CHAPTER-I
INTRODUCTION

Learning is an important process of life. This process starts from the individual is born and continues till his death. Almost every aspect of an individual's development is related to 'learning'. The meaning of learning is generally regarded as reforming the behaviour. Reform in behaviour does not mean only the reform of external behaviour. Learning brings changing in thinking and imagination as well, thus, any act which develops the individual and modifies his later behaviour and experience can be called learning.

Memory is the brain's ability to recreate or reproduce past experience and thoughts, and we use that ability to change our behaviour to learn. Memory is also part of cognition and, in a very fundamental sense, memory is the basic building block upon which all of human cognition is based. H.J. Eysenck (1970) define: "Memory is the ability of an organism to store information from earlier learning processes (experience, retention) and reproduce that information in answer to specific stimuli".

Psychologists find it useful to make two basic distinctions about memory. The first concerns three stages of memory-encoding, storage and retrieval. The second deals with two types of memory-short-term and long-term memory.
Stages of Memory:

Three stages of memory -(i) Encoding (ii) Storage (iii) Retrieval.

Two types of Memory:

Memory seems to differ between those situations the require us to store material for a matter of seconds and those the require us to store material for longer intervals—from minutes to years. The former situations are said to tap short-term memory while the latter reflect long-term memory.

(1) Short-term memory:

Even in situations where you must remember information for only a few seconds and the information may still be active, memory involves three stages.

i) Encoding:

To encode information into short-term memory, you must attend to it. Encoding means not only that information is deposited in memory, but also that it is deposited in a certain form or code. Visual code - a mental picture of the digits or acoustic code-the names of the digits.

ii) Storage:

The most striking fact about short-term memory is that it has a very limited capacity. For short-term memory, virtually all normal adults have a capacity of 7 ± 2 chunks.

iii) Retrieval:

Retrieval involves a search of short-term memory,
in which each item is examined one at a time, each additional item in short-term memory adds a fixed amount of time to the retrieval process—approximately 40 milli seconds (40 thousands of a second) per item. Retrieval from short-term memory seems to involve a search process.

(2) Long-term memory:

Long-term memory involves information that has been retained for intervals as brief as a few minutes or as long as few decades (a middle-age persons childhood memories). Most experimenters have used intervals of minutes or hours in their studies. Long-term stages of memory.

i) Encoding:

For verbal materials, the dominant code seems to be based on the meanings of the items. If you memorize a long list of words and try to recall them a few minutes later, you will undoubtedly make errors. Most of the erroneous words will be similar in meaning to the correct items.

ii & iii) Storage and Retrieval:

When we deal with long-term memory, we must consider storage and retrieval together. Many cases of forgetting from long-term memory seem to result from a loss of access to the information, rather than from a loss of the information itself. That is, poor memory may reflect a
a retrieval failure rather than a storage failure.

This idea of dualistic nature of memory was given by James in 1890. Brown (1958) and Peterson and Belerson (1959) supported the separation of short term memory from long term memory. STM is found to based on acoustic information where as LTM is based on semantic code.

There are many factors which influence the learning and memory. If we categorise these factors mainly three main categories can be formed:

(a) Factor related with the learner.
(b) Factor related with learning material.
(c) Factor related with methods of learning.

Although, efficiency of learning is influenced by these factors jointly, but factors pertaining to the first category i.e. learner's category are of much importance. Among these important variables personality and intelligence level of the learner are the key factors which significantly influence the learning and memory. Number of research findings provide ample evidences to support the view, that personality and memory; and intelligence and memory are related. The investigator did not find much work containing both the variables in a single investigation. In the present investigation, the author planned to study the learning and memory processes in relation to these two variables i.e. personality type and level of intelligence.
The concept of 'Personality' and 'Intelligence' has a common place in language as well as in the scientific study of behaviour. Commonly personality is taken as the external outlook of the individual. Philosophically, the meaning of personality has been interpreted in the sense of the internal self. But according to a psychologist personality is neither the external outlook, nor the internal self, but it consists of both and much more. The word 'Personality' is derived from the Latin Word 'Persona', which refers to the cover used by the actors to change appearances during acting, but during the Roman era it was taken to mean the character itself. Therefore, it is the second meaning which gave rise to the word personality.

