Chapter 1

INTRODUCTION
LEARNING DISABILITY

The children of any age who demonstrate a substantial deficiency in a particular aspect of academic achievement, because of perceptual or perceptual motor handicaps are called learning disabled. The interest and attention focused on learning disabilities involved as a result of a growing awareness that a large number of children were not receiving needed educational services. Because they were within the normal range of intelligence, they did not qualify for placement in classes for retarded. In addition, while many of them did exhibit behaviour or personality disturbances, some of them did not, thus it was felt that placement in classes for emotionally disturbed was not appropriate. The learning disabled share a great deal in common with the mildly retarded and the emotionally disturbed. At the time the concept of 'learning disabilities' was born, class for the disturbed were primarily oriented toward helping the child with social adjustment problems, and classes for the retarded were often either vocationally oriented or involved a 'watered-down' curriculum.

Parents of children who were not achieving at their expected potential i.e. learning disabled youngsters- wanted their children's academic achievement problems to be remediated.

According to H.C. Warren (1934) disability has been defined as "a structural impairment of some organ or member of the body, which results in impairment of certain functions."
It is obvious that Warren had in mind the physically and mentally handicapped, whose disability is due to defective vision, impaired hearing, brain damage, endocrinal disorders and the like.

The teacher encounters other kinds of disabilities, however, namely, subject disabilities or special learning disabilities. For example, some children are mirror writers, some have marked disabilities in reading, arithmetic, spelling or music and so on.

Task Force II of a national project (Minimal Brain Dysfunction in children: Educational, Medical and Health Related Services, Phase. Two of a Three Phase Project 1969) wrote the following two definitions -

1. Children with learning disabilities are those (a) who have educationally significant discrepancies among their sensory motor, perceptual cognitive, academic or related developmental levels which interfere with the performance of educational tasks, (b) who may or may not show demonstrable deviation in central nervous system functioning and (c) whose disabilities are not secondary to general mental retardation, sensory, deprivation or serious emotional disturbance.

2. Children with learning disabilities are those (a) who manifest an educationally significant discrepancy between estimated academic potential and actual level of academic functioning as related to dysfunctioning in the learning process, (b) who may or may not show demonstrable deviation in central nervous system functioning, (c) whose disabilities are not secondary to general mental retardation, cultural, sensory and/or educational deprivation or environmentally produced serious emotional disturbance.
We find some main threads that run through many of the most commonly accepted definitions of learning disabilities.

Hallahan and Kauffman (1976) have listed the five major ideas included in most definitions-

(a) There is academic retardation.
(b) An uneven pattern of development exists.
(c) The individual may or may not have central nervous system dysfunction.
(d) Learning problems are not due to environmental disadvantage.
(e) Learning problems are not due to mental retardation or emotional disturbance.

In India the term education for exceptional children mostly refers to the education of physically and mentally disabled children. A major group of exceptionality i.e. learning disabled (LD) remained unfocused so far. They are the group of the students who experience repeated school failures but exclude the traditional categories of exceptionality. The term includes dysfunction in the area of reading, writing mathematics, spelling speech and comprehension (Berdine and Black Hurst 1985).

The most widely used definition of LD is the one found in IDEA that was actually formalized about 25 years ago by the U.S. office of Education (1977). The IDEA definition is as follows:

The term "specific learning disability" means a disorder in one or more of the basic psychological process involved in understanding or in using language, spoken or written, which may manifest itself in imperfect ability to listen, think, speak, read, write, spell or do mathematical calculations. The term includes such conditions as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia.
Such term does not include a learning problem that is primarily the result of visual, hearing, or motor disabilities, of mental retardation, emotional disturbance, or of environmental, cultural or economic disadvantage.

In words of Hallahan (1998) learning disability has been defined as:

"Students with learning disabilities are those who have academic achievement deficit. Given the exceedingly high rates of illiteracy in developing countries, attempting to determine which children have bonafide learning disabilities and which have academic problems because of lack of opportunities could be a nightmare."

The evaluation of LD definitions appears to have converged on the following ideas:

(a) LD is marked by heterogeneity;
(b) LD is probably the result of CNS dysfunction,
(c) LD involves psychological process disorders,
(d) LD is associated with underachievement,
(e) LD can be manifested in spoken language academic or thinking disorders,
(f) LD occurs across the life span,
(g) LD does not result from other conditions,

Definitely the learning disabled constitute a very difficult group of children to identify to be referred for special action. This is a group of children which easily eludes diagnosis, as apparently these children appear to be normal in intelligence, social behaviour and all other physical aspects except their repeated low academic achievement. Clearly not all the low achievers are
learning disabled. But definitely repeated failure in particular school subjects is an indication of learning disability to warrant special attention.

**Incidence**

Mittle et al (1977) in a study of children belonging to upper socio-economic strata and attending an English Medium School in Delhi, found that 18 per cent had learning disability.

Similarly Shah et al. (1981) studied that incidence of scholastic backwardness in an English Medium School at Bombay. They found it to be one of the five most common complaint for which children were treated at a child guidance clinic at Bombay. Over a five year period its incidence was 14.5% and in almost 10% this seems to be due to learning disability.

The emphasis on discrepancy creates a problem, however when large scale evaluations of LD populations show that only about 50% of students actually classified as LD demonstrate a significant aptitude achievement discrepancy (e.g. Kavale and Reese 1982, Mckeskey and Waldron 1991, Shepard, Smith and Vojir 1983).

Venugopal and Raju (1988) that around 20.6% of school going population has learning disability in one or more academic area in India.

A related problem emerges when a large majority of the LD population manifest the same deficit as is the case with reading disability (RD). With about 90% of students with LD possessing primary academic difficulty in reading (Kavale and Reese 1992).

The incidence of LD children in Indian schools in quite alarming and can be gauged from the fact that "around 3.60 million children in the age of 5-14 years are learning disabled." (Rao, Digumarti Ed. 1996).
The LD population has increased about 50% to a level that now represent over 50% of all students with disabilities and over 5% of all students in school. (U.S. Department of Education 1997).

The probability of existence of LD children in a class of 40-50 students is 4-5. (Chughtai 2003).

Learning Disabilities Theories and Models

There are varieties of theoretical conceptualization of the cause and effects of learning disabilities that should be of assistance in formulating more appropriate educational interventions for learning disabled students. Most early models have related learning disabilities to brain dysfunction, other theorists related learning disabilities to brain function, but placed most of their emphasis on perceptual disorders, which were believed to almost always accompany brain dysfunction. This was because of clinical observation made with brain injured persons, that were interpreted to mean that inconsistency in interpretation of perceptual events was a major factor in learning difficulties.

