CHAPTER-1: VARIATIONS IN PSYCHOLOGICAL ATTRIBUTES.

Individual Differences in Human functioning:

- Individual difference refer to distinctiveness and variations among people’s characteristics and behavior patterns.
- Psychologists believe that our behaviours are influenced by both personal traits and situational factors (situationism).
- Situationism states that situations and circumstances in which one is placed influences one’s behavior.
- Eg:- a person who is generally aggressive may behave in a submissive manner in the presence of her/his top boss.

Assessment of Psychological Attributes

- Assessment is the first step in understanding a psychological attribute.
- It refers to the measurement of psychological attributes of individuals and their evaluation.
- Formal/informal.
- Formal assessment is objective, standardized and organized.
- Informal assessment is subjective in nature.
- Psychological assessment uses systematic testing procedures to evaluate abilities, behavior, and personal qualities of individuals.

Some Domains of psychological Attributes

a. Intelligence: it is the global and aggregate capacity of an individual to think rationally, act purposefully, and to deal effectively with his/her environment. It provide a global measure of a person’s general cognitive competence including the ability to profit from schooling.

b. Aptitude: An individual’s underlying potential for acquiring skills. It help predict what an individual will be able to do if given proper environment and training.

c. Interest: An individual’s preference for engaging in one or more specific activities relative to others.

d. Personality: It refers to relatively enduring characteristics of a person that make her/him distinct from others.

e. Values: are enduring beliefs about an ideal mode of behavior.

ASSESSMENT METHODS

a. Psychological Tests: is an objective and standardized measure of an individual’s mental and/or behavioural characteristics. Eg: intelligence tests.
   - It is used for clinical diagnosis, guidance, personal selection, training etc.

b. Interview: a verbal interaction between interviewer(s) and an interviewee for the purpose of obtaining information.
   - Eg: an employer selects employee for his/her organization.

c. Case study: it is an in-depth/detailed study of an individual or a group in terms of his/her/their psychological attributes, history in the context of her/his/their physical and psychosocial environment.

d. Observation: involves employing systematic, organized and objective procedures to record behavioural phenomena occurring naturally in real time.

e. Self-Report: a method in which a person provide factual information about herself/himself and/or opinions, beliefs etc that she/he holds.

INTELLIGENCE
Oxford dictionary explains intelligence as the Power of perceiving, learning, understanding and knowing.

Alfred Binet (one of the first psychologist who worked on intelligence) defined intelligence is the ability to judge well, understand well, and reason well.

According to Wechsler, it is the global and aggregate capacity of an individual to think rationally, act purposefully, and to deal effectively with his/her environment.

Theories of Intelligence

- **Psychometric approach** considers intelligence as an aggregate of abilities.
- **Information processing Approach** focus on how an intelligence person acts rather than focusing on structure of intelligence.

Psychometric approach

1. **Uni or one factor theory:**
   - Alfred Binet.
   - Intelligence consist of one similar set of abilities which can be used for solving any or every problem in an individual’s environment.

2. **Two-factor Theory:**
   - Charles Spearman
   - Two factors: general factor (g-factor) & specific factors (s-factors)
   - g-factor include mental operations which are primary and common to all performances.
   - S-factors include specific abilities which allow them to excel in their respective domains (eg: excellent singers)

3. **Theory of Primary Mental Abilities:**
   - Louis Thurstone.
   - Seven primary abilities.
   - Verbal comprehension, numerical abilities, spatial relations, perceptual speed, word fluency, memory and inductive reasoning.

4. **Hierarchical model of Intelligence:**
   - Arthur Jensen.
   - Level 1-associative learning-Eg-rote learning.
   - Level 2: cognitive competence-higher order sills.