Personality is a fundamental concept in psychology and no experimental or applied psychological research can flourish which does not incorporate concepts related to personality. Psychology always deals with individuals and they behave differently even in identical situations.

Gordon Allport (1948) define personality as the dynamic organisation within the individual of those psychological systems that determine his unique adjustment to his environment. The personality is the organisation of internal and external activities. It includes the external appearance, qualities, aptitudes and capabilities etc. It is the result of the interaction of the individual with the environment. Both character and temperament influence the way we interact with others, the kind of attitudes develope
toward ourselves and others, and our personal life style. One of the major differences between man and other animals is his capability to learn an infinite range of variety of behavioural forms. These behavioural forms are to a large extent the result of biological and social learning.

Theories of Personality:

Theories of personality are implicit in the philosophical assumptions about human nature. Commonly, they can be uncovered only as we study why a theorist explores one phenomenon instead of another, and we observe that different theorists go beyond the data in different ways—ways that are meaningful in relation to their own experiences.

A comprehensive view of the development of personality theory must surely begin with conceptions of human being put forwarded by the great ancient schools such as Hippocrates, Plato and Aristotle. However, the origin of personality theory owes much more to the medical profession and to the conditions of medical practice and psychotherapies. Dondonov (1981) discusses personality theory in terms of its relationship to developing "The new Soviet man".

It was also suggested that one of the chief factors influencing personality theory has been the historical link between personality theorists and applications and that this is a factor in the distinction between personality theory
and other theories in psychology. A major shortcoming of personality theories is that each theorist defines personality concept in different ways.

The history of character and personality was traced by Klisic and Ljiljane (1981) from phrenology through the study of somato-types to 'Freud's Psychosexual types.

Similarly, Henrich and Krauskopf (1982) compared a theoretical, actuarial method for obtaining personality and behavioural descriptions from WAIS profile patterns (of 500 male psychiatric patients) to the personality assessment system (PAS). Interest was focussed on both the determination of group membership by the two systems and on the resultant personality descriptions. The PAS theory-based sorting systems did identify the target group of the actual approach well, and the personality descriptors were found to have distinct resemblance although not complete overlap.

Social psychological study of implicit personality theories, Beauvois (1982) shows that the psychological description of self and others is primarily an evaluation activity and that the descriptive accuracy of such descriptions can be seriously challenged. The concept of personality and the conception of the attribution processes can be so revised. That exploration of implicit personality theories leads to study a cognitive process-internalisation/naturalisation of social utilities (social values) and that
this cognitive process takes place among those that substend ideologic reproduction.

**Personality types:**

History of psychology provide us a wide range of personality theories. In other words these different theories are the different ways to look upon the personality. Some have developed broad theories to explain the origins and make up of personality while others focused only on one or two issues. As a result, we have many broad personality theories. Most of there can be put into following four categories:

(a) **Type and trait approaches:** These approaches attribute their attention on people's personal characteristics. However, various type theories and trait theorists differ in the ways that apply those personal characteristics to describe people. Eysenck's hierarchical theory, Allport's theory are the main personality theories of this group.

(b) **Dynamic approaches:** These theories emphasize on interactions among often hidden needs, motives, and impulses to produce person's behaviour. Psychoanalytic, Jung's analytical Psychology, and individual psychology of Adler are the prominent personality theories of this category.

(c) **Learning and behavioural approaches:** Such approaches emerged from experiments in classical conditioning, instrumental conditioning and
cognitive learning. According to these theories the behaviours that make up personality are conditioned or learned. Famous theories which belong to this category are—Skinner's radical behaviourism and Early social learning theory of Dollard and Miller.

(d) Humanistic approaches: A number of theorists have focused their work upon the entity known as the self and the importance is given to the individual's subjective view of the world. Theories belonging to this family includes Roger's self theory and Marlow's self actualization theory.