A Specific Area Brain Defect Model

Hinshelwood (1917) one of the earliest researcher who proposed a theoretical model to explain a learning disability, suggested that one part of the brain (what he called the visual memory centre for words) was congenitally defective in persons with this type of learning disability.

The Perceptual Motor Model

Hallahan and Cruickshank (1973) have reported that in a large group of students learning disorders are based on perceptual psychopathology, which in turn is embedded in neurological dysfunction'. They further state that the situation is complicated by the fact that "many children process all or most of the behavioural characteristics of psychopathology recognized as being related
to neurological dysfunction, even though neurological findings are negative. This was prevailing point of view when learning disabilities become a recognized entity. Getman (1965) and Kephart (1971) have also supported the perceptual disorder model.

Kavale and Mattson (1983), who completed a comprehensive meta-analysis of the effectiveness of perceptual motor training for exceptional children, have suggested that perceptual motor training is not an effective intervention for learning disabled children. However, they agree that it is difficult to remove perceptual motor model because of historic root and clinical tradition in treatment technique of exceptional children.

Language Development Model

Another model for considering the cause, effects and remedial implications of learning disability is one that emphasizes the role of language in the development of all other abilities.

Myklebust (1964) provided this model and he has used the term psychoneurological learning disabilities to indicate that the disability is behavioural and the cause is neurotic. In his model he has considered both verbal and non-verbal learning disabilities, because the brain receives, organizes and categorizes experience both verbally and non-verbally (Jhonson and Myklebust 1967).

In the area of verbal disabilities, Myklebust believes that the disability may occur at the level of perception, imagery, symbolization and conceptualization.

Information Processing Model

Information processing theories are among the more commonly accepted to understand the cause of learning disability in the 1980s. According
to Deruiter and Wansart (1982) "the unifying characteristic of the learning disabled is the presence of processing problems". Information processing includes attention perception, memory, cognition and encoding. The information processing model is based on two assumption (1) that attention, perception, memory, cognition and encoding, are the essential process to normal learning and (2) that learning disabled students may have deficit in any one, or several of these process.

Genetic Epistemology Model

Hresko and Reid (1981) and Mercer (1983) have suggested that Piagation theory (Piaget 1971, 1973) is very important in understanding learning a prerequisite to successful efforts with students who experience learning disability. However although learning disabled students apparently progress through recognized developmental stages in the same sequence as students who learn normally but with some delay, (Reid 1978). Their performance also seems to differ qualitatively from normally achieving children. Learning disabled children may use ineffective problem solving strategies. They often rely on perceptual strategies to guide their problem solving behavior even after they cause to be effective (Reid et al. 1981). To compensate for their language problem learning disabled students may use compensatory process (gesture) to achieve normal developmental progress (de Ajuriaguerra et al. 1963).

Mathematical Model

Prasad (2003) has proposed the mathematical model of diagnosis and assessment of learning disabilities (LD) is depending on the various mathematical formulas. Four formulas were developed and standardized on the special sample and undertaken comparison sample. Learning
Disability Quotient (LDQ) assessed degrees of learning disabilities and the cause identified in term of quantity by 1. Learning capabilities (LC), 2. Performance confidence (PC) and 3. Hesitation of expression (HOE). It was found that with the help of these formulas we could diagnose very sensitive LD sample.

CLASSIFICATION OF LEARNING DISABILITIES

(i) Developmental Dyslexia

Literal Meaning of Dyslexia is 'word sickness'. The diagnostician exclude all other factors and determine a capacity achievement discrepancy, as diagnosis of dyslexia, which means simply unexpected difficulty in learning to read. It indicates some brain dysfunction as a probable cause of dyslexia. The most common complaint brought to a diagnostician is the failure to learn to read, to decode, to turn writing into oral language or symbols into meaning. Parents are much more likely to be concerned over a lack of progress in learning to read than over similar difficulties in other areas. (Johnson 1978).

Developmental dyslexia is one of the common cause of scholastic backwardness and need to be considered and evaluated for the same when a seemingly intelligent child does poor work in school. (Bakwin and Bakwin 1972).

This specific disorder of learning have been known for over 80 years. For the first time in 1877 Kussmaul called attention to a phenomenon which he called word blindness. He referred to patients who were unable to read though vision, intellect and speech were unimpaired. Latter on the detailed description was given by Morgan (1896) and Hinshelwood (1917).

Morgan's was the first communication in medical literature of word blindness (visual aphasia alexia, dyslexia) which was not acquired on a
neurological basis. Since then, numerous instances have been observed. The condition is now designated as specific reading disability. Similarly Hinshelwood (1917) defined reading disability as one "in which with normal vision and therefore seeing the letters and words distinctly, and individual is no longer able to interpret written and printed language".

The concept of reading disability was broadened by Orton (1925) a neurologist who worked out an interpretation of reading disability based on the developmental approach to brain function. He noted the high incidence of sinistrality or ambidexterity, and reversals or mirror reading and mirror writing in disabled readers and concluded that the common underlying defect was a failure to establish occipital dominance.

Dyslexic children often misread "small" words articles, prepositions, pronouns, adverbs, connoting how where, and when, and auxiliary verbs—much as aphasic adults tend to leave out these part of speech altogether. They also pay little or no attention to grammatical coherence, number, tense, or subject verb correspondence. Thus "on holidays" is read as "one holidays", "There are" as "They are", "her name" as "here name". (Coltheart 1979; Denckle and Rudel 1976; Rudel 1980).

Like many adults who have lost the ability to read (alexia), dyslexia children are somewhat anomic, having great difficulty when called upon to name objects implied in sentences or in definitions read to them or from pictures. Performance on repetitive naming tasks differentiates dyslexic children not only from normal controls but also from children with learning disabilities other than reading. (Rudel 1976).

The dyslexic children read the first sound of a word usually correctly particularly if it is a consonant. They have more difficulty in reading vowels.
Children with reading disorders also lack the analytic capacity needed to fragment a word into components parts (or syllables).

Children unable to cope with nursery school or adults unable to climb the ladder of the professional success are possibly "dyslexic".

The diagnostic criteria of developmental dyslexia are-

1. There is a severe discrepancy between reading performance and potential.

2. Physical, sensory, intellectual or emotional disorders that might account for discrepancy are to be ruled out.

3. Establishing the presence of an underlying disorder in neurological or psychological process that are presumed to be etiological (Snef 1978).

