INTRODUCTION

Everyone knows what an emotion is, until asked to give a definition
(Fehr & Russell, 1984)

The phenomena for which the word emotion is being used include a class of events with sufficient functional unity and functional specificity to justify a single concept. A major problem is how to define emotion. Emotion is not a natural class (Frijda, 2000). Then why and how did the concept emerge? There must be certain phenomena that imposed themselves and required a designation and explanation. The question however remains whether these phenomena justify assuming a distinct function of emotion separate from cognition and conation? It has always been a major issue how to characterize, the commonalities that the emotional phenomena might have with, and the differences that sets them off from, cognition or conation.

For the reason that many different kinds of phenomena tend to occur in conjunction, emotions are sometimes referred to as multicomponent phenomena. These phenomena include feelings, shifts in control of behaviour and thought, involuntary and impulsive behaviours (including expressive behaviours), the emergence or tenacity of beliefs, changes in the relationship with the environment and physiological changes not caused by physical conditions. These phenomena usually occur in response to a person’s actions, thoughts or some external events. According to Frijda (2000), emotion can be viewed primarily as interpersonal states such as feelings, states of arousal, or activation of certain motor patterns. They may also be viewed as interactive states involving the subject and an object, and their relationship. Warren (1935), in his 'Dictionary of Psychology' gives a variety of meanings and expressions of emotion. An experience or mental state characterized by a strong degree of feeling and usually accompanied by motor expression often
quite intense. It marks the totality of experience during any period in which marked bodily changes of feeling, surprise or upset take place. Further, emotions may be the dynamic expression of the instincts which may emanate from conscious or unconscious sources. These reflect highly complex innate disposition within which instincts are organized as so many sensory-motor dispositions to particular bodily movements.

A. CONCEPT AND NATURE

The word ‘emotion’ dates back to 1579, when it was adapted from the French word émouvoir, which means ‘to stir up’. This is based on the Latin ‘emovere’ where e (variant of ex) means out and move means move. According to Clarke-Stewart, Friedman and Koch (1985), for several reasons it is hard to formulate a definition of emotion. Firstly, emotions are diverse and varied. There is no consensus among behavioural scientists on what the emotions are. Some investigators have identified ten basic emotions: interest-excitement, joy, surprise-startle, stress-anguish, anger, disgust-revulsion, contempt, scorn, fear, shame and guilt (Ekman, Friesen, & Ellsworth, 1972; Izard, 1977). Some others have described mixtures of emotions: joy + fear = guilt (Plutchik, 1980). Secondly, emotions have many different aspects, they involve elicitors (the triggering events or situations); receptors (the actions of the central nervous system); expressions (observable changes in face, body, voice or action) and experiences (person’s perception and interpretation of his or her emotional state and expression) (Lewis & Rosenblum, 1978). Thirdly, emotions affect the whole person, not just a single biological system, and they tend to occur in clusters or combinations. Finally, it is hard to define emotions because the aspects of emotional experience vary not only from one individual to another, but also from one culture to another.

Just as we consider the term weather as a broad term for various relations among humidity, temperature, wind speed and the like. The same
way, we may consider *emotion* as a broad term for various relations among external elicitors, thoughts and changes in feelings (Kagan, 1978). However, no single definition of emotion has proved acceptable to all psychologists; some had even suggested that the concept of emotion be dropped from technical psychology. The difficulty remains that no single criterion has been found that clearly distinguishes emotional from non-emotional states. Emotional behaviour differs in degree from other forms of behaviour (Duffy, 1941), that is, they can be ranged along a continuum. One such continuum can be the degree of energy mobilization within the organism. Secondly, an emotional response is disorganized. But, Duffy (1941) stated that, disorganization is a function of any behaviour and is not unique to emotion. Thirdly, emotion is characterized by a conscious quality of pleasantness and unpleasantness. Historically considered, the conscious feelings of pleasantness and unpleasantness referred to the phrase affective process. Much confusion and uncertainty prevailed about the definition of emotion and the fundamental concepts underlying it (Young, 1961). According to him, one source of confusion lies in the failure to distinguish emotion from other varieties of affective processes. According to DSM IV, affect is a pattern of observable behaviours that is the expression of a subjectively experienced feeling state (emotion). In this sense, the term affect is used rather more narrowly as interchangeable with emotion. Affectivity, however, characterizes all experiences and not merely emotion. Sometimes the terms emotion, feeling and affect are distinguished from each other. (e.g., Fredrickson, 2001; Russell & Barrett, 1999) and sometimes they are treated as interchangeable (e.g., Isen, 2000). According to Young (1961), the varieties of affective processes can be summarized as under:

(i) *Simple sensory feelings*- Those feelings which are induced by sensory present actions. These are of two kinds: a) pleasantness, induced by
perfumes, sweet tastes, musical tones, rhythmical movements etc., and b) unpleasantness, aroused by foul odours, bitter tastes, cutaneous pain, dazzling lights, loud sounds, etc. These feelings differ in intensity, duration and temporal process apart from sign (positive and negative).

(ii) *Persistent organic feelings*- It includes positive satisfactions that accompany food ingestion, sexual relief and organic states of physical well being; and feelings of dissatisfaction due to the aches and pains of injury, disease, hunger, thirst and other unpleasant conditions.

(iii) *Emotions*- These are acutely disturbed affective processes, which originate in a psychological situation and are revealed by marked bodily changes in the glands and smooth muscles. The words like rage, horror, terror, agony, excitement, jealousy, shame, embarrassment, disgust, grief, joy, elation etc. represent emotional disturbances.

(iv) *Moods*- It refers to an affective state that is of lower intensity, longer duration and less disruptive than emotion. These are moods of cheerfulness, excitement, anxiety, depression etc. It may last for hours, days or even weeks.

(v) *Affect*- In psychiatry and abnormal psychology the term refers to intense pathological moods such as those of manic excitement, deep depression, euphoria, persisting anxiety etc.

(vi) *Sentiments*- These are the feelings which rest upon past experience or training and thus have a cognitive or intellectual basis. There are moral, intellectual, aesthetic, religious and other kinds of sentiments.

(vii) *Interests and Aversions*- Interests are the activities that one likes and carries out for his own sake. Aversions are activities that one dislikes and avoids if possible.
(viii) Temperament- It refers to the affective aspect of personality as a whole. Temperaments can vary from cheerful, vivacious, apathetic, and moody to sanguine, phlegmatic, depressed etc.

However the varieties of affective processes mentioned above overlap in meaning but one thing is clear that an emotion is an affective process distinguished from others as an acute (brief and intense) affective disturbance. The distinction is ignored by psychologists who use the term emotion broadly to include all kinds of affective processes. Thus, Hilgard (1953) wrote: ‘For literary and descriptive purposes we need a rich vocabulary to describe emotional coloration. For psychological purposes, however, we shall group together the whole family of experiences, from mild satisfactions and annoyances at one end of the scale through weak emotional states upto the most intense emotional states. In so doing, we emphasize the continuities, rather than the discontinuities, of any of these emotional states’. Rapaport (1950) wrote that a great deal of confusion concerning the definition of emotion has been due to failure of investigators to distinguish between the phenomena of emotion and the underlying dynamics. The emotional phenomena are complex and can be analyzed from different points of view.

The phenomena of emotion present three main aspects. First, an emotion is a conscious experience that is felt and directly reported. All of us feel anger, fear, joy, sorrow, love, grief, shame, guilt, disgust, amusement and other affective experiences. Second, an emotion is a bit of behaviour. Hostile excitement, friendly vocalizing, excited jumping, lustful approach, terrified flight, cries of fear and pain, joyful behaviour and other patterns of emotional behaviour have been observed in human beings as well as animals. Third, an emotion is a physiological process. An emotion is accompanied by a marked activity of autonomic nervous system and viscera, electrical and chemical
changes in cortical and sub-cortical centers. How-much-so-ever diverse these aspects may be they reveal a single underlying emotional event. Yet we all believe that the conflagration is a single event in nature and that the observations from all points of view can be fitted together into a single consistent story. Similarly, the diverse phenomena of emotion belong together and the only question is a particular one: How can the various facets be fitted together into a single congruent account?

B. HISTORICAL PERSPECTIVE

Throughout the ages, philosophers have been concerned about the concept of Emotion, its nature and its effects. What is an Emotion? This question was asked in precisely that form by William James, as the title of an essay he wrote for 'Mind' over 100 years ago (James, 1884). How does it come about that some experiences have that particular quality we call emotional? Seeing a bear in the zoo arouses nothing but interest and curiosity but seeing the same animal outside the zoo may arouse violent fear. What is the psychological process that is responsible for turning a perception into an emotional experience? Few theories have tried to explain how an emotion is aroused, yet it is the step from perception to emotion that yields the clue to the distinctive quality of emotion.

At the base of every emotion there is some kind of perception or awareness of an object, a person, or a situation, which in some cases becomes emotional, in other cases remains a cold perception (James, 1884). Therefore, it can be reasoned that the perception that arouses an emotion must be somehow different from the mere perception of an object as such, which does not arouse an emotion. The felt emotional experience as distinct from the cold perception has often been called the emotion, while the observed (and felt) bodily upset has been treated as a separate phenomenon. Most theories of emotion have accounted for the connection between emotional experience
and bodily changes by assuming that one must cause the other; but few have tackled the problem of how the cold perception can cause either the felt emotion or the bodily upset. Psychologists though agreed with the belongingness of felt emotions and bodily upset in the total emotional pattern but disagreement was in terms of what to be considered cause and what effect.

