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INTRODUCTION TO INTELLIGENCE.

- Defination of Intelligence.

1) The agreegate or global capacity of an individual to act purposefully, to think rationally and to deal effectively with his enviournment (David Wesder)
2) The ability or skill to solve problem or to fashion products which are valued within one or more cultural settings (Howard Gardner).
3) Intelligence comprises the mental abilities necessary for adaption to as well as shaping and selection of any enviournmental context (Robert sternburg, 1997)

- Theories of Intelligence.

- Two Factor Theory of charles Spearman:
According to this theory intelligence consists of two factors - General (g) and specific (s). This theory maintains that all intellectual abilities, activities share a common factor that we all call 'g' factor, is a characterised by mental energy.
It say 'g' factor is a common factor found in all different kinds of activities we do and this is the reson we find a close relationship between human activities. He suggested the existence of another addition to g factor. This another factor is termed as specific factor as simply 's', factor which is unique by each activity. He also holds that individual difference in intellegence is largely due to the difference in magnitude of 's' factor because in a normal individual, the level of 'g' factor is almost normal in every individual.

- Gardner's Theory of Multiple Intelligence.

This theory has been given by Howard Gardner (1983) and is based on principles such as:

a) Intelligence not being a single or unitary entity exists in distinct and multiple intelligence.

b) These intelligence are not inter-related rather are independent of each other.

c) Different types of intelligence work together to come out with a solution to the problem.

According to him there are 8 types of intelligence namely.

1) Linguistic Intelligence:

It is related to reading, writing, listening, talking, understanding etc poets or literates exhibit this type of intelligence better than other.

2) Logical Mathematical Intelligence:

It is concerned with abstract reasoning and manipulation of symbols involved in numerical problems. It is exhibited in specific works.

3) Spatial Intelligence:

It is used in navigating in space, forming, transforming mental image. Engineer, pilots, sailors, car drivers, sculptors and painters are found highly developed in spatial intelligence.

4) Musical Intelligence:

It encourages persons to show sensitivity to pitch and tone required for singing playing an instrument, composing and appreciating music etc.

5) Bodily Kinestic Intelligence :-
It involves skills and dexerity for fine co-ordinated major movements such as those required for dancing, atheletics, surgery, craft making and the like.

6) Interpersonal Intelligence :
It requires understanding motives, feelings and behaviour of other people. sales people, politicians, religious leader have high degree of interpersonal relationship.

7) Intrapersonal Intelligence :
It is related to recognizing and understanding one's self and developing a sense of identity. Person with strong will power and self esteem posses higher level of intrapersonal intelligence.

8) Naturalistic Intelligence :
It is related to recognizing the floral and fauna and making a distinction in the natural world. Hunters, farmers, tourists, students of biological science have higher naturalistic intelligence.

More than being just a description of structural elements, this theory is a pragmatic or purposive approch and is concerned with intellectual faculty. Through, psychologist have commented on some type of intelligence. This theory makes it obvious that insted of simply dealing with the quantitative aspect of it understanding intelligence in wide sense should be focused as well.

- Louis Thurstone Primary Ability Theory.

According to Thurston's theory of primary abilities (1935) intelligence consists of a major abilities (factors) each of the which are independently relatively of others. These factors are:

1) Spatial Relation (S) 2) Numerical Ability 3) Memory 4) Inductive Reasoning (I) 5) Reasoning (R) 6) Perceptual Speed (P) 7) Verbal comprehension (V) 8) Word fluency (W) 9) Deduction (D)

Thurston's revised thoughts and rejected 2 primary abilities later - Induction (I) and Deduction (D). Thus finally he stated only fundamental abilities SNPVMWR as the main constituents of intelligence. He also devised a battery of test to measure these abilities known as the test of primary mental abilities (PMA) and still widely used.

However its predictive power is no greater than other tests of general intelligence such as Weschler Scale. In fact, Thurston conception of basic elements of intelligence are not completely independent and are found significantly intercorrelated to each other and thus lend support to spearman's conception of 'g', fact. Garatt (1946) in this regard found that the 'g' fact is more prominent in primary school children which gradually decreases with growing age.

- Sternburg's Triarchic Theory

Sternburg (1988 - 1997) has theorized that there are 3 kinds of intelligence, called the triarchic theory of intelligence, this theory is similar to Aristotle's theory that intelligence is composed of theoretical, productive and practical aspects.

In sternburg theory, the 3 aspects are creative, analytical and practical intelligence
Analytical intelligence refers to the ability to break problems down into component parts, or analysis for problem solving. This is the type of intellegence that is measured by intelligence tests and academic acheivement tests.
Creative intelligence is the ability to deal with new and different concepts and to come up with new ways of solving problems.
Practical intelligence is best described as 'street smarts' or ability to use information to get along in life. people with a high degree of practical intelligence known how to be tactful, how to manipulate situations to their advantage, and how to use inside information to increase their odds of success. Practical intelligence has become a topic of much interest and practical research. sternburg (1996-1997) has found that practical intelligence predicts success in life but surprisingly low relationship to academic intelligence. In fact, the higher one's degree of practical intelligence, the less likely that person is to successed in a university or other academic setting.

