CHAPTER 1

INTRODUCTION

1.0 THE PRESENT STUDY

The present study entitled “The Effect of emotional intelligence on learning styles of adult learners in the selected colleges of Chennai city” is intended to find out the effect of the four components of emotional intelligence of adult learners, namely, self-emotional appraisal and expression, emotional appraisal and expression in others, self-regulation of emotions and facilitation of emotions on the four components of their learning styles, namely, activist, reflector, theorist and pragmatist and the nature and extent of relationship between emotional intelligence (independent variable), learning styles (dependent variable) and demographic variables of adult learners namely, age, gender, education, academic performance, family income and medium of schooling among the college going students in Chennai city.

Therefore, it is necessary to give a brief account of: (1) the theoretical framework of the concept of emotional intelligence and learning styles; (2) models and measurement of emotional intelligence and learning styles; (3) challenges in managing learning styles in Chapter 1. This is followed by review of related studies in Chapter 2. They are presented in the first and second chapters with the following objectives in mind: (a) for bringing out the gap in emotional intelligence and learning styles literature; (b) for identifying the problem and its significance; (c) for formulating
workable hypotheses to be tested in the present study and (d) for interpreting the study results.

Moreover, this chapter provides introduction to the two important aspects of the present study viz., Emotional Intelligence (EI) and Learning Styles (LS) among adult learners (students who have completed class twelve (+2) and are above the age of eighteen). This chapter is divided into three sections, section one, two and three. Section 1 covers the following: (a) emotion, intelligence and emotional intelligence, (b) definitions and models of EI; (c) taxonomy for EI; (d) emotional intelligence measures; (e) EI, coping and academic achievement; (f) EI, classroom and self-management and leadership skills; and (g) importance and effect of emotional intelligence. Section 2 covers the following: (a) concept of learning and various definitions of learning styles; (b) basic characteristics of learning styles; and (c) different models related to learning styles. Section 3 covers the following: (a) present education system in India; and (b) challenges in managing learning styles. This is followed by deposition of the thesis and conclusion of chapter 1

SECTION 1

1.1 CONCEPT OF EMOTIONAL INTELLIGENCE

William Blake (1757-1827) dreamt of a world seen in a grain of sand, a heaven seen in a wild flower, holding infinity in the palm of one’s hand and experiencing eternity in an hour. His dream has come true through globalization that has spread its wings over the entire world. To add to it, technology has established its supremacy in different walks of life and activities of everyday human life. Accessibility to any part of the world is no more a myth and the entire world has shrunk into a village, a ‘global village’ housing different types of industry and innumerable number of organizations. The relationship between human factor and development of organizations is
one of interdependence and eternal. Development leads to change and change leads to further development. Change is the only permanent phenomenon in this world. Everything, including the thinking process of human beings undergoes change from time to time. To welcome, embrace and implement the change and also to reap the benefits of this eternal truth, which is change, emotional intelligence (EI) is proved to be a very important tool. That is, proper understanding and managing of one’s emotions and those of others will help one to climb the ladder of long-term gains and success, even in unfavorable and turbulent situations (Faisal & Pillai, 2011).

Since eighteenth century, psychologists all over the world were attempting to dissect and analyze human mind. They came up with a three-part division of the mind. These divisions are cognition (mental), affect (emotion) and psycho-motor (behavioral). The cognitive sphere includes functions such as memory, reasoning, judgment and abstract thought. The first part of the affective sphere belongs to intelligence. Intelligence pertains to abilities such as power to combine and separate concepts, to judge and reason and to engage in abstract thought. The second part of the affective sphere is emotions. Emotions include feelings, moods and states of being. Not everything that connects cognition to emotion is emotional intelligence (Salovey and Mayer, 1990). According to Salovey and Mayer (1990), emotions are responses to an event, either internal or external, that has positively or negatively valenced meaning for the individual. Emotions are a state of feeling that conveys information about relationships. According to Goleman (1996), emotions are impulses to act, the instant plans for handling life that evolution has instilled in human race. There are seven emotions that are shared universally among people: anger, fear, happiness, love, surprise, disgust and sadness.

Goleman (1996), further states that emotional intelligence is the capacity of individuals to recognize one’s own and other’s emotions and deal
with them in such a way that one’s thoughts and actions do not become destructive for oneself and others. He also argued that the emotional intelligence can matter more than cognitive intelligence to enhance one’s quality of life. According to him, Intelligence Quotient (IQ) can distinguish people as they start a career and hence it helps to determine which profession they can hold. But IQ alone is found to be insufficient in determining the success and failure of an individual. Hence EI has proved to be an effective interpreter of the success of individuals. Goleman (1996) defined emotional intelligence as the capability “which includes self-control, passion as well as diligence and the ability to motivate oneself”. His model of emotional intelligence comprised of: (1) knowing one’s emotions; (2) managing emotions; (3) motivating oneself; (4) recognizing emotions in others and (5) handling relationships. Mayer and Salovey (1997) opined that emotional intelligence is the capacity of an individual to monitor one’s own and others’ feelings and emotions to guide one’s thinking and actions.

Bar-On et al., (2000) explained emotional intelligence as an array of emotional and social knowledge as well as non-cognitive skills which enhance the quality of an individual’s life. His model of EI comprised of five main scales as well as fifteen sub-scales such as: (1) Intra-personal skills: It includes emotional self-awareness, independence, assertiveness, self-regard and self-actualization. (2) Inter-personal skills: It encompasses empathy, social responsibility and inter-personal relationships. (3) Adaptability: It incorporates reality, flexibility and problem solving capacity; (4) Stress management: It comprises of stress tolerance and impulse control; and (5) General mood: It includes optimism and happiness.

Apart from the above mentioned authors, there are several other researchers involved in the study on EI, who identified that people with higher EI have better relationships when compared to people with lower EI
Lopez et al., 2004 & Bracket et al., 2006). Besides, the theoretical and empirical studies support the positive relationship between EI and academic success (Stottlemayer, 2002; Aghasafari, 2006; Fahim & Pishghadam, 2007).

1.2 DEFINITIONS OF EMOTIONAL INTELLIGENCE

The field of emotional intelligence is fairly new and still growing, giving much scope for studies to be carried out in this field. John Mayer & Peter Salovey first coined the term "emotional intelligence" in 1990 and have since continued to conduct researches on the significance of this construct. Mayer and Salovey (1990) laid the foundation for the “abilities model” of emotional intelligence. They constructed several definitions of emotional intelligence as their research progressed. According to them, emotional intelligence is the subset of social intelligence that involves 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 (Mayer & Salovey, 1990). Emotional intelligence is “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” (Mayer & Salovey, 1990).

Emotional intelligence refers to the ability to recognize the meanings of emotions and their relationships and to reason and solve problem on the basis of them (Mayer, Caruso & Salovey, 1999). Emotional intelligence is a set of abilities that accounts for how people’s emotional reports vary in their accuracy and how the more accurate understanding of emotion leads to better problem solving in an individual’s emotional life (Mayer, Salovey & Caruso, 2000b).

Even though Mayer & Salovey (1990) laid the groundwork for emotional intelligence, there was still not a single definition for emotional
intelligence. Other researchers namely, Goleman (1996), Bar-On (1997) and Lane (2000) expanded on the meaning of emotional intelligence. They re-examined and changed the meaning of emotional intelligence significantly. According to Goleman, (1996), "emotional intelligence refers to the capacity for recognizing our own feelings and those of others, for motivating ourselves and for managing emotions well in ourselves and our relationships". Emotional intelligence does not mean giving free reign to feelings, letting it all hang out. Rather, it means managing feelings so that they are expressed appropriately and effectively, enabling people to work together smoothly towards their common goals (Goleman, 1996). Bar-On (1997) defined emotional intelligence as "an array of personal, emotional and social competencies and skills that influence one's ability to succeed in coping with environmental demands and pressures and directly affect one's overall psychological well-being". Lane (2000) viewed emotional intelligence as one’s own subjective emotional responses as well as the information conveyed by the emotional responses of others. By examining the definitions listed above, it is evident that the field of emotional intelligence continues to expand leaving room for further studies.

1.3 MODELS OF EMOTIONAL INTELLIGENCE

After discussing the concept of emotional intelligence and reviewing the various definitions of emotional intelligence given by various authors, researcher has made an attempt to explain the available models of emotional intelligence. Three prominent models of this construct are discussed in the following section. They are (1) four branch model of EI by Mayer and Salovey (1990); (2) mixed model of emotional intelligence by Goleman (1996) and (3) mixed model of emotional intelligence by Bar-On (2002).
It should be noted that early theorists such as Thorndike (1920) and Gardner (1983) paved the way for current expertise in the field of emotional intelligence. Each theoretical paradigm conceptualizes emotional intelligence from one of the two perspectives: ability or mixed model. Ability models regard emotional intelligence as a pure form of mental ability and thus as pure intelligence. In contrast, mixed models of emotional intelligence combine mental ability with personality characteristics such as optimism and well-being (Mayer, 1999). Currently, the only ability model of emotional intelligence available is one that is proposed by Mayer and Salovey (1990). Two mixed models of emotional intelligence have been proposed, each with somewhat different conception. Goleman (1996) proposed a mixed model in terms of performance, integrating an individual's abilities and personality and applying their corresponding effects on performance in the workplace. In contrast to this concept, Bar-On (2002) put forth a model based within the context of personality theory, emphasizing the co-dependence of the ability aspects of emotional intelligence with personality traits and their application to personal well-being.

1. 3.1 Four-branch model of EI

Mayer and Salovey (1990) proposed the “Four-branch Model” which was defined as a type of social intelligence that included a person’s ability to analyze his/her own and others’ emotions and use these analyses to guide his/her actions. As the name “Four-branch” suggests, they include: (1) perceptions of emotions; (2) the use of emotions to enrich thinking; (3) understanding of emotional meanings and (4) emotional management. A depiction of this four-branch model is given in Figure 1.1, which outlines the four branches and the corresponding stages in emotion processing associated with each branch.
Figure 1.1

Mayer and Salovey’s (1990) four-branch model of emotional intelligence

1. Emotional Perception
   - Emotions are perceived and expressed
   - Emotions are sensed, and begin automatic influences on cognition

2. Emotional Integration
   - Emotions enter the cognitive system as noticed signals and as influences on cognition
   - Emotions and emotion-related information is attended to

3. Emotional Understanding
   - Emotional signals about relationships are understood, along with their interactive and temporal implications
   - The implications of emotion, from their feeling to their meaning, are considered

4. Emotional Management
   - Thoughts promote emotional, intellectual, and personal growth
   - Management encourages openness to feelings

Branch 1, emotional perception, as noted, reflects the perception of emotion and involves the capacity to recognize emotion in other’s facial and postural expressions. It involves non-verbal perception and expression of emotion on the face, voice and related communication channels (Ekman & Friesen, 1975; Buck, 1984; Nowicki & Mitchell, 1998; Scherer et al., 2001).

Branch 2, emotional integration, involves the capacity of emotions to assist thinking. Most emotion theories include a feeling component (Davitz, 1969; Schwarz, 1990) and many discuss the existence of distinctive physiological signs of some emotions. Part of intelligence involves developing a knowledge base about such experiences on which the intelligence can draw (Cytowic, 1993; Mayer & Mitchell, 1998). Knowledge of the link between emotions and thinking can be used to direct one’s planning (Izard, 2001). For example, some types of problem solving are specifically facilitated by some emotions but not others (Palfai & Salovey 1993; Isen, 2001; Erez & Isen, 2002).

Branch 3, emotional understanding, reflects the capacity to analyze emotions, appreciate their probable trends over time and understand their outcomes (Roseman, 1984; Frijda, 1988; Ortony et al., 1988; Lane, et al., 1990). The developmental aspect of branch 3 coincides with the growth of language and propositional thought. For example, in terms of Branch 3 (understanding), even a 2-year old may be emotionally apprehensive if she breaks her parents’ favorite lamp (Lewis, 2000). At the same time, a 6-year-old will easily surpass the 2-year-olds’ capacity at labeling and discriminating among feelings whereas a 30-year-old may do well even better.