1) Early Thinkers

Aristotle (384-322 B.C): The first great systematizer in the field of emotions defined emotion as that which leads one's condition to become so transformed that his judgment is affected and which is accompanied by pleasure and pain (Aristotle, 1941). Examples of emotion include anger, fear, pity and the like as well as the opposites of these. He did not however tell what these opposites might be. According to Aristotle a complete definition of emotion must include both: the matter, that is, the physiological changes observed and experienced and the form, namely the object to which these changes refer, which includes both the tendency and that towards which it aims- for instance, the desire for revenge and the related tendency of attack for the purpose of revenge.

Throughout the Middle Ages, the study of emotion was typically attached to ethics, and it was central to Christian Psychology and the theories of human nature in terms of which the medieval understood themselves. There were elaborate quasi-medical studies about the effects of various humours on emotional temperament and cognitive and conative aspects of emotions. Emotions were essentially linked with desires. According to Aristotle, the object arouses desire – which is a tendency towards the object. This tendency is a felt attraction and also a physical motion; including bodily changes and facial expression and it finally culminates in action (which may
carry out the desire or resist it). For Aristotle, desire as a psychological experience is not a phenomenon completely separate from its motor aspect. The person sees and desires. This desire is not exclusively psychological, but is physiological as well - it is a psychosomatic tendency.

**Thomas Aquinas (1225-1274):** An Italian philosopher Thomas Aquinas commented that emotions are distinct from sensation, and that the emotion is one tendency, both psychological and physiological, the movement from subject to object. Aristotle in effect sees the cause of both the psychological experience and the bodily changes in a man's recognition of an object as good or bad, suitable or unsuitable for him. Desire and aversion constituted by the complex of psychological and physiological effects of this recognition. Thomas Aquinas follows him completely in this account. Desires and aversions are experienced by the embodied person and are aroused by objects real or imagined which that person deems suitable or unsuitable. Thus according to Aristotle and Thomas Aquinas, cold perception gets transformed into emotion because that person or animal perceives something as good or bad for him, something that will give him pleasure or pain. This results in an attraction or repulsion that is felt all over, hence the sense estimate affects the whole organism in the resulting emotion.

**Rene Descartes (1596-1650):** He is typically regarded as the father of modern philosophy. He was not in agreement with the ancient and medieval literature on the philosophy of emotion. Descartes, fundamentally a scientist and a mathematician, insisted that the mind is a separate substance from the body (and that beasts therefore do not have minds). Accordingly, Descartes defended a theory in which the mind and body meet in a small gland at the base of the brain (now known as pineal gland) and the latter affects the former by means of the agitation of *animal spirits* (minute particles of blood) which bring about the emotions and their physical effects in various parts of
the body. Descartes sees a passive soul afflicted by a bodily upset. This bodily upset is produced by the picture of the object that forms an impression in the brain. Emotions not only involve sensations caused by this physical agitation but perceptions, desires and beliefs as well. It is not that an emotion is merely a perception of the body; it may also be as Descartes put it, a perception of the soul (e.g., a perception of desire) and some perceptions (as in dreams) may in fact be of things that do not exist at all.

An emotion is one type of passion for Descartes. He defined the passions in general as the perceptions, feelings or emotions of the soul which we relate specifically to and which are caused and maintained by some movement of the (animal) spirits. Descartes’ solution (or rather creation) of the mind-body problem by separating soul from body and emotional experience from emotional expression has appealed to many later theorists. This theory of emotion may be unsystematic and even naïve, but his influence has been profound. When it could no longer be supported that the soul resides in the pineal gland, it was simply assumed that the human body can function without a soul, as does the animal body, according to Descartes.

**David Hume (1711–1776):** David Hume, one of the most outspoken defenders of enlightenment defined emotion as a certain kind of sensation, or what he called an impression, which is physically stimulated by the movement of the animal spirits in the blood. Such impressions are either pleasant or unpleasant. The impressions that constitute our emotions are always to be located within a casual network of other impressions and ideas in turn are caused by them. The pleasant impression of pride, for example is caused by the idea that one has achieved or accomplished something significant and the impression in turn causes another idea which Hume described as an idea of the self. The emotion, in other words, cannot be identified with the impression or sensation alone, but can only be identified
by the whole complex of impressions and ideas. What Hume acknowledged with his emphasis on the essential place of ideas in emotion is what we now call the cognitive dimension of emotion, in addition to the psychological (animal spirits) and merely sensational (impression) aspects of emotion.

**Immanuel Kant (1724–1804):** He was also a champion of enlightenment. Kant reinforced the crucial distinction between reason and what he called the *inclination* (emotions, moods and desires) and dismissed the latter as inessential to moral sentiments. Indeed, the first major attention to emotion in Anglo-American philosophy came in mid-century when an ethical theory named *e-motivism* came to dominate both the English and the North American scene. During the same period in Europe, however, the emotions enjoyed more attention. Following the phenomenology of Franz Brentano (1874–1971), many philosophers developed thoughts and theories in which emotions were given a central place in human existence. In the shadow of World War II, Jean Paul Sartre (1905-1980) offered the important work; ‘The Emotions: Sketch of a Theory’. Sartre's conception of emotions as *magical transformations of the world* added a new existential dimension to the investigation of emotion.

Given the nature of philosophy and its concern with epistemiological matters, it is not surprising that the focus is on the conceptual structure of emotion rather than the sensory, social and physiological aspects of emotion. What remains at the core of all such theories however, is an awareness that all emotions presuppose or have as their preconditions certain sorts of cognitions- an awareness of danger in fear, recognition of an offense in anger, appreciation of someone or something lovable in love. The neurological and also the behavioural theorists take into account that no matter what the neurology or the behaviour, if a person is demonstrably ignorant of a certain state of affairs or facts, he or she cannot have certain emotions.
**Charles Darwin (1809-1882):** Charles Darwin was the first person to deal with the relation of emotion to bodily changes on the basis of a large collection of factual evidence. His book on ‘The Expression of the Emotions in Man and Animals’ has long been a classic in the field. Darwin proposed three principles to explain the origin of emotional expression. He is credited with having recognized the connection of strong nervous excitation with emotional expression, Darwin himself gave priority to his first principle of serviceable associated habits, which assumes that certain expressive actions (clenching one’s fist, testing one’s muscles in anger) were originally used to relieve or gratify certain sensations, desires, etc. by appropriate action. Through constant repetition, they become habits and were passed on from generation to generation. His second principle of antithesis is an explanation of the observed fact that some emotions have an opposite (joy and sorrow, like and dislike). His third principle of direct action of nervous system, accounts for the physiological changes (heart rate, circulation, perspiration etc.) that take place during emotion. His third principle is the real mainstay of his theory, and it is actually this principle that has influenced thinking in the area to the present day. Overflow of excitation is assumed in many later theories particularly psychoanalytic theories.

2) **Dawn of Science**

**William James (1842-1910):** In his famous theory of emotion William James (1884), suggested that the causal relationship between emotional experience and physiological changes goes in the opposite direction from that assumed by Darwin and his predecessors. He defined emotion as ‘a sensation or a set of sensations caused by a physiological disturbance, which in turn is prompted by some perception’. He proposed that the bodily reaction causes the felt emotion which is simply the combination of organic sensations. James emphasized that it is not the action itself but the simultaneous visceral
excitation that is felt as emotion. Contrary to the ordinary view of emotion, James’ theory states that bodily changes follow the perception of the exciting fact and our feeling of the same changes as they occur, is the emotion. The common view was that an individual sees a bear, becomes afraid, and then experiences the sensations of fear, such as a pounding heart. In contrast James suggested that individuals first have the bodily sensations and then know they are afraid.

**Carl Lange (1834-1900):** Almost simultaneously Carl Lange (1885) proposed a similar interpretation of the causal relationship between felt emotion and bodily changes. Lange’s theory was that emotions are influenced by physiological reactions to stimuli. Unlike James, however, he thought that changes in the circulatory system rather than visceral changes were responsible for emotional experience. His work was later paired with that of American psychologist William James. Their similar theories were coupled to create the James-Lange theory of emotion. This theory proposes physical arousal occurs when a stimulus is presented and is followed by emotion when the brain reacts to the nervous system. For example, when we see a snake, the heart rate increases, as a result we fear or startle, which is the emotion that follows. Lange and James held the proposition that there is no so-called mental emotion apart from perceived physiological changes.

**John Dewey (1859-1952):** Dewey made action basic to knowing and feeling (we know what we do only when we do it). Dewey refused to recognize any sequence of seeing-running-fearing. For Dewey, everything happens all at once. There is an instinctive coordination between the act of seeing-touching which (constitutes the object) and the act of running trembling etc. (which constitutes the emotion). Action not only comes before emotion, it even comes before perception. According to Dewey, we do not perceive an object until we move towards it – hence our action constitutes the
object. Emotion might possibly be the felt tension between habit and ideal, on Dewey’s premises, although the mechanism by which it is felt would be doubtful. Dewey’s theory is important in the field of emotion for historical reasons.

3) Current Perspective

Later analysts have developed one or the other aspect of the Freudian view, though none of them can be said to have worked out a consistent theory. Jacobson (1952) pointed out that ego functions as well as instinctive activities are accompanied by emotion. Hence affect is the experience of an increase or decrease of drive tension rather than the experience of a drive. Jacobson’s theory implies that emotion is the experience of an increase or decrease of excitation.