5. **Structure-of-Intellect model:**
   - J.P. Guilford.
   - Three dimensions: operations, contents and products.
   - Operations are what the respondent does: cognitions, memory recording, memory retention, divergent production, convergent production and evaluation.
   - Content refers to the nature of materials on which intellectual operations are performed: visual, auditory, symbolic, semantic and behavioural
   - Products mean the form in which information is processed: units, classes, relations, systems, transformations and implications

Information processing Approach

1. **Triarchic theory of intelligence:**
   - Robert Sternberg.
   - Three basic type of intelligence.
• Componental Intelligence: Analytical intelligence is the analysis of information to solve problems.
  - three components: knowledge acquisition component (learning), higher order component (planning) & performance component (doing).  
• Experiential Intelligence: Using past experiences creatively to solve new problems.  
• Contextual Intelligence: Practical intelligence involves the ability to deal with environmental demands encountered on a daily basis. (street smartness / business sense)

2. Planning, Attention-arousal, and Simultaneous-successive Model of Intelligence (PASS).
  - J.P. Das, Jack Naglieri and Kirby.
  - Intellectual activity involves the interdependent functioning of three neurological systems called the functional units of brain.
  - Arousal/Attention: An optimum level of arousal focuses our attention to the relevant aspects of a problem. Too much or too little arousal would interfere with attention.
  - Simultaneous and Successive Processing: Simultaneous processing involves integrating elements of the stimulus situation into meaningful patterns (eg - Raven’s SPM). In Successive processing the respondent remembers all the information serially so that the recall of one leads to the recall of another (eg - alphabets).
  - Planning: Think of possible courses of action, implementation and its evaluation for effectiveness
  - Das and Naglieri developed a battery of tests, known as Cognitive Assessment System (CAS).

Theory of multiple Intelligence
  - Howard Gardner.
  - Intelligence is not a single entity, rather different type of intelligence exists.
  - Linguistic: capacity to use language fluently and flexibly (word smart) - poets, writers etc.
  - Logical-Mathematical (skills in scientific thinking and problem solving) - They can think logically and critically - can manipulate symbols to solve mathematical problems - Scientists and Nobel Prize winners
  - Spatial (skills in forming visual images and patterns) - The person high on this intelligence can easily represent the spatial world in the mind. Pilots, sailors, sculptors, painters, architects, interior decorators
  - Musical (sensitivity to musical rhythms and patterns) - It is the capacity to produce, create and manipulate musical patterns.
  - Bodily-Kinesthetic (using whole or portions of the body flexibly and creatively: Athletes, dancers, actors, sportspersons, gymnasts, etc
  - Interpersonal: The skill of understanding the motives, feeling and behaviours of other people so as to make a comfortable relationship with others - counsellors, politicians, social workers, and religious leaders.
  - Intrapersonal (awareness of one’s own feelings, motives, and desires): This refers to the knowledge of one’s internal strengths and limitations Philosophers and spiritual leaders
  - Naturalistic (sensitivity to the features of the natural world) - It is useful in recognizing the beauty of different species of flora and fauna - Hunters, farmers, tourists, botanists, zoologists, etc

Individual Differences in Intelligence
Intelligence: Interplay of Nature and Nurture

- The evidence for hereditary influences on intelligence comes mainly from studies on twins and adopted children.
- The intelligence of identical twins reared together correlate almost 0.90.
- The intelligence of identical twins reared in different environments correlate 0.72,
- Braternal twins reared together correlate almost 0.60.
- Brothers and sisters reared together correlate about 0.50.
- Siblings reared apart correlate about 0.25.
- Children’s intelligence is more similar to their biological rather than adoptive parents.
- With respect to the role of environment, studies have reported that as children grow in age, their intelligence level tends to move closer to that of their adoptive parents.
- Children from disadvantaged homes adopted into families with higher socio-economic status show a large increase in their intelligence.
- Rich nutrition, good family background, and quality schooling increases intelligence.
- Intelligence is a product of complex interaction of heredity (nature) and environment (nurture).