Branch 4, emotional management, reflects the management of emotions which necessarily involves the rest of personality. That is, emotions are managed in the context of the individual’s goals, self-knowledge and social awareness (Averill & Nunley, 1992; Gross, 1998; Parrot, 2002). Even
small children are often taught to “count to 10” before getting mad or to “smile for Grandpa”. By early adulthood, the means of emotional self-management have grown, including abilities to avoid feelings or to re-frame appraisals to reassure one or achieve equanimity (Erber, 1996; Larsen, 2000; Tice & Bratslavsky, 2000; Wenzlaff, Rude & West, 2002). Thus, the fourth branch, emotional management, is the ability to connect or disconnect from an emotion depending on its usefulness in a given situation (Mayer & Salovey, 1990).

1.3.2 Goleman: a mixed model of emotional intelligence

Daniel Goleman, a psychologist and science writer who has previously written on brain and behavior research for the New York Times, discovered the work of Salovey and Mayer in the 1990's. Inspired by their findings, he began to conduct his own research in the area and eventually wrote Emotional Intelligence: why it can matter more than IQ” (1996), the landmark book which familiarized both the public and private sectors with the idea of emotional intelligence. Goleman's model outlines four main emotional intelligence constructs. The first, self-awareness, is the ability to read one's emotions and recognize their impact while using gut feelings to guide decisions. Self-management, the second construct, involves controlling one's emotions and impulses and adapting to changing circumstances. The third construct, social awareness, includes the ability to sense, understand and react to other's emotions while comprehending social networks. Finally, relationship management, the fourth construct, entails the ability to inspire, influence and develop others while managing conflict (Goleman, 1996).

Goleman (1996) includes a set of emotional competencies within each construct of emotional intelligence. Emotional competencies are not innate talents, rather learned capabilities that must be worked on and developed to achieve outstanding performance. Goleman (1996) posits that
individuals are born with general emotional intelligence that determines their potential for learning emotional competencies. The organization of the competencies under the various constructs is not random; they appear in synergistic clusters or groupings that support and facilitate each other (Boyatzis, Goleman & Rhee, 1999). Table 1.1 illustrates Goleman's conceptual model of emotional intelligence and corresponding emotional competencies. The constructs and competencies fall under one of four categories: the recognition of emotions in oneself or in others and the regulation of emotion in oneself or in others.

**Table 1.1**

**Goleman’s (1996) emotional intelligence competencies**

<table>
<thead>
<tr>
<th></th>
<th><strong>SELF</strong></th>
<th><strong>OTHER</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Personal Competence</td>
<td>Social Competence</td>
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<tr>
<td><strong>RECOGNITION</strong></td>
<td>Self-Awareness</td>
<td>Social Awareness</td>
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<tr>
<td></td>
<td>Emotional Self Awareness</td>
<td>Empathy</td>
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<td></td>
<td>Accurate Self-Assessment</td>
<td>Service Orientation</td>
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<td></td>
<td>Self-Confidence</td>
<td>Organizational Awareness</td>
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<tr>
<td><strong>REGULATION</strong></td>
<td>Self-Management</td>
<td>Relationship Management</td>
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<tr>
<td></td>
<td>Self-Control</td>
<td>Developing Others</td>
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<td></td>
<td>Trustworthiness</td>
<td>Influence</td>
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<td></td>
<td>Conscientiousness</td>
<td>Communication</td>
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<td></td>
<td>Adaptability</td>
<td>Conflict Management</td>
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<td></td>
<td>Achievement Drive</td>
<td>Leadership</td>
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<td></td>
<td>Initiative</td>
<td>Change Catalyst</td>
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<td></td>
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<td>Building Bonds</td>
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<td></td>
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<td>Teamwork</td>
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<td></td>
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<td>Collaboration</td>
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</tbody>
</table>


1.3.3 **Bar-on: a mixed model of emotional intelligence**

itself and is considered process-oriented rather than outcome-oriented. It focuses on an array of emotional and social abilities, including the ability to be aware of, understand and express oneself 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, 2002). In his model, Bar-On outlines five components of emotional intelligence: intrapersonal, interpersonal, adaptability, stress management and general mood. Within these components are sub-components, which are outlined in Table 1.2. Bar-On posits that emotional intelligence develops over time and that it can be improved through training, programming and therapy (Bar-On, 2002).

Table 1.2

<table>
<thead>
<tr>
<th>COMPONENTS</th>
<th>SUB-COMPONENTS</th>
</tr>
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<tbody>
<tr>
<td>Intrapersonal</td>
<td>Self Regard</td>
</tr>
<tr>
<td></td>
<td>Emotional Self-Awareness</td>
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<tr>
<td></td>
<td>Assertiveness</td>
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<td></td>
<td>Independence</td>
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<tr>
<td></td>
<td>Self-Actualization</td>
</tr>
<tr>
<td>Interpersonal</td>
<td>Empathy</td>
</tr>
<tr>
<td></td>
<td>Social responsibility</td>
</tr>
<tr>
<td></td>
<td>Interpersonal relationship</td>
</tr>
<tr>
<td>Adaptability</td>
<td>Reality Testing</td>
</tr>
<tr>
<td></td>
<td>Flexibility</td>
</tr>
<tr>
<td></td>
<td>Problem Solving</td>
</tr>
<tr>
<td>Stress Management</td>
<td>Stress Tolerance</td>
</tr>
<tr>
<td></td>
<td>Impulse Control</td>
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<tr>
<td>General Mood Components</td>
<td>Optimism</td>
</tr>
<tr>
<td></td>
<td>Happiness</td>
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</tbody>
</table>

Bar-On hypothesized that those individuals with higher than average Emotional Quotient (E.Q) are in general more successful in meeting environmental demands and pressures. He also notes that deficiency in emotional intelligence can mean 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 to contribute equally to a person’s general intelligence, which then offers an indication of one’s potential to succeed in life (Bar-On, 2002).

Bar-On developed several versions of the Emotion Quotient Inventory (EQI) to be used with various populations and in varying situations. Among these are the EQ-interview (to be completed after the self-report), the EQ-i Short Version (a 52 item version of the original), the EQ-i: 125 (a 125 item version of the original which excludes the negative impression scale), the EQ-i Youth Version (for children and adolescents between 7-15 years of age) and the EQ-360 Assessment (a multi-rater instrument used in conjunction with the regular self-report EQ-i to give a more complete assessment).

In addition, the original EQ-i is available in several languages, including Spanish, French, Dutch, Danish, Swedish, Norwegian, Finnish and Hebrew (Bar-On, 2002; Stys & Brown, 2004).

1.4 TAXONOMY OF EMOTIONAL INTELLIGENCE

Palmer (2003a) examined the reliability and factorial validity of a number of emotional intelligence tests with a sample from Australian population. He conducted a systematic review of the variables assessed by
different measures of emotional intelligence looking for common dimensions of the construct and hypothesized a five-factor model representing the communality among the alternative measures of emotional intelligence assessed. They are discussed below:

1. **Emotional Recognition and Expression:** The ability to identify one's own feelings and emotional states and the ability to express those inner feelings to others.

2. **Understanding Others’ Emotions:** The ability to identify and understand the emotions of others and that manifest in external stimuli (that is, workplace environments, staff meetings, literature, artwork and so on).

3. **Emotions Direct Cognition:** The extent to which emotions and emotional knowledge is incorporated in decision-making and/or problem solving.

4. **Emotional Management:** The ability to manage positive and negative emotions both within oneself and others.

5. **Emotional Control:** The ability to effectively control strong emotional states experienced at work such as anger, stress, anxiety and frustration.

Palmer (2003a) argued “there is some common variance shared between the various models and measures of emotional intelligence and believed his five-factor model better represented the different approaches to emotional intelligence, as a definition of the construct, than the theoretical distinctions that had been made between them”. His findings revealed that his proposed taxonomic model of emotional intelligence had similarities to Mayer and Salovey's (1990) four-factor ability model of emotional intelligence and Goleman's (1996) competency model. But, Caruso (2004) did
not indicate whether Palmer's model fitted into his three approaches to emotional intelligence or not.

Palmer (2003a) further argued that Goleman's model did not include the capacity to utilize or reason with emotions in thought, which he theoretically identified as a common facet of EI models and measures. Mayer and Salovey's (1990) ability model of emotional intelligence involved 'a single emotional perception factor' and a 'single emotional management facet' whereas his model involved one's own – and others' – emotion in these areas.

Thus, Palmer (2003a) concluded that while the distinction between 'trait' (self-report) and 'ability' (performance-based) models and measures of emotional intelligence may assist us to understand conceptually the voluminous literature on emotional intelligence, his findings suggested that it may be premature to describe these aspects of emotional intelligence as two fundamentally distinct constructs. He reflected on the conclusion that the different approaches to the conceptualization and measurement of emotional intelligence tend to be complementary rather than contradictory (Ciarrochi et al., 2000), suggesting that this may better reflect the confirmatory findings of his study pertaining to this issue.

Palmer's (2003a) findings suggested that emotional intelligence may best be conceptualized as a set of related, yet distinct variables (be they abilities, competencies, emotion-related personality traits or otherwise). This finding, Palmer believed, was consistent with Mayer and Salovey's (1990) original conception of the construct and later theories (for example, Bar-On 2000). In direct mail with Palmer in February 2006, he advised that his taxonomy of emotional intelligence would be expanded to include seven dimensions from the former five.
Having discussed the three models of emotional intelligence, an attempt is made to explain the measurement of emotional intelligence. There are two types of emotional intelligence measures: performance tests and self-report questionnaires. They are discussed below:

According to Ciarrochi, Chan, Caputi and Roberts (2001), performance tests have responses that can be evaluated against objectives and predetermined scoring criteria, whereas self-report questionnaires request individuals to report their own level of emotional intelligence (EI). There are five key differences between performance and self-report measures. Performance tests assess actual EI, whereas self-report measures assess perceived EI (Ciarrochi, Chan, Caputi & Roberts, 2001). Performance measures are generally more time consuming to administer than self-report measures. This occurs because self-report measures allow people to summarize their level of EI in a few, concise statements (e.g., "I am good at perceiving emotions"), while performance measures require substantial number of observations before EI level can be ascertained (Ciarrochi, Chan, Caputi & Roberts, 2001). Self-report measures require people to have insight into their own levels of EI. However, people may not have an accurate understanding of their own intelligence (let alone EI) and indeed, past research has found only modest correlations between self-rated and actual ability measures (Ciarrochi, Chan, Caputi & Roberts, 2001).

Self-report measures can allow people to distort their responses to appear better (or worse) than they actually are. To combat these types of problems, self-report measures can include scales that measures the amount people distort their responses (Ciarrochi, Chan, Caputi & Roberts, 2001). Self-report measures of EI tend to be related to well-established personality traits and in particular the various factors comprising the ‘Big Five’ factor model. Performance measures of EI tend to be less related to personality
measures, but are closely related with traditional intelligence measures. A summary of performance and self-report tests are presented in Table 1.3.