4. It is also associated with difficulty in comprehending written language.

5. Other disturbances in language functions such as speech, spelling and written are also present.

6. Alternations in literal dominance is present.

7. Clumsiness is also present.

8. History of language difficulties in other members of the family may be present.

9. Emotional disturbance arising out of the subjects inability to read may occur (Bakwin and Bakwin 1972).

10. Visual perceptual problems such as letter 'b' versus 'd' or word such as 'was' versus 'saw' due to impaired special orientation, leading to awareness difficulty of directionality of letters (Ingram, 1960).

11. Short attention span or attention deficit.
(12) Diminish memory capacity leading to correlating and synthesizing difficulties observed most frequently in children with a history of late speech (Ingram, 1960).

(13) Dysphasic reading difficulty is seen exclusively in children with history of late speech, often associated with severe defects in language comprehension. These children are unable to grasp the meaning of the words and phrases even when they are read aloud to them (Ingram, 1960).

(14) Diminished ability to 'cross reference' incoming words in terms of their appearance, pronunciation, function, derivative forms and meaning in various contexts.

(15) Maturation lay.

(16) Less well blanched reading instruction in the regular grades.

(17) Lack of attention to certain motivational or instructional approaches (Forness 1982).

Johnson and Maklebust (1967) divided dyslexics into three groups (a) auditory (b) visual (c) Mixed.

The list seems endless; Doehring has reported sixty eight test on which dyslexic children preformed significantly more poorly then controls.

(2) Arithmetic Disability

Arithmetic activities involving numbers and numbers relations are useful in helping the pupil understand arithmetic not merely as a skill subject but also as a system of ideas.
Pupils when given an opportunity to discuss their school subject declare 'arithmetic is hardest'. The felt difficulty may be limited to long division fractions, or problem solving (Kanner, 1960).

There are children whose attainments in arithmetic are consistently behind other scholastic achievements, even though there have been no disruption of attendance. Repeated explanations and parental tutoring have no beneficial effect.

Some of the major causes of difficulty in problem solving in arithmetic are -

1. Mental immaturity or mental defects.
2. Reading disability (especially with reading the arithmetic problems).
3. Lack of experiences involving numerical relations.
4. Insufficient experiences in solving simple arithmetic problem.
5. Lack of skill in the fundamentals.
6. Poor teaching.
7. Carelessness.
8. Lack of motivation.

Though arithmetic is one of the areas in which learning problems are most frequently encountered, the relationship of arithmetic performance to learning disabilities has been largely overlooked in favour of emphasizing reading and other areas.

Middleton (1956) showed that the extent to which children's ability in mathematics depends on a thorough grasp of the basic number combination. Weak foundations, accompanied by errors, lead to poor achievement and to unfavorable attitudes towards mathematics as a school subject.
Sexton (1950) had analyzed the reasons for mathematics disability as follows:

1. Some children with learning disability encounter difficulty in learning to read from left to right. Having struggled with this in the early grades, and perhaps having succeeded to some extent, they are confronted in arithmetic with the apparent paradox that in adding the multiplying columns of fingers, they must proceed from right to left. This is naturally a source of confusion.

2. A further source of confusion is the difference in the way some numbers are spoken and written.

3. Reading numbers is more difficult than reading words for the normal person.

4. The students are also confused with algebraic problems, arithmetic combination and squaring.

Rourke and Finlayson (1978) found that children with low arithmetic achievement in relation to reading and spelling have difficulties in perceptual and visual spatial abilities.

Spellacy and Peter (1978) have noted that children who have arithmetic difficulties also have problems in the fine motor co-ordination, handwriting and visual spatial abilities.

Levine et al. (1981) have identified a type of learning disability which they refer to as 'developmental output failure'.

Siegal et al. (1983) believe that a significant and previously underestimated component of developmental output failure is difficulty with arithmetic and written tests. Arithmetic as it is tough in schools, requires a
significant amount of short term memory and writing skills and children having learning disability exhibit impairment in these areas.

(3) Dyscalculia

By dyscalculia is meant a failure to recognize or manipulate number symbols by a person in a advance culture.

According to Cohn (1968) common errors made by persons with this handicap are (a) disturbed horizontal positioning of number sequences (b) failure to use a separating line to differentiate the factor from the product, (c) disarray of the vertical alignment of numbers, (d) transposition of numbers e.g. writing 13 for 31.

All these difficulties can lead to school backwardness.

(4) Developmental Speech Disorder (Language disorder)

Speech specialist point out that disruption of the learning process in children with accompanying language development problems can come from any one or combination of these four cases:

(i) Sensory deprivation - Such as a hearing loss.
(ii) Experimental deprivation - such as hearing only a limited vocabulary spoken in the home.
(iii) Emotional Disorganization - such as those traumas which lead to or contribute to stammering and mutism.
(iv) Neurological dysfunction- such as those disorders stemming from a psychological incapability to produce vital verbal responses.

The number of children in school with mild to severe speech disorders of various kind varies. Conservatively from 5 to 10% have severe involvements. Although the incidence of speech defects is much greater among
handicapped children, the large majority of defects are of a functional or learned nature.

The speech defective group was the largest group receiving special services in the public schools in the academic year 1952-53.

Developmental speech disorders occur in about 5% of school. Stuttering and cluttering (difficulty comprehensible speech) disturb not only to the pupil himself, but also to the entire classroom. These children's speech may become worse, and their school work suffers. (Bakwin and Bakwin 1972).

(5) Motor Developmental Disabilities (Dysgraphia, Written Language Disabilities)

Students who struggle to develop written language often construct a negative perception of written process as well as a negative image their own capabilities to communicate ideas through writing. A third grade student who has been identified as having learning disabilities, perceives writing as a tiresome and tedious way to express his ideas.

In contrast to his written abilities his oral language (both respective and expressive) ability range from average to high average at the word, sentence and discourse level, and his reading abilities fell within the average range (Gregg and Mother, 2002).

Kinsbourne and Warrington (1963) have coined the term as 'writing Backwardness' found in children having problems in fine motor coordination, handwriting and visual spatial abilities and differentiated it from reading disability.

Writing difficulties are frequently observed in the left handed child who has been to write with his right hand, writing difficulty may also be present.
when the preferred hand has been injured and it becomes necessary to use the less competent hand.