Assessment of Intelligence

- In 1905, Alfred Binet and Theodore Simon, made the first successful attempt to formally measure intelligence.
- They gave the concept of Mental Age (MA)
- MA is the measure of a person’s intellectual development relative to people of her/his age group.
- Chronological Age (CA) is the biological age from birth.
- Retardation was defined by Binet and Simon as being two mental age years below the chronological age.
- William Stern, devised the concept of Intelligence Quotient (IQ).
- IQ refers to mental age divided by chronological age, and multiplied by 100.

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

- The frequency distribution for the IQ scores tends to approximate a b shaped curve, called the normal curve.
- The mean IQ score in a population is 100. People with IQ scores in the range of 90–110 have normal intelligence. Those with IQ below 70 are suspected to have mental retardation’, while persons with IQ above 130 are considered to have exceptional talents (gifted).
- Classification of people on the basis of IQ as follows:
  Above 130 - Very superior
  120 – 130 Superior
  110 – 119 High average
  90 – 109 Average
  80 – 89 Low average
  70 – 79 Borderline
  Below 70 Mentally challenged/
- All persons do not have the same bintellectual capacity; some are exceptionally bright and some are below average.
VARIATIONS OF INTELLIGENCE

**Intellectual Deficiency**
- Those children who show intellectual deficiency are termed as ‘mentally challenged’ or ‘mentally retarded’.
- The American Association on Mental Deficiency (AAMD) views mental retardation as “significantly sub-average general intellectual functioning existing concurrently with deficits in adaptive behaviour and manifested during the developmental period”.
- Persons having IQs below 70 are judged to have sub-average intelligence.
- Adaptive behavior refers to a person’s capacity to be independent and deal effectively with one’s environment.
- Deficits must be observed during the developmental period, that is between 0 and 18 years of age.
- The different levels of retardation are: mild retardation (IQs 55–69), moderate retardation (IQs 40–54), severe retardation (IQs 25–39), and profound retardation (IQs below 25).
- Though People with mild retardation is typically slower than that of their peers, they can function quite independently, hold jobs and families.
- As the level of retardation increases, the difficulties are strongly marked.
- The people with moderate retardation lag behind their Peers in language and motor skills.
- They can be trained in self-care skills, and simple social and communication skills.
- They need to have moderate degree of supervision in everyday tasks.
- Individuals with profound and severe retardation are incapable of managing life and need constant care for their entire lives.

**Intellectual Giftedness**
- Higher performance because of their outstanding potentialities.
- Giftedness is the exceptional general ability shown in superior performance in a wide varieties of areas.
- Talent is a narrower term and refers to remarkable ability in a specific field.
- The highly talented are otherwise called ‘prodigies’
- In teacher’s point of view giftedness includes: high ability, high creativity and high commitment.
- To equate giftedness with brilliant academic performance is not correct
  - The characteristics of gifted children are:
    - Intellectual superiority. Larger attention span, good recognition memory, preference for novelty, sensitivity to environmental changes, and early appearance of language skills.
    - advanced logical thinking, questioning and problem solving.
    - high speed in processing information.
    - advanced creative thinking
    - high level of intrinsic motivation and self esteem
    - independent thinking
    - preference for solitary academic activities.
- Gifted children require special educational programmes which sharpen their thinking level.

**Types of Intelligence Test**
- On the basis of their administration procedure, they can be categorised as:
**Individual or Group Tests**

- An individual intelligence test is one which can be administered to one person at a time.
- A group intelligence test can be administered to several persons simultaneously.
- Group tests generally seek written answers usually in a multiple-choice format.

**Verbal, Non-Verbal, or Performance Tests**

- Verbal tests require subjects to give verbal responses either orally or in a written form.
- Verbal tests can be administered only to literate people.
- The non-verbal tests use pictures or illustrations as test items. Eg:- Raven’s Progressive Matrices (RPM) Test.
- Performance tests require subjects to manipulate objects and other materials to perform a task. Written language is not necessary for answering the items. For example, Kohs’ Block Design Test.
- A major advantage of performance tests is that they can be easily administered to persons from different cultures.

