The present chapter aims to present a review of studies related to the objective of the present study. All previous researchers working in this field have provided their own sectional / restrictive interpretation to the EASI of the adult temperament. The search of studies was done through National Informatics Centre (NIC) and Pubmed. The key variables utilized were: temperament, aggression, anger, hostility, verbal aggression, physical aggression, emotionality, activity, sociability and impulsivity, EPQ, EPI and temperament scale and questionnaire.

Carver and Glass (1976) evaluated discriminant validity of the two types of the self. They found firstly that private self consciousness did not correlate significantly with any other measure. Secondly, public–self consciousness correlated weakly with the temperament of sociability and emotionality. The self consciousness of the SCS appears to be relatively independent of the other measures tested.

Plomin (1976) studied emotionality, activity, sociability and impulsivity (EASI) and components of each trait on young twins and their parents. He found that patterns of both identical–fraternal twin correlations (twin study) and parent–child correlation (family study) were consistent with the hypothesis that the EASI traits were influenced by genetic factors, but the two studies disagreed in the magnitude of that influence.

Plomin (1976) has studied the sociability and impulsivity components of extraversion. It was found that neither sociability nor impulsivity is unitary. Corrections among these sociability and impulsivity factors and the MPI extraversion items indicated that MPI extraversion is essentially a measure of one aspect of sociability: the quantity of social relationship.
Rowe and Plomin (1977) in their study observed that the structure of temperament proposed by the New York Longitudinal Study (NYLS) of A. Thomas et al. (1963, 1968) was compared to Buss and Plomin's (1975) EASI (Emotionality, Activity, Sociability, Impulsivity) Temperament Theory. A similar sociability factor emerged from both the NYLS and EASI systems, but other temperaments were unique.

Braithwaite et al. (1984) examined the psychometric properties of Buss and Plomin EASI –III (emotionality, sociability and impulsivity) Temperament Survey. They found that impulsivity emerged as a multidimensional construct, but its components were related to other temperaments in different ways. The preliminary analysis also suggested that the EASI–III can be used to measure other constructs, the most important of which are neuroticism and extraversion. In particular, the simplicity and clarity of the items and the well-articulated sampling framework for their selection.

Sebej, Mullner and Farkas (1984) while performing a difficult sensorimotor task, anger was induced by providing false feedback to the subjects regarding their performance. They found that more arousal person (according to their Trait Arousability Scale Scores) evidenced greater arousal (i.e. diastolic pressure) in response to experimental manipulations that induced frustration and / or anger.

Mehrabian, Young and Sato (1988) reviewed the literature on emotional empathic tendency, defined as an individual’s characteristic inclination to respond with emotions similar to those of others who are present. They found that more empathic persons were found to be more arousable and more pleasant. Greater skin conductance and heart rate responses of more empathic persons to emotional stimuli confirmed their greater arousability.
Davis (1989) studied the reliability of psycho-physiological assessment within temperament groups. He found that skin conductance level (SCL) was consistently reliable index for extraverts but not for introverts.

Windle (1989 a) investigated the factor replicability of a 54 item, multifactorial self-report measure of temperament for a cross-validational sample of young adults. Findings were: firstly, high congruity for the factor of activity level general, activity level-sleep, approach/withdrawal, flexibility – rigidity, mood, rhythmicity-sleep, rhythmicity – eating and distractibility. Secondly, items related to a distinct persistence factor in the original sample loaded on the distractibility factor in the cross-validation sample. Also, rhythmicity – daily habits did not retain its factor integrity in the cross-validation sample.

Windle (1989) investigated the interinventory relation of constructs measured by the Revised Dimensions of Temperament Survey (DOTS – R); the emotionality, activity, sociability, impulsivity (EASI – II) temperament measure, and Eysenck's Personality inventory (EPI). Regarding this study moderate-to-high correlations were found between similarly labeled attributes of the three inventories and low correlations were generally found between dissimilarly labeled attributes. Multiple Regression analysis indicated a moderate degree of convergence among some of the attributes of the three measures.