Writing letters upside down (vertical inversion) which occurs occasionally, ordinarily lasts only a short time and disappears either spontaneously or under guidance. A persistent tendency to reversals, either sinistrod 'b' for 'd' or veridical 'b' for 'p' is difficult to eradicate. There is often difficulty in forming letters and in writing legibly. The writing may be so poor, that it cannot be read by the writer himself. Emotional factors sometimes exaggerate the writing difficulty, but this is less common than in reading disability. (Backwin and Backwin 1972).

Teachers often see writers, who if given unlimited time can recall and produce letters but whose hand writing deteriorates in timid situations. A writer speed at producing letters on paper can be impaired in the absence of other motor deficits and this impairment is often demonstrated bilaterally (Deuel 1992).

Anxiety, attributions and motivation are three affective variables that may influence a writer's performance. (Gregg, 1995).

Given that research has documented that children and adults with learning disabilities often demonstrate low self esteem, negative academic self concept and maladaptive attributions, administering a writing apprehensive scale would be important when anxiety appears to be influencing writing performance. (Chapman et al. 1992).

(6) Minimal Brain Dysfunction (Minimal Cerebral Dysfunction)

Reference is made in the definition of learning disabilities to minimal cerebral dysfunction as an implied etiological factor. A diagnosis of minimal cerebral dysfunction is made by the process of inference and elimination. When
no other cause of the disorder can be identified, and when a child exhibits poor gross and fine motor coordination, an inability to inhibit movement impaired perceptual processing and learning problems in reading, language and/or arithmetic, minimal cerebral dysfunction is presumed to exist.

It is however, rarely possible to identify the actual damage/dysfunction to which the learning disability is attributed or to identify any related injury or infection to the brain.

Minimal brain dysfunction as defined by the National Institute of Neurologic Diseases and Stroke Task Force I, refers to children of near average, average, or above average general intelligence with learning and behavioural disability ranging from mild to severe which is associated with deviations of functions of the nervous system. These deviations manifest themselves by various combinations of impairment in perception, conceptualisation, language, memory, control of intention, impulse or motor function (clements, 1966).

Incidence of minimal brain dysfunction syndrome with hyper-kinetic behaviour amongst children attending normal schools is estimated to be between 1 to 7 percent of general school population as reported by Bowley (1980), while Solomon (1972) and Getze (1974) reported an estimate of 5 to 10% amounting to 2 million or more children of elementary school in the united states.

Ross et al (1977) concluded from their studies that all findings point to a complex relationship between the brain and behaviour and suggest that linking any behaviour directly to an implication of brain damage is dangerous and unrealistic.
(7) Developmental Hyperactivity

Although the original descriptions of hyperkinetic syndromes pertain to children with evidence of neurologic damage or injury, the vast majority of children now brought to the physician's offices with hyperkinesis as the major complaint do not manifest signs of overt neurologic disease or mental retardation.

Attention was focussed on the developmental nature of this symptom by introducing the expression 'developmental hyperactivity' as a diagnostic term, (Backwin and Backwin 1972). This concept has been elaborated by Werry (1968). The essential elements of this condition are the presence of hyperactivity, beginning in the first year of life in a child who otherwise is mentally or neurologically intact. Parents may have regarded the restless, inquisitive impulsive behaviour of their child as signs of vigorous personality, but these traits become a handicap when the child is expected to conform to classroom restrictions. Male preponderance is as high as 90%. Hyperactive behaviour usually diminishes with age but may be replaced by antisocial behaviour if the child has failed to enter the academic learning process because of hyperactivity.

One study (Thomas et al. 1968) has provided evidence that hyperkinesis may be a temperamental trait, constitutional in origin, and evident during the early months of infancy. These children 'naturally' manifest high activity levels and development of impulse control is delayed. When these personality traits are incompatible with the way in which classroom or home activity are organized symptoms of adjustment problem rise.

This medical problem results in a destructive effect upon the child's social and academic progress. The anatomic, biochemical, or environmental substrates for these temperamental traits are not fully known.
CRITERIA FOR DETERMINING THE EXISTENCE OF LEARNING DISABILITY

One may determine that a child has a specific learning disability if-

(1) The child does not achieve commensurate with his or her age and ability levels in one or more of the areas related with learning, when provided with learning experiences appropriate for the child's age and ability level.

(2) If a child has a severe discrepancy between achievement and intellectual ability in one or more of the following areas:

   (a) Oral expression,
   (b) Listening comprehension,
   (c) Written expression,
   (d) Basic reading skill,
   (e) Reading comprehension,
   (f) Mathematical calculation,
   (g) Mathematical reasoning.

Various assessment tools and procedures are used to initially identify as learning disabled and to provide information required for appropriate effective educational intervention.

These psycho-educational tools can be classified as below-

(1) Measures of indicators of level(s) of academic functioning.

(2) Measures of intelligence.
(3) Measure in such areas as memory, sensory integration, perceptual ability, language ability, and various specific sub-skills believed necessary to successful academic functioning.

A learning disability, or educational handicap, is characterized by a discrepancy between expected performance and actual performance on one or more academic achievement measures. Assessment of academic deficits has traditionally been based on patterns of performance on standardized academic, intelligence, or neurological batteries. (Sattler, 1974, Kaufman, 1979).

**INTELLIGENCE**

The word intelligence is batted around in conversation as if everyone agreed on its meaning. But psychologists who have spent a lifetime trying to pin down a definition are not sure. In the early 1920's seventeen eminent scholar were invited to express their idea abut intelligence in a symposium and they came to very close to seventeen different and distinct opinions. (Thorndike E.L. 1921). Intelligence was defined earlier as the stable characteristic of a person including abilities, talents, habits, preferences, weaknesses, moral attributes and number of other important qualities that very from one person to another. Perhaps the most important and controversial of all personality characteristics is intelligence. Intelligence has been defined in many ways, beginning with Boring's assertion that intelligence is what the tests (test 1923, p. 35) and culminating a variety of more or less complex description of intellectual functioning.

Perhaps the most practical definition of intelligence has been proposed by David Wechsler, who has constructed a number of today's most widely used intelligence tests.
Wechsler (1975) has said that, 'intelligence is the capacity to understand the world and the resourcefulness to cope with its challenges'. By this broad standard, one is intelligent if he knows what is going on around him, can learn from experience and can act in ways that will be successful under the circumstances. His behaviour as wechsler describes it, will have meaning and direction and will be rational and worthwhile (Kagan and Havemann 1980).