ANALYTICAL INTELLIGENCE
1) Apply Strategies
2) Aquire task relevant and metacognitive knowledge.
3) Engage in self regulation.

Successful Intelligence

CREATIVE INTELLIGENCE
1) Solve novel problems
2) Make processing skills automatic to free working memory for complex thinking

PRACTICAL INTELLIGENCE.
1) Adapt to shape to and / or select. Enviournment to meet both personal goals and demands of one's every-day world.

- Guildford's factor analysis theory:

I. P. Guildford (1961) proposed a base like model which is called tridimensional theory of intelligence. Popularly known as the structure of intellect model this theory classified intellectual factor in 3 ways content, operation and product.

1] CONTENT :- It refers to the kind of information involved. Guilford has identified 4 types of content
- Figural - Involving concrete objects.
- Symbolic - Information represented by the means of symbols such an words or signs of mathematics.

- Semantic - Involving meaning. It includes factors such as verbal comprehension and general reasoning.
- Behavioural - This resembles thorndikes solid intelligence. i.e. ability to deal with people.

2] OPERATION:- There are 5 types of operation, that can be performed on a particular bit of information. These are as follows:

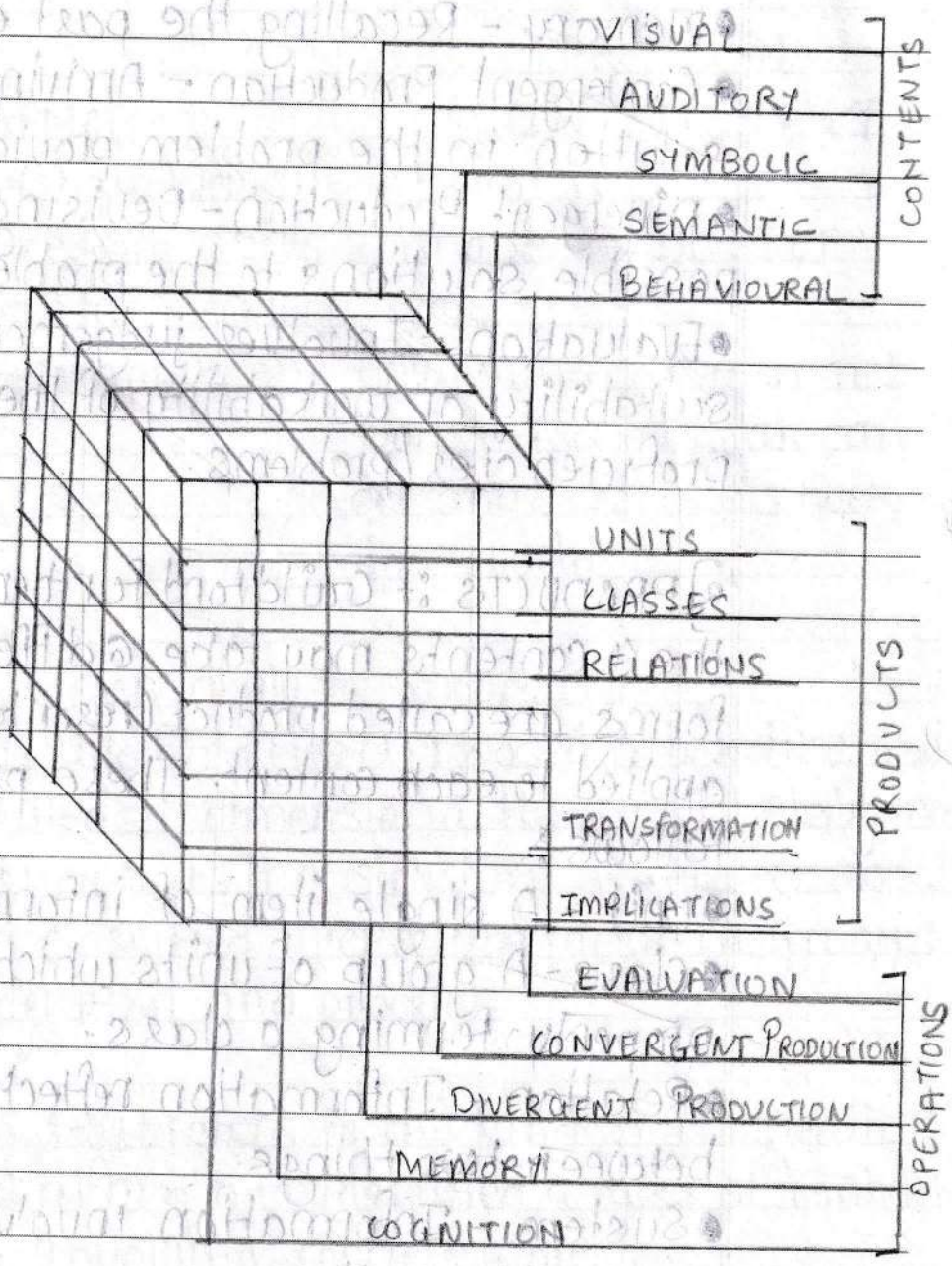
- Cognition - Understanding or comprehending the information.
- Memory - Recalling the past event or experience.
- Convergent Production - Arriving at a correct solution in the problem provided.
- Divergent Production - Devising a number of possible solutions to the problem posed by information.
- Evaluation - Involves judgements as to accuracy, suitability or workability of the solution to the proficiencies/problems.