In Rappaport’s (1953) view these later theories cannot be contained within the Freudian system. Historically, Freud’s views of emotion represent three phases. Rappaport attempted to integrate them by applying each phase to a different stage in phylogenetic and ontogenetic development. He explained that emotions use inborn channels of discharge, hence Freud called emotions as inherited hysterical attack. During infancy, at a time when the pleasure principle reigns unopposed, drives tend towards immediate discharge. Emotions are the experience of these drives act as safety valves when the object is out of reach. At this second stage, emotions are felt as massive affect storms which allow internal discharge when action is impossible. Gradually the growing ego develops counter-catharsis and so is able to delay action, which results in more intense and more varied affect discharges.

Logically enough behaviourists consider emotion as an aspect of biological drive. From Watson to Skinner and Hull, emotion is a modification
of drive. For Watson (1919), emotion is a hereditary pattern reaction involving profound changes of the bodily mechanism as a whole, but particularly of the visceral and glandular system. He claims that the innate emotional patterns are anger, fear and love; they are aroused in the new born by restraint (anger), loud sounds (fear), and stroking (love). Gradually these instinctive patterns become modified in the course of development. In the adults, emotion is recognized in most cases merely in the facilitation or inhibition of responses. Hull and Skinner are fairly close to Watson in their formulation. For Skinner (1938) emotion represents changes in reflex strength. Hull (1943) does not use the concept of emotion but apparently subsumes it under increase and decrease of drive strength.

Young (1949) defines emotion as one of the many affective processes that represent a class of their own. Emotions occur when a highly organized activity is blocked, when a release of tension is achieved suddenly and when danger threatens. Thus emotions would include anger, sudden joy and fear. He defines emotion as an ‘acute affective disturbance within the individual as a whole, arising from psychological situations and manifest in conscious experience, behaviour and especially through bodily changes which are regulated by the autonomic nervous system’. He says emotions do not motivate; they are the result of motivated action. According to Young, emotion is only one of a number of affected processes, which include feelings of pleasantness or unpleasantness, moods, attitudes, sentiments, interests, organic aches, hunger, thirst, fatigue. These affective processes are not necessarily disturbances (e.g. feelings of pleasantness or a cheerful mood), do not have to be aroused by a psychological situation (e.g. hunger or thirst), do not necessarily accompany motivated action (e.g. organic aches) and do not obviously excite the autonomic nervous system (e.g. interests). Young’s theory makes emotion an incident in motivated action, satisfying, disturbing,
exciting but does not account for emotion which occurs without overt action. It provides no criterion by which affective phenomena can be distinguished from other psychological activities.

C. STRUCTURE OF EMOTIONS

There have been extensive efforts to understand the components of children’s emotions. Several investigators have found considerable overlap between the constructs of anxiety and depression (e.g., Lonigan, Carey & Finch 1994; Forehand & McCombs-Thomas, 1992) and have suggested a higher order construct of negative affect (Watson & Clark, 1984). There is considerable literature which supports the presence of distinct components of negative emotions in adults. Clark and Watson (1991) articulated a three-factor structure to explain the relation between symptoms of anxiety and depression. These are negative affect (a general distress factor that affects both anxiety and depression), autonomic hyperarousal (a factor specific to anxiety) and low positive affect (a factor specific to depression). A related three-factor structure was outlined by Barlow et al. (1996), signifying discriminability of depression, anxiety and fear. This latter model differs from that of Clark and Watson (1991) in terminology, in that anxiety is conceptualized as distinct from autonomic arousal. In accordance with this view, Fowles (1995) suggested that fear and anxiety in humans may correspond to separate but related neurological systems, in which anxiety involves Gray’s ‘behavioural inhibition system’ and fear involves the ‘fight/flight system’ (Barlow et al., 1996; Gray, 1987). Barlow et al. (1996) suggested that negative affect is a pure manifestation of the emotion of anxiety and that autonomic arousal is a manifestation of the emotion of fear.

Accumulating research evidence reveals that self-rated mood is characterized by two broad factors: Negative Affect and Positive Affect (e.g., Tellegen, 1985; Watson and Tellegen, 1985). Negative Affect is a general
factor of subjective distress and corresponds to the extent to which a person is feeling upset. It encompasses a broad band of negative mood states like sadness, anger, fear, guilt and disgust. Positive Affect factor encompasses a wide spectrum of positive mood states, including joy, enthusiasm, interest, energy and self-confidence. Watson and Tellegen (1985) opined that these two mood factors relate in a differential pattern to anxiety and depression. Measures of anxiety and depression tend to be strong markers of the general Negative Affect Factor. In contrast, measures of Positive Affect have shown consistent (negative) correlation with depressed mood but no relation to anxious mood.

It has been a point of common observation that anxiety and depression in preadolescents are part of larger construct of negative affect, rather than being distinct emotional states (e.g., Cole et al., 1997). However, others suggest differentiating the syndromes by de-emphasizing the non-specific symptoms and focusing on the symptoms which are specific to each. For example, the tripartite model of negative affect proposed by Watson, Clark, Weber et al., (1995) has been used by Joiner et al. (1996) to assess anxiety and depression in youth. According to this model, the emotional states of anxiety and depression have some overlapping as well as unique features. Therefore, Joiner et al. selected items from various measures that were judged by researchers to assess General Negative Affect, Positive Affect and Physiological Hyperarousal. Exploratory principal components analyses provided three factor solution in a clinical sample of eight to sixteen year old children. Chorpita, Albano and Barlow (1998) and Muris, Schmidt, Merkelbach and Schouten (2001) also supported three factor structure of negative affect emerging from a confirmatory factor analysis.

In the case of clinically anxious children, the latent constructs of fear, anxiety and depression are reasonably distinct and get correlated (Barlow et
al., 1996), lending support to the existing theories of anxiety and depression. Two models supported the existence of three factors – Anxiety corresponding to Clark and Watson’s Negative Affect; Depression corresponding to low Positive Affect and Fear corresponding to Physiological Hyperarousal. However, inspite of their distinctiveness, it has been difficult to distinguish the constructs of anxiety and depression empirically (Clark & Watson, 1991; Maser & Cloninger, 1990).

It is believed that there are different conceptualizations of constructs anxiety and depression. But anxiety and depression are variants of a single mood disorder. Several models have been proposed to describe the unitary phenomenon of anxiety and depression in adults. One model suggests that there is a temporal relationship between the two; anxiety predates depression (Dobson, 1984; Kendall & Ingram, 1987). Another conceptualization posits that anxiety and depression exist on a continuum, with depression at one end and anxiety at the other. Conceptually, anxiety and depression bear phenomenal distinction from one another. The construct anxiety is dominated by the emotion of fear whereas depression is centered on the emotion of sadness (Izard 1972, Watson & Kendall, 1989). It is important to note that several widely used classification systems categorize anxiety and depression differently. However, World Health Organization system (Rutter, Shaffer & Sheperd, 1975) placed both anxiety and depression in the category of ‘neurotic disorder’.

On the other hand, a substantive linkage has been drawn between anger and fear. Fear reflects displeasure at the prospect of an undesirable event (Ortony et al., 1988, pp.109-111). Lang et al (1998) opine that both fear and anger arise from aversive motivational system. Fear occurs from the anticipation of something aversive, whereas anger is a reaction to the actual occurrence of something aversive. An association of fear and anger is evident
in factor analytical studies of the structure of self-reported moods and emotions. Factor analyses of the data obtained through administration of Positive and Negative Affect Schedule items pertaining to anger or irritability loaded with items pertaining to anxiety or threat avoidance. Such results provide a substantial reason about presence of a common source which links the negative affect (e.g., Watson et al., 1999).

D. DEVELOPMENT OF EMOTIONS

Emotions are a major force in children’s lives and organize their adaptation to the world around them. Functionalist theory of emotions emphasizes the role of emotions as forces that regulate and organize many aspects of lives, including thought processes, social behaviours and physical health. Piaget (1952) compared emotion to the gasoline that fuels a car and cognition to the engine that harnesses it. He believed that emotions develop as their cognitive components develop through stages. For Piaget, emotions were inseparable from cognition. According to Freud (1900, 1915), infants initially possess neither cognition nor emotion, just arousal and its reduction or tension and its reduction. Both Piaget and Freud offered limited accounts of emotional development.

Sroufe (1979) has gone beyond their accounts and provided more details. During the first two years of life as infants’ brain and muscles become more effective, successive re-organizations of behaviour occur. In the first stage emotions are based on changes in the level of physiological tension. Like Freud, Sroufe suggests that tension is the key to the emotions of early infancy. He cites research (e.g., Cicchetti and Sroufe, 1976; Emde et al., 1976) showing that newborns smile and infants laugh when the level of neurological excitation or tension first rises and then quickly falls below a certain threshold. In the third or fourth month of life, the infant begins to react to specific familiar or unfamiliar events. The infants develop motivation to
complete an action in the fifth month and they will cry if they are frustrated. Joy and fear develop after the ninth months. By the end of the first year, elation, anxiety and anger appear. At 18 months shame, defiance and affection appear. At about three years of age, pride, love and guilt appear along with some cognitive advances. Thus as cognitive development proceeds, it interacts reciprocally with emotional development.