### Table 1.3

**Summary of performance and self-report tests**

<table>
<thead>
<tr>
<th>Sl.No.</th>
<th>Type of test</th>
<th>Name of the model</th>
<th>What it measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Performance</td>
<td>Multifactor Emotional Intelligence Scale (MEIS) (Mayer, Caruso, Salovey, 2000)</td>
<td>Measures emotional perception, understanding and managing emotions</td>
</tr>
<tr>
<td>2.</td>
<td>Performance</td>
<td>Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT) (Mayer, Salovey &amp; Caruso, 2002)</td>
<td>Measures a person’s ability to perceive, respond to and manipulate emotional information</td>
</tr>
<tr>
<td>3.</td>
<td>Performance</td>
<td>Levels of Emotional Awareness Scale (LEAS) (Lane, Quinlan, Schwartz, Walker &amp; Zeitlin, 1990)</td>
<td>Predicts actual emotion recognition, regardless of whether the recognition task is verbal or non-verbal</td>
</tr>
<tr>
<td>Sl.No.</td>
<td>Type of test</td>
<td>Name of the model</td>
<td>What it measures</td>
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<tr>
<td>5.</td>
<td>Self-report</td>
<td>Trait Meta-Mood Scale (TMMS) (Salovey &amp; Mayer, 1990)</td>
<td>Assesses attention to emotion, emotional clarity and emotion repair</td>
</tr>
<tr>
<td>7.</td>
<td>Self-report</td>
<td>Toronto Alexithymia Scale (TAS-20) (Bagby, Parker &amp; Taylor, 1994)</td>
<td>Initially intended as a measure of the clinical syndrome known as alexithymia (the inability to talk about feelings due to lack of emotional awareness)</td>
</tr>
<tr>
<td>8.</td>
<td>Self-report</td>
<td>Emotional Control Questionnaire (Roger &amp; Najarian, 1989)</td>
<td>Measures people’s ability to control emotions in trying circumstances</td>
</tr>
<tr>
<td>9.</td>
<td>Self-report</td>
<td>Monitoring-Blunting Scale (Miller, Brody &amp; Summerton, 1988)</td>
<td>Measures the extent that people seek out (or avoid) information when faced with a stressful situation</td>
</tr>
<tr>
<td>10.</td>
<td>Self-report</td>
<td>Repression-Sensitization Scale (Weinberger, Schwartz &amp; Davidson, 1979)</td>
<td>Assess the extent that people defensively avoid aversive emotions and stimuli</td>
</tr>
<tr>
<td>11.</td>
<td>Self-report</td>
<td>Response Styles Questionnaire (Nole-Hoeksema &amp; Morrow, 1991)</td>
<td>Measures the tendency to experience behavior and thoughts that focus on one’s depressive symptoms</td>
</tr>
</tbody>
</table>
1.5.1 Measurement of emotional intelligence using Mayer and Salovey’s Model

Mayer and Salovey (1990) began testing the validity of their four-branch model of emotional intelligence with the Multi-branch Emotional Intelligence Scale (MEIS). Composed of 12 subscale measures of emotional intelligence, evaluations with the multi-branch emotional intelligence scale indicate that emotional intelligence is a distinct intelligence with three separate sub-factors: emotional perception, emotional understanding and emotional management. The multi-branch emotional intelligence scale found only limited evidence for the branch of emotional intelligence related to integrating emotions. Additionally, examination of the multi-branch emotional intelligence scale found evidence for discriminant validity in that emotional intelligence was independent of general intelligence and self-reported empathy, indicating its ability to measure unique qualities of an individual not encompassed by earlier tests. There were, however, certain limitations to the multi-branch emotional intelligence scale. Not only was it a lengthy test (402 items) but it also failed to provide satisfactory evidence for the integration of the four branch model (Mayer, Salovey & Caruso, 2002). For these and other reasons, Mayer and Salovey (2002) decided to design a new ability measure of emotional intelligence.

The current measure of Mayer and Salovey’s model of emotional intelligence, that is, the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT) was validated on a sample of 5,000 men and women. The MSCEIT is designed for individuals of 17 years of age or above and aims to measure the four abilities outlined in Salovey and Mayer’s model of emotional intelligence. Each ability (perception, facilitation of thought, understanding and regulation) is measured using specific tasks. Perception of emotion is measured by rating the extent and type of emotion expressed on different
types of pictures. Facilitation of thought is measured by asking people to draw parallels between emotions and physical sensations (e.g., light, color and temperature) as well as emotions and thoughts. Understanding is measured by asking the subject to explain how emotions can blend with other emotions (e.g., how emotions can change from one to another such as anger to rage). Regulation (or management) of emotions is measured by having people choose effective self and other management techniques (Brackett & Mayer, 2003).

With less than a third of the items of the original multi-branch emotional intelligence scale, the Mayer-Salovey-Caruso emotional intelligence test is comprised of 141 items. The scale yields six scores: an overall emotional intelligence score (expressed as an Emotional Intelligence Quotient or EIQ), two area scores (Experiential Emotional Intelligence Quotient or EEIQ and Strategic Emotional Intelligence Quotient or SEIQ) and four branch scores corresponding to the four branches of emotional intelligence. Each score is expressed in terms of standard intelligence with a mean score of 100 (average score obtained in the general population) and a standard deviation of 15. Additionally, the manual provides qualitative ratings that correspond to each numeric score. For example, an individual who receives an overall EIQ of 69 or less would be rated 'considerable development' whereas someone scoring 130 or more would be rated 'significant strength' (Mayer, Salovey & Caruso, 2002).

1.5.1.1 The Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT)

The Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT) has eight tasks; two to measure each of the four branches of EI.
Branch 1, perceiving emotions, is measured through faces, for which participants identify the emotions on faces (Ekman, 2003; Ekman & Frisen, 1975) and pictures, for which participants are asked to identify the emotions conveyed by landscapes and designs (Mayer et al., 1990, Rosehan & Messick, 1966).

Branch 2, using emotions to facilitate thought, is measured by sensations, for which participants compare emotions to other tactile and sensory stimuli (Fromm & O’Brien, 1982; Rime, Philippot & Cisamolo, 1990) and facilitation, for which participants identify the emotions that would best facilitate a type of thinking (Isen, 2001; Erez & Isen, 2002).

Branch 3, understanding emotions, is measured through change which tests a person’s ability to know under what circumstances emotional intensity lessens and increases and how one’s emotional state changes into another (e.g., frustration into aggression; Ortony et al., 1988) and blends which asks participants to identify the emotions that are involved in more complex affective states (Plutchik, 1984).

Branch 4, managing emotions, is measured through emotion management which involves presenting participants with hypothetical scenarios and asking how they would maintain or change their feelings (Gross, 1988; Thayer, 1966) and emotion relationships which involves asking participants how to manage others’ feelings so that a desired outcome is achieved (Chapin, 1942; Ford & Tisak, 1983). Table 1.4 outlines the structure of the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT) and the scores attained.
Table 1.4

Structure and levels of feedback from the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT)

<table>
<thead>
<tr>
<th>Overall associated scores</th>
<th>Area scores</th>
<th>Branch scores</th>
<th>Task associated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emotional intelligence quotient (EIQ)</td>
<td>Experimental emotional intelligence (EEIQ)Q</td>
<td>Perceiving emotions (PEIQ)</td>
<td>Faces Pictures</td>
</tr>
<tr>
<td></td>
<td>Strategic emotional intelligence</td>
<td>Facilitating thought (FEIQ)</td>
<td>Sensations</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Understanding emotions (UIEQ)</td>
<td>Changes Blends</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Managing emotions (MEIQ)</td>
<td>Emotional relations</td>
</tr>
</tbody>
</table>


1.5.2 Measurement of EI using Goleman’s model

Several measurement tools have been developed based on Goleman’s model of emotional intelligence and its corresponding competencies. Included among these are the Emotional Competency Inventory (ECI: Boyatzis, 1994), Work Profile Questionnaire - Emotional Intelligence Version (WPQei: Performance Assessment Network, 2000) and the Emotional Intelligence Appraisal (EIA: Bradberry et al., 2003). They are discussed below:

1.5.2.1 Emotional Competency Inventory

Goleman (1995) developed the Emotional Competency Inventory (ECI) as a measure of emotional intelligence based on his emotional intelligence competencies as well as an earlier measure of competencies for managers, executives and leaders (the Self-Assessment Questionnaire) by
Richard Boyatzis (1994). The Emotional Competency Inventory (ECI) is a multi-rater (360 degree) instrument that provides self, superior, direct report and peer ratings on a series of behavioral indicators of emotional intelligence. It measures 20 competencies, organized into the four constructs outlined by Goleman's model: self awareness, social awareness, self management and social skills. Each respondent is asked to describe themselves or the other person on a scale from 1 (the behavior is only slightly characteristic of the individual) to 7 (the behavior is very much characteristic of the individual) for each item and in turn, these items are composed into ratings for each of the competencies. The respondent is left with two ratings for each competency: a self rating and a total other rating, made up of an average of all other ratings (Boyatzis, Goleman & Rhee, 1999).

1.5.2.2 Work profile questionnaire

The emotional intelligence version of the Work Profile Questionnaire (WPQei) was designed as a self-report measure of seven competencies in the Goleman’s model of emotional intelligence. Intended as a measure of competencies essential for effective work performance, the 84 item Work Profile Questionnaire - Emotional Intelligence Version- gives participants a score (out of 10) for total emotional intelligence and a score (out of 10) for each of the seven competencies of interest: innovation, self-awareness, intuition, emotions, motivation, empathy and social skills (Performance Assessment Network, 2000; Stys & Brown, 2004).

1.5.2.3 Emotional Intelligence Appraisal

The Emotional Intelligence Appraisal (EIA) measure was developed by Bradberry and Greaves (2003) along with members of the Talent Smart Research Team (TSRT) in an effort to create a quick and effective measure of emotional intelligence for use in a variety of settings.
Based on Goleman’s (1996) model of emotional intelligence, the Emotional Intelligence Appraisal (EIA) uses 28 items to measure the four main components of the model (self-awareness, social awareness, self-management and relationship management) and takes an average of seven minutes to complete. Items target the existence of skills, reflective of the above components and are rated using a six point frequency scale where 1 reflects “never” exhibiting behavior and 6 reflects “always” exhibiting behavior. The Emotional Intelligence Appraisal (EIA) results in five final scores; an overall EQ score as well as a score for each of the four emotional intelligence components. It is also available in three different formats: a Me Edition (self-report), a MR Edition (in 360 degree format) and a Team Edition, the EQ of an intact group (Bradberry et al., 2003).

1.5.3 Measurement of emotional intelligence using Bar-On’s model

Bar-On's measure of emotional intelligence, the Bar-On Emotion Quotient Inventory (EQ-i) is a self-report measure of emotional intelligence for individuals of sixteen years of age and over. Developed as a measure of emotionally and socially competent behavior that provides an estimate of one's emotional and social intelligence, the Emotion Quotient Inventory (EQ-i) is not meant to measure the personality traits or cognitive capacity, rather to measure one’s ability to be successful in dealing with environmental demands and pressures (Dawda & Hart, 2000; Bar-On, 2002). One hundred and thirty three items are used to obtain a Total Emotion Quotient (TEQ) and to produce five composite scales corresponding to the five main components of the Bar-On model: Intrapersonal EQ, Interpersonal EQ, Adaptability EQ, Stress Management EQ and General Mood EQ. Items are measured on a five point scale ranging from 1 (very seldom/not true for me) to 5 (very often/often true of me). Total raw scores are converted into standard scores
with a mean of 100 and standard deviation of 15, similar to that of IQ scores (Bar-On, 2002).

1.6 EMOTIONAL INTELLIGENCE, COPING AND ACADEMIC ACHIEVEMENT

Several studies conducted by Ashkanasy and Dasborough (2003), Barchard (2003), Parker et al., (2004), Petridis et al., (2004), Amelang and Steinmayr (2006) Downey et al., (2008), McCann and Roberts (2008), and Rossen and Kranzler (2009) indicate that the ability as well as trait measures of emotional intelligence could influence the success in academic performance. They also indicated that several branches in ability emotional intelligence model are correlated with academic achievement at different levels. The use of emotions to retrieve thought and its perceptions are somewhat related to academic success but managing and understanding emotions has strong relationship with academic success (Barchard, 2003; O’Conner & Little, 2003; McCann & Roberts, 2008; Rode et al., 2008).

Goetz et al., (2005) suggested that emotional intelligence may influence academic achievement in several ways. First, students who regulate their negative emotional energy may have less probability to prone into negative emotions in learning and assessment situations. Based on the level of control, the students can even generate the positive emotions towards academic performance (Pekrun et al., 2004).

Secondly, to achieve academic success, it is not enough to just pass in the test but also require collaboration in the form of presentation and group projects (Ahles & Bosworth, 2004). Among various emotional intelligence factors, emotional management have been greatly linked with social relationships, such that individuals with high level of EI may have better
capability to maintain the social relationships essential for successful group work (Lopes, Salovey & Stratus, 2003).

