

INDIAN SCHOOL MUSCAT
SENIOR SECTION
DEPARTMENT OF COMMERCE & HUMANITIES
PSYCHOLOGY
CLASS XII
TOPIC/CHAPTER: VARIATIONS IN PSYCHOLOGICAL ATTRIBUTES

Individual differences refer to distinctiveness and variations among people's characteristics and behavioral patterns.

Situationism states that the situations and circumstances in which one is placed influence one's behavior. Sometimes the situational influences are so powerful that people respond to them in almost identical ways. The situationist perspective views human behavior as the result of influence of external factors.

Assessment refers to the measurement of psychological attributes of individuals and their evaluation, often using multiple methods in terms of certain standards of comparison. It is the first step in understanding a psychological attribute.

- **Formal assessment** is objective, standardized and organized.
- **Informal assessment** varies from case to case and from one assessor to the other and is therefore open to subjective interpretations.

Psychological assessment uses systematic testing procedures to evaluate abilities, behaviours and personal qualities of individuals. The various assessment methods are:

- **Psychological Test** – An objective and standardized measure of an individual's mental and/or behavioural characteristics. Objective tests have been developed to measure all the dimensions of psychological attributes.
- **Interview** – Involves seeking information from a person on a one-to-one basis.
- **Case study** – An in-depth study of the individual in terms of her/his psychological attributes, psychological history in the context of her/his psychosocial and physical environment. They are based on data generated by different methods, for example interview or observation.
- **Observation** – It involves employing systematic, organized and objective procedures to record behavioural phenomena occurring naturally in time. The major problems with the observational method are that the observer has little control over the situation and the reports could suffer from personal bias.
- **Self-Report** – It is a method in which the person provides factual information about themselves and their open beliefs that they hold. Such information may be obtained by using an interview schedule or a questionnaire, a psychological test, etc.

Psychological attributes are multi-dimensional, and these are categorized on the basis of varieties of tests used in psychological literature.

Intelligence is the global capacity to understand the world, think rationally and use available resources effectively when faced with challenges.

The Oxford dictionary explains intelligence as the power of perceiving, learning, understanding and knowing, and early intelligence theorists also used these attributes to define intelligence.

- Alfred Binet was one of the first psychologists who worked on intelligence, and defined it as the ability to judge well, understand well and reason well.
- Weschler (his intelligence tests are used most widely) understood intelligence in terms of its functionality (its value for adaptation to environment) and defined it as the global and aggregate capacity of an individual to think rationally, act purposefully and to deal effectively with his/her environment.
- Gardener and Stenberg have suggested that an intelligent individual not only adapts to the environment, but also actively modifies or shapes it.

Theories of intelligence proposed are as follows:

Psychometric Approach considers intelligence as an aggregate of abilities. It expresses the individual's performance in terms of a single index of cognitive abilities.

The **Information-Processing Approach** describes the processes people use in intellectual reasoning and problem solving, and the major focus of this approach is on how an intelligent person acts and emphasizes studying cognitive functions underlying intelligent behavior.

Alfred Binet's Theory of Intelligence or the **One Factor Theory of Intelligence** was that intelligence consisted of one similar set of abilities that can be used for solving any or every problem in an individual's environment. This theory came to be disputed when psychologists started analyzing data of individuals.

The Two Factor Theory of Intelligence was proposed in 1927 by Charles Spearman employing a statistical method called factor analysis. He showed that intelligence consisted of a general factor (*g-factor*) that includes mental operations which are primary and common to all performances and some specific factors (*s-factors*) that are specific abilities.

The Theory of Primary Mental Abilities was Louis Thurstone's follow up to the two factor theory, where he states that intelligence consists of seven primary abilities, each of which is relatively independent of the others.

- Verbal comprehension
- Numerical abilities
- Spatial relations
- Perceptual speed (speed in perceiving details)
- Word fluency
- Memory
- Inductive reasoning (deriving general rules from presented facts)

Arthur Jensen's Hierarchical Model of Intelligence consisted of abilities operating at two levels. Level 1 is the associative learning in which output is more or less similar to the input and Level 2 called cognitive competence involves higher-order skills as they transform the input to produce an effective output.