One of the most complete accounts of emotional development till date has been given by Campos and his colleagues (Campos et al., 1983). They have proposed seven postulates of emotional development: (i) A set of differentiated core-emotions – for example, fear, surprise, joy, - exists from birth to death. Expression of each emotion changes in the course of development. (ii) As cognitive development takes place in children, the complex and coordinated emotions as guilt, shame, depression and envy appear. (iii) In due course of development, different circumstances become effective in eliciting emotional responses. (iv) As the development progresses, the relationship between expression and experience of emotions changes. (v) With cognitive and motor development, even individual’s coping style in response to emotions also changes. (vi) Emotional expression, over the course of development gets refined into socially acceptable forms. (vii) As development takes place in children, receptiveness to emotional expressions changes. As these postulates demonstrate, emotional development proceeds simultaneously along several formats. In general, the emotional abilities of children increase with age, as the cognitive ability. The different aspects of emotional development progress at different rates, influenced by gender and family environment. Now the expression and development of emotions in various developmental stages would be discussed.

As the child grows, his awareness of self gets linked to the ability to feel an expanding range of emotions. Like adults, young children experience
many emotions and also try to control their emotions. During the early childhood years, a self conscious emotion such as pride and guilt becomes more common. These emotions are influenced especially by parents’ responses to children's behaviour. Self conscious emotions are related to evaluations as per the culturally based rules for appropriate behaviour. Among the most vital changes in emotional development in early childhood are an increased ability to talk about their own and others’ emotions and an increased understanding of emotion (Kuebli, 1994). Between 2 and 4 years of age children considerably increase the number of terms they use to describe emotions (Rodgeway, Walter & Kuezaj, 1985).

When they attain the age of 4 to 5 years the children show an increased awareness that reflect on emotions and a growing awareness that they need to manage their emotions to meet social standards (Bruce, Olen & Jensen, 1999). An emotional regulation becomes necessary when the presence or absence of emotional expressions and experiences interferes with one’s goal. Some researchers emphasize children’s descriptions of internal emotional states. During pre-school years, children are able to create discrepancies between how they feel inside and their expression of that emotion. The discrepancies may be intentional in order to gain attention (for example, child may exaggerate the intensity of their distress to gain attention) or to serve a social purpose such as masking or neutralizing the expression of emotions in a frightening situation and remaining calm in order not to be ridiculed.

Children also realize that the intensity of emotions may influence the responses of others and very intense emotions result in negative interactions. Generally children begin to vary the intensity of their emotions deliberately by the time they are 6 to 8 years of age. Throughout childhood, children control emotions more with their peers and are more likely to express
negative emotion to parents. Another more sophisticated emotional skill which the children develop in the childhood years is the ability to understand mixed conflicted emotions. On attaining age of 8 to 11 years, children’s experience of mixed feelings is more similar to that of adults. Initially they report feeling two or more emotions in relation to separate events, later on reaching the age of 11 years they can recognize mixed emotions in response to same situation. For example, feeling happy to be getting selected for match but sad for missing birthday party and feeling happy that school is over but feeling sad on missing friends (related to same situation).

E. COMMON EMOTIONAL PATTERNS

As the child grows, differentiated emotional patterns emerge. This section presents an overview of emotional pattern of the four negative emotions- fear, anger, anxiety and depression that form a part of this study.

Fear

Fear is a response to psychological or physical dangers. Though, it is experienced in a wide variety of situations, all of them have one thing in common, that they are perceived as a threat to our safety (Izard, 1991). According to Gray (1971), some causes of fear seem to affect all of us, like intensity- a loud noise or severe pain; novelty- strange places and people; evolutionary dangers- heights and darkness; and social interactions- threatening or angry exchanges with others. People differ noticeably in their individual reactions to fear, in accordance with their temperament and level of maturity (Kagan, 1974). Typical reactions to fear are wide eyes, becoming still, trembling, crying out, hiding, fleeing or clinging to someone else for safety. As the child grows, additional sources of new experiences occur, some of which may be startling or unpleasant and as a result may create fear.
Early childhood is the peak period of specific and intense fears. The developing intelligence of the young child makes possible for him to recognize potential dangers in situations. In late childhood, the severity and number of fears decrease. Fear of unfamiliar persons, environments and experiences disappears as the child becomes better acquainted with them (Jersild, 1954). Fears aroused by tangible and concrete stimuli decrease in late childhood. Fears are rather concentrated on imaginary, supernatural or remote dangers; darkness and imaginary creatures; death, injury, illness, doctors; thunder and lightning; and characters recalled from movies, stories, comics and television. Girls of this age show more fears than do boys. Children at this age are also beset by another fear that did not preoccupy them earlier, fear of an unpleasant social situation (Clarke-Stewart, Friedman & Koch, 1985). Older children are also afraid of being different as they fear being ridiculed or teased especially by friends because the older child is aware of social disapproval. Fears usually reach their peak of frequency and intensity around 12 years of age and then decline (Hurlock, 1959). In their first 14 years of life 90 % of children fear some specific things (Macfarlane et al., 1954). Only about 5 % have extreme fears or phobias (Miller, 1983).

**Anxiety**

Anxiety is an uneasy mental state concerning impending or anticipated ill (Hurlock, 1978). Spielberger et al. (1983) describe anxiety as a state of apprehension, uncertainty and fear resulting from the anticipation of a realistic or fantasized threatening event or situation, often impairing physical and psychological functioning. It is marked by apprehension, foreboding and uneasiness from which the individual is unable to escape. The uneasy mental state characteristic of anxiety may become a generalized ‘free-floating’ anxiety whereby children experience a mild state of fear in any situation perceived as a potential threat. Though, anxiety develops from fear and
worries, it can be distinguished from these in several respects. It is vague than
fear and it comes from an anticipated stimulus, unlike fear, which comes from
an existing definite stimulus. According to Hurlock (1978) like worry, anxiety
is due to imaginary rather than real causes. However it differs from worry in
two respects. Worry is related to specific situations, such as examination,
money or parties whereas anxiety is a generalized emotional state. Secondly,
worry comes from an objective problem whereas anxiety comes from a
subjective problem.

Anxiety is evident during the early school years and tends to increase
during childhood. It becomes more intense at the time of puberty. In its
milder forms, anxiety may be expressed in recognizable behaviour such as
nervousness, irritability, mood swings, anger outbursts, restless sleep and
depression. Anxious children often feel misunderstood, lonely, disturbed and
restless. Children often use defensive mannerism to hide their anxiety. They
may pretend and project boisterous behaviour, avoid threatening situations
by going to sleep, withdraw into a fantasy world, and keep themselves
extremely occupied and busy so that they have no time to think. They tend to
use television and other mass media more than their age-mates in order to
escape from anxiety increasing stimuli. Anxious children generally easily
become restless and disturbed and cannot concentrate on anything for long.
They either tend to over or under react. A slight provocation or criticism is
enough to send them into a fit of rage or they may react in an apparent calm
suppression of anger.

Grief/Depression

Grief is an emotional distress resulting from the loss of something
loved. In its milder form it is known as sorrow or sadness. Throughout life
people feel sadness when they are separated from others, especially those for
whom they care. Feeling rejected, left out, uncared for or isolation makes people sad. According to Hurlock (1978), for most children, grief is not a common emotion. There are three reasons for it. First, parents, teachers and adults try to insulate children from the painful aspects of grief as it can be traumatic for the child and lead to an unhappy adulthood. Second, as children have short memories, their attention can be diverted and they can be helped to forget their grief. Third, the provision for substitute for what children have lost can often turn their grief into happiness. Grief may be expressed in two forms in childhood: Overt Expressions and Inhibited Expressions. Crying is the typical overt expression of grief in childhood. This crying may be anguished and prolonged and child may enter a state of near hysteria. Inhibited Expressions consists of a generalized state of apathy marked by a loss of interest in things going on in the environment, loss of appetite, listlessness, sleeplessness, lack of communication with others and refusal to play. Prolonged grief leads to depression.

Depression, like anxiety is not a basic emotion, but a complex combination of discrete emotions. Depression is believed to have almost similar emotional features like anxiety. However, the key emotional component in depression is distress or sadness whereas that in anxiety is fear (Blumberg & Izard, 1986). The term depression can be used to refer to a feeling state or mood, a syndrome or a psychiatric diagnosis (Kovacs, 2003). Depression may be described as a state of being sad, gloomy, low in spirits and dejected. Often considered as a secondary emotion, it is caused by extreme grief, anger turned inward at the self and feelings of shame and guilt, etc. Although this constellation of feelings is broad, feelings of helplessness and hopelessness are pivotal. Thus, depression involves a complex combination of emotions, thoughts, images and memories (Izard, 1991). Like grief, time and again depression is associated with loss. The loss may involve
death of a loved one, loss of job, loss of self-esteem, loss of friends etc. The main difference between grief and depression is that the depressed individual feels incapable of dealing with the loss. Depression in the form of a brief sad mood is a universal experience and is a normal part of living that accompanies the losses, frustrations, failures, and disappointments that all of us face. However, it is more than just the blues, being down in the dumps, or experiencing temporary feelings of sadness. It is a serious condition that affects a person’s mind and body. It impacts all aspects of everyday life including eating, sleeping, working, relationships, and how a person thinks about himself/herself. Some researchers (e.g., Obeyesekere, 1985) emphasize that the quality and intensity of symptoms are very much relevant in understanding the experience of depression.

