1.10 Intelligence and Aptitude

Syllabus : Concept of intelligence and aptitude, Nature and theories of intelligence - Spearman, Thurstone, Guilford, Vernon, Sternberg and J.P Das; Emotional Intelligence, Social intelligence, measurement of intelligence and aptitudes, concept of IQ, deviation IQ, constancy of IQ; Measurement of multiple intelligence; Fluid intelligence and crystallized intelligence.

Previous Year Questions

2016

Q. Describe the characteristics of Gardener's theory of intelligence. 10 marks [2016]

Q. Explain the contribution of Salovey and Mayer with regard to the concept of emotional intelligence. 10 marks [2016]

Q. Give a comparative account of information processing models of intelligence proposed by Sternberg and J.P. Das. 20 marks [2016]

2015

Q. Evaluate the utility of J.P. Das' model in understanding the concept of intelligence. 10 marks [2015]

Q. Discuss briefly the evolution of factor theory of intelligence in the works of Spearman, Thurstone and Guilford. 15 marks [2015]

Q. What is an aptitude ? Describe the various tests of aptitudes. 15 marks [2015]

2014

Q. Describe the problems in the assessment of intelligence of children with special needs. 10 marks [2014]

Q. What are the key components of emotional intelligence ? How can parents and teachers help facilitate its development in school going children ? 20 marks [2014]

2013

Q. Explain Sternberg's view of intelligence and bring out its implication for schooling. 10 marks [2013]

2012

Q. Elucidate the contribution of Sir Francis Galton in shaping psychology. 12 marks [2012]

Q. Compare multifactor theory of intelligence with that of multiple intelligences. 20 marks [2012]

2011

Q. Compare the model of fluid and crystallized intelligence with the two factor theory of Spearman.

Q. Describe and evaluate the model of intelligence proposed by J.P. Das. 30 marks

2010

Q. Discuss the constituents of emotional intelligence. 10 marks [2010]

Q. Critically asses Gardner's theory of multiple intelligence. 30 marks [2010]

2009

Q. Distinguish between 'intelligence' and 'aptitude' tests. List commonly measured aptitudes and their tests. 30 marks [2009]

Q. Critically evaluate the relative merits and demerits of psychometric measures of personality and intelligence. 60 marks [2009]

2008

Q. Describe the PASS model of intelligence and show the grounds on which it has challenged the 'g' theory. 20 marks [2008]

Intelligence

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 her/his environment.

However, Intelligence can be best defined as an individual's ability to :

- understand complex ideas
- adapt to changing environment
- learn form experiences
- engage in reasoning
- overcome obstacles by careful thought

This def. is the one ac. to **Neisser et al   (1996)**. However there are many other definitions which are contrasting.

Psychometric and Information processing Approaches to Intelligence

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 mapproach 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 cognitive functions underlying intelligent behaviour.

Some theories of intelligence

Binet conceptualised intelligence as consisting of one similar set of abilities which can be used for solving any or every problem in an individual's environment. His theory of intelligence is called **Uni or
one factor theory of intelligence.**

Arthur Jensen proposed a hierarchical model of intelligence consisting of abilities operating at two levels, called Level I and Level II. Level I is the associative learning in which output is more or less similar to the input (e.g., rote learning and memory). Level II, called cognitive competence, involves higher-order skills as they transform the input to produce an effective output.


Spearman's 2-factor theory of intelligence

English psychologist, Charles Spearman (1863-1945), in 1904 proposed his theory of intelligence called two-factor theory. Acc. to to him intellectual abilities are comprised of 2 factors : the general ability known as **G-factor** and specific Abilities known as **S-factors**. The performance by the individual is determined by the G-factor and the S-factors.