**Culture-Fair or Culture-Biased Tests**

- Many intelligence tests show a bias to the culture in which they are developed.
- Tests developed in America and Europe represent an urban and middle class cultural ethos and do not respect the cultural perspectives of Asia and Africa.
- A culturefairculturallyappropriatetest is test designed to be free of cultural bias, as far as possible, so that no one culture has an advantage over another. The test is designed to not be influenced by verbal ability, cultural climate, or educational level.
- Non-verbal and performance tests help reduce the cultural bias usually associated with verbal tests.

**Some Misuses of Intelligence Test**

- Intelligence tests serve many useful purposes such as selection, counselling, guidance, self-analysis, and diagnosis. Unless used by a trained investigator, they may be misused either intentionally or unintentionally.
- Poor performance on a test may attach a stigma to children and thereby adversely affect their performance and self-respect.
- The tests may invite discriminating practices from parents, teachers and elders in the society.
- Administering a test biased in favour of the middle class and higher class populations may underestimate the IQ of children coming from disadvantaged sections of the society.
- Intelligence tests do not capture creative potentialities and practical side of intelligence, and they also do not relate much to success in life.

**Intelligence Testing in India**

- S.M. Mohsin made a pioneering attempt in constructing an intelligence test in Hindi.
- Standardised Binet Test in Urdu by C.H Rice.
- Indain researchers made Indain norms for some western tests. Eg:- RPM, WAIS.
- Long and Mehta prepared a Mental Measurement Handbook listing out 103 tests of intelligence in India that were available in various languages.

**Some Tests Developed in India are:**

**Verbal:** Group Test of Intelligence by Prayag Mehta, The Bihar Test of Intelligence by S.M. Mohsin, Indian Adaptation of Stanford-Binet Test by S.K. Kulshrestha

**Performance:** Bhatia’s Battery of Performance Tests, Draw-a-Man Test by Pramila Pathak.

**Culture & Intelligence**
• The cultural environment provides a context for intelligence to develop.
• Less technologically developed societies, social and emotional skills in relating to people are valued, while in technologically advanced societies, personal achievement founded on abilities of reasoning and judgment is considered to represent intelligence.
• culture is a collective system of customs, beliefs, attitudes, and achievements in art and literature.
• Sternberg’s notion of contextual or practical intelligence implies that intelligence is a product of culture.
• Vygotsky believed that while elementary mental functions (e.g., crying, attending to mother’s voice, sensitivity to smells, walking, and running) are universal, the manner in which higher mental functions such as problem solving and thinking operate are largely culture-produced.
• Technologically advanced societies adopt child rearing practices that foster skills of generalisation and abstraction, speed, minimal moves, and mental manipulation among children. These societies promote a type of behaviour, which can be called technological intelligence.
• In addition to cognitive competence that is very specific to the individual, the nonwestern cultures look for skills of interpersonal relationship in the society.

**Intelligence in the Indian Tradition**
• Intelligence in the Indian tradition can be termed as integral intelligence, which gives emphasis on connectivity with the social and world environment.
• Indian thinkers give equal attention to cognitive and non-cognitive processes as well as their integration.
• The Sanskrit word ‘buddhi’ which is often used to represent intelligence.
• Notion of buddhi has affective and motivational components besides a strong cognitive component.

-The following competencies are identified as facets of intelligence in the Indian tradition :
• Cognitive capacity: sensitivity to context, understanding, discrimination, problem solving, and effective communication.
• Social competence: Respect for social order, commitment to elders, the young and the needy, concern about others, recognising others’ viewpoints).
• Emotional competence: self regulation and self-monitoring of emotions, honesty, politeness and good conduct.
• Entrepreneurial competence: Commitment, persistence, patience, hard work, vigilance, and goal-directed behaviours.