Thirdly, the need for making connection is not only vital for gaining better score in group assessment but also vital for maintaining social support and well-being in the educational environment (Parker et al., 2004; Wang et al., 2009; Linnenbrink-Garcia et al., 2011).

Overall, all the above mentioned three pathways imply that higher emotional intelligence predict the grades by the capability of individuals to cope up with stressors such as assessment, dynamics of group collaboration or social or emotional demands of academic life. Most of the factor-analytic studies regarding emotions have put forwarded two main dimensions which include Positive Affect (PA) and Negative Affect (NA). Apart from factorial independence, much evidence have been identified the relationship between PA and NA with behavioral approach in tandem with withdrawal system (Watson et al., 1999; Harmon-Jones et al., 2010). Besides, the correlation pattern of PA and NA has varied in relation to behavioral variables such as stress, health complaints and social activities (Watson, 1998). Similar findings have also been notified in the education-related studies.

The present educational contexts incorporate numerous literatures related to negative emotions and the underlying traits of negative emotions. From the standpoint of individual difference research, it has been proved that negative emotions influence the traits of individuals specifically their personality and coping style. This is because the personality of neuroticism has strong relation with a propensity to experience negative emotions (Matthews, Deary & Whiteman, 2009). This finding plays a main role in the research on negative emotions. Apart from this, an entrenched relationship has been found among a set of variables which include coping, negative emotions, mal-adaptation, neuroticism, anxiety and psychological distress.
Clark (2005) classified these variables as essential factors underlying negative affectivity. Majority of the studies have examined the importance of personality and coping styles with respect to stress in students (Watson et al., 2008; Austin et al., 2010). Such studies have uniquely identified that stress is more strongly related to neuroticism and coping style. However, Conard and Matthews (2008) concluded that neuroticism is a strong determining factor of student stress among other variables. Maintaining the focus on negative emotions, the main focus of the research on emotional and dispositional determinants of students’ academic success have been identified on anxiety or typically on test anxiety with constant negative association with academic success (Hembree, 1988; Seipp, 1991).

Other researches on negative emotions have established association with various factors related to health, academic adjustment and well-being. For example, neuroticism and negative affect (NA) with loneliness and poorer adjustment to university life (Halamandaris & Power, 1997), negative emotions and mal-adaptive behavior related with homesickness (Van Tilburg, Vingerhoets & Van Heck, 1999) negative emotions with maladaptive perfectionism and self-reported daily hassles (Vollrath, 2000; Enns et al., 2001;) negative emotions with lower levels of student commitment (Reschly et al., 2008); mal-adaptive coping with problem eating (Wichianson, Bughi, Unger, Spruijt-Metz, & Nguyen-Rodriguez, 2009) have been established in various studies.

In addition to the above mentioned studies, much evidence have been found in several studies related to positive and protective effects of personality trait particularly Extraversion (E) and Conscientiousness (C), positive emotions and task-focused coping. Extraversion is found to be associated with task-focused coping and experiencing positive emotions and
positive effect. These factors have been merged by Clark (2005) as broad temperament factors of positive affectivity.

In tandem, extraversion and conscientiousness are observed to have positive association with task-focused coping (Deary et al., 1996). Among the various personality traits (openness, extraversion, conscientiousness, agreeableness and neuroticism), conscientiousness is identified as a strong determinant of academic success (Poropat, 2009). In addition, Richardson and Abraham (2009) identified the linkage between conscientiousness and achievement motivation, in which achievement motivation was found to mediate the connection between conscientiousness and academic performance.

Yet, in another study, Austin et al., (2010) reported that conscientiousness and task-focused coping have been observed in students with lower stress levels. Similarly, in predicting range of outcome such as adaptive coping and engagement, the positive emotions are found to have more incremental validity over negative emotions especially in middle and high school students (Lewis et al., 2009). A specific mechanism of the role of positive emotions was proposed by some researchers, in which the positive emotions elevate higher behavioral flexibility, broadened attention and engagement with approach goals as in adapting positive outcomes (Fredrickson, 2001; Lyubomirsky et al., 2005).

Thus, it can be seen that a synergistic relationship is framed between positive emotions and adaptive coping (Fredrickson & Joiner, 2002). In line with this statement, Pekrun et al., (2009) argued that the positive relationship between emotions of hope and pride and students’ success in academic performance could be evolved from ‘broaden-and-build’ model. In the same way, earlier findings of Reschly et al., (2008) also supported the theory of the ‘broaden-and-build’ model.
1.7 EMOTIONAL INTELLIGENCE AND CLASSROOM, SELF-MANAGEMENT AND LEADERSHIP SKILLS

Understanding emotional intelligence is important for enhancing classroom skills, self-management skills and leadership skills (Johnson, 2008). In the classroom, teachers should encourage and empower students to have simple conversations (Yoder, 2005). These conversations can include talking about what is going on in the life of students. These types of simple conversations encourage reflection and participation among students. As a result, students become aware of their emotional dynamics in the classroom. Students perform best when the atmosphere is respectful, empathic and open to communication (Yoder, 2005). Teachers should also encourage wholeness in the classroom (Yoder, 2005). Encouraging wholeness in the classroom explores ways for students to be themselves. It influences students to be creative and socially responsible.

In self-management skills, learning how to manage emotions and motivate oneself can enhance emotional intelligence. Weisinger (1998) states, “being aware of your feelings and behavior as well as others’ perceptions of you can influence your actions in such a way that they work to your benefit”. For example, in order to control anger, one must understand what causes that anger. Once a person is aware of what causes the anger, they can find ways to motivate themselves not to become angry again. The self functions to mediate and adapt to the environment based on the emotions he/she is experiencing (Saarni, 2000).

Developing good communication skills, interpersonal expertise and mentoring abilities will maximize the effectiveness of one’s emotional intelligence (Johnson, 2008). The core of each of these skills is self-awareness (Weisinger, 1998). Increasing individual’s understanding of their strengths
and weaknesses allows them to take corrective action to change their behavior and to become more effective (Jordan & Ashkanasy, 2006).

Emotional intelligence starts functioning when affective information enters the perceptual system (Weisinger, 1998). When one is highly aware of his/her emotional intelligence, one can monitor oneself in action. It is important that a person understands what makes them do what they do before they can alter their actions. Everyday people are faced with positive and negative events which influence their emotional and physical well-being (Tugade & Fredrickson, 2002). A person must understand what is important to him/her, how he/she experience things, what they want, how they feel and how they come across to others (Weisinger, 1998). This high self-awareness guides an individual’s behavior from one situation to another. Self-awareness is the basis upon which all other emotional intelligence skills are built (Weisinger, 1998). Goleman, Boyatzis and McKee (2002) stated that great leaders move us. They ignite our passion and inspire the best in us. When we try to explain why they are so effective, we speak of strategy, vision or powerful ideas. The reality is that leaders are more than primal: great leadership works through their emotions.

Besides, Goleman (1996) took the four dimensions of emotional intelligence and related them to certain leadership competencies. These leadership competencies are personal competencies and social competencies. Personal competence is the capability to determine how individuals manage themselves and are broken down into two categories, self-awareness and self-management. Social competence is the capability to determine how people manage relationships and are broken down into two categories, social awareness and relationship management. Self-awareness includes the competencies: emotional self-awareness, accurate self-assessment and self-confidence. Self-management includes the competencies: self-control,
transparency, adaptability, achievement, initiative and optimism. Social awareness includes the competencies: empathy, organizational awareness and service. Relationship management includes the competencies: inspiration, influence, developing others, change catalyst, conflict management, teamwork and collaboration.

Goleman (2001) suggests that emotionally intelligent leadership is the key to creating a working climate that nurtures employees and encourages them to give their best. The type of leadership that a person upholds sets the tone for the entire organization. This concept can also be applied in the classroom. The type of leadership style that a teacher upholds in the classroom sets the mood for the class (Johnson, 2008). Teachers must keep in mind that emotions are contagious and that they influence the tone of the class (Cherniss, 2001).

1.8 IMPORTANCE AND EFFECT OF EMOTIONAL INTELLIGENCE ON ACADEMIC LIFE OF STUDENTS

Many researches show that the people who are academically brilliant may be socially inept and unsuccessful at work or in their personal relationships. Those who are at the mercy of impulse—who lack self-control—suffer moral deficiency: the ability to control impulse is the base of will and character. By the same token, the root of altruism lies in empathy, the ability to read emotions in others; lacking a sense of another’s need or despair, there is no caring. And if there are any two moral stances that our times call for, they are precisely these, self-restraint and compassion (Goleman, 1996).

Surveys have revealed the world wide trend of the present generation of adolescents to be more troubled emotionally than the last generation, they feel more lonely and depressed, more angry and unruly, more nervous and prone to worry, more impulsive and aggressive. India is not an
exception to this state of affairs of school and college going students. The solution lies in how the youngsters are prepared for life. At present in India, the emotional education of children is left to chance. Education should go beyond the traditional teaching of the three r’s (reading, writing and arithmetic), having a holistic approach, bringing together body, mind and soul in the classroom.

Emotional intelligence has significant effect on various factors of students’ life. They are briefly explained below:

**Performance in the college:** Students with high emotional intelligence are able to navigate the social complexities, lead and motivate other students to excel in their studies.

**Physical health:** Students with high emotional intelligence are able to manage stress level, high levels of stress can lead to serious health problems (blood pressure, suppress the immune system, increase the risk of heart attack and stroke).

**Mental health:** Uncontrolled stress can also impact mental health, making vulnerable to anxiety and depression, mood swings, lonely and isolated due to incapability to control emotions.

**Relationship:** By understanding emotions and how to control them, students are better able to express own feelings appropriately and understand others’ feelings. This will help to communicate more effectively and forge stronger relationship, both at college and in personal life.

**Academic achievement:** Academic achievement is the outcome of education—the extent to which a student, teacher and institution has achieved their educational goals. It refers the extent to which learners acquire the knowledge, skills and proficiencies that the instructor seeks to teach or assign.
Student’s ability to express his/her personality and to enjoy rich and complex social relations depends largely on his/her mastery of academic matters. Academic achievement is commonly measured by examination or continuous assessment but there is no general agreement on how it is best tested or which aspect is more important, procedural knowledge such as skills or declarative knowledge such as facts.

**Emotional literacy:** Before understanding the concept of emotional intelligence students should be aware of emotional literacy and how to convert the feelings of fear, aggression and anger into hope, courage and willing cooperation. It is observed that emotional literacy has been ignored at the initial stage of education, particularly in Indian scenario. Classes on moral science and other subjects on social issues should not be added in the syllabus for mere formality but the lessons should be given in practice or by simulation technique to develop emotional literacy at an initial age. Studies show that those who have emotional literacy are better able to handle personal relationships.

**Academic understanding:** In Indian scenario, academic understanding is a matter of stress and social recognition of a student in the society; for example, what is the grade or percentage a student gets in a particular standard which is very unfortunate. There is need for different approaches to inculcate academic understanding which should be beyond the percentage race among the students. A well formulated criterion should be introduced so that understanding without cramming should be developed to learn the application of concepts.

**Affective domain building:** As learning is a permanent change in one’s behavior, it is important for a mentor to evaluate the receiving and responding behaviors of a learner after the demonstration of any lecture. For that, there must be a democratic arrangement for the questions to be asked by students to
enhance their curiosity. The effective feedback on value creation at personal, social and emotional level can also be helpful in domain building to lead to academic achievement with emotional intelligence.

**Self assessment:** When a person becomes able to identify his strengths and weaknesses, it becomes easier for him to work upon them to improve his/her performance. The same concept should be adopted by college students under the supervision of their mentors to assess their strengths and weaknesses so that the academic achievement would be a successful accomplishment of the desired outcomes. Students who have an understanding of the role that emotion play in their lives have better foundation on which to build successful futures.