**Structure of Intelligence**

In talking about intelligence, we have to assume that it is in fact what most people agree that it is. But the question arises - Is it a single ability or a combination of several different abilities? can one be highly intelligent in some respects but may below average in others?

One of the first attempts to find the answer to these important questions was made by Charles Spearman a great British psychologist, who first proposed the theory that performance on an intelligence test, was a product of two factors of g and s. He used g to identify the quality of all-round superiority or inferiority, but he used s to account for specific influences.

Spearman postulated only two intellectual factors, although s could take many forms. Other psychologists studying the structure of intelligence have proposed that there are a great many more. Thurstone (1938) reported that intelligence is composed of seven distinct factors, which he called 'primary mental abilities' that were independent of one another.

The Thurston's factors were:

**1. Verbal Comprehension (V):** Indicates by size of vocabulary ability to read, and skill at understanding mixed-up sentences and the meaning of proverbs.

**2. Word Fluency (W):** The ability to think of words quickly, as when making rhymes or solving word puzzles.
(3) **Number (N)** : The ability to solve arithmetic problems and to manipulate numbers.

(4) **Space (S)** : The ability to visualize spatial relationship, as in recognizing a design after it has been placed in a new context or estimating the number of block in a pile from a drawing.

(5) **Memory (M)** : The ability to memorize quickly, as in learning a list of words.

(6) **Perceptual speed (P)** : Indicates the ability to grasp visual details quickly and to observe similarities and differences between design and pictures.

(7) **Reasoning (R)** : Skill at the kind of logical thinking such as number series, or identifying a general rule in concrete examples.

After words, Thurstone concluded from his work that intelligence is composed of the seven primary mental abilities plus some kinds of general factors common to all. "Each of the primary factors can be regarded as a composite of on independent primary factor and a general factor which it shares with other primary factors" (Thurstone and Thurstone, 1941).

One group of investigators, headed by J.P. Guilford of the University of Southern California, has concluded on the basis of more elaborate testing that intelligence is probably made up of no less than 120 different kinds of ability. The 120 factor theory maintains that each factor is the ability to perform one of five different types of mental operations on one of four different kinds of materials, or contents, with the aim of coming up with one of six different kinds of end results or products. The total number of abilities that make up intelligence is \(5 \times 4 \times 6 = 120\).
Measurement of Intelligence

Intelligence tests began as a psychologist’s solution to a problem faced by Paris Schools at the beginning of the 20th century. Many class rooms were crowded, and slow students were holding up the progress of the better ones. One solution, it seemed would be to identify the children who lacked the mental capacity required by the standard curriculum and put them in a separate school of their own.

Alfred Binet, a French Psychologist went to work on the problem realized that the task of identifying the poorer students could not safely left to the teachers. There was too much danger that a teacher would show favouritism toward children who had pleasant personalities and would be too harsh on those who were trouble makers. There was also the question of whether a teacher could recognize children who appeared dull, but in fact could have done the work had they tried. (Cronbnack, 1949).

To avoid these Pitfalls, Binet (1905) developed a test designed to measure potential ability at school tasks rather than performances in school and to produce the same score regardless of the personalities or prejudices of those who gave or took the test. Binet’s test was first published in 1905, has been revised many times since, and is still widely used today. In fact, all modern intelligence tests bear a considerable resemblance to Binet’s original work.

One of the best known current versions of the original test is the Stanford Binet intelligence scale. It can be given successfully even to children who are too young to have developed a wide range of language skills, using the simple kind of physical equipments. Older children and adults are asked questions that measure such things as vocabulary, memory, span for sentences and numbers, and reasoning, ability.
More widely used today are three tests devised by David Wechsler— the Wechsler Adult Intelligence Scale (WAIS), another for children aged 7 to 16, and still another for children 4 to 6½. The distinguishing feature of the Wechsler tests is that they contain two separate kinds of items, called verbal and performance.

The verbal items measure vocabulary, information, general comprehension, memory span, arithmetic reasoning, the ability to detect similarities between concepts. The performance items measure ability of completing pictures, arranging pictures, working puzzles, substituting unfamiliar symbols for digits and making designs with blocks.

The standard Progressive matrices is also used for measurement of intelligence. The S.P.M. was designed to cover the widest possible range of mental ability and to be equally useful with persons of all age, whatever their education, nationality, or physical condition may be.

Pearce (1983) found S.P.M. to be a particularly good predictor of full WISC-R scores with 5th and 6th grade students.

Some American studies with adults have yielded very high correlation between SPM and WAIS scores.

The Coloured Progressive Matrices is also used for measurement of intelligence. The CPM is designed for use with young children and old people. The CPM are arranged to assess the chief cognitive processes of which children under 11 years of age usually capable.

**Mental Age, Chronological Age and I Q**

The scoring method originally used by Binet as well as in the initial versions of the Stanford- Binet test was based on the concept of mental age (M.A.). Binet developed the concept of mental age to get a single figure
indicating the level at which this child functions right now. As children mature, they become able to pass more or more of the items on tests. The testing of large number of children has shown exactly how many items the average child is able to pass at the age of six or seven or whatever the child's actual age happens to be. The actual age in years and months is known as chronological age, (C.A.).

For the average child, mental age and chronological age are equal. But children who have less intelligence than average will not be able to pass all the items suitable to their age level and thus will show an M.A. that is lower than their C.A. Those who have more intelligence than average will pass some of items designed for older children and thus will show an M.A. that is higher than their C.A. The relationship between mental age and chronological age was the original basis for that well known term intelligence quotient (IQ), proposed by a German Psychologist, Wilhelm Stern. L.M. Terman, who supervised the Stanford revision at Binet's tests devised the following formula:

\[
IQ = \frac{MA}{CA} \times 100
\]

Kinds of Intelligence Tests

All the intelligence tests fall into two major categories:

1. Individual tests and
2. Group test.

One other classification of intelligence test is as follows -

1. Verbal tests
2. Non-verbal tests.
Individual and Group Test

An individual test is one that is given to one person at a time by trained examiner. The advantage of individual test is that the examiner can readily detect if the result are being influenced by such factors as poor vision temporary ill health, or lack of motivation. Their disadvantage of course, is that they cannot conveniently be used for the testing of large numbers of people, such as all the pupils in a big school. Examples of individual tests are Stanford-Binet test, Wechsler test and many other more tests like that.

Group tests are used for large scale testing of many people at the same time. They typically take the form of printed questions, which are answered by making penciled notations. Among the widely used group tests are Armed Forces Qualification Test (Army Alfa Test, Army Beta Test), taken by applicants to the armed services. A number of group intelligence tests are available in Hindi. The advantage of group tests is that the examiner can test a large sample at a time that saves also money and labour.