Ruch (1992) conducted an empirical examination of the asserted correspondence of three temperament typologies i.e. strength, mobility, balance of nervous process of excitation and inhibition. Found the sanguine temperament (SGT) seems to be as unbalanced as the choleric temperament. However, the low balance of latter was due to work inhibitory processes, the low balance of former was due to unexpectedly strong excitatory process in SGT.
Zentner (1993) compared recent findings of temperament research with Jung’s observations on the genesis of introversion and extraversion. He found evidence of distinct neuropsychological profile, a notion which agrees with Jung’s hypothesis that introversion and extraversion have a biological foundation was found with both Temperament types. Also similarities between Jung's theory and the hypothesized correlation between temperament and psychopathology exist.

Mehrabian (1998) studied differentiation of anxiety from depression. It was found that both anxiety and depression shared unpleasant and submissive temperament characteristics but differed because anxiety involved more arousability than depression.

Ando et al. (1999) assessed to inquire into carefully the links between personality factors and health outcomes. They developed the Japanese version of the Buss-Perry Aggression Questionnaire (BAQ) and assessed validity and reliability of the scale. In study-I four aggression subscales (physical aggression, verbal aggression, anger, hostility) emerged clearly from exploratory factor analysis. Study -II which also contain factors of Study –I presented normative data, factorial validity and external evidence of construct, convergent and discriminant validity for the scales.

Seroczynski, Bergeman and Coccaro (1999) examined the genetic and environmental influences on the phenotypic relationship between the Barratt Impulsiveness scale and the aggression scale from the Buss-Durkee Hostility inventory in adult males. Multivariate model-fitting analysis indicated that irritability and impulsivity had a larger phenotypic relationship, as well as a greater portion of shared genes and environment than the other three subscales of aggression. This suggests, for example, that there are more overlapping genetic and environmental influences accounting for the relationship between irritability and impulsivity than between direct assault and impulsivity.
Shafer (2001) too examined the relation of big five markers to the EASI temperament scales and the Thrustone Temperament Schedule by using principal components, canonical and regression analysis. In Study–I it was found that the EASI sociability, emotionality and impulsivity scales appear to be parallel to the big five extraversion, neuroticism and conscientiousness scales. In Study –II it was found that the Thurstone Reflective and Emotionally Stable Scales appear to be roughly parallel to the big five’s openness and neuroticism scales.

Vilfredo, Enrica, Patrizia and Fabiola (2004) experimentally validated joint sub-system hypothesis of Gray’s theory of anxiety and impulsivity. It asserts that anxiety is associated with high sensitivity to signals of punishment and impulsivity with high sensitivity to signal of reward. For pleasant and unpleasant target words the following measures were obtained:

1. Peak amplitude and latency of the P3 ERP component;
2. Heart rate change;
3. Reaction time;
4. Emotional feelings ratings.

The result showed higher P3 peaks over parietal and occipital leads when target words had an opposite emotional valence to standard ones. Across frontal and temporal recording sites, P3 amplitude was larger in high anxiety subjects than in low anxiety ones for unpleasant words, suggesting higher sensitivity to negative emotions. High anxiety subjects also displayed higher emotional ratings. These findings, however, appear in tune with the “Joint subsystem” hypothesis that predicts a lower level of sensitivity to signals of punishment in high impulsivity subjects.

Ane (2004) assessed the factor structure and psychometric problems of the emotionality, activity, and sociability (EAS) temperament survey (Buss and
Plomin, 1984) for adult women. The results indicated an acceptable fit for the basis theoretical EAS model, implying that the scale is functioning satisfactory. The results also suggest that the measure could be improved. Across time, latent stability factor explained within-scale covariances. Both latent stability factors and time-specific factors accounted for cross-sectional covariances between subscales.

Vierikko, Pulkkinen, Kaprio and Rose (2004) examined genetic and environmental contributions to the covariance between aggression and hyperactivity. Impulsivity was rated by twins' teachers and parents. In addition to significant genetic and environmental influences specific to each behaviour, aggression and hyperactivity impulsivity share common genetic and environmental etiology.

The purpose of Remirez and Andreu (2005) study was first to offer a few theoretical consideration on the concept of human aggression and its main types and second to analyse the relationship between those types of aggression and other related psychological constructs, such as anger, hostility and impulsivity. This study indicated: most classification in the literature show two kinds of aggression, namely, hostile aggression and instrumental aggression. Anger and different kinds of aggression were positively correlated with hostility but not with instrumental one. In sum, aggression can be reflected in the different personality constructs, measured by self reports.

