UNIT 2: NATURE OF INTELLIGENCE

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INTELLIGENCE

- To learn about other people is science, to learn to know yourself is intelligence….

(Chinese Proverb)

IMPORTANCE OF STUDYING INTELLIGENCE

- Humans are unique in their intelligence.
- Intelligence is arguably the most significant individual difference.
- The study of intelligence is historically central to modern psychology.
- Much of the excitement among investigators in the field of intelligence derives from their attempts to determine exactly what intelligence is.

WHAT IS INTELLIGENCE

- In a 1921 symposium the American psychologists Lewis M. Terman and Edward L. Thorndike differed over the definition of intelligence.
- Terman, stressed the ability to think abstractly and Thorndike emphasized learning and the ability to give good responses to questions.

NATURE OF DEFINITION OF INTELLIGENCE

- Sternberg (1986) made a distinction between **operational** and **real** definitions of Intelligence.
- **Operational definition** defines a concept in terms of the way it is measured.
- Boring (1923) carried this view point to its extreme when he defined "intelligence as what the test tests or measures".
- Operational definitions of Intelligence however, suffer from two dangerous shortcomings (Sternberg ,1986).

1. They are circular : Intelligence tests were invented to measure intelligence, not to define it.
2. Test designers never intended for their instruments to define intelligence.

NATURE OF DEFINITION OF INTELLIGENCE

- Operational definitions block further progress in understanding the nature of Intelligence ,because they foreclose discussion on the adequacy of theories of intelligence
- They cast doubt upon the common practices of affirming the concurrent validity of new tests by correlating them with old tests. The operational definitions do not allow for the possibility that new tests or conceptions of Intelligence may be superior to the existing ones.
- In contrast a real definition is one that seeks to tell us the true nature of the things being defined (Robinson, 1950 Sternberg, ,1986).

EXPERT DEFINITIONS OF INTELLIGENCE

- Binet and Simon (1905): The ability to judge well, to understand well , to reason well.
- Thurstone (1921): The capacity to inhibit instinctive adjustments, flexibly imagine different responses, and realize modified instinctive adjustments into overt behaviour.
- Pintner (1921): The ability of the individual to adapt adequately to relatively new situations in life.
- Spearman (1904 ,1923) : A general ability that involves mainly the deduction of relations and correlates.

EXPERT DEFINITIONS OF INTELLIGENCE

- Wechsler (1939) :The aggregate or global capacity of the individual to act purposefully, to think rationally, and to deal effectively with the environment.
- Stoddard (1941): Intelligence is the ability to undertake activities that are characterized by difficulty, complexity, abstractness, speed, adaptivenss to goal, social value innovativeness and to maintain such activities under conditions that demand a concentration of energy and resistance to emotional forces.
- Sternberg (1985): the mental capacity to automatize information processing and to emit contextually appropriate behavior in response to novelty. Intelligence also includes meta components, performance components and knowledge acquisition components.

EXPERT DEFINITIONS OF INTELLIGENCE

- Nickerson et al 1985 give the following list of abilities which the belief represent human intelligence the ability
- to classify patterns
- to modify behaviour adaptively to learn
- to reason deductively
- to reason inductively to generalize
- to develop and use conceptual models
- to understand
- Gardner(1986): the ability or skill to solve problems or to fashion products that are valued within one or more cultural settings.
- Ceci(1994): multiple innate ability is that serve as a range of possibilities these abilities developed or fail to develop and later atrophy depending upon motivation and exposure to relevant educational experiences.

EXPERT DEFINITIONS OF INTELLIGENCE

- **Neisser et al, (1996):** Intelligence is a general ability, and contains the capacity to reason, plan, solve problems, think abstractly, understand complex ideas, learn fast and learn from experiences. It does not include rote learning, or specific skills learned at school (reading, writing), it does not refer to skilled dealing with intelligence tests. It is a broad and deep capacity that refers to insight in , and understanding of affairs in the everyday life. It helps to decide what has to be done, and is distinguished from creativity, character , personality and other traits
- **According to Solso (2001)** as a working definition we should consider human intelligence to be the ability to acquire, recall and use knowledge to understand the concrete and abstract concept and the relationship among object and ideas and to use the knowledge in a meaningful way.

APPROACHES TO UNDERSTAND THE CONCEPT OF INTELLIGENCE:PSYCHOMETRIC & COGNITIVE APPROACHES
(EXPLAINED THROUGH THEORIES)

- **Theories of intelligence have evolved through a succession of paradigms:**
- **psychological measurement** (often called psychometrics);
- **cognitive psychology**, which concerns itself with the mental processes by which the mind functions
- **the merger of cognitive psychology with contextualism** (the interaction of the environment and processes of the mind)
- biologic science, which considers the neural bases of intelligence

THEORIES

- Theories of intelligence or other theories of intelligent behavior have been based on psychometric, developmental ‘and information processing model respectively(Flanagan and Harrison 2005).
- The first two types of theories represent traditional approaches and the third is more recent in origin.
- The psychometric approach which has resulted in many tests of Intelligence and a variety of statistical methods for analyzing scores on these tests focuses on individual differences in cognitive abilities and the search for the causes of these differences.

THEORIES

- Among theories or models of cognitive abilities based on the psychometric approach and stemming in particular from the results of factor analyses are:-
- Spearman's (1927): two factor theory consisting of a General factor and several Specific factors for each test,
- Thurstone's(1938): multifactor theory of seven primary mental abilities,
- Guilford's (1967, 1988): structure of intellect model and
- Vernon's (1960) hierarchical model.

PSYCHOMETRIC THEORIES

Psychometric theories have generally sought to understand the structure of intelligence:

- **What form does it take, and what are its parts, if any?**
- Such theories have generally been based on and tested by the use of data obtained from paper-and-pencil tests of mental abilities that include analogies, classifications etc.
- Underlying the psychometric theories is a **psychological model** according to **which intelligence is a composite of abilities measured by mental tests.**

THANK YOU