤8	≤8	65

Appendix 5.1 B: Communication questionnaires

Communication Questionnaire 1

Put a check next to each answer you think is correct.

1. Communication is always meaningful.
2. Communication is not always valuable.
3. If people could only communicate openly with each other, the world would be a better place to live in.
4. Unfortunately there are some problems in the world that cannot be solved through communication.
5. Miscommunication is a source of much of the world's misery.
6. You are usually better off speaking more then you can get your meaning across more fully.
7. It is the Quality of communication that matters, not the Quantity.
8. Communication is like breathing, do it naturally.
9. Meaning is derived from nonverbal as well as verbal communication.
10. Many communication problems come from the idea that meaning comes entirely from words.

Communication Questionnaire 2

Put a check to each answer that you think is correct

1. It is important to treat other people in the situation as unique individuals.
2. Avoid thinking of people as typical or stereotypes
3. You shouldn't attempt to convince people that you're right unless you are well informed on the subject.
4. Don't reject what other people say out of hand.
5. Don't use information about yourself to manipulate others.
6. Accept Responsibility for the words that pass through your lips
7. It is important to be careful when you talk about other people.
8. Avoid using private facts as a weapon.
9. Anticipate the effects of your speech.
10. Be aware of the limits of your knowledge.

Appendix 5.1 C: Questionnaire to be filled by parents

1. NAME OF THE STUDENT: _____GENDER_____

2. NAME OF THE FATHER: _____

3. NAME OF THE MOTHER: _____

4. ADDRESS: _____

STATE: _____ PIN CODE: _____

5. TELEPHONE NUMBER / MOBILE: _____

6. FATHER'S QUALIFICATIONS: _____

7. MOTHER'S QUALIFICATIONS: _____

8. CASTE: _____ 9. CREED: _____

10. FATHER'S OCCUPATION: _____

11. MOTHER'S OCCUPATION: _____

12. FAMILY INCOME PER YEAR: BELOW INR*: _____

INR – 500,000: _____

INR 500,000 – 1000,000: _____

13. DID YOU EVER HEAR ABOUT EMOTIONAL INTELLIGENCE? YES / NO_____

14. IF YES? WHAT IS EMOTIONAL INTELLIGENCE?_____

_____

15. HOW DO YOU THINK THIS EVALUATION WILL HELP YOU WITH RESPECT TO YOUR RELATIONSHIP WITH YOUR KID?

_____

_____

DATE:_____ SIGNATURE: _____

* INR = Indian Rupee, 1 USD = 44 INR

Appendix 5.1 D: Questionnaire to be filled by professional students (21 – 27 years)

The BarOn EQ-i™

Name:…… Sex: Male / Female
AGE…… Date:……. Occupation ……

Instructions

Read each statement and decide which *one* of the five possible responses best describes you. Mark your choices on the answer sheet by filling in the circle containing the number that corresponds to your answer. If a statement does apply to you, respond in such a way that will give the best indication of how you *would* possibly feel, think, act. Although some of the sentences may not give you all the information you would like to receive, choose the response that seems the best, even if you are not sure. There are no "right" or "wrong" answers and no "good" or "bad" choices. Answer openly and honestly by indicating how you actually are and *not* how you would like to be or how you would like to be seen. There is no time limit, but work quickly and make sure that you consider and respond to *every* statement.

Introduction

The EQ-i™ consists of statements that provide you with an opportunity to describe yourself by indicating the degree to which each statement is true of the way you feel, think, or act most of the time and in most situations. There are five possible responses to each sentence.

1 = Very Seldom or Not True of Me **4 = Often True of Me**

2 = Seldom True of Me **5 = Very Often True of Me or True of Me**

3 = Sometimes True of Me

1	My approach in overcoming difficulties is to move step by step.	**1**	1	2	3	4	5
2	It is hard for me to enjoy life.	**2**	1	2	3	4	5
3	I prefer a job in which I am told pretty much what to do.	**3**	1	2	3	4	5
4	I know how to deal with upsetting problems.	**4**	1	2	3	4	5
5	I like everyone I meet.	**5**	1	2	3	4	5
6	I try to make my life as meaningful as I can.	**6**	1	2	3	4	5
7	It is fairly easy for me to express feelings.	**7**	1	2	3	4	5
8	I try to see things as they really are, without fantasizing or day dreaming about them.	**8**	1	2	3	4	5
9	I am in touch with my emotions.	**9**	1	2	3	4	5
10	I am unable to show affection.	**10**	1	2	3	4	5
11	I feel sure of myself in most situations.	**11**	1	2	3	4	5
12	I have a feeling that something is wrong with my mind.	**12**	1	2	3	4	5
13	It is a problem controlling my anger.	**13**	1	2	3	4	5
14	It is difficult for me to begin new things.	**14**	1	2	3	4	5
15	When faced with a difficult situation, I like to collect all the information about it that I can.	**15**	1	2	3	4	5