**Pressure handling:** Studies indicate that academic achievement without EI does not bring future success. Achievement oriented behavior at times leads to the over estimation of success which creates unwanted pressure in the learner’s mind which influences the emotional state of a person. For example, it is easy to prepare for the examination, but it is difficult to sit and handle the pressure of examination which can be reduced with help of humor, self confidence and self management; after that student can be relaxed and give better performance for academic achievement.

**Parental guidance:** Many of the school and college students in India do not have access to wise and knowledgeable mentors and parents who would be willing or are able to pay specific attention to the area of emotional intelligence while raising their children. Many of the parents cannot control their own emotions and emotional behavior. Many instructors expressed the opinion that it was too late to teach 18 to 24-year-olds emotional intelligence in an applied sense because the foundation for students’ emotional behavior is laid at the age of 3-15. While some of it may be true and students do have some sort of emotional coping experiences based on communication with
their parents, teachers and peers, it is only a small part of what can be done to help them learn to become aware of their feelings and those of others, to be able to control their feelings and treat others with empathy.

**Performance evaluation:** A study conducted by Rode *et al.*, (2007) predicted that emotional intelligence is related to academic performance for two reasons. First, academic performance involves a great deal of ambiguity. Second, majority of academic work is self-directed, requiring high levels of self-management. Therefore, individuals with high emotional intelligence would perform better academically.

**Academic motivation:** From the review of literature, it has been observed that academic achievement is not only driven by EQ or IQ but there is significant role of academic motivation in it. The studies revealed that students with high, moderate and low academic motivation differ from one another on emotional intelligence which ultimately affects their academic achievement.

**SECTION 2**

Section 1 gave an account of the concept, models and measurement of emotional intelligence. This section gives a detailed account of the concept of learning, learning styles, basic characteristics of learning styles, dimensions of learning styles, different models of learning styles and learning style inventories.

1.9 **CONCEPT OF LEARNING**

In today’s world, swift variations in the area of science, communication and information technology, besides the emergence of new outlooks on social, political, economic and cultural issues have caused substantial changes in instructional and educational systems. The successful
compatibility in the information era and the developments in science and technology need a person to have enough skills to be capable of searching for information, analyzing and applying them. The recent studies show that in order to do this important task, not only cognitive intelligence and talents are needed, but the excitement peculiarities, specially the excitement intelligence and social skills bear a great importance (Sharifi, 2007). According to Gardner (1999) people have different levels of intelligence, so in the learning process they interact and compete with one another.

Learning is defined by Burns (1995) as “a relatively permanent change in behavior, including both observable activity and internal processes such as thinking, attitudes and emotions”. Students learn through reading, thinking, listening, observing, talking, writing, doing etc. in both formal and informal ways. But the aforementioned description could give neither how students learn nor do they account for why they learn (Brown, 2004).

Researchers in Psychology, particularly in Educational and Organizational Psychology have put in lots of efforts to understand the various perspectives and process of learning. Behavioral psychologists like Pavlov (1904), Thorndike (1920), Watson (1999) and Skinner (1930) who made study on animal behavior believed conditioning to be the main reason for learning.

From behaviorist’s perspective, learners are passive beings and they ignore the deeds of cognitive instructions. But, learning must involve cognitive perspective and this view is supported by various psychologists such as Kohler and Koffka (1922) and Wertheimer (1923) through Gestalt theory which proposes that the knowledge can be classified into elements on the basis of four main principles such as proximity, similarity/ differentiation, closure and simplicity. In line with these arguments, Ausubel, Bruner and
Piaget (1925) proposed that learning is stress on mental process such as attention, memory, perception and problem solving capacity.

The underlying principle of humanistic perspective of learning is that the process of learning will occur by facilitators (Rogers, Maslow et al., 1983). Learning is also influenced by emotions and affect. From the perspective of social constructivists, learning can be observed as a group process as well as search for meaning but their main focus is on the application of knowledge for social interactions. Each of the above mentioned theories has made excellent contribution to the discourse on learning process. Therefore it is very difficult to say which theory is superior over others.

1.10 LEARNING STYLES

Researches on learning styles began to develop into a field of study by educational psychologists and other social scientists several decades ago and were based on different schools of thought. These included early studies on cognitive growth, the areas of the brain related to intelligence and behavior and the influence of school environmental and social factors on students (American Association of School Administrators, 1991).

Learning styles can be defined, classified and identified in many different ways. Jung (1921) emphasized learning from human personality types. Bloom (1956), in his taxonomy of class room behavior emphasized learning from cognitive (mental), affective (emotional) and psychomotor (behavioral) skills. According to Gregorc (1978), learning style is based on perceptual preferences- concrete and abstract- and ordering preferences- sequential and random. Kolb (1984) defined the way people learn through feelings and through thinking. Swiss psychologist Carl Jung had already published Psychological Types in 1921, in which he argued that people take in information differently. He conceptualized that a person’s readiness or
attitude is determined by two basic general attitude types, extraverted or introverted. An extravert’s attitude is motivated by the objective world or from the outside and is directed by external factors. An introvert’s attitude is motivated by the subjective world or from within and is internally directed by their thoughts and feelings (Jung, 1921).

Jung viewed people’s behavior as patterns and later developed a theory to explain human personality. According to him, patterns are the ways people prefer to perceive and make judgments. These are also referred to as psychological types. In his theory, these psychological types are classified into four mental processes—two perceptual processes (sensing and intuition) and two judgment processes (thinking and feeling).

Sensing is the ability to consciously dependent on objects. Intuition deals are a way of perceiving reality. Thinking is feeling of guidance which ultimately determines judgment (Jung, 1921). Feeling is the process of forming an opinion about whether something is right or wrong, accepted or rejected, liked or disliked, good, bad or indifferent (Jung, 1921). What comes into consciousness comes through senses or through intuition and in order to remain in consciousness, perceptions must be used. These perceptions are used, sorted and weighed, analyzed and evaluated by the judgment processes of thinking and feeling. Everyone uses all four mental processes; sensing, intuition, thinking and feeling, but no one uses them equally. Jung believed that each person has a true type that he or she may not have discovered. This true type of the person does not change, even though it may seem to change as one focuses on developing different mental processes at different stages in one’s life (American Association of School Administrators, 1991).

Bloom (1956) in his famous book based on Educational Psychology, “Human Characteristics and School Learning”, proposed a theory about the interdependent factors that account for the differences in
student learning. Bloom (1956) described three domains of learning factors: cognitive, affective and psychomotor. The cognitive domain consists of mental skills or knowledge. This domain involves the development of knowledge and intellectual skills. The affective domain consists of growth in feelings, emotions and attitude. The affective domain involves how a person deals with events and situations emotionally. The psychomotor (behavioral) domain consists of physical or manual skills. This domain includes physical movement or the use of the motor skills. According to Bloom’s theory, each domain must be mastered before the next one can take place (Bloom, 1956).

In the 1970s, Gregorc began working on his theory of mind styles. His research on learning styles was predominantly based on brain hemisphere research. The style represents two types of preferences: perceptual preferences - concrete and abstract and ordering preference - sequential and random. The concrete quality enables one to grasp and mentally register data through direct use and application of physical senses. The abstract quality allows one to conceive ideas, to visualize and to understand or believe that one cannot actually see. Here, one is using his/her imagination and intuition. The sequential quality allows one’s mind to organize in a linear, step-by-step manner. When a person has a plan, he/she follows it rather than relying on impulse. The random quality allows one’s mind to organize information by chunks and in no order. Sometimes a person may skip steps and still produce their desired results. A person may also prefer to act on the spur of the moment, rather than having it planned (Gregorc, 1984).

People can have both concrete and abstract abilities, as well as, sequential and random to some extent. Most people are usually comfortable with using one main ability rather than many. No one has a single style, but each has a unique combination of natural strengths and abilities. By recognizing what their strengths are, individuals can learn to use them to the best of their ability in order to enhance their knowledge (Gregorc, 1984).
Kolb (1984) defined learning as the process whereby knowledge is created through the transformation of experience. In order to understand learning, one must understand the nature and forms of human knowledge and the processes whereby this knowledge is created. In Kolb’s Experiential Learning Theory model (ELT), he defined three stages of a person’s development: acquisition, specialization and integration. Acquisition occurs from birth to adolescence and involves the development of basic learning abilities and cognitive structures. Specialization occurs from formal education and/or career training to the early experience of adulthood in work and personal life and involves the development of a particular specialized learning style shaped by social (cultural), educational and organizational socialization. Integration occurs from mid-career through later life and involves the expression of non-dominant learning style in work and personal life (Kolb, 1984).

Kolb described learning style preference as the product of two separate choices that the learner makes; (1) how to approach a task through reflective observation or active experimentation and (2) how our emotions respond to the experience through abstract conceptualization or concrete experience. Reflective observation involves watching others involved in the experience and then focusing on understanding the situations that happened in the experience. Active experimentation involves jumping straight into the experience and just doing it. Abstract conceptualization involves gaining new information by thinking, analyzing or planning. Concrete experience involves experiencing concrete, tangible, felt qualities of the world. Kolb then developed the Kolb Learning Style Inventory (KLSI) which identified four learning types according to how learners process and perceive information: assimilators, divergers, accommodators and convergers.
Learning styles differ among students. Some of the demographic variables which influence learning styles are age, gender, culture and academic achievement levels. The present research also has taken up these variables to test whether the learning styles of adult learners differ based on the above mentioned demographic factors. Learner’s academic achievement levels can be high versus low. High and low achievers are not likely to perform well with the same methods of learning (Dunn & Dunn, 1999). Differences in gender also affect learning styles. Males and females learn differently from each other. Males tend to be more kinesthetic and tactual and if they have third modality strength, it is often visual. Males also need more mobility in a more informal environment than females (Dunn & Griggs, 1995). They are more non-conforming and peer motivated than females. Females tend to be relatively conforming and are either self-motivated, parent-motivated or teacher-motivated (Dunn & Griggs, 1995). Females, more than males, tend to be auditory, authority-oriented and better able to sit passively in conventional classroom desks and chairs. Females need significantly more quietness while learning (Pizzo, Dunn & Dunn, 1990), are more self-motivated and conform more than males (Marcus, 1977).

Learning styles may change as individuals grow older (Dunn & Griggs, 1995). Some students change their learning styles uniquely and some do not change at all even as they get older. Individual’s sociological, emotional and physiological preferences change as he/she gets older. Sociological preferences could be whether an individual chooses to learn alone or with a group. Emotional preferences can include motivation which fluctuates from day to day, class to class and teacher to teacher. If a student is interested in a topic and the instructor’s teaching style matches the student’s learning style, then the student’s motivation will be greater. Sound preferences, temperature preferences and seating preferences also change as individuals get older (Dunn & Griggs, 1995).
Emotional preferences also include the need for breaks for interaction or intake versus the need for persistence (Johnson, 2008). Older adults may require less structure. Physiological preferences can include tactual learning, kinesthetic learning and/or visual learning. It can also include time preferences, length of time preferences and mobility preferences (Johnson, 2008).

Diversity in learning styles among different cultures is also noticed (Johnson, 2008). There were differences greater within each cultural group than between cultural groups. With that in mind, teachers cannot approach students with a cultural mind set. Instead, the learning style strengths of each student must be assessed and intervention must be designed that are compatible with these preferences (Dunn & Griggs, 2000).

1.11 BASIC CHARACTERISTICS OF LEARNING STYLES

According to Reid (1995), “learning style, learning strengths and weaknesses will vary from one individual to another. Thus each and everyone has a unique learning style”. Though the characteristic of one learning style is straight opposite to that of another learning style, they exist on wide continuums. These styles are value-neutral in nature. As a result, no style is found to be inferior to another. However, the performance of the students from a US school system that gives importance to particular styles is identified to be better than students from other academic systems.

In general, the learning styles of the students are determined by their learning strategies. It is necessary to motivate the students to extend their learning styles to all situations so that they could deal with any kind of situations. Teachers should support their students in identifying their learning strengths and weaknesses. This will be helpful to improve the performance of the students and to have mastery over a particular subject.
1.12 DIMENSIONS OF LEARNING STYLES

Reid (1998) reported twenty different learning dimensions. A summary of these dimensions is given in Table 1.5. Analysis of this table reveals that few learning styles may overlap with other styles. For example, analytic and global learning styles are found to overlap with field independent and dependent learning styles.