The total intelligence of the individual is the sum total of the G-factor and the S-factors. The performance of a particular task depends on the 'G' factor or general ability and the particular 'S' factor or specific ability. e.g. an individual's performance in literature is partly due to his general intelligence and partly due some specific aptitude for his language, i.e. G+S1. In mathematics his performance may be the result of G+S2. In drawing, it may be due to G+S3 and in social sciences; it may be due to G+S4 and so on. Thus the factor 'G' is present in all specific activities

The score of an individual on an intelligence task may be in the form : Score = aG + bS ; where a and b are   "weights" or "loads" of the 2 factors 'g' and 's', respectively.

Spearman's 2-factor theory of intelligence
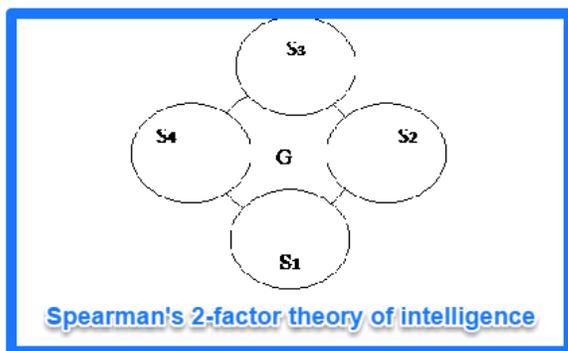
Characteristics of 'G' Factor:

- It is universal inborn ability.
- It is general mental energy.
- It is constant.
- The amount of 'g' differs from individual to individual.
- It is used in every activity of life.
- Greater the 'g' in an individual, greater is his success in life.

Characteristics of 'S' Factor:

- It is learned and acquired in the environment.
- It varies from activity to activity in the same individual.
- Individuals differ in the amount of 'S' ability.

There are a large number of specific abilities such as ability to draw inferences, ability to complete sentences, ability to code message etc.

Thus, Spearman believed that intelligence is a unitary characteristic and those intelligent in one dimension must also be intelligent in another.

Pros:

Cons :

Thurstone's Group Factor Theory of Intelligence

Louis Thurston (1937) said that Intelligence is a cluster of abilities. These mental abilities/operations constitute separate groups. Each of them has its own primary factor. Each of these primary factors is said to be relatively independent of others. He talked about **7 Primary Mental Abilities** and later on added two more. They are:

1. Verbal comprehension Factor : involves a person's ability to understand verbal material. It is measured by tests such as vocabulary and reading comprehension.

2. Verbal fluency Factor : involves rapidly producing words, sentences, and other verbal material. It is measured by tests such as one that requires the examinee to produce as many words as possible beginning with a particular letter in a short amount of time.

3. Numerical Factor : ability involved in rapid arithmetic computation and in solving simple arithmetic word problems.

4. Perceptual speed Factor : involves proofreading and rapid recognition of letters and numbers. It is measured by tests such as those requiring the crossing out of As in a long string of letters or in tests requiring recognition of which of several pictures at the right is identical to the picture at the left.

5. Inductive reasoning Factor : ability to reason from the specific to the general. It is measured by tests, such as letter series, number series, and word classifications, in which the examinee must indicate which of several words does not belong with the others.

6. Spatial visualization Factor : involves visualizing shapes, rotations of objects, and how pieces of a puzzle fit together. An example of a test would be the presentation of a geometric form followed by several other geometric forms. Each of the forms that follows the first is either the same rotated by some rigid transformation or the mirror image of the first form in rotation. The examinee has to indicate which of the forms at the right is a rotated version of the form at the left, rather than a mirror image.

7. Memory Factor : ability to recall and associate previously learned items effectively or memorize quickly.

Later on other factors were added on like Deductive Reasoning (P) – Ability to use the generalized results correctly and Problem solving ability factor (PS) -Ability to solve problem independently.

Thurston held that if the individual wants to perform any particular activity, one or more of these factors or abilities are involved. Some of them are more important than others.

Pros :

- 'Thurston scale' developed in 1928 was the first formal technique for measuring of attitudes.

- Thurston's theory of intelligence was a major influence on later theories of multiple intelligences, such as those of Guilford, Gardner, and Sternberg.