1 = Very Seldom or Not True of Me **4 = Often True of Me**
2 = Seldom True of Me **5 = Very Often True of Me or True of Me**
3 = Sometimes True of Me

16	I like helping people.	**16**	1	2	3	4	5
17	It is hard for me to smile.	**17**	1	2	3	4	5
18	I am unable to understand the way other people feel.	**18**	1	2	3	4	5
19	When working with others, I tend to rely more on their ideas than my own.	**19**	1	2	3	4	5
20	I believe that I can stay on top of tough situations.	**20**	1	2	3	4	5
21	I really don't know what I am good at.	**21**	1	2	3	4	5
22	I am unable to express my ideas to others.	**22**	1	2	3	4	5
23	It is hard for me to share my deep feelings with others.	**23**	1	2	3	4	5
24	I lack self-confidence.	**24**	1	2	3	4	5
25	I think I've lost my mind.	**25**	1	2	3	4	5
26	I'm optimistic about most things I do.	**26**	1	2	3	4	5
27	When I start talking, it is hard to stop.	**27**	1	2	3	4	5
28	It is hard for me to make adjustments in general.	**28**	1	2	3	4	5
29	I like to get an overview of a problem before trying to solve it.	**29**	1	2	3	4	5
30	It doesn't bother me to take advantage of people, especially if they deserve it.	**30**	1	2	3	4	5
31	I am fairly cheerful person.	**31**	1	2	3	4	5
32	I prefer others to make decisions for me.	**32**	1	2	3	4	5
33	I can handle stress without getting too nervous.	**33**	1	2	3	4	5
34	I have good thoughts about everyone.	**34**	1	2	3	4	5
35	It is hard for me to understand the way I feel.	**35**	1	2	3	4	5
36	In the past few years, I've accomplished a little.	**36**	1	2	3	4	5
37	When I'm angry with others, I can tell them about it.	**37**	1	2	3	4	5
38	I have had strange experiences that can't be explained.	**38**	1	2	3	4	5
39	It is easy for me to make friends.	**39**	1	2	3	4	5
40	I have good self-respect.	**40**	1	2	3	4	5
41	I do very weird things.	**41**	1	2	3	4	5
42	My impulsiveness creates problems.	**42**	1	2	3	4	5
43	It's difficult for me to change my opinion about things.	**43**	1	2	3	4	5
44	I'm good at understanding the way other people feel.	**44**	1	2	3	4	5
45	When facing a problem, the first thing I do is stop and think.	**45**	1	2	3	4	5
46	Others find it hard to depend on me.	**46**	1	2	3	4	5
47	I am satisfied with my life.	**47**	1	2	3	4	5
48	It's hard for me to make decisions on my own.	**48**	1	2	3	4	5
49	I don't hold up well under stress.	**49**	1	2	3	4	5
50	I don't do anything bad in my life.	**50**	1	2	3	4	5
51	I don't get enjoyment from what I do.	**51**	1	2	3	4	5
52	It's hard to express my intimate feelings.	**52**	1	2	3	4	5
53	People don't understand the way I think.	**53**	1	2	3	4	5
54	I generally hope for the best.	**54**	1	2	3	4	5
55	My friends can tell me intimate things about themselves.	**55**	1	2	3	4	5
56	I don't feel good about myself.	**56**	1	2	3	4	5
57	I see these strange things that others don't see.	**57**	1	2	3	4	5

1 = Very Seldom or Not True of Me **4 = Often True of Me**
2 = Seldom True of Me **5 = Very Often True of Me or True of Me**
3 = Sometimes True of Me