GAPS, CONTRADICTION, FALLACIES IN BUSS'S THEORY OF TEMPERAMENT

Firstly, Buss includes only one component of aggression i.e. anger, as one of the basic component of the emotionality.
Buss published a self-report aggression questionnaire with Durkee in 1957, whereas aggression is taken to be one of the basic temperament in his early theorization having four different components. These four types are – physical aggression, verbal aggression, anger and hostility. Buss also gave a measure/apparatus of aggression called “Aggression machine”. Even recently Buss and Perry (1992) gave an aggression questionnaire that includes physical aggression, verbal aggression, anger and hostility and is a revised and updated version of widely used older one of Buss and Durkee, 1957. Thus, it needs to find the correlation of aggression and its components with other components of emotionality. Here, the emotionality is referred to -ve affect, specifically, being distressed or upset. He gave the EAS temperament survey for adult in 1984, 86 and gave three components of emotionality, anger, fear and, distress.

A similar-order factor of negative emotionality emerged from a personality questionnaire (Tellegen, 1985). Those who score high on it described themselves as “being unpleasurably engaged, stressed and harassed, and prone to experiencing strong negative emotions such as anxiety and anger.” (Tellegen et al., 1988)

This description sound, like an echo of negative mood or the temperament of emotionality. Negative emotionality has been found to correlate consistently with measures of anxiety and depression (Watson, Clark & Carey, 1988).

Secondly, these relationships make sense, for the temperament of emotionality. This account found of emotionality is necessarily brief because the temperament of emotionality has received less attention than its derivatives, fear and anger. Perhaps one reason for the paucity of research is that emotionality is very broad and diffuse, while the dispositions of fear and anger are more narrowly defined and lend themselves more readily to study. Buss
gave the items of fear, anger and distress but did not include self-report of anxiety (-ve emotionality). So there is a need to establish correlation of anxiety with the other component of emotionality and aggression by including all the components in the battery on the same sample.

Thirdly, another basic temperament of activity is described as having two components. One is tempo and other is vigor. Tempo is in two forms, high tempo and low tempo. Highly active people need to expand energy, whether through tempo or vigor. There is a motivational component or the motivation, to be up and around, to keep busy, and generally to be expanding energy.

But, the third component has neither properly described nor finds its inclusion in the measurement scale. Therefore, a measure of motivation need to be incorporated. In regard to tempo and vigor, Buss worked with Plomin and also used a global self-report measure which included item on both tempo and energy, in 1984. Whereas at other time, Buss (1988) used separate items for tempo and vigor. However, he is not certain whether the subtraits of activity are stable over time and whether the items of each scale is coherent entity (Buss and Plomin, 1984).

Fourthly, sociability is typically assessed as part of a self-report combination of traits called extraversion. Buss and Plomin (1975) in EASI Temperament Survey included shyness as part of sociability but later worked with Cheek gave a revision that yielded the shyness as an independent trait (Cheek & Buss, 1981). In 1984, he retained four items, dropped the two items and add one new item to sociability. So there is a need to test these items of sociability vis-a-vis extraversion and other measures of sociability as independent criteria. Buss gave a questionnaire to tap all the three components of impulsivity in 1975, but he did not validate these items against any laboratory measure of impulsivity or its components: control, discipline, and
reflection. So, there is also a need to validate the questionnaire measure with the laboratory measures.

Lastly, moreover, while operationalizing the temperament, Buss heavily relied upon self-report questionnaire and has been making frequent changes in his theories. However different traits ought to be studied by different methods.

PROBLEM

Therefore, the temperament traits can be validated by using the methodology of construct validation – hetrotrait- hetromethod (Campbell and Fiske, 1959). Some objective measure and physiological measure may be supplemented with the item pool suggested by Buss time to time to estimate the convergent and divergent validity. Further, the factor analysis may reveal the structural arrangement of types of temperaments, traits of temperament, components of traits and subcomponents etc. The item pool can also be validated for some of the trait with other psychometric measures, for example, EPP (Eysenck and Wilson, 2000) – Eysenck Personality Profiler that also measures similar traits.

OBJECTIVES

1. To estimate the convergent, divergent and factorial validity of EASI measure.
2. To verify sex differences on various components of temperament.
3. To verify criterion validity of EASI against external criteria:
   - Physiological and experimental measures
   - Eysenck Personality Profiler