**EMOTIONAL INTELLIGENCE**
• The notion of emotional intelligence broadens the concept of intelligence beyond the intellectual sphere and considers that intelligence include emotions.
• Emotional intelligence is a set of skills that underlie accurate appraisal, expression, and regulation of emotions.
• It is the feeling side of intelligence.
• A good IQ and scholastic record is not enough to be successful in life.
• This concept was first introduced by Salovey and Mayer who considered emotional intelligence as “the ability to monitor one’s own and other’s emotions, to discriminate among them, and to use the information to guide one’s thinking and actions”.

• Emotional Quotient (EQ) is used to express emotional intelligence.
• Emotional intelligence refers to the ability to process emotional information accurately and efficiently.

**Characteristics of Emotionally Intelligent Persons**
• Perceive and be sensitive to your feelings and emotions.
• Perceive and be sensitive to various types of emotions in others by noting their body language, voice and tone, and facial expressions.
• Understand the powerful influence of the nature and intensity of your emotions.
• Control and regulate your emotions and their expressions while dealing with self and others to achieve harmony and peace.

**SPECIAL ABILITIES**

**Aptitude : Nature and Measurement.**
• Aptitude refers to special abilities in a particular field of activity.
• It is a combination of characteristics that indicates an individual’s capacity to acquire some specific knowledge or skill after training.
• With proper training these abilities can be considerably enhanced.
• In order to be successful in a particular field, a person must have both aptitude and interest.
• Interest is a preference for a particular activity; aptitude is the potentiality to perform that activity.
• Aptitude tests are available in two forms: independent (specialised) aptitude tests and multiple (generalised) aptitude tests. Eg:- Clerical Aptitude, Mechanical Aptitude (independent aptitude tests)
• Multiple Aptitude Tests exist in the form of test batteries, which measure aptitude in several separate areas. Eg: Differential Aptitude Tests (DAT), the General Aptitude Tests Battery (GATB)
• J.M. Ojha has developed an Indian adaptation of DAT.

**CREATIVITY**
• Manifestations of creativity can be observed in a novel solution to a problem, an invention, composition of a poem, painting, new chemical process, an innovation in law, a breakthrough in preventing a disease and the like.
• Production of something new and unique.
• Creativity is not just limited to a selected few — the artist, the scientist, the poet or the inventor.
• An ordinary individual who is engaged in simple occupations like pottery, carpentry, cooking, etc. can also be creative.
• Individuals vary in terms of the level and the areas in which they exhibit creativity and that all may not be operating at the same level.
• Einstein’s theory of relativity is an example of the highest level of creativity
• Research literature suggests that children express creativity mostly through physical activities and in non-verbal ways. When language and intellectual functions are fully developed and store of knowledge is adequately available, creativity is expressed through verbal modes too.
Creativity is determined by both heredity and environment.

**CREATIVITY AND INTELLIGENCE**

- Terman, in the 1920s, found that persons with high IQ were not necessarily creative.
- At the same time, creative ideas could come from persons who did not have a very high IQ.
- Researchers have also found that both high and low level of creativity can be found in highly intelligent children and also children of average intelligence.
- Intelligence, therefore, by itself does not ensure creativity.
- Researchers have found that the relationship between creativity and Intelligence is positive.
- All creative acts require some minimum ability to acquire knowledge and capacity to comprehend, retain, and retrieve.
- Hence, a certain level of intelligence is required for creativity but beyond that intelligence does not correlate well with creativity.
- A general feature of most of the creativity tests is that they are open-ended. They permit the person to think of different answers to the questions or problems in terms of her/his experiences.
- Creativity tests involve divergent thinking and assess such abilities as ability to produce a variety of ideas. This is contrary to the tests of intelligence which mostly involve convergent thinking.
- Some of the famous psychologists who have developed creativity tests are Guilford, Torrance, Khatena, Wallach and Kogan, Paramesh, Baqer Mehdi, and Passi.