58	People tell me to lower my voice in discussions.	**58**	1	2	3	4	5
59	It is easy for me to adjust to new conditions.	**59**	1	2	3	4	5
60	When trying to solve a problem, I look at each possibility and then decide on the best way.	**60**	1	2	3	4	5
61	I would stop and help a crying child find his or her parents, even if I had to be somewhere else at the same time.	**61**	1	2	3	4	5
62	I am fun to be with.	**62**	1	2	3	4	5
63	I am aware of the way I feel.	**63**	1	2	3	4	5
64	I feel that it's hard for me to control my anxiety.	**64**	1	2	3	4	5
65	Nothing disturbs me.	**65**	1	2	3	4	5
66	I don't get that excited about my interests.	**66**	1	2	3	4	5
67	When I disagree with someone, I am able to say so.	**67**	1	2	3	4	5
68	I tend to fade out and lose contact with what happens around me.	**68**	1	2	3	4	5
69	I don't get along well with others.	**69**	1	2	3	4	5
70	It is hard for me to accept myself just the way I am.	**70**	1	2	3	4	5
71	I feel cut off from my body.	**71**	1	2	3	4	5
72	I care what happens to other people.	**72**	1	2	3	4	5
73	I am impatient.	**73**	1	2	3	4	5
74	I am able to change old habits.	**74**	1	2	3	4	5
75	It's hard for me to decide on the best solution when solving problems.	**75**	1	2	3	4	5
76	If I could get away with breaking the law in certain situations, I would.	**76**	1	2	3	4	5
77	I get depressed.	**77**	1	2	3	4	5
78	I know how to keep calm in difficult situations.	**78**	1	2	3	4	5
79	I have not told a lie in my life.	**79**	1	2	3	4	5
80	I'm generally motivated to continue, even when things get difficult.	**80**	1	2	3	4	5
81	I try to continue and develop those things that I enjoy.	**81**	1	2	3	4	5
82	It is hard for me to say "no" when I want to.	**82**	1	2	3	4	5
83	I get carried away with my imagination and fantasies.	**83**	1	2	3	4	5
84	My close relationships mean a lot to me and to my friends.	**84**	1	2	3	4	5
85	I am happy with the type of person I am.	**85**	1	2	3	4	5
86	I have strong impulses that are hard to control.	**86**	1	2	3	4	5
87	It's generally hard for me to make changes in my daily life.	**87**	1	2	3	4	5
88	Even when upset, I am aware of what's happening to me.	**88**	1	2	3	4	5
89	In handling situations that arise, I try to think as many approaches as I can	**89**	1	2	3	4	5
90	I'm able to respect others.	**90**	1	2	3	4	5
91	I'm not that happy with my life.	**91**	1	2	3	4	5
92	I'm more of a follower than a leader.	**92**	1	2	3	4	5
93	It's hard for me to face unpleasant things.	**93**	1	2	3	4	5
94	I have not broken a law of any kind.	**94**	1	2	3	4	5
95	I enjoy those things, which interests me.	**95**	1	2	3	4	5
96	It's fairly easy for me to tell people what I think.	**96**	1	2	3	4	5
97	I tend to exaggerate.	**97**	1	2	3	4	5
98	I am sensitive to the feelings of others.	**98**	1	2	3	4	5

1 = Very Seldom or Not True of Me **4 = Often True of Me**
2 = Seldom True of Me **5 = Very Often True of Me or True of Me**
3 = Sometimes True of Me