The Structure of Intellect Model proposed by J.P. Guilford classifies intellectual traits among three dimensions:

- **Operations** are what the respondent does (includes cognition, memory recording, memory retention, divergent production, etc).
- **Contents** refer to the nature of materials or information on which intellectual operations are performed (includes visual, auditory, semantic, symbolic and behavioural).
- **Products** refer to the form in which the information is processed by the respondents. Products are classified into units, classes, relations, systems, transformations and implications. Since this classification includes 6x5x6 categories, this model of intelligence has 180 cells, and each one is expected to have at least one factor of ability, or more than one. Each factor is described in terms of all three dimensions.

The Theory of Multiple Intelligences proposed by Howard Gardner stated that intelligence is not a single entity, and that distinct types of intelligences exist, each of which is independent of the other. If a person exhibits one type of intelligence, it is no indicator of intelligence in other aspects. Gardner also put forth that different types of intelligences interact and work together to solve a problem. He described eight types of intelligences as follows.

- **Linguistic** (skills involved in the production and use of language) – It is the capacity to use language fluently and flexibly to express one's thinking and understand others. Persons high on this intelligence are 'word smart'.
- **Logical-Mathematical** (skills in scientific thinking and problem solving) – Persons high on this type of intelligence can think logically and critically. They engage in abstract reasoning, and can manipulate symbols to solve mathematical problems.
- **Spatial** (skills in forming visual images and patterns) – It refers to the abilities involved in forming, using and transforming mental images.
- **Musical** (sensitivity to musical rhythms and patterns) – It is the capacity to produce, create and manipulate musical patterns.
- **Bodily-Kinaesthetic** (using whole or portions of the body flexibly and creatively) – This consists of the use of the whole body or portions of it for display or construction of products and problem solving. Eg: Athletes, dancers, actors, etc.
- **Interpersonal** (sensitivity to subtle aspects of other's behaviours) – This is the skill of understanding the motives, feelings and behaviours of other people so as to bond into a comfortable relationship with others.
- **Intrapersonal** (awareness of one's own feelings, motives and desires) – This refers to the knowledge of one's internal strengths and limitations and using that knowledge to effectively relate to others.
- **Naturalistic** (sensitivity to the features of the natural world) – This involves complete awareness of our relationship with the natural world. Eg: Hunters, farmers, tourists, botanists, etc.

The Triarchic Theory of Intelligence was proposed by Robert Sternberg who viewed intelligence as the ability to adapt, to shape and select environment to accomplish one's goals and those of one's society and culture. According to this theory, there are three different types of intelligence. This theory of intelligence represents the information processing approach to intelligence.

- **Componential Intelligence** – Otherwise called analytical intelligence, it is the analysis of information to solve problems. This intelligence has three components, each serving a different function.
 1. The Knowledge Acquisition Components – Responsible for learning and acquisition of the ways of doing things.
 2. Metacomponent or Higher Order Component – Involves planning concerning what to do and how to do.
 3. Performance Component – Involves actually doing things.
- **Experiential Intelligence** – Otherwise called creative intelligence, it is involved in using past experiences creatively to solve novel problems. It is reflected in creative performance.
- **Contextual Intelligence** – Otherwise called practical intelligence, it involves the ability to deal with environmental demands encountered on a daily basis, and may be called ‘street smartness’ or ‘business sense’. Persons high on this aspect easily adapt to their present environment or select a more favourable environment than the existing one, or modify the environment to fit their needs.

The PASS (Planning, Attention-Arousal and Simultaneous Successive) Model of Intelligence was developed by J.P. Das, Jack Naglieri and Kirby. According to this model, intellectual activity involves the interdependent functioning of three neurological systems, called the functional units of the brain. These units are responsible for arousal/attention, coding or processing, and planning respectively. This model also represents the information processing approach to intelligence.

- **Arousal/Attention** – State of arousal is basic to any behavior as it helps us in attending to stimuli. Arousal and attention enable a person to process information. An optimal level of arousal focuses our attention to the relevant aspects of a problem. Too much or too little arousal could interfere with attention.
- **Simultaneous and Successive Processing** – Information can be integrated into the knowledge system simultaneously or successively.

Simultaneous Processing takes place when you perceive the relations among various concepts and integrate them into a meaningful pattern for comprehension. It helps in grasping the meaning and relationship between given figures.

Successive Processing takes place when you remember all the information serially so that the recall of one leads to the recall of another.
- **Planning** – After the information is attended to and processed, planning is activated. It allows us to think of the possible courses of action, implement them to reach a target, and evaluate their effectiveness. If a plan does not work, it is modified to suit the requirements of the task or situation.

