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INTELLIGENCE

Intelligence is a key construct employed to know how individuals differ from one another. It also provides an understanding of how people adapt their behaviour according to the environment they live in. Man is considered the supreme due to intelligence. Some persons are high in intelligence and some dull since birth. Bright people high in intelligence get more benefit from the education than people low in intelligence.

Psychological notion of intelligence is quite different from the common sensical notion of intelligence.

If we watch an intelligent person, we are likely to see in her/him attributes like mental alertness, ready wit, quickness in learning, and ability to understand relationships. The

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Oxford Dictionary explains intelligence as the power of perceiving, learning, understanding, and knowing. Alfred Binet was one of the first psychologists who worked on intelligence. He defined intelligence as the ability to judge well, understand well, and reason well. Wechsler, whose intelligence tests are most widely used, understood intelligence in terms of its functionality, i.e. its value for adaptation to environment. He defined it as the global and aggregate capacity of an individual to think rationally, act purposefully, and to deal effectively with his environment.

According to Garrett (1946), "The abilities demanded in the solution of problems which require the comprehension and use of symbols, is words, numbers, diagrams, equations, formulae."

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THEORIES OF INTELLIGENCE

Psychologists have proposed several theories of intelligence. Theories can be broadly classified as either representing a psychometric/structural approach or an information-processing approach.

The psychometric approach considers intelligence as an aggregate of abilities. It expresses the individual's performance in terms of a single index of cognitive abilities. On the other hand, the information-processing approach describes the processes people use in intellectual reasoning and problem solving. The major focus of this approach is on how an intelligent person acts. Rather than focusing on structure of intelligence or its underlying dimensions, information-processing approaches emphasise studying underlying cognitive functions underlying intelligent behaviour.

Two Factor theory

In 1927, Charles Spearman proposed a two-factor theory of intelligence employing a statistical method called factor analysis. According to them there are two factors in intelligence or in all types of mental functions. There will be two types of abilities required - The first mental ability is a General ability - G and the other is specific ability - S. General ability is found in all type of mental functions whereas specific ability is related only to specific functions. A person expert in as many specific functions, he has that number of specific abilities. A person has more than one ability but these specific abilities are not related among themselves. According to Spearman a person's intelligence is according to the quantity of

general ability he has.



Fig.- Showing Spearman's G and S factor Theory of Intellectual Abilities

Ellipse 'A' and 'V' represent abilities of vocabulary and arithmetic, because tests are inter related therefore the ellipse are overlapping each other. The whole area overlapping represents G-factor. The rest of the independent area is represents S₁ and S₂. The above description makes it clear that specific abilities are independent of each other, and general ability is required in specific intelligence. According to Spearman (1927) apart from 'G' factor

There are some other factors in intelligence like C-factor which means thinking process. Similarly W-factor means will power, self control. It has been observed in some experiments that some functions do not depend upon G-factor whereas according to Spearman all functions are conducted by G-factor.

Multiple Factor Theory

The propagator of this theory is J. P. Guilford (1959, 1961 and 1967). He proposed the structure-of-intellect model which classified intellectual traits among three dimensions: operations, contents and products. Operations are what the respondent does. These include cognition, memory, recording, memory retention, divergent production, convergent production, and

evaluation.

Contents refer to the nature of materials or information on which intellectual operations are performed. These include visual, auditory, symbolic (e.g. letters, numbers), semantic (e.g. words) and behavioural (e.g. information about people's behaviour, attitudes, needs etc.).

Products refer to the form in which information is processed by the respondent. Products are classified into units, classes, relations, systems, transformations, and implications.

Since this classification (Guilford, 1988) includes $6 \times 5 \times 6$ categories, therefore, the model has 180 cells. Each cell is expected to have at least one factor or ability; some cells may have more than one factor. Each factor is described in terms of all three dimensions.



For example if a person reads a news paper then in this act of reading there are three operations - cognition, memory and evaluation. In content dimension the news read, and in the product-dimension inferences regarding this news read.

Theory of Multiple Intelligences

Howard Gardner proposed the theory of multiple intelligences. According to him, intelligence is not a single entity; rather distinct types of intelligences exist. Each of these intelligences are independent of each other. This means that, if a person exhibits one type of intelligence, it does not necessarily indicate being high or low on other types of intelligences. Gardner also put forth that different types of intelligences interact and work together to find solution

to a problem. Gardner studied extremely talented persons, who had shown exceptional abilities in their respective areas, and described eight types of intelligence. These are as follows:

- ① 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', i.e. they are sensitive to different shades of word meanings, are articulate, and can create linguistic images in their mind. Poets and writers are very strong in this component of intelligence.

- ② Logical-Mathematical (skills in scientific thinking and problem solving):

Person high on this type of intelligence can think logically and critically. They engage in abstract reasoning, and can manipulate symbols to solve mathematical problems. Scientists and Nobel Prize winners are likely to be strong in this component.

③ Spatial (Skills in forming visual images and patterns):

It refers to the abilities involved in forming, using, and transforming mental image. The person high on this intelligence can easily represent the spatial world in the mind.

~~Pilots~~ Pilots, sailors, sculptors, painters, architects, interior decorators, and surgeons are likely to have highly developed spatial intelligence.

④ Musical (Sensitivity to musical rhythms and patterns):
It is the capacity to produce,

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create, and manipulate musical patterns. Person high on this intelligence are very sensitive to sounds and vibrations, and in creating new patterns of sounds.

⑤ Bodily-Kinaesthetic (using whole or portions of the body flexibly and creativity); This consists of the use of the whole body or portions of it for display or construction of products and problem solving. Athletes, dancers, and actors, sports persons, gymnasts, and surgeons are likely to have such kind of intelligence.

⑥ Inter-personal (sensitivity to subtle aspects of others' 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. Psychologists, counsellors, politicians, social workers, and religious leaders are likely to possess high interpersonal intelligence.

⑦ 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 ~~of~~ to effectively relate to others. Persons high on this ability have finer sensibilities regarding their identity, human existence, and meaning of life. Philosophers and spiritual leaders present example of this type of intelligence.

⑧ Naturalistic (sensitivity to the features of the natural world): This involves complete awareness of our relationship with the

natural world. It is useful in recognising the beauty of different species of flora and fauna, and making subtle discriminations in the natural world. Hunters, farmers, tourists, botanists, zoologists, and bird watchers possess more of naturalistic intelligence.