Which of these theories is best? or which theory gives the fullest and most accurate picture of true personality? Undoubtedly, the answer is that we really do not know this exactly. In fact there is some truth and some useful insight in many of the major personality theories. Keeping in view the space and time limitation in respect to explain all the theories. The author explains only Eysenek's personality theory in the following section.

Eysenck Personality Theory

Eysenck theory of personality was developed and modified by himself over the years (1947, 57, 60, 67, 70 and 72). To develop his theory, he used a kind of stream—shovel approach to personality assessment. He scooped up a
massive amount of data from many tests and measures administered to some ten thousands people. Applying the factor analysis treatment to the data, he concluded that in all there are three dimensions of personality: (1) extraversion/introversion (E); (2) neuroticism (N); and (3) psychoticism.

In dimensions of personality (1947) he proposed that these dimensions were sufficient to define all personality variations. He claimed that Cattell's second order factors from the 16 PF invia/exvia and anxiety are the same as E and N. Eysenck and Eysenck S.B.G. (1969) factored together items from scale divided by Cattell, Gilford and Eysenck himself (EPI) six hundred males and six hundred females scores were factor analysed separately as expected too large, third-order factors (E&N) accounted for most of the variance in both groups. This suggested that the other personality scales do show the same inter related items as the E.P.I. The analysis, however, was loaded somewhat in Eysenck's favour. In a later paper Eysenck (1972), however showed that in Cattell's own data the second-order factors, invia/exvia and anxiety account for almost all the variance implying that Cattell's 16 primary dimensions are really only measuring E&N. Later Eysenck added the third factor in these dimensions which was labeled as psychoticism (Eysenck & Eysenck, S.B.G. 1976).
Eysenck used causative as well descriptive analysis of his personality dimensions. Eysenck and Eysenck, S.B.G. (1975) described the dimensions of extraversion - introversion as measured by E.P.Q. as follows: 'High E scores are indicative of extraversion. High E scoring individuals tend to be outgoing, impulsive and uninhibited, having many social contacts and frequently taking part in group activities.

The typical extravert is "Sociable, like parties, has many friends, needs to have people to talk to and does not like reading or studying by himself. He craves excitement, takes chances, often sticks his neck out, acts on the spur of the moment, and is generally an impulsive individual. He is fond of practical jokes, always has a ready answer, and generally likes change; he is carefree, easy-going, optimistic, and likes to 'laugh and be merry'. He prefers to keep moving and doing things, tends to be aggressive and lose his temper quickly; altogether his feelings are not kept under tight control, and he is not always a reliable person. (Eysenck and Eysenck, S.B.G. 1964, 1975).

The typical introvert, on the other hand, is a quiet retiring sort of person, introspective, fond of books rather than people; he is reserved and distant except to intimate friends. He tends to plan ahead, 'looks before he leaps', and distrusts the impulse of the moment. He does
not like excitement, takes matters of everyday life with proper seriousness, and likes a well-ordered mode of life. He keeps his feelings under close control, seldom behaves in an aggressive manner, and does not lose his temper easily. He is reliable, somewhat pessimistic, and places great value on ethical standards." (Eysenck and Eysenck, S.B.G. 1964, 1975).

Eysenck and Eysenck (1975) described that high N scores are neurotics while low N scores are emotionally stable.

A person having a higher score on neuroticism is "an anxious, worrying individual, moody and frequently depressed. He is likely to sleep badly, and to suffer from various psychosomatic disorders. He is overly emotional, reacting too strongly to all sorts of stimuli, and finds it difficult to get back on an even keel after each emotionally arousing experience. His strong emotional reactions interfere with his proper adjustment, making him to react in irrational and sometimes in rigid ways" (Eysenck and Eysenck, S.B.G. 1975).