**Anger**

Fundamental emotion of anger as has been described by Darwin (1965) is an emotional state that varies in intensity from mild irritation or annoyance to intense fury and rage. Anger is a subjective emotional state that involves the interrelationship of emotional reactions and cognitive appraisal (Novaco, 1975). More recent explanation of anger as a multidimensional construct consists of physiological, phenomenological, and behavioural variables (Berkowitz, 1993). It occurs in response to real or imagined frustration, threat or perceived injustice. Anger is an emotion that is expressed more than frequently in childhood than fear. The reason being that there are much anger provoking stimulus in the child’s environment and also they learn at an early age that anger is an effective way to divert someone’s attention towards them and get what they want. The frequency and intensity with which children experience anger, varies from child to child. Some children can withstand anger provoking stimuli better than others; other children may react with an angry outburst, or petty annoyance or intense disappointment or withdrawal.
In early childhood anger is the most common emotion. The situations that most frequently give rise to anger in younger children consist of conflicts over playthings, conflicts over toilet addressing, interruption of interesting activities, thwarting of wishes, vigorous attacks from another child, taking away of a desired object by another child (Jersild, 1954). As the child reaches late childhood he has a stronger desire for independence and this leads to an increase in the number of anger provoking situations. He therefore becomes more frequently frustrated in his attempts to achieve independence. He becomes angry when criticized, compared with other children, interrupted in his activity, neglected, ignored, lectured, ridiculed, blamed or punished for something he did not do. He expresses his anger in refusal to speak, sulkiness, quarrelsomeness, fussiness, and disagreeableness. Older children experience more frustrations or feeling of helplessness, on being blocked in actions by parents or teachers. They react in aggressive way by striking out at the offending person or object, while others may react in a passive way withdrawing from the targeted person.

**TEMPERAMENT**

The term temperament comes from the Latin word – *temperamentum*, meaning a mixture of the bodily humors and from the word *temperare* which means to combine in due proportion (Rothbart, 1989b). According to the Encyclopedia of Human Emotions (1999), temperament refers to one’s disposition towards experiencing and expressing emotions, as well as one’s general level of activity and attentional control of emotions and actions. The essence of the concept of temperament lies in the individual differences in emotional phenomena. Emotions, emotion regulation and their development are the main focus in temperament research (Goldsmith, 1993).
A. CONCEPT AND STRUCTURE

Past three decades have witnessed development of a number of theories and conceptualizations of temperament, illustrating not only a growing tendency of the field but also the variety of views concerning temperament. A number of issues of specific interest have been taken up by various experts, like, the basic concept of temperament (Goldsmith et al, 1987), the structure (Angleitner, 1991), development aspect (Thomas and Chess, 1977), biological bases (Strelau et al., 1983) and methodological issues (Angleitner and Riemann, 1991).

The most basic definition of temperament is that it is a set of biologically rooted early appearing, and relatively stable individual differences in reactivity to stimuli and self regulation of that reactivity (Rothbart & Bates, 1998). Some authors such as Eysenck and Gray regard temperament as a synonym of personality (Costa & McCrae, 2001). According to Buss and Plomin (1984) most researchers who refer to temperament and personality as a synonym use a biological approach to personality where temperament describes a component of personality structure. They state that temperament differs from personality in that temperament, unlike personality is apparent in the early years of life and therefore one can maintain that it is the basic building block of personality. Strelau, (1998) has drawn clear distinction between temperament and personality. Biological factors play a stronger role in determining temperament whereas social factors play a crucial role in development of personality. Secondly, temperament is identifiable from early childhood whereas personality manifests at a later period of development as a product of socialization and learning. Thirdly, concept of temperament is applied to both humans and animals whereas personality comprising of psychological phenomena is limited specifically to human beings.
According to some researchers temperament characteristics should be limited to emotions only. The tradition to confine temperament to the emotional characteristics of behaviour was initially proposed by Allport (1937). According to him, temperament refers to the characteristic phenomena of an individual’s emotional nature, including his susceptibility to emotional stimulation, his customary strength and speed of response, the quality of his prevailing mood and all peculiarities of fluctuation and intensity in mood; these phenomena being regarded as dependent on constitutional make-up, and therefore hereditary in origin (p.54). Thus, it is clear from Allport’s definition that he perceives temperament as referring to individual differences in emotions especially in their formal characteristics. According to Allport (1937), two aspects of temperament may be characterized by means of qualitative dimensions: broad emotions-narrow emotions, which refers to the range of objects and situations to which an individual reacts emotionally, and strong emotions-weak emotions, which pertains to the intensity of feeling evoked by objects and situations (pp.407-408). Taking forward the emotion oriented definitions of temperament; Eysenck (1970) defines temperament as a more or less stable enduring system of affective behaviour (emotion) (p.2). While the debate on the precise definition of temperament was an ongoing one, following Allport, there was a widespread agreement that emotional experience and emotional regulation are intrinsic to the concept of temperament.

One of the most popular definitions of temperament, which gained the highest popularity among child centered researchers, especially in United States, has been proposed by Thomas and Chess in 1977. They viewed temperament as the style of behaviour. According to Thomas and Chess (1977) ‘temperament may best be viewed as a general term referring to the how of behaviour. It differs from ability, which is concerned with the what
and how well of behaving, and from motivation, which accounts for why a person does what he is doing. Temperament, by contrast, concerns the way in which an individual behaves’ (p.9). Strelau (1998) contends that temperament is understood as a behaviour style reveals itself in all kinds of behaviour and it refers rather to the formal characteristics of behaviour, not the content of behaviour.

Most researchers are of the view that the individual differences in temperament are determined by some biological mechanics. According to Strelau (1983) temperament characteristics are present since early childhood and have a strong biological background. A contemporary Russian psychologist V. M. Rusalov (1989) considers inheritance as one of its basic criteria when defining temperament. Benefitting from the Russian ideas, Strelau (1998) defines temperament as ‘basic, relatively stable, personality traits expressed mainly in the formal (energetic and temporal) characteristics of reactions and behaviour. These traits are present from early childhood and they have their counterparts in animals. Primarily determined by inborn biological mechanisms, temperament is subject to changes caused by maturation and individual specific ‘genotype–environment interplay’. According to Strelau (1998) the statement that temperament refers to formal characteristics of behaviour implies the biological roots of temperament, the fact that temperament refers not only to emotions but to all kinds of behaviours.

The brief insight into the concept of temperament leads to the conclusion that differences exists in understanding and definition of the temperament by various researchers. In spite of the prevailing differences, there is some commonality in the various thoughts on temperament described by Strelau (1998). Firstly, temperament refers to behaviour characteristics in which individuals differ. These differences are described by
such concepts as disposition (e.g., Betz & Thomas, 1979), trait (e.g., Allport, 1937; Buss & Plomin, 1984; Strelau, 1983), factor (e.g., Cattell, 1934-1935; Guilford, 1975), dimension (e.g., Eysenck, 1990b, 1991) type (e.g., Kagan, 1989b) and category (e.g., Chess & Thomas, 1989; Kagan). Secondly, temperament is relatively stable as compared with other phenomena. Thirdly, temperament has a biological basis; and lastly, temperament refers mainly to formal characteristics of behaviour reactions, such as intensity, strength, speed, energy, tempo, mobility and fluctuation.

The next section will elucidate some of the theories that have had influence on the understanding of temperament.

## B. THEORETICAL APPROACHES

Many theoretical conceptualizations of temperament developed over the years as thoughts and discoveries of temperament have been systematically formulated. This section explicates the history of temperament by describing various theories dating back to the ancient times of Hippocrates and Galen consisting mainly of speculations regarding the nature of this phenomenon. This would be followed by the theories of temperament related to the concept under investigation (relation of emotions and temperament) which would be discussed under the heading Current Perspectives.

### 1) Historical Perspective

**Hippocrates and Galen:** The concept of temperament has its foundation in the thoughts of ancient Greek philosophers and physicians. Galen (2nd century A.D) a Greek physician is credited with developing the first typology of temperament. His description of temperament is based on the four humors of body as described by Hippocrates (4th century B.C) the father of medicine. He maintained that the universe was created from the four elements earth, fire, air and water. Applying this elemental approach he stated that humors are also made from these four elements. These elements
were associated with the four humors of the body. Earth was associated with black bile, air with yellow bile, fire with blood and water with phlegm. These four humors determined whether a person was healthy or ill (Hergenhahn, 1997). These are regarded as manifestation of four qualities – warmth, cold, moisture and dryness. Galen described nine temperaments based on the four humors. The four primary temperaments depend directly on the dominance of one of these qualities. He labeled these as sanguine (dominance of blood), Choleric (dominance of yellow bile), melancholic (dominance of black bile) and phlegmatic (dominance of mucus). The other four temperaments which are the result of pairs of these qualities were considered secondary and were labeled as warmth-dryness, warmth-moisture, cold-dryness and cold-moisture. The ninth temperament is a steady mixture of the four qualities (Strelau, 1998).

**Immanuel Kant:** Immanuel Kant (1912) proposed that temperament consists of psychic traits determined by the composition of blood. Two properties of blood determine to which category of temperament an individual belongs - the ease or difficulty of blood coagulation and the temperature of blood – cold or warm. He distinguished four types of temperament based on two criteria. First was life energy (Lebenskraft) which oscillates from excitability to drowsiness, and the second criterion was the individual’s dominant behaviour characteristics (dominance of emotions versus actions). In sanguine and melancholic temperament, emotions dominate. In choleric and phlegmatic temperament actions dominate. Sanguine temperament is characterized by strong, quick but superficial emotions whereas melancholic temperament is characterized by long lasting and deep emotions. Cholerics act rapidly and impetuously whereas phlegmatics act slowly and inertly with lack of emotional reactions (Strelau, 1998). Kant emphasized on the existence of only four basic temperaments.
Wilhelm Wundt: While studying emotions and reaction time in his laboratory, he came across individual differences which led him to conclude that there exists individual difference in the temperament of individuals. According to Wundt, ‘temperament is a disposition that applies to drives and emotions’. Temperament is in relation to drive and emotion as excitability is in relation to sensory sensibility (Wundt, 1887, p.442). Wundt has distinguished four temperament types on the basis of two dimensions – strength of emotions and speed of changes. Choleric and melancholics are characterized by strong emotions. Rapid emotional changes are typical for sanguine and choleric, and slow emotional changes are typical for melancholics and (Strelau, 1998). Wundt was of the view that temperament refers to the domain of emotions (and drives) only. Exclusively formal features of emotions constitute the basis for characterizing temperament.