Verbal and Non-verbal Tests

The test whether individual or group, devised with linguistic symbols is called verbal test. The verbal test measures vocabulary, information, general comprehension memory span, arithmetic reasoning, and ability to detect similarities between concepts.

Performance tests of intelligence are usually considered to be non-verbal tests which can be administered in pantomime (without words) and which can be answered without use of language. Wechsler's test and Bhatia Battery of intelligence test are examples of performance tests.
Physiological Basis of Intelligence

The individual's behaviour can never be understood except physiology as it is shaped and limited by his biological constitution. The intelligence behaviour depends to some extent on the total organism and not on any single organ. However, it is obvious that not all organs are of equal importance. A man can still demonstrate intellectual ability after he has lost an arm, but he could not perform it if has lost half of his brain. Damage to the cerebral cortex has a direct effect on cognitive functioning, learning and remembering. Damage to other centers (cerebellum, pons, or thalamus) may affect performance on tests by inferring with motor control, emotional control, willingness to tackle the task, and other necessary components of behaviour.

At the clinical conference a case was described of an adult man whose test scores indicated a verbal I.Q. of 114 and a non verbal I.Q. of 122. Five months later, upon resisting, he has given a verbal I Q of 67 and non-verbal I Q. of 112. The case indicates a drastic drop in intellectual aptitude as a result of removal of a large chunk of neural tissue from the left cerebral hemisphere (involved in a tumor which had to be excised). Another case was reported on original testing to have a verbal I Q of 130, a non-verbal I Q of 136, a few weeks later tests indicated a verbal I Q of 115 and a non-verbal I Q of 79. In this case the surgery was on the right cerebral hemisphere.

It is clear that the cerebral cortex is the physiological system most intimately tied in with intelligent behaviour. Verbal performance depends heavily on the left hemisphere whereas non-verbal aptitudes are tied in with the right hemisphere.
ACHIEVEMENT

Knowledge is an acquired experience which is a result of application of intelligence. The knowledge gained in any area by applying intelligence is called the achievement in the particular area.

Achievement is a general term for the successful attainment of goal requiring a certain effort. It is the degree of success attained in a task e.g. solving a test.

According to Marschner (1972), achievement is the result of certain intellectual or physical activity defined according to individual and/or objective (organizational) prerequisites i.e. proficiency.

The need for achievement is defined operationally as behaviour which shows efforts to do one's best to be successful to accomplish tasks requiring skill and effort, to be a recognized authority to accomplish something important, to do a difficult job well, or in general to accomplish something (Edwards 1959).

Achievement Quotient

The chronological age, at which a specific level of achievement is usually attained, is called achievement age. Chronological age (CA) or mental age (MA) may be used to estimate the theoretical performance, and achievement or educational age to measure the actuality (Mields, 1972). The ratio between the expected and the actual measured level of performance is denoted as achievement quotient (AQ) which is obtained by the formula given below-

\[
AQ = \frac{\text{Educational Age}}{\text{Mental Age}} \times 100
\]
Educational age is a composite score which indicates general achievement of the student.

**Measurement of Achievement**

There are various methods designed to measure an individual's achievement against a specific achievement norm, e.g. achievement batteries (group of tests covering several areas of academic performance) achievement quotient (AQ), Thematic Apperception Test (T.A.T.) and so on.

Achievement tests are the measures of the effect of a special training. According to Ebel (1965), an achievement test is one designed to measure a students' grasp of somebody of knowledge or his proficiency in certain skills. In words of Garrison, the achievement test measure the present ability of the child or the extent of his knowledge in a specific content area. According to Super (1967), an achievement or proficiency test is used to ascertain what and how much has been learnt or how well a task has been performed. For Freeman (1965), a test of educational achievement is one designed to measure knowledge, understanding or skill in a specified subject or a group of subjects.

School performance tests from the most popular category of achievement tests. There are also vocational achievement tests, e.g. for skill such as those involved in stenography and so on, which are used both to check success in learning and (to some extent in conjunction with aptitude tests) for selection purposes.

Achievement tests are classified into two categories-

1. General achievement tests and,
2. Diagnostic tests.

With the viewpoint of testing procedure, they are classified into four categories-
1. Verbal tests,
2. Performance tests,
3. Essay type tests and
4. Objective test

One of the earliest achievement tests is the Metropolitan Achievement Test, first published in 1920, and is revised many times since then. It is a test battery, which consists of reading, verbal, arithmetic, English, literature, history, geography, science and vocabulary tests. It takes 240 minutes to solve the total battery.

The achievement test batteries are California Achievement Test, sequential test of educational progress, Stanford achievement test, Iowa achievement test batteries, cooperative achievement test, S.R.A. achievement series etc.

These batteries measure the achievement in different general areas, whereas the specific achievement test measure the knowledge in a specific area. They are designed to measure the achievement in one specific area. Some specific achievement tests are as follows.

Schonell's mechanical arithmetic test, Getes' reading readiness test, Harrison Stround reading readiness test, Metropolitan reading test, diagnostic reading test, Durell analysis of reading difficulty, Gates reading diagnostic test, Gilmore oral reading test, Iowa algebra abtitude test, orlean's algebra prognosis test, orlean's geometry prognosis test, symond's foreign language prognosis test, carroll modern language aptitude test etc.
MEMORY

One of obvious facts about human learning and memory is that there are enormous individual differences. The intelligent Layman would probably imagine that an explication of these individual differences would be one of primary targets of Psychologists interested in learning and memory.

History of Psychology shows this emphasis from the use of nonsense syllables by Ebbinghus (1885) to the current research for simple paradigms (e.g. Peterson and Peterson 1959, Stenberg 1966).

For the two- three decades work in the field of memory has been massive. Memory has been defined as a learned capability for responding and its persistence over time is measured by the retention test. The information processing approach is often being used to describe the memory system.

This system has three functions - (1) encoding, (2) storage, (3) retrieval. Encoding is simply representation of one thing by another when a stimulus such as a word, a number or a tone is presented to an individual. It includes the perception and then classification of the information. Storage is preserving this information. Loss of information over time of course is forgetting. Retrieval is utilization of encoded information.