**Table 1.5**

Summary of dimensions of learning styles

<table>
<thead>
<tr>
<th>Verbal/Linguistic</th>
<th>Musical</th>
<th>Logical/Mathematical</th>
<th>Spatial/Visual</th>
<th>Bodily/Kinesthetic</th>
<th>Interpersonal</th>
<th>Intrapersonal</th>
<th>Perceptual learning styles:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Learning through observing the objects/incidents</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Learning through the ear (hearing)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Learning through hands-on experience</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Learning through complete body experience</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Learning through group work</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Learning through working alone</td>
</tr>
</tbody>
</table>

Definition

- Ability to understand oral and written words
- Ability to recognize rhythm, pitch and melody
- Numerical and reasoning skill
- Ability to differentiate form, space, color, line and shapes
- Body language and ability to express moods
- Ability to recognize others’ moods and intentions
- Self-assessment skills: ability to identify own strengths and weaknesses
<table>
<thead>
<tr>
<th>Field Independent</th>
<th><strong>Field Independent and Field Dependent (Sensitive) Learning Styles</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Field Dependent</td>
<td>Learning with the help of sequential analysis of facts</td>
</tr>
<tr>
<td></td>
<td>Context based learning. This learning style is sensitive to human relationships</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Analytic</th>
<th><strong>Analytic and Global Learning Styles</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Global</td>
<td>Ability to learn individually, sequentially, linearly</td>
</tr>
<tr>
<td></td>
<td>Ability to learn through past experience and communicating with other people</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reflective</th>
<th><strong>Reflective and Impulsive Learning Styles</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Impulsive</td>
<td>Ability to learn by considering the options within the given time</td>
</tr>
<tr>
<td></td>
<td>Ability to learn through immediate responses</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Converger</th>
<th><strong>Kolb Experiential Learning Model</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Diverger</td>
<td>Can learn through the practical implications of concepts and hypotheses</td>
</tr>
<tr>
<td>Assimilator</td>
<td>Will learn by observing and gathering a wider range of information</td>
</tr>
<tr>
<td>Accommodator</td>
<td>Will learn through the given logical theories</td>
</tr>
<tr>
<td></td>
<td>Will learn by means of hands on experiences</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Extraverted</th>
<th><strong>Myers-Briggs Type Indicator (MBTI)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Introverted</td>
<td>Ability to learn through concrete experiences, interactions with friends and others</td>
</tr>
<tr>
<td></td>
<td>Ability to learn through individual, independent learning</td>
</tr>
</tbody>
</table>

<p>| Sensing           | Ability to learn from reports of observable facts |
| Intuition         | Ability to learn by means of meaningful experiences |</p>
<table>
<thead>
<tr>
<th>Thinking</th>
<th>Ability to learn through impersonal and logical circumstances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feeling</td>
<td>Ability to learn from modified circumstances</td>
</tr>
<tr>
<td>Judging</td>
<td>Ability to learn through reflection, deduction, analysis and process that involve closure</td>
</tr>
<tr>
<td>Perceiving</td>
<td>Ability to learn by means of cooperation, responses and inductive processes that postpone closure</td>
</tr>
<tr>
<td>Right-Brained</td>
<td><strong>Right – and Left brained Learning Styles</strong></td>
</tr>
<tr>
<td>Left-Brained</td>
<td>Ability to gain knowledge by means of visual analytic, reflective, self-reliant learning</td>
</tr>
<tr>
<td></td>
<td>Ability to gain knowledge by means of auditory, global, impulsive, interactive learning</td>
</tr>
</tbody>
</table>

Source: Reid, 1998.

It is not possible to categorize learning only with a particular dimension. This is because the scope and depth of learning styles vary from one person to another. While discussing the characteristics of learning styles, Ehrman and Oxford (1995) said, “Naturally, not everyone fits neatly into one or another of these categories to the exclusion of the other parallel categories (e.g. visual, auditory and kinesthetic)”.

Willing (1988) supported this view by saying “At any period in the history of methodological fashions, there is usually the covert assumption of one particular learning style as basic. [However,] what makes the current interest in learning styles is that several different ways of learning are now held to be equally valid”. While discussing the benefits in providing learning opportunities through the style preferred by the students, Kroonenberg (1995) said “they also need to open the idea of ‘style flex’, that is, students should be encouraged to diversify their style preferences”. For example, the differences between the language learning styles have been illustrated through a psychological model by Willing (1988). This model is given in Figure 1.2.
Figure 1.2 represents three phases of learning process i.e., receiving, processing and using. In accordance with this model, during the phase of receiving, the students receive the language input by means of kinesthetic, visual, auditory or tactile sensory preferences. This model highlights that sensory modality as well as the learning behavior of the learners play an important role at this stage. Furthermore, behavioral factors such as involvement, self-directing ability and authority-oriented attitude of the learners involve in the area where the first two phases overlap. Thus, it is implied that besides the way of information processing, the way of searching for information is also influenced by these behavioral factors. These factors are found to originate from the cultural background of the learners (Willing, 1988). The preceding “processing phase” is defined by Willing (1988) as “the
area of what happens inside the head”. Cognitive styles as well as ‘analytical’ and ‘concrete’ attitudes are included in this phase. The ‘acquired learning strategies’ involved in this phase is represented using arrow. Willing (1998) defined these strategies as “the means by which a person assimilates or digests information and experience in general”.

Through these strategies, the experiences gained by learners will be stored as information in memory. This information can be retrieved whenever there is need. From the figure, it is understood that these strategies involve in the phases of processing and using. ‘Using’ is the last phase of learning experience. At this phase, the learners will retrieve the information (experience) stored in their memory and apply this information to relevant situations: requesting, questioning and agreeing are the most common functions involved with this phase.

1.13 LEARNING STYLES MODELS AND INVENTORIES

Three types of learning style models that can be used to test a person’s learning style are (1) instructional and environmental preference models, (2) information-processing models and (3) personality related preference models. Instructional and environmental preference models, also known as social interaction models, examine the attitudes, habits and strategies of learners. These models also examine how students engage with their peers when they learn. Information-processing models explain how students perceive and remember information, think and solve problems. Personality models study the way a person reacts and feels about different situations.

1.13.1 Instructional and environmental preference model

In 1974, Anthony Grasha and Sheryl Reichmann developed the Grasha Reichmann Student Learning Style Scales (GRSLSS) to assess college
students’ styles of classroom participation. Over a period of two years, Grasha and Reichmann (Grasha, 1972; Reichmann, 1974) interviewed undergraduate students at the University of Cincinnati. These students were asked to sort student behaviors in a typical classroom into response styles. The students’ response styles were based on three classroom dimensions: student’s attitudes toward learning, their views of the teacher and/or peers and their reaction to classroom procedures. From these three classroom dimensions three styles emerged: avoidant-participant, competitive-collaborative and dependent-independent.

Avoidant students do not participate in the class actively and are not interested in learning course content (Claxton & Murrell, 1987). These students tend to take little responsibility for his/her learning and have high absenteeism (Grasha, 1972).

Participant students desire to learn course content and enjoy attending class (Claxton & Murrell, 1987). These students relate well to his/her peers and accept responsibility for self learning. Competitive students feel that they must compete with others for reward (Grasha, 1972). These students’ motivation to learn is to do better than others (Claxton & Murrell, 1987). Collaborative students like learning through sharing with others (Claxton & Murrell, 1987). They are cooperative and see the classroom as a place for learning and interaction with others.

Dependent students have little intellectual curiosity and learn only what is required (Claxton & Murrell, 1987). These students typically become frustrated when facing new challenges not directly addressed in the classroom (Grasha, 1972).

Independent students like to think for themselves (Claxton & Murrell, 1987). They prefer to work alone and require little direction from the
teacher. Perceptual learning styles are the means by which learners extract information from their surroundings through the use of their five senses. (Institute for Learning Styles Research, 2003). Perceptual modalities refer to the ways individual’s senses take in information. French (1975) developed the idea of the perceptual modalities, in which people learn by combining the use of their senses while maintaining a primary sensory modality. Using this idea of perceptual modalities developed by French (1975), Gilley (1975) developed the Multi-Modal Paired Associates Learning Test (MMPALT). This test was then implemented by Gilley (1975) using six perceptual modalities which were print, aural, oral (interactive), visual, haptic and motor (kinesthetic). Cherry (1981) furthered the area by addressing a seventh perceptual style. The seven perceptual styles are auditory (aural), visual, tactile, kinesthetic, interactive, haptic and olfactory.

Auditory or Aural Preferences: Auditory learners learn the best when listening to verbal instruction such as lectures or discussions (Price & Griggs, 1985). In order to comprehend material, they need to read it out loud (Flaherty, 1992).

Visual Preferences: Visual learners learn the best by reading or observing (Price & Griggs, 1985). They like everything to be in print, such as overheads, handouts or books (Flaherty, 1992).

Tactile or Print Preferences: Tactile learners learn the best by taking notes while they are listening or underlining while they are reading (Price & Griggs, 1985). They have heightened awareness of their environment, such as whether the room is too hot or too cold (Flaherty, 1992).

Kinesthetic Preferences: Kinesthetic learners learn the best through action or body movement (Price & Griggs, 1985). They prefer to do something first hand and read about it later (Flaherty, 1992).
Interactive Preferences: Interactive learners learn the best through verbalization. They prefer to discuss things with others (Institute for Learning Styles Research, 2003).

Haptic Preferences: Haptic learners learn the best through the sense of touch. They prefer hands-on approach to learning (Institute for Learning Styles Research, 2003).

Olfactory Preferences: Olfactory learners learn the best through the sense of smell and taste. They associate particular smells with specific past memories (Institute for Learning Styles Research, 2003).

Dunn and Dunn (1999) described learning style as individual’s perceptual reactions to each of the 21 elements when concentrating on new and difficult academic knowledge and skills. The Dunn and Dunn Model emerged from cognitive theory, brain-lateralization theory, practitioner’s observations and experimental studies (Honigsfeld & Dunn, 2006). The Dunns described learning style as the ways in which five basic stimuli affect individual’s abilities to master new and difficult academic information and skills. Each of the five stimuli includes smaller components called elements. In order to capitalize on student’s variety in learning styles, they need to be aware of their own emotions, their environment, their physiological characteristics, their sociological preferences and their global versus analytic processing elements. Students’ emotions include motivation, persistence, responsibility (conformity versus non-conformity) and preference for structure versus choices (Dunn & Griggs, 2000).

These emotional elements are developmental throughout life (Thies, 1979). There are three major non-conforming stages during a person’s life time. The first is the terrible two’s, when children start to become more defiant at various degrees. The second stage is adolescence. This takes place

50
in what is known as the teenage years. The last stage is commonly known as
the midlife crisis. This period normally takes place in adults in their forties
and fifties.

A student’s learning environment consists of sound versus silence,
bright versus soft lighting, warm versus cool temperatures and formal versus
informal seating while concentrating (Dunn & Griggs, 2000). Students’
physiological preferences can include perceptual strengths such as hearing
(auditory), seeing (visual), handling manipulative instructional resources
(tactually), and/or actively participating while standing or moving i.e.,
kinesthetically (Dunn & Dunn, 1999). Physiological preferences can also
include time of day energy levels in which learning takes place, such as early
morning or late morning, afternoon or evening (Dunn & Griggs, 2000).