These PASS processes operate on a knowledge base developed either formally or informally from the environment.

Cognitive Assessment System (CAS) is a battery of tests developed by Das and Naglieri, that consists of verbal as well as non-verbal tasks that measure basic cognitive functions presumed to be independent of schooling. The battery of tests is meant for individuals between 5 and 18 years of age.

There is a general consensus among psychologists that intelligence is a product of complex interaction of heredity (nature) and environment (nurture). Heredity can be best viewed at something that sets the range within which an individual's development is actually shaped by the support and the opportunities of the environment.

In 1905, Alfred Binet and Theodore Simon made the first successful attempt to formally measure intelligence. In 1908, when the scale was revised they explained the concept of **Mental Age (MA)**, which is a 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.

In 1912, William Stern devised the concept of **Intelligence Quotient (IQ)** that refers to the mental age divided by the chronological age and multiplied by a 100.

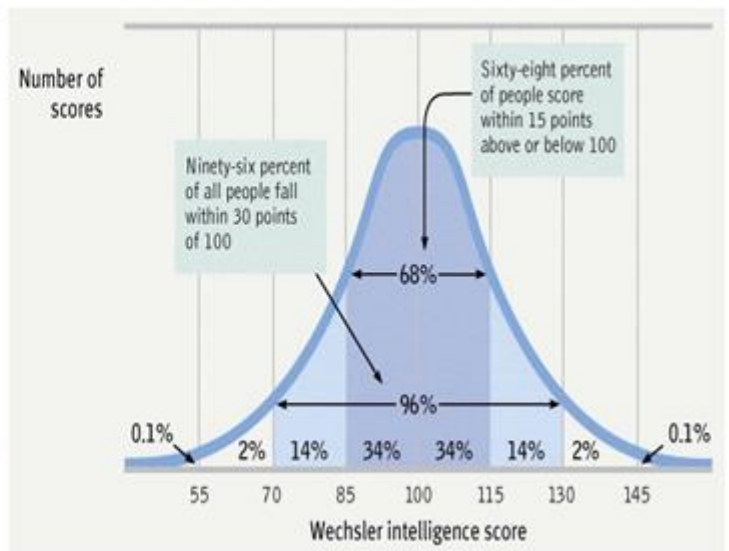
$$IQ = MA/CA \times 100$$

The number 100 is used as a multiplier to avoid the decimal point. When the MA equals the CA, the IQ equals 100. When the MA is more than the CA, the IQ is more than a 100, and vice versa. The average IQ in the population is 100, irrespective of age.

IQ scores are distributed in the population in such a way that the scores of most people tend to fall in the middle range of the distribution, it is rare to have either very high or very low scores. The frequency distribution for IQ scores tends to approximate a bell shaped curve, called the **normal curve**.

Stanford-Binet Scale of Human Intelligence

IQ Score	Original Term	Modern Term
145 and over	Genius	
120–144	High Above Average	
110–119	Above Average	
90–109	Average or Normal	
80–89		Dull Normal
70–79	Borderline Deficiency	Mild disability
50–69		Moderate disability
20–49		Severe disability
Below 20		Profound disability



IQs below 70 are suspected to have mental retardation while persons above 130 are considered to have exceptional talents. The **intellectually gifted group** and the **mentally challenged group** deviate considerably from the normal population in respect of their cognitive, emotional and motivational characteristics.

Mental retardation has been defined by the American Association on Mental Deficiency as significantly sub-average general intellectual functioning existing concurrently with deficits in adaptive behavior and manifested during the developmental period.

Giftedness is an exceptional general ability shown in superior performance in a variety of areas.

Talent refers to remarkable ability in a specific field, and highly talented are sometimes called prodigies.

It has been suggested by psychologists that giftedness from the teacher's point of view depends on a combination of high ability, high creativity and high commitment. Some important characteristics of gifted children are:

- Advanced logical thinking, questioning and problem solving behavior
- High speed in processing information
- Super generalization and discrimination ability
- Advanced level of original and creative thinking
- High level of intrinsic motivation and self-esteem
- Independent and non-conformist thinking
- Preference for solitary academic activities for long periods

Intelligence tests are of several types.

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.