99	I have good relations with others.	**99**	1	2	3	4	5
100	I feel comfortable with my body.	**100**	1	2	3	4	5
101	I am a very strange person.	**101**	1	2	3	4	5
102	I'm impulsive.	**102**	1	2	3	4	5
103	It's hard for me to change my ways.	**103**	1	2	3	4	5
104	I think it's important to be a law-abiding citizen.	**104**	1	2	3	4	5
105	I enjoy weekends and holidays.	**105**	1	2	3	4	5
106	I generally expect things will turn out all right, despite setbacks from time to time.	**106**	1	2	3	4	5
107	I tend to cling to others.	**107**	1	2	3	4	5
108	I believe in my ability to handle most upsetting problems.	**108**	1	2	3	4	5
109	I have not been embarrassed for anything that I've done.	**109**	1	2	3	4	5
110	I try to get as much as I can out of those things that I enjoy.	**110**	1	2	3	4	5
111	Others think that I lack assertiveness.	**111**	1	2	3	4	5
112	I can easily pull out of daydreams and tune into the reality of the immediate situation.	**112**	1	2	3	4	5
113	People think that I am sociable.	**113**	1	2	3	4	5
114	I'm happy with the way I look.	**114**	1	2	3	4	5
115	I have strange thoughts that no one can understand.	**115**	1	2	3	4	5
116	It's hard for me to describe my feelings.	**116**	1	2	3	4	5
117	I've got a bad temper.	**117**	1	2	3	4	5
118	I generally get struck when thinking about different ways of solving problems.	**118**	1	2	3	4	5
119	It's hard for me to see people suffer.	**119**	1	2	3	4	5
120	I like to have fun.	**120**	1	2	3	4	5
121	I seem to need other people more than they need me.	**121**	1	2	3	4	5
122	I get anxious.	**122**	1	2	3	4	5
123	I don't have bad days.	**123**	1	2	3	4	5
124	I avoid hurting other people's feelings.	**124**	1	2	3	4	5
125	I don't have a good idea of what I want to do in life.	**125**	1	2	3	4	5
126	It's difficult for me to stand up for my rights.	**126**	1	2	3	4	5
127	It's hard for me to keep things in the right perspective.	**127**	1	2	3	4	5
128	I don't keep in touch with friends.	**128**	1	2	3	4	5
129	Looking at both my good points and bad points, I feel good about myself.	**129**	1	2	3	4	5
130	I tend to explode with anger easily.	**130**	1	2	3	4	5
131	It would be hard for me to adjust if I were forced to leave my home.	**131**	1	2	3	4	5
132	Before beginning something new, I usually feel that I'll fail.	**132**	1	2	3	4	5
133	I responded openly and honestly to the above sentences.	**133**	1	2	3	4	5

EQ SCORING SHEET

A. Reverse the scores given as bold in the following manner:

1 = 5; 2 = 4; 3 = 3; 4 = 2; 5 = 1

These scores will be written against the row labeled **Reverse.**

B. Add the items to find the TOTAL SCORE of each dimension.

Item No.		7	9	**23**	**35**	**52**	63	88	**116**	Total
Emotional Self-Awareness	**ES**									
Reverse										
Item No.		**22**	37	67	**82**	96	**111**	126	Total	
Assertiveness	**AS**									
Reverse										
Item No.	11	**24**	40	**56**	**70**	85	100	114	129	Total
Self-Regard	**SR**									
Reverse										
Item No.	6	**21**	**36**	**51**	**66**	81	95	110	**125**	Total
Self-Actualization	**SA**									
Reverse										
Item No.		**3**	**19**	**32**	**48**	**92**	**107**	**121**	Total	
Independence	**IN**									
Reverse										

Item No.		**18**	44	55	61	72	98	119	124	Total		
Empathy	**EM**											
Reverse												
Item No.		**10**	**23**	31	39	55	62	**69**	84	99	113	**128**	Total
Interpersonal Relationship	**IR**											
Reverse												
Item No.		16	**30**	**46**	61	72	**76**	90	98	104	119	Total	
Social Responsibility	**SRES**											
Reverse												
Item No.		1	15	29	45	60	**75**	89	**118**	Total		
Problem Solving	**PS**											
Reverse												
Item No.	8	**35**	**38**	**53**	**68**	**83**	88	**97**	112	**127**	Total	
Reality Testing	**RT**											
Reverse												
Item No.		**14**	**28**	**43**	59	74	**87**	**103**	**131**	Total		
Flexibility	**FL**											
Reverse												

Item No.		4	20	33	**49**	**64**	78	**93**	108	**122**	Total
Stress Tolerance	**ST**										
Reverse											
Item No.		**13**	**27**	**42**	**58**	**73**	**86**	**102**	**117**	**130**	Total
Impulse Control	**IC**										
Reverse											
Item No.		**2**	**17**	31	47	62	**77**	**91**	105	120	Total
Happiness	**HA**										
Reverse											
Item No.		11	20	26	54	80	106	108	**132**		Total
Optimism	**OP**										
Reverse											

C. Calculate the **COMPOSITE SCORES** by using the relevant EQ dimensions as indicated below:

1. INTRAPERSONAL EQ SCALE:

Sub-scale	ES	AS	SR	SA	IN	Total

2. INTERPERSONAL EQ SCALE:

Sub-scale	EM	IR	SRES	Total

3. ADAPTABILITY EQ SCALE:

Sub-scale	PS	RT	FL	Total

4. STRESS MANAGEMENT EQ SCALE:

Sub-scale	ST	IC	Total

5. GENERAL MOOD EQ SCALE:

Sub-scale	HA	OP	Total

D. Add scores for the following items separately.

***** To be scored in reverse.

Positive Impression	5	34	50	**65***	79	94	109	123	Total
Negative Impression	12	25	41	57	71	101	115		

Inconsistency Index

Item Pair	Score	Difference
23		X
52		X
100		X
114		X
56		X
70		X
85		X
129		X
47*		X
91		X
32		X
48		X
60		X
89		X
87		X
103		X
117		X
130		X
41		X
101		X
Total	-	
Mean dif. Score		

- This item score has to be reversed.

