CHAPTER - 1

INTELLIGENCE

→ Definition of Intelligence :

Individual's ability to understand complex ideas, to adapt effectively to the environment, to learn from experiences, to engage in various forms of reasoning, to overcome obstacles by careful thought

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                        Intelligence
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       Unitary                              Multifaceted
   [because it is easy
     to rate people]                    [LL Thurstone]  [Theory of
   [Charles Spearman]                                  primary mental abilities]

         △                              V — Verbal comprehension
   gfactor  sfactor                     P — Perceptual speed
       ↑        ↑                       N — Numerical
   [two factor theory]                  W — Word fluency
                                        A — Associative memory
                                        R — Reasoning
                                        S — Spatial visualization
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→ Verbal comprehension :
Ability to understand spoken language

→ Perceptual speed :
Ability to quickly and accurately compare letters and numbers and objects and pictures and patterns

→ Numerical ability :
Ability to quickly perform mathematical operations

→ Word fluency :
Ability to express one's self easily and accurately

→ Associative memory :
Ability to learn and remember the relationship between unrelated items. [example - a person's name, aroma of perfume]

→ Reasoning :
Ability to think logically to reach a conclusion or judgement

→ Spatial visualisation :   dimensional
Ability to visualise two dimensial and three dimensional images in mind and mentally manipulate them.

→ Howard Gardener [Theory of Multiple Intelligence] :
* Visual spatial intelligence — They have good judgement of space.
* Interpersonal intelligence — It means understanding and relating to other people.
* Logical-mathematical intelligence — It means analysing problems and mathematical operations.
* Bodily kinesthetic intelligence — Ability of physical movement and motor control.
* Intra-personal intelligence — Ability for introspection and self reflection.
* Linguistic verbal intelligence — It's related to words, language and writing.
* Musical intelligence — It is related to rythum and music.
* Naturalistic intelligence — It is related to finding patterns and relationships to nature.

→ Robert Sternburg [Triarchic theory] :

* [C] Creative, experimental intelligence - Discover, invent, create.
- Insight and ability to create new ideas.
- Excel at zeroing in on what information in crucial in a given situation.
- Good at combining seemingly unrelated facts.

* [A] Analytic or Componential intelligence - Analyse, critic, evaluate.
- Ability to think analytically and critically.
- Usually excel on standard tests of academic potential and make excellent students.

* [P] Pratical or contextual intelligence - Apply, utilise, implement.
- Adept at solving problems of everday life.
- Intelligent in practical or adaptive sense.
- Street smartness.

→ Raymound Cattell [Theory of fluid and Crystallied intelligence] :
* Fluid -
- Ability to solve new problems.
- Use logic in new situations and identity patterns.
- Good at solving puzzles and coming up with different solutions.
- Independent of any knowledge from the past.

* Crystallised -
- It Precludes inductive and deductive [convergent and divergent] thinking.
- They use skills, knowledge and experience.
- It is not the same as memory but it does rely on accuing information from long term memory.
- It is one's lifetime of intellectual achievement.
- It is demonstrated through one's vocabulary and GK.
- It improves with age.
- It is indicated by one's depth and breadth of GK, vocabulary to reason.

- It is a product of education and cultural experiences in interaction with fluid Intelligence.

→ J.P. Guilford [structure of Intellect model] :

* Content - The way in which the information reaches us.
  - Visual, information in images using sense of sight.
  - Behavioral, non-verbal information about people's attitudes, moods, wishes, needs and perceptions.
  - Auditory, information in sounds using sense of hearing.
  - Symbolic, information represented by signs, letters, numbers or words which have no intrinsic value in it's self.
  - Semantic, where meaning is contained in words such as verbal communication and thinking.

* Operations - It represents main Intellectual functions
  - Cognition, recognizing, understanding or comprehending information.
  - Convergent production, genetic into generating information through analysis and reason.
  - Divergent production, generating a variety or quantity of alternative information.
  - Memory recording, encoding information.
  - Evaluation, comparing information generated with established criteria.
  - Memory retention, recall or retain experiences.

* Products - Form of processed information.
  - Transformations, changes in existing information or it's functions.
  - Relations, connection between items based on characteristics that can change.
  - Units, separated items of information.
  - Implications, predictions or consequences of the information.
  - Classes, items grouped by common characteristics.
  - Systems, interrelated parts and structured items of information.

→ Intelligence Quotient :

* Chronological age [Actual age]
* Mental age

It is a score derived from tests that assess human intelligence
Mental age [MA] is divided by the chronological age [CA] × 100

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

The IQ reflects an individual's performance relative to that of persons of the same age who have taken the same test.

→ IQ classification :
* 145 - 160 [Very gifted or highly advanced]
* 130 - 144 [Gifted or very advanced]
* 120 - 129 [Superior]
* 110 - 119 [High average]
* 90 - 109 [Average intelligence]
* 80 - 89 [low average]
* 70 - 79 [borderline impaired | delayed]
* 55 - 69 [mildly impaired | delayed]
* 40 - 54 [moderately impaired | delayed]

→ IQ Tests :
* Individual tests
* Group tests
* Cultural fair tests

→ Individual tests :
* Stanford - Binet test — Alfred Binet along with his student Theodore Simon formed the scale known as Binet-Simon scale in the year 1905. Alfred-Binet was approached by a government commission to identify mentally retarded children so that they can give them special education. Psychologist from the Stanford university named Lewis Terman revised the test and came to be known as *Stanford -

Binet Intelligence scales. The latest version is ~~not~~ released by Gale Roid in 2003. The age group from which the test can be administered is from 2 years to 85 years. There are 10 tests which consist of verbal and non-verbal parts.

Five factors this test covers :-

* Fluid reasoning
* Knowledge
* Quantitative reasoning
* Visual-spatial reasoning
* Working memory

* Wechsler Scale :
- [WAIS] Wechsler's adult intelligence scale [1955]
- [WISC] Wechsler's intelligence scale for children [1949]
These both test are david Wechsler's.

Aptitude : [Bingham]
A condition or set of characteristics regarded as symptomatic of an individuals ability to acquire with training some [usually specified]. Knowledge, skill or set of responses such as ability to speak a language, to produce music, etc. [GATB] [General Aptitude test Battery]

* General Intelligence [vocabulary, arithmetic, reliability of 3D space]
* Verbal aptitude [vocabulary]
* Numerical aptitude [computation, arithmetic reasoning]
* Spatial aptitude [3D space]
* Form perception [tool matching, form matching]
* Clerical perception [name comparison]
* Motor cordination [mark making]
* Finger Dexterity [assemble, dissemble]
* Manual Dexterity [place, turn]

Interest :
It is a subjective attitude motivating a person to perform a certain task.
[SCII] [Strong campbell interest inventory] [Edward kellogg strong Junior]
* Occupations
* Subject areas

* Activities
* Leisure activities
* People
* Your characteristics