Several investigators (e.g. Treisman 1964) have postulated that memory depends on the nature of the subjects perceptual and cognitive analysis of the stimulus, and the deeper and more elaborate these analysis are, the better retention. This view has become known recently as the level of process theory of memory.
Rumelheart, Lindsay, Norman (1969) described a memory structure, that is also capable of solving problems, making logical deductions and understanding ideas.

**Sensory Storage and Analysis**

This system maintains a rather accurate and complete picture of the word as it is received by the sensory system. Its duration is short perhaps .1 to .5 seconds. Thus sensory memory seen to be a large capacity store where information is held for brief periods of time and even only one second of interference will cause heavy loss of the material from this store.

The sensory memory is of two types -

(1) Iconic memory, (2) Echonic memory.

**Short Term Memory**

The short term memory can be thought of as working memory with a limited capacity store. The main process characteristic of the STM is presumed to be the decay of activated neural trace which takes place unless delayed by a rehearsal process.

STM differs from the SIS (sensory information system) in that the SIS stores raw, relatively unprocessed sensory information at the level of the sense receptor, where as STM stores processed information- items rather than stimuli. In STM a small amount of material can be retained indefinitely by the act of rehearsal.

Although the history of the STM mechanism may be traced in the work of William James when he distinguished between primary and secondary memory (1892) the scientific climate did not become favourable until 1959
when Peterson and Peterson in U.S.A. reported on STM experiments that started a steady flow of studies.

**Methods of STM :**

1. Distraction Technique

2. Probe Technique

3. Murdock's Paired Associated Technique

4. Continuous or Sequential Task Situation

5. Recognition Response Procedure.

**Characteristic of STM**

1. Short term storage has a distinct limit in its capacity to hold material for recall. Tulving and Colotla (1970) found its capacity to be 3.0 words.

2. The Rapid forgetting has been found to be the most distinctive characteristic of STM.

   Thus at any given moment the probability of correct recall depends on the degree to which the decay of the trace has progressed.

3. Rehearsal serves two important function :
   (i) it allows the material in STM to be retained and
   (ii) it transfers the material from STM to LTM.

4. Short term retention does not depend on passive, mechanistic storage but involves different processes depending on the demand of the task.
5. Acoustic confusability has been found to be major variable for interference in STM. Semantic nature of items affects long term memory but it is irrelevant to STM.

6. Several authors have suggested that there may be important difference between visual and auditory modalities in the processing of information for short term recall.

7. The order in which the subjects are expected to recall the material determines which items will be recalled best and which poorest.

**Long Term Memory**

The system is characterized by unlimited capacity store, which stores newly acquired informations through the operation of a consolidation process. The consolidation process functions by organizing and categorizing new information and integrates this information with previous input.

Meltor accepted STM and LTM as a single system of memory which would differ only in degree, not in kind. STM is direct and immediate, whereas, LTM is long draw and slow. Most investigators agreed that,

(i) The study of STM involves the presentation of material within memory span, whereas; LTM study involves multiple presentation of material beyond the memory span.

(ii) STM is measured within a few seconds of time whereas, LTM is measured after minutes or hours after the presentation of material.

LTM is of two types-

(1) Episodic memory (2) Semantic memory
(2) VISUAL MOTOR PERCEPTION

As the child grows, he learns different physical activities along with gross motor skills and fine motor skills. These motor skills often involve the coordination of the visual and motor systems. Theories and programmes concerned with perceptual motor and physical coordination are closely related to those concerned with perceptual disabilities.

Heinz Werner and Alfred Strauss (1941), at the Wayne Country Training School in North Ville, Michigan, found in clinical studies and rudimentary experimental investigations that a variety of perceptual abnormalities were characteristic of some mentally retarded children. At the time they believed that the children who had perceptual problems were brain injured. The methodology of their studies has since been seriously questioned and it was believed that the assumption could not be made that these children were in fact unquestionably brain damaged. Nevertheless, Werner and Strauss did identify perceptual abnormalities in some of the children, brain damaged or not. Individuals associated with Werner and Strauss, e.g. Newell Kephert (1975) popularized the notion that learning disabled children also have perceptual and perceptual motor problems.

Bender Gestalt Test

In studying perceptual problems, Gestalt psychologists took much interest in perceptual organization. Wertheimer (1912) developed and used some simple figures to demonstrate the principles of Gestalt Psychology as related to the general perceptual organization and its concomitant factors. Afterwards, these figures were adopted by Bender (1938) on the basis of Gestalt theory to the study of personality and clinical practice, hence its derivation as concerns the name 'Bender Gestalt Test'.
Bender Gestalt Test is well known as a pathological indicator, both functional and organic. This test consists of nine simple figures and the subject is asked to copy them as the figures are presented one by the singly to them. The designs used in this test were originally developed and used by Wertheimer. Bender (1938) mentions that reproduction of the Gestalt figures involves maturation of visual motor perception, which in turn is related to language ability and other functions associated with intelligence, viz, motor coordination, temporal, and spatial concepts and organization in growing children.

Thus, the Bender Gestalt is used to assess the visual motor perception and visual motor integration. The basic rationale of this test lies in the fact that perception and reproduction of Gestalt figures is determined by biological principles of sensory motor action, and varies depending on the growth pattern and maturation level of an individual as also his pathological state either functionally or organically induced. The proper coping of Bender Gestalt figures reflects the maturation level of visual motor perception which is closely related to language ability and other functions related to intelligence. These include memory, visual perception, motor coordination, temporal and spatial concepts, organization and representation (Bender 1938).

Studies on Bender Gestalt Test with visual motor perception, intelligence, school readiness and achievement, neurological impairment and emotional disturbance have been made by Bender (1938), Wewetzer (1959) Koppitz et al. (1961), Koppitz (1962), and Byrd (1956) respectively.

In a study Kopitz (1964) found a close relationship between IQ and Bender performance of younger group of elementary school children. Wewetzer's (1959) study shows that relationship between Bender performance and intelligence scores are too few to warrant any conclusive assumption.
Moreover, the data collected on an adult sample failed to yield similar result. This probably indicates that Bender Test may discriminate intellectual potential in growing age, but this respect it fails after the visual motor perception has fully matured (Kappitz 1964).

Studies of Koppitz (1958) Koppitz, Mordis and Stephens (1961) have emphasized its use as a screening measure of school readiness and achievement.

A number of studies have found that the East Asian or oriental peoples of the pacific rim have high mean levels of general intelligence and are also particularly strong on the visuospatial abilities but weaker on the verbal abilities, as compared with white or Caucasoid populations in the United States and Britain.