EQ Total Score on 15 Sub-scale

S. No.	Dimension	Total
1	Emotional Self-Awareness (ES)	
2	Assertiveness (AS)	
3	Self-Regard (SR)	
4	Self-Actualization (SA)	
5	Independence (IN)	
6	Empathy (EM)	
7	Interpersonal Relationship (IR)	
8	Social Responsibility (SRES)	
9	Problem Solving (PS	
10	Reality Testing	
11	Flexibility (FL)	
12	Stress Tolerances (ST)	
13	Impulse Control (IC)	
14	Happiness (HA)	
15	Optimism (OP**)**	
Total		

Intra-personal Standard Score	Interpersonal Standard Score	Adaptability Standard Score	Stress Mangt. Standard Score	General Mood Standard Score	Interpretive Guidelines
167+	124+	112+	81+	75+	MH
141 – 166	104 – 123	94 – 111	68 – 80	63 – 74	VH
114 – 140	84 – 103	76 – 93	55 – 67	51 – 62	H
87 – 113	64 – 83	58 – 75	41 – 54	39 – 50	A
60 – 86	44 – 63	40 – 57	28 – 40	27 – 38	L
33 – 59	24 – 43	22 – 39	14 – 27	13 – 26	VL
5 – 32	3 – 23	3 – 21	2 – 13	2 – 12	ML

Interpretive Guidelines

MH	Markedly High
VH	Very High – extremely well developed emotional capacity
H	High – well developed emotional capacity
A	Average – adequate emotional capacity
L	Low – under-developed emotional capacity, requiring improvement
VL	Very Low – extremely under-developed emotional capacity, requiring improvement
ML	Markedly Low – a typically impaired emotional capacity, requiring improvement

Appendix 5.1 E: Feedback Report

Shamira Soren Malekar
ITM Group of Institutions
701, BSEL Tech Park,
Opp Vashi railway station,
Navi Mumbai 400 705

Date :

To,
The Principal

Re: Feedback Report

Dear Sir,

I, the undersigned, had conducted the Emotional Intelligence test at your esteemed school in the month of February 2006. I am attaching the results of all your students for your perusal.

There is a possibility that in some EQ scores NC or DNC is written. That specifies that the EQ score could not be calculated as the student has either not marked the Questionnaire completely or the inconsistency index has been higher.

This study has been extremely useful in my research with BITS – Pilani with proposal titled "A Study of Emotional Intelligence and Communication Excellence of School Children of Different Socio-Economic Strata in India" and Dr. R. P. Mohanty as guide.

I would like to "Thank you" for the cooperation extended from your end along with the teachers and support staff.

Please find enclosed herewith the score sheet for your perusal.

Thanking you once again.

Yours sincerely,

Shamira Malekar

LIST OF PUBLICATIONS OF CANDIDATE

a. International Journals

1. Malekar S., and Mohanty R.P., (2009) "Factors affecting emotional intelligence: An empirical study of some school students in Mumbai" *International. Journal of Management in Education,* .3(1), 8 - 28.

b. Indian Journals

1. Malekar S., and Mohanty R.P., (2008) "Factors affecting emotional intelligence: An empirical study of some school and professional students in Mumbai" *Vilakshan XIMB Journal of Management*, 5(1), 23 - 42.
2. Malekar S., (2008) "Emotional Intelligence - Self Awareness" *Review of Professional Management*, 5(2), 46 - 56.
3. Malekar S. and Mohanty R.P., (2008) "A study on emotional quotient of school children of some schools in Mumbai, India" *CJMR - CMRD Journal of Management research*, 6(2), 2-15.
4. Malekar S., (2008) "Emotional Intelligence -Empathy" *BVIMR Management Edge*, 1(2), 37-47.
5. Malekar S., (2008) "Predicting HR planning ability by EQi Test" Indira Management Review, 1(1), 15 - 25.
6. Malekar S. and Mohanty R.P., (2008) "Factors affecting emotional intelligence: An empirical study of some school students in Mumbai" ICFAI journal of Management research 7(8), 27 - 43.
7. Malekar S., (2007) "Emotional Intelligence and Self Awareness" Growth – Journal of Management training Institute, 35(3), 15 - 28.
8. Malekar S. and Mohanty R.P., (2007) "Emotional Intelligence - Stress Tolerance" Indira Management Review, 1(2), 17 – 26.