A stable individual, on the other hand, "tends to respond emotionally only slowly and generally weekly, and to return to baseline quickly after emotional arousal; he is usually calm, even-tempered, controlled and unworried". (Eysenck and Eysenck, S.B.G. 1975).
The third dimension in Eysenck's personality theory is Psychoticism, "High P scorers on Psychoticism are ego-centric, aggressive, impersonal, cold, lacking in empathy, impulsive, lacking in concern for others and generally unconcerned about the rights and welfare of other people. On the other hand, a possible concern of their general oddity is that they are always original and creative, provided they have reasonable intelligence background and the like" (Eysenck and Eysenck, S.B.G. 1975). The opposite and of the psychociticism dimension has been referred some times to the "Superego".

Eysenck also provided causative explanations of his personality dimensions. According to him individual differences in extraversion - introversion are due to inherited differences in the functioning of the nervous system. He states that individuals in whom excitatory potential is generated and slowly in whom excitatory potential is relatively weak, are thereby predisposed to develop extraverted pattern of behaviour. Similarly, individuals in whom inhibition is developed quickly and is of a strong nature and dissipates slowly are predisposed to develop extraverted patterns of behaviour. Conversely individuals in whom reactive inhibitions dissipates quickly are thereby predisposed to introverted
patterns of the behaviour (Eysenck, 1957) Eysenck in his book, "The Biological Basis of Personality" (1967) correlates extraversion - introversion to the amount of arousal in the cortex which is mediated by the reticular formation. The theory states that people in whom the arousal level is relatively low in the resting state will tend to behave in an extraverted fashion, whereas people in whom arousal level in the resting state is relatively high will behave in introverted manner. He states that the main activity of the cortex is the inhibition of the lower centres so that the more aroused the cortex is the stranger the inhibitory function it plays (Cf. Eysenck, 1982; Eysenck and Eysenck, MW 1985).

Regarding the causative side of the dimension of neuroticism, Eysenck points out that it is an inherited psychological disposition closely linked with the autonomic nervous system which governs a person's emotional reactivity and may predispose him to the development of neurotic disorders under suitable circumstances (Eysenck, 1967, 1982, Eysenck and Eysenck, 1985).

Eysenck suggested that overall there are three major types of concepts. Extraversion/introversion,
neuroticism and psychoticism. He outlined the concepts of introversion, extraversion (E) and neuroticism (N) in 1944. Those who were high on neuroticism were characterized by 'badly' organized personality, abnormality before illness, little energy, narrow interests. Those who were the extravert end of the E dimension showed symptoms of hysteria and sex 'anomales'. Those at the introverts dimension showed depression, obsession and apathy.

Eysenck (1960) a persistent and versatile worker in this area proposed a definition of personality as "more or less, stable and enduring organisation of a person's character and temperament, intellect and physique which determine his unique adjustment to the environment".

Eysenck's descriptive system (1947) included four dimensions: Extraversion, Neuroticism, Psychoticism and intelligence. In terms of available evidence and fairly respectable data the first two dimensions emerge as most relevant. By dimensions Eysenck (1952) meant "focal points of frequently occurring groups of characteristic concentration of correlated traits which acts along a continue". He has long argued that the explanatory
FIG. 1 EYSENCK'S STRUCTURAL MODEL OF PERSONALITY AS ILLUSTRATED BY INTROVERSION
FIG. 2 Eysenck's Hierarchical Model of Personality as Illustrated by Extroversion
concepts in personality should be as few as possible while still sufficiently numerous to do the predictive job. With this in mind, he states that the structure of the personality is dominated by a few types. In other words, types are at the pinnacle of the personality structure and therefore they exert the most commanding influence. 'Types' are composed of traits which, in turn, are comprised of numerous "habitual responses". Which are the elements of habits. This hierarchical model of personality is schematically shown in Figure 1 as it relates to introversion and Figure 2 depicts the overall view of personality as it related to extraversion.

The two basic dimensions of personality are related to the four major temperamental types distinguished by the Greek physicians Hippocrates and Galen. A wide range of personality characteristics is presented in Figure 3.

Eysenck (1975) says, "The trait names inside the circle may serve to give an idea of the behaviour patterns characteristic of extroverts and introverts, labile and stabile people remembering always that extremes in either direction are rare and that most people are somewhere intermediate".