Intake preferences are also included in physiological preferences.
The need for something to eat or drink while concentrating is a necessity for
some students. The final component for physiological preferences is mobility
needs. Kinesthetic people learn through activity. They have difficulty
concentrating on information passively. The type of seating in a learning
environment also affects students’ mobility needs. These types of people are
able to sit and complete a task, but at a given time they need to switch
positions, such as move to a new area in the room (Dunn & Griggs, 2000).
Students’ sociological preferences for learning could be alone, with peers,
with either collegial or an authoritative adult and/or in a variety of ways as
opposed to patterns or routines (Dunn & Griggs, 2000). Some students prefer
to think things through and then interact with others. Some other students
cannot learn with other human beings, but are marvelous with technology and
can spend hours with their computers. Finally, there are some students who
cannot learn with books or through lectures, but prefer for people to be close
by just in case they need help, but not necessarily interacting with them (Dunn
Analytics learn one fact after another gradually building up to an understanding. The opposite of analytic processing is global processing. Globals learn concepts first and then concentrate on the details. The different types of instructional and environmental preference models and inventories are presented in Table 1.6.

Table 1.6
Learning Styles Models: Instructional and environmental preference models and inventories

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Inventory title</th>
<th>Authors</th>
<th>Date of publication</th>
<th>Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Grasha &amp; Riechmann Student Learning Style Scales</td>
<td>Grasha &amp; Riechmann</td>
<td>1974</td>
<td>Describe the learner as one of the following: independent-dependent, avoidant-participant, and collaborative-competitive</td>
</tr>
<tr>
<td>2</td>
<td>Learning Preference Inventory</td>
<td>Rezler &amp; Rezmovic</td>
<td>1974</td>
<td>Three concepts: abstract or concrete, individual or interpersonal, and student structure or teacher structure</td>
</tr>
<tr>
<td>3</td>
<td>Price Learning Style Inventory</td>
<td>Dunn &amp; Dunn,</td>
<td>1975</td>
<td>Environmental elements, emotional elements, physical elements, sociological elements, and psychological elements</td>
</tr>
<tr>
<td>4</td>
<td>Multi-Modal Paired Associates Learning Test (MMPALT)</td>
<td>Gilley</td>
<td>1975</td>
<td>Perceptual learning modalities: print, aural, oral (interactive), visual, haptic, and motor (kinesthetic)</td>
</tr>
<tr>
<td>Sl. No.</td>
<td>Inventory title</td>
<td>Authors</td>
<td>Date of publication</td>
<td>Measures</td>
</tr>
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<td>--------</td>
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<td>---------------------</td>
<td>--------------------------------------------------------------------------</td>
</tr>
<tr>
<td>5</td>
<td>Friedman &amp; Stritter Inventory</td>
<td>Friedman &amp; Stritter</td>
<td>1976</td>
<td>Preferences for pacing, influenced over learning, media, active role in learning, and feedback in learning</td>
</tr>
<tr>
<td>6</td>
<td>Cognitive Style Interest Inventory</td>
<td>Hill</td>
<td>1976</td>
<td>Symbols and their meanings, cultural determinants, and modalities of inference</td>
</tr>
<tr>
<td>7</td>
<td>Learning Style Inventory</td>
<td>Renzulli &amp; Smith</td>
<td>1978</td>
<td>Learning context and teaching styles</td>
</tr>
<tr>
<td>8</td>
<td>Canfield &amp; Lafferty Learning Styles Inventory</td>
<td>Canfield &amp; Lafferty</td>
<td>1980</td>
<td>Conditions of learning, content of learning, mode of learning and expectations for learning</td>
</tr>
</tbody>
</table>

1.13.2 Information Processing Models

The seminal research cited most often for experiential learning theory is that of Kolb (2005). The learning style inventory of Kolb was made to provide two needs, the first as a process of reflection for students and the second as a research component (Kolb, 2005). The thought leaders whose research composed the foundation for theories of Kolb were Kurt Lewin, Jean Piaget and John Dewey (Kolb, 1984). Lewin offered an experiential learning model referred to as the Laboratory Training and Action Research process (Kolb, 1984). This model is based on hands-on experience from which the subject collects and reflects knowledge subsequently. The knowledge permits the subject to constitute a theory that can be verified in a new condition (Kolb, 1984). Dewey’s (1938) model also revealed thought progression from an experience to reflection and judgment about the experience to the
observation about the experience. The model is developed by admitting that learning modifies the resulting desires and feelings into purposeful action. Kolb (1984) developed cognitive development and learning model which viewed at the cognitive ability of children’s development, recognizing four main stages: concrete operations, formal operations, representational and sensory motor operations. Kolb came to the inference that “by its very nature learning is a conflict and tension filled method” (Kolb, 1984). The process of learning needs the abilities of RO (Reflective Observation), CE (Concrete Experience), AE (Active Experimentation) and AC (Abstract Conceptualization) (Kolb, 1984). In terms of layman, one might say that the learners must observe the experience and mull it over, be able to open to experience something, implement the theory and come to some theory about the experience the next time the experience appears, put even more easily to use the old axiom, “we learn from our faults”.

Kolb created the Kolb Learning Styles Inventory (KLSI) from his early research, which built on the learning differences of reflective observation, concrete experience, active experimentation and abstract conceptualization (Kolb, 1984). The Kolb Learning Styles Inventory classifications are assimilating (RO and AC dominant), diverging (RO and CE dominant), accommodating (AE and CE dominant) and converging (AE and AC dominant) (Kolb 2005). Assimilators can take huge amount of information, produce a logical formal and digest it; they are much interested in ideas than people (Kolb, 2005). Accommodators gain their information from communicating with people and are more applicable to action oriented positions (Kolb, 2005). Divergers are better at brainstorming, probable to view at conditions from different prospects and are better with people (Kolb, 2005). Convergers are better with technical tasks and numbers; they are more focused in things than people (Kolb, 2005).
Instructors can use information of learning style to offer much diversity in their training materials to attend to large number of students. For instance, someone who favors concrete experience (CE) would advantage from laboratory work or field studies (Hawk & Shah, 2007). Someone who favors abstract conceptualization would advantage from assigned readings and handouts (Hawk & Shah, 2007). Those who like reflective observation (RO) would advantage from being a section of a brain storming exercise or keeping a journal (Hawk & Shah, 2007). Finally an active experimenter (AE) might like lecture examples or case studies (Hawk & Shah, 2007). Kolb’s model also indicates that students should be challenged by moving into other styles than their preferred ones (Sharp, 1997). The salient features of assimilators, accommodators, divergers and convergers are given below:

**Assimilators:** Assimilators perceive information abstractly and process it reflectively. They are rational and logical thinkers. They follow directions well and like to thoroughly understand concepts before they act. They are called assimilators because they do not emphasize practical application; rather they focus on the development of theories, often discarding facts if they do not fit into the theory (Kolb, 1984).

**Accommodators:** Accommodators perceive reality through concrete experience and process it through active experimentation. They learn by concrete information from their senses (feelings) and from doing. They use intuition and trial-and-error situations. They are called accommodators because they adapt well to new circumstances and applying knowledge in new ways (Kolb, 1984).

**Divergers:** Divergers perceive information concretely and process it reflectively. They draw upon their imaginative aptitude and their ability to view complex situations from many perspectives. They prefer to watch rather than do. They are called divergers because they excel at viewing an event or
idea from many perspectives and at generating many different ideas (Kolb, 1984).

**Convergers:** Convergers perceive reality through abstract conceptualization and process it through active experimentation. They organize information through hypothetical deductive reasoning. They prefer technical tasks and are less concerned with people and interpersonal aspects. They are called convergers because they move (converge) quickly to reach a conclusion or find a single, correct answer (Kolb, 1984).

The Inventory of Learning Processes (ILP) is a learning style instrument developed by Schmeck, Ribich and Ramanaiah in 1977. According to Schmeck *et al.*, (1977), Schmeck (1982), Lockhart and Schmeck (1983), the ILP assesses the manner in which students process information. The ILP measures students’ learning style by examining the behaviors they employ to process the material, such as critically evaluating it, rewording class information and connecting it to their lives, focusing on facts and details or using commonly prescribed study methods. The ILP focuses on how students process information in academic settings through cognitive concepts as organization, elaborative processing and depth-of-processing, in addition to encoding, storage and retrieval strategies (Clump, 2005). The ILP consists of four scales: Deep Processing, Elaborative Processing, Fact Retention and Methodical Study.

The Deep Processing scale assesses the extent to which subjects critically evaluate, analyze, organize, compare and contrast information. The Elaborative Processing scale assesses strategies in which one personalizes and concretizes information and translates it into one’s own terms. The Fact Retention Scale assesses how effectively specific factual information is retrieved from one’s memory. The Methodical Study scale assesses study habits and whether one conforms to guidelines given by instructors and/or to
suggestions provided in how-to-study manuals (Schmeck, Ribich & Ramanaiah, 1977).

Gregorc (1984) developed the Gregorc Style Delineator, which tests the four channels through which the mind receives and expresses information. Each combination of perception and ordering abilities reveals a particular quality to how people see and use the information they receive from the environment. The possible combinations of perception and ordering abilities are, Concrete Sequential (CS), Abstract Sequential (AS), Abstract Random (AR) and Concrete Random (CR).

Concrete Sequential learners prefer learning that is linear and sequential. They use train of thought; there is clear beginning and clear end to what they do. They divide time into the immediate past, the present and immediate future. They strive for perfection and have an eye for detail. Their creativity lies not with originality, but with producing a concrete product or prototype from someone’s idea. They generally do not adapt to new conditions or new environments very well. They are realists who are practical and predictable. They use concise words that are neat, clean and to the point. They prefer an environment that is quiet, ordered, predictable and stable (Gregorc, 1982a).

Abstract Sequential learners thrive on mentally challenging, but ordered learning environment. They place things in order, branching into parts derived from the base. Future events are projected and predicted by using history as a foundation. They mentally outline, correlate, compare and categorize data. Their creativity is original, inventive and unique. They are serious and determined. They are naturally compelled to use reason and logic to describe and explain things that occur in his/her everyday life. They are compelled to use words with logic patterns to describe, explain and justify
things. They prefer an environment that is ordered, quiet, independent and mentally stimulating (Gregorc, 1982a).

Abstract Random learners are emotional and imaginative. They organize by putting himself/herself and others into events. The past and present are merged into one and they live in the moment. Creativity is imaginative and often expressed through music and art. They are easily influenced towards change which may or may not affect them positively. They approach life enthusiastically and reveal his/her inner self to those whom he/she trusts and love. They communicate through sound, color, music, symbols, poetry and gestures. They prefer an environment of emotional experiences, active and colorful (Gregorc, 1982a).

Concrete Random learners prefer learning that is concrete and intuitive. They view events in linear fashion; there is no apparent beginning or end. Time is viewed as now, which is sum of the past, the interactive present and the seed for the future. Creativity is original and unique. They are not adverse to change. They adapt themselves according to the demand of their environment. They strive to understand the ‘why’ instead of the ‘how’ in life. They use words that have present literal meaning acceptance. They prefer an environment that is free of movement and expression and competitive (Gregorc, 1982a).

A learning framework was developed by Fleming and Mills (1922) to reveal the physiological capacities within individual that provide inputs for perception of learning (Nilson, 2003). The four categories of learning mode such as visual, auditory, read/write and kinesthetic preferences can be shortly indicated as VARK. Initially, the visual learner perceives as well as organizes the information by means of spatial inter-relationships.
Often the visual learners have preference to perceive the information in the form of charts, pictures, diagrams and symbols as well as use color presentation to enhance their knowledge (Tennent, Becker & Kehoe, 2005). In contrast, the auditory learners often prefer to perceive the information in explanatory form. Such learners could perceive information in different sorts of verbal presentation which include lecture, discussion or debate and so on (Nilson, 2003). In general, the auditory learners are excelling with traditional teaching mode which is often used in the college classrooms.

Students with high abstract memory always prefer reading or writing mode to understand new information. Sometimes these students may refer as digital learners. They excel when they are asked to read or write regarding a subject. In general, the digital learners prefer well-order lecture as well as cogent text (Nilson, 2003).