Carl Gustav Jung: Jung (1923), a Swiss psychologist, developed his own theory of personality known as analytical psychology. According to Jung there are two types of attitudes extroverted and introverted which reveal themselves in four basic psychic functions- sensations, thinking, feeling and intuition. One of the four functions plays an important role thus resulting in a final classification of eight personality types. The two attitude type’s extraversion and introversion became most popular personality or temperament dimensions ever known (Strelau, 1998). Jung’s ideas were influenced in developing many lines of temperament research which had a great influence on studies in the field of temperament (Strelau, 1998).

William Herbert Sheldon: At the beginning of the 20th century, anthropologists and psychologists established a relationship between constitution of the body and temperamental traits. Sheldon’s constitutional theory (Sheldon, Stevens & Tucker, 1940) developed under the influence of German psychologist, Ernst Kretschmer, was based on the assumption that
body and temperament constitute two integral aspects of the same object human being. The structure (physical make up) of the body determines the temperament which in turn is a function of the body. He distinguished three primary components (dimensions) of the physical make up (morphology) of body called as endomorphy, mesomorphy and ectomorphy referring to the three tissue layers. The composition of the three components results in somatotypes. The endomorphy type are characterized by a massive and highly developed digestive viscera, mesomorphic by strongly developed bones, muscles and connective tissues, sensory tissue and skin (Strelau, 1998). In constitutional approach, morphological components represent the static and temperament refers to the dynamic aspect. Sheldon and Stevens (1942) defined temperament ‘as the level of personality just above physiological function and below acquired attitudes and beliefs’ (p.4) as per the functional predominance of the relative organs of the body, the three primary temperament components given by Sheldon and Stevens are viscerotonia, somatotonia and cerebrotonia. Viscerotonia is characterized by functional predominance of digestive viscera (endomorphic physique), somatotonia is characterized by functional predominance of somatic structures (mesomorphic physique) and cerebrotonia refers to the functional prepotency of the higher centers of the nervous system (ectomorphic physique).

Sheldon's constitutional theory has been criticized for several reasons. As stated by Strelau (1998), factor analytic studies have shown that the three dimensional system as proposed by Sheldon can easily be reduced to two dimensions. Extreme ectomorphy maybe regarded as the absence of either the endomorphic or mesomorphic component (Ekman, 1951). The fact that somatotypes correspond with temperament components does not always mean that the latter are determined by the body type. As per Eysenck (1970),
the embryological hypothesis, the starting point for the three morphological dimensions was not effectively made while presenting the idea of interdependence of the structure (body) and function (temperament). According to him, Sheldon’s theory was limited purely to a descriptive level.

2) Current Perspective

**Hans Eysenck**: Eysenck proposed two related but conceptually distinct theories namely inhibitive theory and arousal theory. The main aim of the inhibition theory was to provide a theoretical understanding of the difference between introverts and extroverts. The arousal theory identifies the physiological system underlying individual differences in extraversion and neuroticism (Eysenck & Eysenck, 1985). Eysenck’s theory is based on three core ideas: temperament has a biological basis, temperament traits are universal and the structure of temperament may be described by a few independent factors. Eysenck emphasized that the dimensions of extraversion and neuroticism were anticipated by Hippocrates and Galen. He took the term extraversion-introversion from Jung (1923) but gave it a different meaning (Strelau, 1998). Jung regarded introversion and extraversion the two major attributes of personality which got expressed in functions of thinking, feeling, sensing and intuiting. In his study to determine the structure of temperament, Eysenck (1944) found two independent factors: neuroticism and hysteria versus dysthymia, where hysteria was typical for the breakdown of extroverts and dysthymia was located in the breakdown of introverts.

The main temperament dimensions as distinguished by Eysenck (1947) were extraversion and neuroticism. Later on Eysenck (1952) added psychoticism as the third dimension of temperament. After several decades of exhaustive factor analytic studies Eysenck concluded that the structure of
temperament consists of three basic factors: psychoticism (P), extraversion (E), and neuroticism (N). These three factors psychoticism-normality, extraversion-introversion and neuroticism-stability are mutually orthogonal or uncorrelated (Zuckerman, 1991) and have a hierarchical structure. The three factors given by Eysenck are so broad that these are often identified as super factors or major dimensions of personality (Eysenck & Eysenck, 1985). These three temperament traits have high heritability rates (Eysenck, 1990) and are transcultural (Jung, McCrae, Angleitner, Riemann & Livesley, 1998), which indicates that certain genetic factors cause differences in temperament (Eysenck, 1982). The three temperament traits are part of the individual’s physical constitution permanently affecting behaviour (Eysenck & Eysenck, 1985).

The three temperament constructs proposed by Eysenck are biological in nature and consist of various defining dimensions. Eysenck’s theory plays an important role in the conceptualization of temperament and many later theorists used Eysenck’s constructs as basis for their theories. Other theorists who contributed to the understanding of temperament as a construct related to emotions are Goldsmith and Campos and Albert Mehrabian.

**Albert Mehrabian:** Much before Goldsmith and Campos introduced their emotion-centered theory of infant temperament, there already existed an elaborate, multidimensional emotion-based theory of adult temperament developed in the 1970s by Albert Mehrabian. Mehrabian’s (1972) interest in the field of non-verbal communication led him to the conclusion that emotions constitute the primary referents of nonverbal and implicit verbal messages. They serve as mediating variables between situational and personality variables on the one hand and specific behavioural variables (e.g., actions, verbalizations) on the other (Mehrabian, 1991, p.75). Mehrabian and Russel (1974b) identified three independent and basic bipolar dimensions of
emotion states: pleasure-displeasure, arousal-nonarousal and dominance-submissiveness (PAD Emotion Model).Russel and Mehrabian (1977) demonstrated that all kinds of emotion states may be described in terms of these three dimensions. While emphasizing on the individual difference in habitual emotional reactions to various stimuli, Mehrabian (1991) describes temperament as characteristic emotion state or as emotion trait. In accordance with standard usage, state refers to a transitory condition of the organism, whereas trait refers to a stable, habitual, or characteristic condition of the organism (p.77).

Based on the three emotion states, corresponding bipolar temperament variables were distinguished as trait pleasure-displeasure, trait stimulus screening-arousability and trait dominance-submissiveness. The temperament dimension of pleasure-displeasure has been defined as a characteristic feeling state with such behavioural indicators as smiles and laughter, or more generally in terms of positive versus negative facial expressions especially during social interaction (Mehrabian, 1980). At one extreme this dimension is characterized by ecstasy and happiness and at the other extreme by pain and unhappiness (Mehrabian, 1978).

Stimulus screening is an automatic, non intentional, information-processing state and individuals differ in the degree to which they habitually process information (Mehrabian, 1991). Arousability is inversely related to stimulus screening. Arousable (non screeners) individuals screen less of irrelevant stimuli and as a consequence experience a higher information rate of acting situations, which leads to higher arousal levels and slower declines in arousal as compared with screeners. Mehrabian (1977, p.92) emphasized that it is the temporary state of arousal that is most relevant to the differences between screeners and non screeners in terms of behavioural arousal. According to Mehrabian (1991), temperament refers to genetic
predispositions rather than to learned patterns of behaviour. Since temperament traits are among the most general and stable characteristics of individual, modification of behaviour can be achieved mainly through changes in environment (Mehrabian, 1991).

**Marvin Zuckerman:** Zuckerman found in his research that individuals react differently in conditions of sensory deprivation. Taking into account this observation, Zuckerman introduced the concept of sensation-seeking, in the beginning of 1960. An individual's reaction to sensory deprivation is based on the need for external stimulation (Zuckerman et al., 1980). Some individuals are resistant to sensory deprivation whereas others present a stress response to the situation. The explanation of the causes of individual differences in sensation seeking led Zuckerman to develop the biological theory of sensation seeking in which he gave much emphasis on the role of biochemical correlates (Zuckerman, 1987). Zuckerman's theory (1991) on sensation-seeking was mostly influenced by Gray's neuropsychological model of individual differences in anxiety and impulsivity and Eysenck's biological basis of extraversion (Buss & Plomin, 1984).

Zuckerman identified five basic personality factors namely: impulsive sensation-seeking, neuroticism-anxiety, aggression-hostility, activity and sociability (Zuckerman, 1991). These five factors have been labelled 'The Alternative Five' which describe individual differences in behaviour when in a stressful situation (Vollrath, 2001). Sensation seeking is a trait defined by the need for varied, novel and complex sensations and experiences and the willingness to take physical and social risks for the sake of such experience (Zuckerman, 1979, p.10). This trait of sensation-seeking includes four sub-factors namely: thrill and adventure seeking (TAS), experience seeking (ES), disinhibition (Dis) and boredom susceptibility (BS) (Zuckerman, 1979).
Sensation-seeking is a stable and early appearing trait (Bates & Wachs, 1994). Sensation-seeking is usually higher in males than females and decreases with age and is related to the gonadal hormones (Zuckerman et al., 1980). Horvath and Zuckerman (1993) found that sensation-seeking is a strong predictor of risky behaviour, including criminal behaviour and social violations. Impulsivity, another temperament trait proposed by Zuckerman, describes an individual's lack of planning and tendency to act before thinking a situation through (Zuckerman, 2002). The trait of impulsivity has a heritability factor, which consists of four possible components, namely: inhibitory control, decision time, persistence in ongoing tasks and sensation-seeking (Buss & Plomin, 1984). Eysenck and Eysenck (1977) investigated the personality trait of impulsiveness in relation to the personality dimensions of extraversion, neuroticism and psychoticism. They found that Impulsiveness consisted of risk-taking behaviour, liveliness and non-planning. Their results indicated that general impulsiveness correlated positively with extraversion. Furthermore, more specific impulsive tendencies correlated positively with neuroticism and psychoticism, suggesting that this trait is pathological.