Eysenck (1957) tried to link up personality dimensions with the main body of experimental and
FIG. 3 EYSENCK'S DIMENSIONS OF PERSONALITY & THEIR RELATIONSHIP TO GREEK TEMPERAMENTAL TYPES (Eysenck, 1947).
theoretical psychology and supported the view that the N factor (Neuroticism) is closely related to the inherited degree of lability of the autonomic nervous system, while the E factor (extroversion) is closely related to the degree of excitation and inhibition prevalent in the central nervous system (Eysenck, 1960) this balance, too, is presumably largely inherited, and may be mediated by the ascending reticular formation (Eysenck, 1963). The strong influence of heredity on E and N has been shown in several studies, but clearest perhaps by Shields (1962), who found that identical twins brought up separately correlated very highly in both extraversion and neuroticism. Like it or not, say Eysenck the roots of personality are in neurophysiology and the hereditary forces that give it form. To a significant extent, differences in the personalities of individuals reflect differences in their neurophysiological make up.

Eysenck has extracted three types of super factors extraversion (E) neuroticism (N) and psychoticism (P). He regards all three types as part of normal personality structure.

All three types are bipolar, with 'extraversion' opposed to 'introversion' 'neuroticism' opposed to 'stability' and 'psychoticism' opposed to super ego
FIG. 4. EYSENCK'S THREE DIMENSIONAL SCHEME (Eysenck 1947).
function as presented in Figure 4. The quantified description of these dimensions are as follows (1) extraversion dimension refer to a disposition to be sociable, outgoing carefree, optimistic, friendly, impulsive risk taking and unreliable, whereas introversion to the disposition to be quiet, reserved, pessimistic, reliable, reflective and risk avoiding. Eysenck (1982) reported that the principal difference between extraversion and introversion are not behavioural but rather biological and genetic in nature. The primary causes of differences between extraverts and introverts is one of the cortical arousal level, a physiological condition that is largely inherited rather than learned. He has found evidence that extraverts are characterized by a lower level of cortical arousal than introverts consequently, they have higher sensory threshold and thus, lesser reactions to sensory stimulation. Introverts, conversely, are characterized by a higher level of arousal and as a result of a lower sensory threshold, they experience greater reactions to sensory stimulation (Eysenck 1967, Eysenck 1968, Eysenck 1981 and Eysenck and Eysenck 1969). These concomitant evidence are originally derived from studies comparing introverts and extroverts on the EEG (Gale, Coles and Blaydon 1969, Savage 1964) subsequent work has been reviewed by Gale (1973) who cited several experiments, findings
indicate that introverts are indeed more highly aroused on EEG indices than are extraverts.

The second type extracted by Eysenck is neuroticism/stability (N), like extraversion/introversion, Neuroticism has a strong hereditary component (Eysenck 1967). People high on neuroticism tend to be emotionally labile and frequently complain of worry and anxiety as well as of bodily aches e.g. headaches, stomach difficulties dizzy shells etc. They are more irritable moody restless, excitable, changeable and unstable persons.

A third aspect of personality which weaves its way in and out of Eysenck's writings is psychoticism (P). Psychoticism is an inradian which is present in varying degrees in individual personalities and is not a dimension on which one can be either high or low. An individual at the extreme end of this dimensions would be having these dispositions - solitary, troublesome, cruel, insensitive, sensation-seeking, aggressive, folhardy, prefer "impersonal" sex etc. Eysenck (1975) Although less is known about the basis for the psychoticism dimension, here too a genetic association is suggested, in particular one linked with maleness.

In general, genetic factors play a major role in determining personality and social behaviour indeed,
according to Eysenck (1982) "genetic factors contribute some thing like two-third of the variance in major personality dimensions".