Among the various instructional methods, the reading and lecture format are predominantly selected by the learners. On contrary with digital learners, the kinesthetics have preference for hands-on approach to learning as well as values practical, relevant information. Generally, kinaesthetic approach requires excellent eye-hand-mind coordination and hence it needs active involvement (Nilson, 2003; Tennet et al., 2005). The information processing preference models and inventories are given in Table 1.7
Table 1.7

Learning styles models: Information processing preference models and inventories

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Inventory Title</th>
<th>Author(s)</th>
<th>Date of Publication</th>
<th>Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Learning Style Inventory</td>
<td>Kolb</td>
<td>1976</td>
<td>How learners process and perceive information: assimilators, accommodators divergers or convergers</td>
</tr>
<tr>
<td>2.</td>
<td>Edmonds Learning Style Identification Exercise</td>
<td>Reinert</td>
<td>1976</td>
<td>Four types of learning methods: visual, verbal, listen (aural), and emotional</td>
</tr>
<tr>
<td>3.</td>
<td>Inventory of Learning Processes</td>
<td>Schmeck, Ribich, &amp; Ramanaih</td>
<td>1977</td>
<td>Synthesis-analysis, study methods, fact retention, and elaborative processing</td>
</tr>
<tr>
<td>4.</td>
<td>Gregorc Style Delineator</td>
<td>Gregorc</td>
<td>1977</td>
<td>Concrete-sequential, abstract-sequential, abstract-random, abstractsequential</td>
</tr>
<tr>
<td>5.</td>
<td>Paragraph Completion Method</td>
<td>Hunt</td>
<td>1978</td>
<td>Need for structure, dependent or conforming</td>
</tr>
<tr>
<td>6.</td>
<td>Approaches to Studying Inventory</td>
<td>Entwistle</td>
<td>1979</td>
<td>Reproducing orientation, meaning orientation, achieving orientation, non-academic orientation, and selfconfidence</td>
</tr>
<tr>
<td>7.</td>
<td>Study Process Questionnaire</td>
<td>Biggs</td>
<td>1987</td>
<td>Surface (instructional v. reproducing), deep (intrinsic v. meaning)</td>
</tr>
</tbody>
</table>
1.13.3 Personality Related Preference Models

Three personality related learning preference models are discussed below. They are: (1) The Myers-Briggs Type Indicator (1962); (2) The Matching Familiar Figures (1964); and (3) The Keirsey Temperament Sorter II® (KTS®- II) (2004).

1.13.3.1 The Myers-Briggs Type Indicator

The Myers-Briggs Type Indicator (1962) known as MBTI is based on the psychological theory of Carl Jung who disputed that personality traits are inherited or innate. Isabel Myers and her mother, Katherine Briggs attempted to understand the differences and similarities in human personalities. The Myers-Briggs Type Indicator (MBTI) can aid students in determining their personality type (The Myers and Briggs Foundation, 2006). Myers and Briggs addressed two goals in the development and application of the Myers-Briggs Type Indicator instrument: the identification of basic preferences of each of the four dichotomies specific in Jung’s theory and the identification and description of the 16 distinctive personality types that results from the interactions among the preferences. The four dichotomies of personality traits are Introversion or Extraversion, Sensing or Intuition, Thinking or Feeling and Judging or Perceiving. The 16 personality types of the Myers-Briggs Type Indicator instrument are listed below (The Myers and Briggs Foundation, 2006):

<table>
<thead>
<tr>
<th>ISTJ</th>
<th>ISFJ</th>
<th>INFJ</th>
<th>INTJ</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISTP</td>
<td>ISFP</td>
<td>INFP</td>
<td>INTP</td>
</tr>
<tr>
<td>ESTP</td>
<td>ESFP</td>
<td>ENFP</td>
<td>ENTP</td>
</tr>
<tr>
<td>ESTJ</td>
<td>ESFJ</td>
<td>ENFJ</td>
<td>ENTJ</td>
</tr>
</tbody>
</table>
1.13.3.2 The Matching Familiar Figures

Matching Familiar Figures was developed by Kagan in 1964. It measures the dimension of cognitive style known as reflection-impulsivity. This test requires the respondent to compare a stimulus picture with many similar pictures, with one being the correct one. In comparing these pictures, respondents use the tendency to reflect over alternative solution possibilities, in contrast with tendency to make an impulsive selection of a solution (Kagan, 1965). Impulsive people respond by glancing quickly at the sample and selecting the answer that appears most nearly correct. These people may make a choice of an alternative without adequate consideration of options. Reflective people carefully examine each alternative before finally selecting what he/she believes is the correct one. These people may also make delay of decision-making in situations where the correct response is not obvious (Claxton & Murrell, 1987).

1.13.3.3 The Keirsey Temperament Sorter II (KTS-II)

The Keirsey Temperament Sorter II (KTS-II) (Keirsey, Milner & Wood, 2004) is based on David Keirsey’s Temperament Theory. As a Gestalt psychologist, Keirsey developed the Temperament theory from the discovery that people can be grouped together by similar patterns of behavior, values, attitudes and the use of language. These similar patterns make up his four temperaments- Artisans, Guardians, Rationals and Idealists (Advisor Team, 1998-2005). Keirsey conceptualized that there are two sides to personality; temperament and character. Keirsey clarified that "temperament is a configuration of inclinations, while character is a configuration of habits. Character is disposition; temperament is predisposition” (Keirsey, 1998). Thus, temperament is the inborn form of human nature; character, the emergent form, which develops through the interaction of temperament and environment (Keirsey, 1998). According to Keirsey’s Temperament theory,
people can be sorted into four temperaments: Artisans, Guardians, Rationals and Idealists. The Keirsey Temperament Sorter II then further divides the four temperaments into one of sixteen character types. The sixteen character types are Artisans: Composers, Crafters, Performers and Promoters; Guardians: Inspectors, Protectors, Providers, Supervisors; Rationals: Architects, Fieldmarshals, Inventors and Masterminds; Idealists: Healers, Counselors, Champions and Teachers (Advisor Team, 1998-2005). The different personality related preference models and inventories are given in Table 1.8.

Table 1.8

Learning styles models: Personality Related Preference Models and Inventories

<table>
<thead>
<tr>
<th>Sl.No.</th>
<th>Inventory Title</th>
<th>Author(s)</th>
<th>Date of Publication</th>
<th>Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Myers-Briggs Type Indicator</td>
<td>Myers-Briggs</td>
<td>1962</td>
<td>Extraversion/introversion, Sensing/intuition, thinking/feeling, judging/ perceiving</td>
</tr>
<tr>
<td>2.</td>
<td>Matching Familiar Figures</td>
<td>Kagan</td>
<td>1964</td>
<td>Impulsivity or reflectivity</td>
</tr>
<tr>
<td>3.</td>
<td>Keirsey Temperament Sorter II</td>
<td>Keirsey</td>
<td>2004</td>
<td>Character and temperament into four categories: Artisans, Guardians, Rationals and Idealists</td>
</tr>
</tbody>
</table>
SECTION 3

Section 2 discussed the concept of learning, learning styles, basic characteristics of learning styles, dimensions of learning styles and learning styles models and inventories. This section, that is, section 3, the last section in Chapter 1 discusses the present education system in India, challenges in managing learning styles and strategies for managing learning styles followed by deposition of thesis and conclusion.

1.14 EDUCATION SYSTEM IN INDIA

The current system of education in India and across the globe put the future of students in a race where everyone would be searching for a short cut to succeed in one’s life. The system of pedagogy in India does not allow developing the learner’s personality with an apt balance of emotional intelligence and cognitive abilities. The student plays no active role in the attainment of knowledge. Their entire education is passive and mechanical. Lots of information is loaded on their mind which they cannot digest; students only cram the information and therefore knowledge never become their own. They fail to internalize what they learn in the class. As a result, learners struggle for academic excellence and achievement, an achievement beyond the three r’s.

To assure successful academic achievement in terms of academic knowledge and life skills, it is highly important to develop the learners’ personality with emotional intelligence including stress handling instinct. It would not only make them competent but also enable them to analyze the reasons of failure. Being intelligent is usually associated with being high on academic and intellectual abilities and being emotionally intelligent is having healthy relationships with others which is an important yardstick for success in life.
1.15 CHALLENGES OF MANAGING LEARNING STYLES

While considering learning style, one must remember that the learners could prefer to use either one or two learning styles, but in practice, most of them use several modes of learning styles. Each and every learner is expected to retain various learning strategies but they can retain only 10-20% of what they hear and hence the faculties who solely use a lecture format are needed to be aware of their students (Bowman, 1997; Nilson, 2003). More often, faculties encounter such problems with their students. If the students could not perform well in the class then the instructors say that “I know I went over that in class”. Instructors should realize that teaching in the class does not mean that the students have studied the material (Johnson, 2008).

On considering this perception, Bowman (1997) pointed out that teaching instructions with visual presentation provide an added advantage to students to remember information. Therefore, the faculty could increase retention up to 50% by means of visual representation. He also insisted that speaking may increase the retention up to 80% since it involves active cognition as well as listening skills. If speaking can be combined with doing, it will improve remembrance to 90%. Consequently, if the instructor teaches in auditory, visual as well as experimental modes, the students could recall 97% of the material presented in the class (Nilson, 2003).

Recent studies reported a wide range of learning style preferences of the students. These findings suggested the instructors to adopt multiple learning styles to make the learning process effective. Therefore, instructors should adopt various teaching strategies and styles to make their students understand complicated concepts. They should make classroom presentations as a routine activity and one of the learning strategies. It may take more time and efforts to develop and practice multiple teaching strategies. But these strategies will energize the students as well as the instructors. Assessing the
learning preferences of students is a major challenge faced by most of faculty members. In order to handle such challenge, the lecturer should assign a task to the students at the beginning of program of course which helps them to identify the learning mode of students.

Kolb’s Learning Style Inventory and the PEPS (Productivity Environmental Preference Survey) are considered to be valid and reliable modes for non-traditional college students and adults (Price, 1996; Dunn and Griggs, 2000; Lovelace, 2005;). Best of all is Kolb’s 13-item LSI model, which is widely used and is an appropriate model for adult learners (Kolb, 1984; Loo, 2004).

National Council Licensure Examination Review Software which is a research based self assessment software available from the Assessment Technologies Institute is used to evaluate the learning style of students in many countries. College counselors have to be aware of such tools and they must discuss with the students in the orientation session to administer the tool on learning style. Once they are aware of students’ learning preference, the students must be provoked with their learning style so as to develop appropriate learning methodologies. Faculties should permit their students to go with their learning style so that they can adjust their learning style regarding the learning programs they will come across in higher educational programs.

At the same time, one need to understand that it is a time consuming activity for faculties to design lesson plans to accommodate the diversity of learning style. In particular, time is premium for medical educators because they are always away from campus for clinical experiences. So framing lesson plans may be unrealistic for faculties in medical profession accommodating all learning styles even if the instructor deals with the nature and extent of diversity.
1.16 DEPOSITION OF THESIS

The thesis is organized in five chapters. The introductory chapter, that is, the present one outlines the research problem and provides theoretical frame work of the study.

The second chapter gives the review of the various studies conducted in the field of emotional intelligence and learning styles, leading to the identification of gaps in this area.

The third chapter describes the methodology which has been utilized in the present study and enunciates the importance and objectives of the study.

The fourth chapter deals with the presentation of the data, analysis and interpretation of the data.

The fifth chapter locates the major findings, explains the academic implications of these findings and gives suggestions for further research followed by references and appendices.

1.17 CONCLUSION

The concept and definitions of emotional intelligence and learning styles along with their significance have been clearly explained in this chapter. It has been empathized that emotional intelligence is not only a part of student life or in the world of education, but it is also becoming a significant factor of one’s recruitment in corporate life and in social life too, which is beyond his academic achievement. The chapter also discussed the different models and measurement of emotional intelligence and learning styles and its importance in student’s academic achievement and success in life.
The practice of reflective thinking as a learning style is a powerful tool in bringing about understanding, competency and mastery in one’s life. Educators and mentors should focus on the factors discussed in this chapter to develop emotionally intelligent youth where the academic achievement and social intelligence can be achieved and applied for individual and collective betterment. Emotional Intelligence, in itself, is not sufficient to create a better world for youth. However, the way emotional intelligence is applied in daily lives, both by youth and those who support them has a powerful effect on the children’s lives.

The review of related studies is given in Chapter 2.