c. Paper in Edited books

1. Singh, D. (2006), “Emotional Intelligence at Work”, Sage Publications, New Delhi, 3rd edition, 79 - 81.

d. Conference presentations

1. "Managing Human Capital- an Emotional Intelligence perspective", 2nd National HR Conference, ITM - Kharghar, December 7-9, 2005. (Received Best paper presenter award)
2. "Human Resource Management – The role of emotional intelligence in human resource planning", 3rd National HR Conference, ITM - Kharghar, November 30th to December 2nd, 2006.
3. "Factors affecting emotional intelligence: An empirical study of some school students in Mumbai", 4th National HR Conference, ITM - Kharghar, December 21 -22, 2007. (Received Best paper presenter award)
4. "Emotional Intelligence – Stress Management", Global EI forum TISS Mumbai, January 30 -31, 2008.
5. "Mapping Excellence with Communication: Relationship with Emotional Intelligence", Map Excel 2008, Institution of Industrial Engineers, Mumbai, October 16 -17, 2008.
6. "Understanding emotional intelligence: A study of Age and Gender of School Students", INCON 2009, Institute of Business Management and Research, Pune, March 14 – 15, 2009.

BIOGRAPHY OF THE SUPERVISOR

Professor Rajendra Prasad Mohanty has 32 years experience in Academics in India and Foreign Universities and 10 years in Indian Industry in top management positions. After superannuating in 2004, he is engaged as the Chair Professor and Dean of ITM Group of Institutions and undertakes research scholars pursuing Ph.D. in Engineering and Management. He is also engaged in advising many technical institutions in India and abroad to develop quality faculty resources. He has published 8 Text Books, more than 200 research papers in reputed and scholarly International Journals, more than 115 papers in Indian Journals and Newspapers. He has guided 15 Ph.D. research scholars. He has served as Chairman and President of many Professional associations in India and abroad. He represents in the Editorial Board of 10 international journals. He received the Life Time Achievement Award from The Institution of Engineers (India) in the year 2006.University College of Engineering; Orissa has conferred upon him the Distinguished Alumni Award in the golden jubilee year 2006. He has been elected as a Fellow of Indian National Engineering Academy-2004; towards outstanding contributions in "Engineering". In the year 2003, he received the most prestigious "Sir Visveswaraya Award" for his outstanding contribution in the field of Technical Education & Technology Management. Sambalpur University conferred upon "Intellectual Colossus Award 2003" as an honour to his profound contributions to the field of Management Education in India and abroad. Utkal University honored him as the most distinguished HR professional in 2003. In 1997, he was chosen as the "Most Outstanding Academician" honored by "UNITOP" award by Indian Institution of Materials Management. In the year 1995, Indian Institution of Industrial Engineering (IIIE) has honoured him by its highest award "Lilian Gilbreth Award" for his most outstanding contribution to the field of knowledge in I.E. and also in the year 1987, has awarded him "Ramaswamy Cup" for his extraordinary services to the profession. American Biographical Institute has conferred upon him the "Distinguished Leadership Award in Academics". The Institution of Engineers (India) has also awarded him as the "Best Researcher".

BIOGRAPHY OF THE CANDIDATE

SHAMIRA SOREN MALEKAR received a Bachelor's of Pharmacy from Mumbai University and P.G.D.B.A. from the University of Mumbai, India. She is a research scholar with ITM group of Institutions. She is an Adjunct Professor with Institute of Management and Computer studies and has 5 years teaching experience at post graduate levels. Prior to teaching, she worked as a corporate in executive positions for over 5 years. She has published a number of papers in national and international Journals. She is one of the founding member of Indian forum of emotional intelligence learning (IFEIL) and life member at American Joint Distribution Committee (A..J.D.C), India.