Personality affects learning and these two variables are correlated that's why Strelau (1983) said "For undestanding personality learning should be studied experimentally". On the other hand, Eysenck and Cattell viewed learning as part of the broader area of personality. Learning is one of the most active and productive fields. All living organisms are capable of learning and modifying their behaviour potentials on the basis of previous experiences. Inspite of the obvious importance of individual differences in human learning and memory relatively, few investigators incorporate any measure of intelligence, personality or motivation into their studies. However, the experimental evidence indicates that there are relatively consistent differences in learning as a function of introversion-extraversion. Jenson (1962) reported that extraverts performance with short intervals 'serial rote learning' is better than introverts.

Mostly hypotheses relating extraversion and verbal learning is that extraverts will learn faster than introverts in tasks which are "difficult" or which
are involve response competition, but that this advantage will be attenuated or will disappear in tasks which are "easy" or which involve little response competition several studies have examined this hypothesis (Allsopp and Eysenck 1974; 1975 Bone 1971, Howarth 1969, Jenson 1964, McLaughlin and Eysenck 1967, Eysenck 1976, Purohit 1966, Shanmugan and Santhanam, 1964 and Selegman, 1957).

McLaughlin and Eysenck (1967) considered the differential effects of extraversion on easy and complex tasks with in the frame work of the Yerkes -- Dodson Law (Broadhurst, 1959). This law may be interpreted as stating that the optimal level of arousal is inversaly related to task difficulty. They assumed that introverts were characteristically more highly aroused than extraverts (Gale 1973) and that those high in neuroticism were more aroused than those low in neuroticism, subjects were tested on either an easy paired-associate list (Low response similarly). They found that extraverts are superior to introverts on both easy and difficulty paired -associate tasks. Confirmatory results have been found by Allsopp and Eysenck (1974) they reported that extraverts performed significantly better than introverts on the competitive list.
Level of Intelligence:

Another traits like intelligence is also considered of considerable importance. In present study intelligence has special importance, to solve life's problems one depends on a wide range of abilities. These abilities range from the simplest sensory sensitivities and reflexive behaviour to the most abstract thinking and reasoning.

It is based on the assumption that intelligence is a multifactor concept. This is why most definitions are based on a number of today's most widely used intelligence test. Wechsler (1944) has said that, "Intelligence is the aggregate or global capacity of an individual to act purposefully, to think rationally and to deal effectively with his environment".

Spearman (1927) described that intelligence has two parts, general intelligence and specific intelligence. General intelligence effects every activity but the effects of the specific intelligence are confined to specific activities - General intelligence is found in lesser or greater degree in everyone, specific intelligence is of various types, each being independent of the others. They differ from
individual to individuals. Hence the intelligence of a person depends on his general intelligence.

Cattell (1963) has distinguished between two kinds of intelligence, crystallised and fluid. Fluid intelligence is that form of general intelligence which is largely innate and which adapts itself to all kinds of material, regardless of previous experience with it. "Crystallised intelligence is a general factor, largely in a type of ability learned at school, representing the effect of past application of fluid intelligence, and amount and intensity of schooling, it appears in such tests as vocabulary and number of ability measures.

Obvious and complex reasons, modern American has come to stress the value of intellectual abilities, especially language and mathematical skills. Moreover, the concept of intelligence is used not only to describe a person but also as a popular expansion of the obvious differences among adults in the attainment of signs of success in the society. Infact not only American, African or Indian parents want their children to acquire good dispositions, but because world all over have known that happy and successful life rests on them.

Intelligence Theories:

James and Hershay (1974) believe that intellectual potential - what man is theoretically
capable of knowing and doing is not fixed rigidly by heredity at birth. Rather, the original genetic limits, whatever they happen to be, can be extended through favourable (although as yet unspecifiable) environmental conditions. That it is more accurate to conceive intelligent behaviour as a product of living instead of a fixed determined of how we are to live.