- Thurston has been noted for developing a comparative judgment scaling technique. The rank scale can be used to rank all possible feelings related to an issue and to categorize people expressing an opinion based on the rank of that opinion. It is used today mainly in basic research.

Guilford's Structure of Intelligence/Intellect (SI) Model

J.P. Guilford developed this model of intelligence (1966) using factor analysis. He suggests that there are 3 basic parameters along which any intellectual activity takes place. These are:

1. Operations – the act of thinking

2. Contents – the terms in which we think, and

3. Products – the ideas we come up with.

Guilford identified 5 operations, 5 contents and 6 products. Thus the maximum number of factors in terms of the different possible combination s of these dimensions will be 5x5x6 = 150.

1. **Operations**: It consists of five major groups of intellectual abilities. *#CoMeCon DiEva*

- Cognition: refers to discovery, rediscovery or recognition.
- Memory: remembering what was once known.
- Convergent Thinking : thinking to zero onto one particular solution.
- Divergent Thinking: thinking from different dimensions, perspectives ; novelty and variety
- Evaluation: reaching decisions or making judgments about information.

2. **Content:** involves five factors:

- Visual Content: size, form, colour, etc.
- Auditory Content: consists of language, speech, sounds, music and words
- Symbolic Content: composed of letters, digits, and other conventional signs.
- Semantic Content: in form of verbal meanings or ideas.
- Behavioural Content: social behaviour in society.

3. **Products:** When a certain operation is applied to certain kind of content as many as six kinds of products may be involved.

- Units: Understanding the meaning of words, visual, auditory and symbolic units.
- Classes: classification of words and ideas.
- Relations: implies discovering relations of words and ideas.
- Systems: ability to structure objects in space, to structure symbolic elements and to formulate problems.
- Transformation: ability to look into the future lines of development or to suggest changes in the existing situations.
- Implications: The ability to utilize present information for future ends.

Pros:

- The model discovered many abilities which were not known before.
- is very useful for vocational training.
- attempts to take into considerations all possible aspects of intellectual activity.

Cons:

Vernon's Hierarchical model of Intelligence

British psychologists like **Cyril Burt (1949)** and **Vernon (1960)** gave an alternative scheme for the organisation of factors. At the top of the hierarchy, Vernon places that **'G' factor** or the general cognitive factor. At the next level he places two broad group factors, corresponding to **verbal-educational (v: ed)** and **practical-mechanical (k: m.)** aptitudes. These major factors may be further sub-divided.

The verbal educational factor may be sub-divided into the subfactors :

- verbal
- numerical

The practical mechanical factor into may be sub-divided into the subfactors :