**Jan Strelau:** Influenced by Pavlov’s typology, Jan Strelau (1974, 1993) formulated a multidimensional theory of temperament known as Regulative Theory of Temperament (RTT) which is centered on adults and is based on the assumption that temperament refers to all kinds of human behaviour. This point was strongly expressed by Strelau in 1974 in a paper published under the title ‘Temperament as an Expression of Energy Level and Temporal Features of Behaviour’. According to Strelau (1993) the basic idea of RTT may be characterized as follows: temperament takes part in regulating the relationship between man and his external world. While postulating RTT, Strelau and Zawadzki, (1995) defined temperament as relatively stable, personality traits, expressed mainly in the formal (energetic and temporal)
characteristics of reactions and behaviour. These traits are present from early childhood and they have their counterparts in animals. Primarily determined by inborn biological mechanisms, temperament is subject to changes caused by maturation and some environmental factors (Strelau, 1998).

By the term relatively stable features, it is assumed that temperament, in comparison with other psychological phenomena is less susceptible to change. However like other psychological and physiological characteristics, temperament does change in the process of maturation (Strelau, 1984), but these changes are mainly due to developmental and life span change (progressive and regressive) in the physiological mechanism underlying temperament. Some changes in temperament characteristics may also occur under the influence of environmental factors such as maturation, long lasting or strong stimulation, chronic deprivation, climate, population density etc. Change in temperament under environmental influence does not occur from moment to moment or from day to day. The statement that temperament traits reveal themselves in the formal characteristics of behaviour implies that the temperament traits manifest themselves in every human actions, independent of their content and direction. Temperament traits do not exist as isolated phenomena. There are two basic dimensions of temperament responsible for individual differences in energetic characteristics of behaviour- reactivity and activity. Reactivity refers to dimension revealed in sensitivity (sensory and emotional) at one pole, and efficiency (resistance to intensive stimulation) at the other. High-reactive individuals may be characterized in terms of high sensitivity and low endurance, whereas low-reactive individuals are the opposite (Strelau, 1998). Activity is defined as a temperament trait that refers to the frequency and intensity of actions individuals engage in. Activity is one of the regulators of arousal level which renders possible the maintenance of excitation at an optimum level (Strelau,
1974, p.124). In respect of the energetic and temporal aspects of formal characteristics of behaviour, regulative theory of temperament developed asymmetrically to a certain extent, as *temporal characteristics* have been paid less attention (Strelau, 1998). There are six temperamental traits with respect to the temporal characteristics of behaviour– speed, tempo, persistence, recurrence, regularity and mobility (Strelau, 1983). However sufficient studies were conducted only on mobility which is regarded as the ability to react quickly and adequately in response to environmental changes (Strelau, 1989).

After reviewing the literature on temperament published in the last few decades (1969, 1974, 1983, 1989) Strelau (1993) arrived at the conclusion that among the several features which are typical for temperament, such as biological background, presence since early childhood, appearance in man and animals, some degree of stability, the formal characteristics of behaviour are the most frequent common denominator by means of which the nature of temperament is described (Strelau, 1989). RTT can be briefly characterized by the nine postulates that have been formulated by Strelau (1996) at different research steps. (i) Temperament reveals itself in the formal characteristics of behaviour. (ii) Formal characteristics of behaviour may be described in terms of energetic and temporal categories. (iii) There exist relatively stable individual differences in respect to formal characteristics of behaviour and these can be ascribed the status of a temperament trait, i.e. a tendency to react (behave) with an individual specific energetic and temporal characteristic. (iv) Every behaviour, independent of the kind and content, may be described in terms of energy and time thus; individual differences in temperament are common i.e. they refer to all kinds of behaviour and reaction. (v) Individual differences in intensity (strength) and temporal characteristics of behaviour and reactions
may be observed from the beginning of postnatal life, thus temperament is present from early infancy on. (vi) Temperament occurs in both humans and animals. (vii) Temperament characteristics are in their primary form a product of biological evolution and there must exist some genetic bases as well as physiological mechanisms co-determining individual differences in temperament. (viii) Temperamental traits, although relatively stable, change very slowly during ontogenesis, this being caused by biologically determined developmental processes and an individual-specific interaction between genotype and the physical and social environment. (ix) The role of temperament in regulating the relationship between man and his/her external world is especially evident in difficult situations and extreme behaviours.

After a detailed theoretical analysis of the status of temperament traits proposed by RTT, a thorough psychometric study was conducted by Zawadzki (1992) which revealed six temperamental traits, of which four belong to the energetic characteristics of behaviour and two to the temporal aspect. Strelau and Zawadzki (1993, p.327) described the structure of temperament by the following six traits:

(i) **Briskness (BR):** tendency to react quickly, to keep up a high tempo of performing activities, and to shift easily in response to changes in the surroundings, from one behaviour (reaction) to another.

(ii) **Perseverance (PE):** tendency to continue and to repeat behaviour after cessation of stimuli (situations) evoking this behaviour.

(iii) **Sensory Sensitivity (SS):** ability to react to sensory stimuli of low stimulative value.

(iv) **Emotional Reactivity (ER):** tendency to react intensively to emotion-generating stimuli, expressed in high emotional sensitivity and in low emotional endurance.
(v) **Endurance (EN):** ability to react adequately in situations demanding long-lasting or high stimulative activity and under intensive external stimulation.

(vi) **Activity (AC):** tendency to undertake behaviour of high stimulative value or to supply by means of behaviour strong stimulation from the surroundings.

These traits are first order factors and are not necessarily orthogonal to each other (Strelau, 1998). The traits postulated by RTT are assumed to play a moderating role in individual’s interaction with the environment.

The present research investigates the role of temperament in the phenomena of negative emotions in children. Therefore, in next section, developmental aspect of temperament has been explicated in view of some popular theories focused on child temperament.

**C. DEVELOPMENTAL ASPECTS**

Research on infant and child temperament originated in the 1950s, but it was only around 1980s that it became one of the central themes of today’s developmental psychology. Pioneering studies conducted by Thomas and Chess (1956, 1977, 1984) brought high popularity to the research on child temperament, especially in the United States. Though there is paucity of studies that focus on the continuity and change of temperament from infancy onwards. However, few classical approaches exist in the field of child temperament that continues to stimulate research today. The present section discusses the developmental aspects of temperament in light of these studies.

Temperament in childhood has been described as the constellation of inborn traits that determines a child’s unique behavioural style and the way he or she experiences and reacts to the world (Goldsmith et al., 1987; Rothbart & Bates, 2006). Children differ from each other from very early in
life and are predisposed to respond to their environments in very different ways. A number of these individual differences are due to the temperament of the child. Children experience almost similar daily events; different temperament styles can make different children to feel these changes very differently. Some children adapt easily to new situations and quickly make friends whereas others are likely to respond negatively and intensely. Their high level of reactivity may cause frustration and anger in them (Gross & Conrad, 1995). The temperament profile of high activity and intensity of emotion, low adaptability, negative mood and tendency to withdraw from new situations has been referred to as a difficult temperament style (Thomas, Chess & Birch, 1968).

One of the most important contributions to the understanding of children’s temperament has been the temperament research initiated by Thomas and Chess and their colleagues in their pioneering New York Longitudinal Study (NYLS, Thomas, et al., 1963). NYLS which begun in 1956, followed 133 individuals from 84 different families, identified a set of nine temperamental dimensions: Activity Level, Rhythmicity, Approach versus Withdrawal, Adaptability, Intensity, Threshold, Quality of Mood, Distractibility and Attention Span/Persistence. In addition to these nine dimensions of children’s temperament, Thomas and Chess also identified behavioural pattern of children and introduced a typology of child temperaments- the ‘difficult’ the ‘slow-to-warm’ and the ‘easy’. Difficult temperament is identified by high intensity, low adaptability, low regularity, negative mood and withdrawal. The opposite pole is described as easy. The behaviours that lead to a child being classified as ‘easy’ or ‘difficult’ can vary based on parental and cultural values, practices and attitudes (Thomas & Chess, 1986). They emphasized interactionism through the concept of goodness-of-fit between characteristics of the child and requirements of the
child's environment. Chess, Thomas and Birch (1965, p.21) observed and theorized that ‘events in themselves can have no developmental meaning……the environment is first filtered by the child’s own characteristics. Children with different characteristics, therefore, will be affected differently by the same objective occurrence…… The child by his own nature, conditions his environment, at the same time social and cultural environment affects him’. According to interactive model of goodness-of-fit, parents who accommodate their expectations and demands in such ways which suits the behavioural style of the child can modify the child’s temperament based behaviour. Therefore, psychological development of the child is influenced by the child's temperament and to an equal extent, also by the adequacy (fit) of parental responses to this temperament.