A Swiss psychologist, Jean Piaget who had spent more than a half century observing the behaviour of his own and other children as they grow from infancy through adolescence, concludes that mental growth is basically an increased ability to adopt to new situations and that this growth takes place because of two key processes: assimilation and accommodations. Assimilation is the process of incorporating a new stimulus into one's existing cognitive view and behaviour when new information dictates such a change. As a simple example, consider a young boy who has a number of toys. To these familiar old toys we add new one, a magnet. The boy's initial impulse will be to assimilate the new toy into his existing knowledge of other toys, he may try to bang it like a hammer, throw it like a ball, or blow it like a horn. But once he learns that the magnet has a new and unprecedented quality - the power
to attract iron - he accommodates his view of toys to include this previously unfamiliar fact. He now behaves on the revised assumption that some toys are not designed to bang, throw the make noise with but to attract metal. There is always tension, Piaget concluded between assimilation (which in essence represents the use of old ideas to meet situations) and accommodation (which in essence is a change of old ideas to meet new situations). And it is the resolution of this tension that result in intellectual growth. He believes that the growth takes place in a serie of stages, in each of which the child thinks and behaves in quite different fashion than earlier, (Kagan and Havemann 1980).

Heredity versus Environment:

Scholars are not unanimous about the relationship between heredity and environment. Some psychologists claim that all physiological and psychological characteristics of individual have their origin through heredity. While, Galton (1896) says that genius is an innate quality to environment, other psychologists think that environment alone is responsible for moulding the character of the individual and heredity in no way
effect the upbringing of a person. Thus this generate into an extreme controversy. Frankly speaking both heredity and environment are important and are two aspects of the same element. Therefore in relation to human development heredity cannot be imagined apart from environment and neither can environment be imagined apart from heredity.

Galton (1869) was fascinated by the concept of genius. To determine its hereditary basis, he studied family biographies and other accounts of eminent people. He concluded that since outstanding intellectual ability accrued more frequently among the close relatives of eminent people than it did among remote ones, the origins is surely genetic.

In another study, Martin and Wilson (1982) discussed the reliability and validity of twin studies using truncated distributions, sampling twins from a truncated distribution and ignoring the function in estimation procedure lower the correlation coefficients and can considerably bias estimates of the proportions of genetic and environmental variance. A greater proportion of dizygotic than monozygotic twins will be missed in sampling for any heritable trait the author suggest that the effect of sampling may be particular
important in the study of individual differences in educational achievement.

A psychometric test battery including the adjective check list, 16PF and Eysenck Personality Inventory was administered to 118 families (N=456). Parents-offspring regression, sibling correlations, and other measures of family resemblance in personality were computed for 54 personality traits. Results suggest that a small familiar/heritable component exists with regard to individual differences in personality, but do not demonstrate that some domains of personality are more familiar or heritable than others (A Hern, Frank 1982).

In addition to above mentioned individual differences some other variables also affect the amount of learning and memory, particularly the retrieval deficit is due to interference or interpolated activities which might influence the consolidation process. Probably every one who has thought seriously about it, would agree that interference plays a major role in determining the retention loss or for getting. These are two experimental designs to see the possible effect of interference on memory.

In retroactive design, recall of the first list is measured following the interpolated list. On the other hand, in the pro-active design second list is
recall following a retention interval filled with an unrelated material. The performance under both conditions is compared with control group. The control group learns a single list and recalls the same after an appropriate length of rest activity. If the experimental group shows poorer retention than the control group under retroactive design than it is known a retroactive inhibition (RI). If the experimental group shows better performance than it is called retroactive facilitation (RF). In proactive design poorer recall of experimental group is termed as proactive inhibition (PI) while for better performance proactive facilitation (PF) term is used. The response competition theory of McGoech (1942) provides a meaningful account for retroactive inhibition.

The results of previous studies failed to reach on general agreement regarding the effect of interpolated activities. In recent years there have been a remarkable shift in the research in this area. Researchers are interested to see the relationship between different personality dimensions and learning and memory.

On the basis of above discussion, it is quite clear that personality and intelligence are the
distinctive qualities of an individual and these characteristics influence almost all kinds of behaviour and performances of the person. Concept of learning and memory are also not exceptions. The personality type and the level of intelligence of the person do influence the amount of learning and memory. Although, some other variables also affect learning and memory but the influence of the individual differences in respect to personality and intelligence is of greater significance for the researchers.

With this much background, we may now pass on to the second chapter dealing with the pertinent literature.