These are many studies indicating that visual and auditory perceptual skills are associated with the academic ability of reading. The reading disabled children are more likely to exhibit visual perceptual problems, i.e. problems in organizing and interpreting visual sensory stimuli, than are children who are average or above average readers (Leton 1961, Davel and Hastings 1967, Coleman 1968, Lyle 1968, Whipple and Kodman 1969, Skubic and Anderson 1970). While some of the studies can be criticized on mathodological grounds, the "evidence strongly suggests that learning disabled children, as a group, perform poorly on tasks designed to assess visual perceptual abilities. (Hallahan 1975, P. 31).
Although fewer is number, there have been some investigation of the auditory perceptual abilities of children with learning disabilities (Golden and Steiner 1969, Lingren 1969, Flynn and Byrne 1970). These studies, as well as the visual studies, indicate that auditory perceptual difficulties are more often found in learning disabled than in normal children.

It has been observed clinically that learning disabled children often have difficulty in physical activities involving the use of motor skills. These motor skills often involve the coordination of visual and motor system.

(3) PERSONALITY

Personality can be conceptualized from a variety of theoretical perspective and at various level of abstractions or breadth each of which can make unique contribution to understanding of the complexities in human behaviour and experience. Scholars have defined the word personality in many ways.

Traxler (1957) defined personality. In his words " ...... personality will be defined as the sum total of an individual's behaviour in social situations. Behaviour includes not only overt acts but inward feeling tone produced by the situation as interpreted by the individual through introspection.

Murphy (1955) defined "Personality is not the sum or even the integration of separate trails but is a unitary mode of adjustment in relation to which each specific activity or interest, no matter, how trivial, must be seen".

Allport (1952) personality is the dynamic organization within the individual of those psycho-physical system that determine his unique adjustment to his environment.
After different definition an analysis of these views reveals that -

1. Personality is the sum total of biological innate and acquired dispositions.

2. It is a composite of mental abilities interests, attitudes temperament and other variables characterizing thoughts, feelings and behaviour.

3. It is a dynamic organization.

4. It refers to the characteristic behaviour patterns, emotions, motives, thoughts and attitudes with which an individual consistently reacts to the environment.

Different theories of personality have been explained here-

**Constitutional Theory**

This oldest theory suggests that there is a relationship between a person's body physique and behaviour. William Sheldon believed that the human physique could be measured according to these basis dimensions: endomarphy, the size of the digestive system, mesomarphy, the size of the skeleton and muscles; and ectomarphy the area of the skin in nervous system. Sheldon devised means of measuring personality traits. He opined that personality traits could be rated according to three basic dimensions representing clusters of traits. Viscerotonia, Somatotonia and Cereprotonia.

**Psychoanalytic Theory**

Sigmund Freud proposed the first major psychoanalytic theory of personality. Personality is composed of three inter-related parts- the Id, ego and super Ego.
The id is the storehouse of energy from which the ego and super ego develop. The id acts according to the pleasure principle. The ego operates on the reality principle. It controls all the thinking and reasoning activities and has a directional function in the personality. The super ego, the moral guardian of behaviour, develops through learning from parents and society.

Jung (1921) proposed two general types of personality -

**Extroverted Personality**

Persons possessing this personality are social, practical, diplomat, affectionate, informal, materialistic, more conversant, more active, living in present and with a practical attitude for life.

**Introverted Personality**

Person possessing this type of personality are formal, idealistic, less social, lovely, slow in talking, decision, take longer time in putting their decision to action, emphasizing on future and talk less.

**Self Theory**

Carl Rogers is the exponent of the self theory. He asserts that every individual is the center of his personal, private world of experience. This private world consists of both conscious and unconscious experience; it can only be known by the individual whose world it is; an individual's experiences constitute is reality.

**Trait Theory**

Some psychologists believe that a unique pattern of traits exists within each person and that these traits play a dominant role in the person's behaviour.
They define traits as relatively permanent and relatively consistent general behavior patterns which an individual exhibits in many situations which reveal his adjustment to his environment.

Gorden, Allport has given the theory of personality development which is based on the inter-relationship of traits and the uniqueness of the individual. From the start, the child is torn between two opposing needs; the need for security and the need to assert himself as an individual. The struggle to reconcile his own wants with what best serves the common good continues throughout his life.

**Personality Traits**

The term trait refers to a consistence feature of personality which has some emotional or ideational content.

According to Cattell (1950, 1957, 1967) a trait is a structure of personality that is inferred from behaviour. It expresses characterologial or relatively permanent feature of behaviour. A trait represents a broad reaction tendency. Thus the concept of trait expresses some pattern and regularity of behaviour over time, and across situation.

There are varieties of traits. There are traits that are common to all people and traits that are unique to an individual. There are traits that are constitutionally determined and traits that are unenvironmentally determined, (Cattell 1950, 1957a, 1957b, 1964). Among the many possible distinctions between traits two are of peculiar importance (I) between surface trait and source trait (ii) Among ability trait temperamental trait and dynamic trait.

**Surface Trait**
Certain traits are readily observable; they appear in interpersonal contacts, in one's way of doing jobs, and in responses to questionnaire. They may be represented as being close to the surface of personality. They are also likely to be readily modifiable under environmental pressure.

In shore a surface trait expresses a cluster of characteristics or behaviours that appear together.

Source Trait

Source may be thought of us underlying structures, expressed not directly but through the medium of the source traits.

In other words a source trait expresses an association among behaviours that do very together to from a unitary, independent dimension of personality.

Ability Trait

The cognitive realm of behaviour is related to thinking, these are ability traits and are seen in behaviour in situations that vary in complexity. An ability trait concerns with how well a person can do anything.

Temperament Trait

The affection realm of behaviour is related to emotion, these are temperamental or stylistic traits. A temperamental trait deals with pervasive unchanging qualities, that is tempo from, persistence etc. Concerning a large variety of specific responses.

Dynamic Trait

The dynamic traits are mostly related to human motivation. They are observed in behaviour in situations that have different incentives of different intensity. These have to do with individuals motivations, action and purpose.
Walter Mischel proposed social behaviour theory of personality (1868-1971). His theory is 'social' in the sense that the way a person behaves in a given situation is very much determined and maintained by the responses of other people.

Personality has three distinct measurable aspects namely physique, chemique, psychique.

Physical characteristics are called physique. The glandular and other physiological contribution to personality contribution to personality are called chemique. Behaviour and awareness activities like emotions and feelings are called psychique. There are five segments of personality- character, adjustment, temperament, interests, and attitudes.