A verbal intelligence test requires subjects to give verbal responses either orally or in a written form, therefore verbal tests can only be administered to literate people. Non-verbal tests use pictures or illustrations as test items. (Raven's Progressive Matrices Test is an example of a non-verbal test) Performance Tests require subjects to manipulate objects and other materials to perform a task.

Intelligence tests can be culture-fair or culture-biased. It is nearly impossible to design a test that can be applied equally meaningfully in all cultures.

In the 1930s, C.H. Rice attempted to standardize Binet's test in Urdu and Punjabi. At about the same time, Mahalanobis attempted to standardize Binet's test in Bengali. Attempts were also made by Indian researchers to develop Indian norms for some western tests. Long and Mehta prepared a Mental Measurement Handbook listing out 103 tests of intelligence in India that were available in various languages. The National Library of Education and Psychological Tests at the National Council of Educational Research and Training has documented Indian tests.

Some misuses of intelligence tests are:

- Poor performance on a test may attach a stigma to children and thereby affect their performance and self-respect.
- The tests may invite discriminating practices from parents, teachers and elders in society.
- Administering a test biased in favour of the middle class and higher class population may underestimate the IQ of children coming from disadvantaged sections of society.

- Intelligence tests do not capture creative potentialities and the practical side of intelligence and they also do not relate much to success in life. Intelligence can be a potential factor for achievement in various spheres of life.

A major characteristic of intelligence is that it helps individuals to adapt to their environment. The cultural environment provides a context for intelligence to develop. Vygotsky, a Russian psychologist, has argued that culture provides a social context in which people live, grow and understand the world around them.

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 believes that while elementary mental functions 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 generalization and abstraction, speed, minimal moves and mental manipulation among children. These societies promote a type of behavior that can be termed as **technological intelligence**. In these societies, people are well versed in the skills of attention, observation, analysis, performance, speed and achievement orientation.

Contrary to technological intelligence, intelligence in the Indian tradition can be termed as **integral intelligence**, which gives emphasis on connectivity with the social and world environment. Indian thinkers view intelligence from a holistic perspective where equal attention is paid to cognitive and non-cognitive processes as well as their integration.

Buddhi, according to J.P. Das, includes such skills as mental effort, determined action, feelings and opinions along with cognitive competence such as knowledge, discrimination and understanding. Among other things buddhi is the knowledge of one's own self based on desire, conscience and will. The following competencies are identified as facets of intelligence under Indian tradition:

- Cognitive Capacity (sensitivity to context, understanding, discrimination, problem solving and effective communication)
- Social Competence (respect for social order, commitment to elderly, young and the needy, concern about others, recognizing others perspectives)
- Emotional Competence (self-regulation and self-monitoring of emotions, honesty, politeness, conduct and self-evaluation)
- Entrepreneurial Competence (commitment, persistence, patience, hard work, vigilance and goal-directed behaviours)

Emotional Intelligence is a set of skills that underlie accurate appraisal, expression and regulation of emotions. Salovey and Mayer 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. Characteristics of an emotionally intelligent person are as follows:

- Perceive and be sensitive to your feelings and emotions.

- Perceive and be sensitive to various types of emotions in other by noting their body language, voice and tone and facial expressions.
- Relate your emotions to your thoughts so that you take them into account while solving problems and taking decisions.
- 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.

Emotional Quotient (EQ) is used to express emotional intelligence in the same way IQ is used to express intelligence.

Aptitude is a combination of characteristics that indicates an individual's capacity to acquire some specific knowledge or skill after training.

Aptitude tests are available as independent tests (specialized) and multiple tests (generalized). The Differential Aptitude Tests (DAT) are most commonly used in educational settings and consist of 8 independent subtests.

- Verbal Reasoning
- Numerical Reasoning
- Abstract Reasoning
- Clerical speed and accuracy
- Mechanical Reasoning
- Space Relations
- Spelling
- Language Usage

Interest is an individual's preference for engaging in one or more specific activities relative to others.

Creativity is the ability to produce ideas, objects or problem solutions that are novel, appropriate and useful.

Limits of creative potential are set by heredity, environmental factors stimulate the development of creativity.

Terman in the 1920s found that persons with high IQ were not necessarily creative. 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 minded, and therefore there is freedom to use one's own imagination and express it in original ways. Creativity tests involve divergent thinking and assess such abilities as ability to produce a variety of ideas.