3] PRODUCTS :- Guildford further states that each of the 4 contents may take 6 different forms. These forms are called product (results) of operations applied to each content. These products are as follows:

- Unit - A single item of information.
- Class - A group of units which with common property forming a class.
- Relation - Information reflecting relationship between two things.
- System - Information involving no. of parts as a complex system.
- Transformation - Involves some sorts of changes

- Implication – Involving possibilities offered by a piece of information.

Thus, if a no. of factors included in his theory, any intelligence would be very complex and impracticable. Factor analysis is not likely to give clear picture of the exact number and nature of intellectual abilities. Infact the number of abilities obtained through factor analysis depend upon specificity of test item.



History of Intelligence Testing.

Binet and his co-workers devoted many years to active and ingenious research on way of means using intelligence. Many approaches were tried including even the measurment of uraniel facial and hand form of analysis of understanding. The results however lead to growing conviction that the direct, even though rude. measurment of complex intellectual functions offered the greatest promise.

In 1904, the minister of public instruction appointed Binet to the previously cited commission to study to produce for the education of retarded children. It was in connection with the objectives of this commission that Binet in collaboration with simon prepared the 1st Binet-simon scale (1905)

This scale known as the 1905 scale consisted of 50 problems or tests arrenged in asending order of difficulty. The 1905 scale was presented In precise objective method for arriving at a total score was formulated.

In the 2nd revision of the test in 1908, known as the 1908 scale, the number of scale were increased some unsatisfactory tests from the earlier scale were eliminited and the test were grouped into age level on the basic of performance about 300 normal children between the age of 3-13 years.

The revision of Binet-Simon scale that opposed in 1905 attracted a wide attention among psychologists translation and adaption approved in many countries including several in united states. The first was by M.M. Goddard than research psychologists at the

wineland training school (for mentally retarded children.). The Goddard revision was influential in the acceptance of intelligence testing in the medical proffesion. Later L.M Terman and his associates reversed this scale, it was in this test that intelligence questioned qotionet (IQ) or ratio between mental age and chronological age was first used in later revision of these tests. were widely employed and the first Kohlmann-Binet revision which entered the scale downword to the age of 3 months. This scale represed one of the earlier efforts to develop pre-school and infants tests of intelligence.

Another pioneering contribution in intellegence testing came in 1930's from a psychologist in. New York named David Weschler, who proposed a series of simple instrument that virtually defined intellegence testings. His scales came to be known as Wescher's scale of Intelligence. His scales were largely based on standford Binet scale as well as Army Alfa test (AAT) and Army Beta Test (ABT) used after world war I For recruitment purposes in the defence forces

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STANDARD PROGRESSIVE MATRICES (SPM)

- PURPOSE OF THE TEST - To measure the level of intelligence of the subject by using Raven's standard Progresive Matrices.

- INTRODUCTION -

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- G factor of Intelligence.

The G-factor (also known as general intelligence or general mental ability.) is a construct developed is psychometric investigations of cognitive abilities and human intelligence. The g factor was originally proposed by English Psychologists charles spearman in early years in 20th century. it is variable that summarizen positive correlation among different cognitive tasks, reflecting the fact that an individuals performance on one type of a cognitive tasks tends to be comparable to that person's performance on the other kinds of cognitive tasks.

- ABOUT THE PRESENT TEST.

- conventional Properties.

Author of the test - J.C Raven, J.H court and J. Raven

year of publications - 1988
Variables covered in the test - This test measures the g factor also known as General Mental Ability.
No: of items: The standard Progressive Matrices (sets A, B, C, D, E) or SPM is a test of a person's capacity at the time of the test to apprehend meaningless figures presented for his observation, see the relations between them, conceive the nature of the figure completing each system of relations presented, and by doing so, develop a systematic method of reasoning. The scale consists of 60 problems divided into 5 sets of 12. In each set the first problem is as necessary as possible self evident. The problems which follow become progressively more difficult.

Language - SPM was designed to cover the widest possible renge of mental ability and to be equally useful with the person's of all ages, whatever their education, nationality or physical condition. In view of its wide applicability it was expected to have certain limitations.

scoring - A person's score on the scale is the total number of problems solved correctly when allowed to work to the end. By subtracting from a person's score on each of the five sets the score normally expected on each set for the same total score on the scale, the consistency of work can be assessed. The score to be expected is given in the table SPM II. If a person's score on one of the tests deviates by more than 2, the total score on the scale cannot be accepted as its face value