**Buss and Plomin** have given one of the most systematic and methodologically grounded approaches to temperament in children. The authors defined temperament as inherited personality traits present in early childhood (Buss & Plomin, 1984). According to them, behaviour characteristics can be classified as traits if they fulfilled 2 criteria- firstly, they have to be present from early childhood (during the 2 years of life), and secondly, these must be heritable. They also postulated that temperament traits must be broad, referring to a wide class of behaviours. The authors distinguished four basic temperament traits which fulfilled these criteria, namely, emotionality, activity, sociability and impulsivity. Emotionality is a predisposition to get easily distressed and upset. Activity is equivalent to movement. The level of activity refers to total energy output (Buss & Plomin, 1975). Sociability is the tendency to prefer the presence of others to being alone (Buss & Plomin, 1984, p.63). Impulsivity was included originally (Buss & Plomin, 1975) but was dropped later as the factor analysis revealed various sub-components only some of which replicated. Furthermore, impulsivity
does not emerge until school age (Buss & Plomin, 1984), a view that contradicted the criterion of very early appearance in development. Buss & Plomin's theory makes some predictions regarding relation between child and his social environment, especially parents. For example, the child's fear would get intensified by the emotional reactions of highly emotional mother, which may result in neurotic behaviour.

Another approach to the study of child temperament was given by Hill Goldsmith and Joseph Campos. They developed an emotion centered theory of child temperament. Their theory was influenced by Hippocrates', Galen's and especially Allport's (1937) view on temperament, which refers to individual differences in the emotional domain of human functioning (Goldsmith & Campos, 1990). Goldsmith's work on genetic determination of individual differences in personality traits and Campos' interest in studying the normative patterns of emotional development in early life lead them to penetrate deeply into the nature of emotions in children. Goldsmith and Campos regard primary emotions as content dimensions of temperament. Individual differences in primary emotions such as disgust, distress, fear, anger, sadness, pleasure, joy, surprise and interest are considered by Goldsmith and Campos (1986) to be temperament. These temperament dimensions can be expressed behaviourally in form of different modalities like facial, vocal, postural, gestural and motoric expressive systems, which can be measured and refer to construct of general arousal (Strelau, 1998). The structure of temperament as postulated by Goldsmith and Campos (1986) consists of the dimensions of emotions, their expressions and the parameters of behavioural responses. Emotionality according to Goldsmith and Campos is not a single dimension but refers to individual differences in respect to all primary emotions, including both positive and negative. They emphasize that their definition of temperament is a behaviour-based one and the
temperament structure is limited to infants only. As Strelau (1998) contends, Goldsmith and Campos (1986, pp.258-259) have formulated several principles of temperament measurement among which the most important state that (a) the method of temperament measurement should be theory based, (b) a single behavioural act or inventory item cannot be used as a measure of temperament, (c) the situational context used to assess temperament must be considered, (d) in developmental studies temperament should be assessed only within narrow age brackets, and (e) parental perception of infant temperament may be biased by several factors, thus temperament measurement should not be equated with parental ratings or interviews.

In the beginning of the 1980s, a developmental model of temperament was given by Rothbart and Derryberry (1981; Derryberry & Rothbart, 1988). Rothbart’s theory is among the most prominent current theories of temperament focusing on developmental aspect of temperament. The theory suggests the developmental changes in temperament by referring to the international dynamics of behavioural and biological phenomena. Rothbart views temperament as the individual personality differences that are present prior to the development of higher cognitive and social aspects of personality in infants and young children (Rothbart & Hwang, 2005). Derryberry and Rothbart (1984) defined temperament as constitutional differences in reactivity and self-regulation. Reactivity refers to arousability of the physiological and behavioural systems. Self-regulation refers to behavioural processes that modulate (facilitate or inhibit) reactivity. These processes include avoidance, approach, withdrawal, attention, attack and behavioural inhibition (Rothbart, 1989a, p.59). Rothbart and her colleagues identified three broad dimensions of temperament: which were labeled as surgency/extraversion, negative effect and effortful control. Surgency-
extraversion includes positive anticipation, increased levels of activity and sensation seeking. 10 to 11 years children who were high on this factor were found to be more likely to develop externalizing problems like eating out, however they were found to be less likely to develop internalizing problems like shyness and low self esteem (Orwel et.al, 2005). Negative affectivity, measures children's general tendencies toward a wide range of negative emotions and comprises of fear, anger, frustration and social discomfort. Effortful control includes facets such as inhibitory control, focusing and shifting of attention and perpetual sensitivity (Posner & Rothbart, 2007). Children who are high on effortful control show decreased externalizing and internalizing problems inspite of having high levels of negative affect (Rothbart, 2007).

The continuity of temperamental characteristics over time and in different contexts is one of the hallmarks of Rothbart's theory. Not all of the infant temperament characteristics are present at birth. Temperamental continuity is assumed to become apparent only after the early months of infancy. The central concepts of temperament, such as reactivity, arousability and self regulation, remain in childhood but it is the individual differences in the ability to utilize the inhibitory and attentional mechanisms that begin to characterize childhood temperament (Rothbart & Derryberry, 1981).

Another theory which is strongly concentrated in infancy and early childhood was given by Jerome Kagan (1989a, 1994). The concept of temperament, according to Kagan, et al. (1991, p.332) refers to inherited profiles of behaviour and biology which are present in infant and which mediate different phenotypic displays depending on childhood experiences. Two qualitatively different categories of temperament described by Kagan (1989b, 1994) are – inhibited and uninhibited temperament; which refers to the child’s initial reaction to unfamiliar events. According to Kagan and his
colleagues (1989, p.838), the constructs inhibited and uninhibited to the unfamiliar refer to children who fall at the extremes of a phenotypic continuum from shyness and restraint to sociability and effective spontaneity. On being confronted with unfamiliar events, when a child behaves consistently in a shy, quite, cautious, emotionally reserved and timid manner, he/she is characterized to be having an inhibited temperament. However the child who is consistently talkative, sociable, effectively spontaneous and minimally fearful under the same conditions, is characterized to be having an uninhibited temperament. The two types of temperament are relatively stable. Longitudinal studies conducted on children of two months to over seven years of age to study behavioural inhibitions (Kagan, Reznik & Snidman, 1988) showed that majority of inhibited and uninhibited infants did not change their temperament characteristics even in late childhood.

**RATIONALE FOR THE STUDY**

The literature addressing the issues relating negative emotions in children points to certain gaps and general problems. As Baron and Kenny (1986) have rightly pointed out that in most of the studies the self-report measures were not psychometrically sound and suffered relatively greater degree of measurement error, thereby obfuscating the relation among various measures and the latent constructs to which they refer. More so, many of the childhood measures have been found suffering from the lack of discriminant validity (Wolfe et al, 1987). Therefore, the relationship among various negative emotions and their structure, in many studies on children, is not well understood. More so, there have been rare attempts to examine more advanced structural models of the negative emotions among children and adolescents as compared to adults. Thirdly, in most cases investigators have examined the pattern of negative emotions within clinical population of children diagnosed with anxiety and mood disorders, there is clear paucity of
similar studies on normal population. In general, the prevailing research trend point to lack of applicability of such models to normal or non-clinical population.

It is also pertinent to mention that most of the studies on the nature and structure of negative emotions have come from US or other western populations, which differ from Indian setting with regard to a number of socio-cultural aspects. Therefore, in view of growing prevalence of anxiety, depression and stress related problems in Indian children and also to arrive at broader generalizability of the phenomena, a study on Indian population is the need of the hour. At the same time a keen researcher would not ignore recent research evidence in the area of childhood temperament. Among the many determinants of individual differences in negative emotions, temperament acquires a special place in research on negative emotions. Strelau (2001) believed that the functional significance of temperament can be understood, when an individual is confronted with an emotion arousing situation. Temperament determines the way a person reacts to emotional situation (Bates & Wachs, 1994; Buss & Plomin, 1984). Strelau (1995) posits that temperament plays a dominant moderating role in the individual differences in negative affect. Some of the temperamental traits, for example have been found to play an important role in general distress consisting of prominent symptoms of both anxiety and depression.

In view of these problems with the existing literature relating negative emotions, the present study utilizes psychometrically sound measures which do not suffer from above mentioned fallacies. Thus, the present study is aimed at investigating the structure of negative emotions in children and its relation to temperament. Therefore, the problem of the present study may be stated as ‘NEGATIVE EMOTIONS IN CHILDREN: STRUCTURE AND ITS RELATION TO TEMPERAMENT’.
OBJECTIVES OF THE STUDY

Main objectives of the study and formulated hypotheses are listed below.

1. To examine gender differences in negative emotions.
2. To examine gender differences in temperamental traits.
3. To study the relationship between different negative emotions among children.
4. To study the relationship between negative emotions and temperamental traits.
5. To explore the structural organization of negative emotions in children.
6. To study the communality between latent structure of negative emotions and temperamental traits.

HYPOTHESES

1. Girls are likely to be higher on negative emotions than boys.
2. Girls are likely to be higher on temperamental traits-sensory sensitivity, emotional reactivity, and perseverance.
3. There is likelihood of no gender differences in the temperamental traits-briskness, endurance, and activity.
4. Different negative emotions are likely to correlate positively with each other.
5. Negative emotions are likely to correlate positively with sensory sensitivity, emotional reactivity, and perseverance.
6. Negative emotions are likely to correlate negatively with briskness, endurance, and activity.
7. Structural analysis of negative emotions is likely to replicate the three factor model of emotions.
8. Broader factors of negative emotions are likely to show differential overlap with energetic and temporal temperamental traits.