- mechanical information
- spatial
- psychomotor ability

At the lowest level of the hierarchy are the **special factors**. "Such a hierarchical structure thus resembles an inverted genealogical tree, with 'g' at the top, 's' factors at the bottom, and progressively narrower group factors in between."
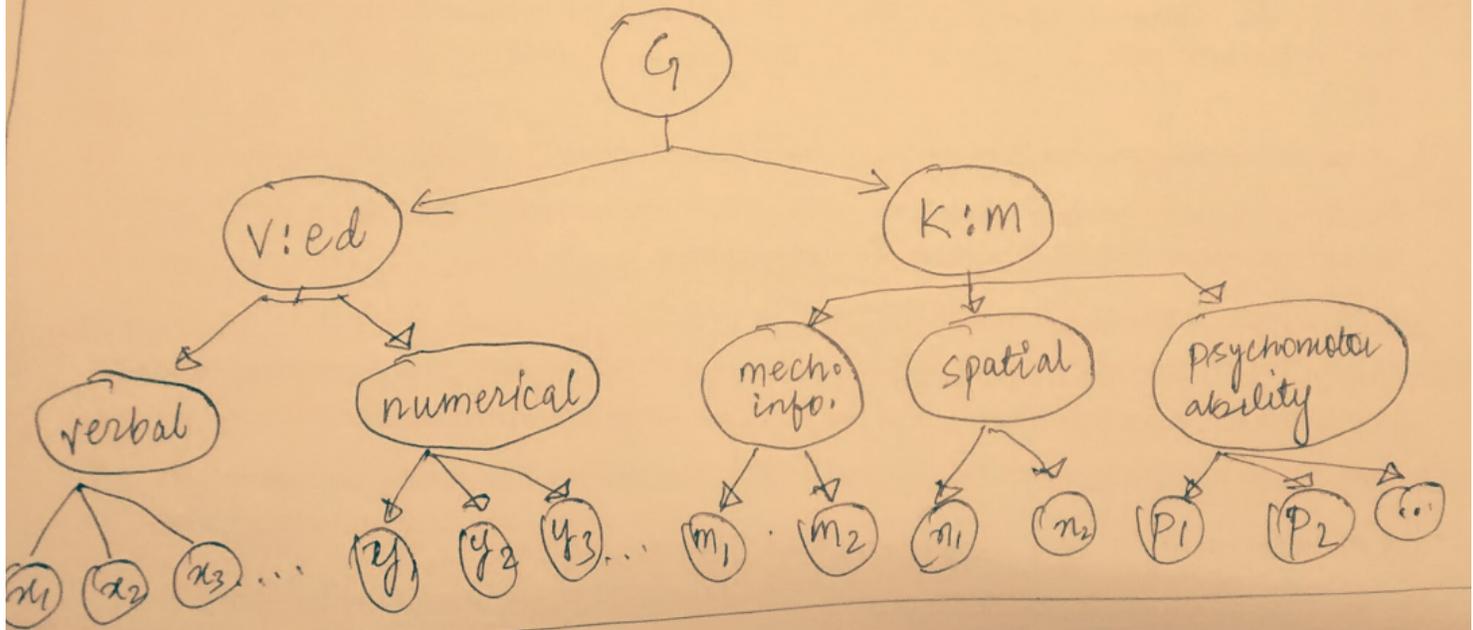
Vernon's theory is a compromise formula, between Spearman's two factors and Thurstone's multifactor theory. It retains G factor, and relegates Thurstone's and Guilford's structure of intellect to sub-ordinate level.

Vernon also attributed intelligence to another two factors :

- **Intelligence A** = Product of heredity
- **Intelligence B** = Due to environment

Pros :

Cons:

Sternberg's Triarchic Theory of Intelligence

Sternberg's definition of human intelligence is " *mental activity directed towards purposive adaptation to, selection and shaping of, real-world environments relevant to one's life*" **(Sternberg, 1985)**, which means that intelligence is how well an individual deals with environmental changes throughout their lifespan. Sternberg's theory comprises three parts:

- componential
- experiential
- practical.

Componential Intelligence (related to analytical intelligence)

Sternberg associated the componential subtheory with analytical giftedness. It involves taking apart problems and being able to see solutions not often seen. Unfortunately, individuals with only this type are not as adept at creating unique ideas of their own. This form of giftedness is the type that is tested most often (Sternberg, 1997).

Experiential Intelligence (related to creative intelligence)

It can be seen as **Synthetic giftedness,** which   is seen in *creativity, intuition,* and a study of the arts. People with synthetic giftedness are not often seen with the highest IQ's because there are not currently any tests that can sufficiently measure these attributes, but synthetic giftedness is especially useful in creating new ideas to create and solve new problems.

Sternberg (1997) associated one of his students, **"Barbara",** to the synthetic giftedness. Barbara did not perform as well as **Alice** on the tests taken to get into school, but was recommended to Yale University based on her exceptional creative and intuitive skills. Barbara was later very valuable in creating new ideas for research.

Practical Intelligence (related to contextual intelligence)

It is the most interesting of all 3. Persons high on this dimension are intelligent in a practical, adaptive sense - can be related to **street smartness.** Such people are adept at solving problems of everyday life.
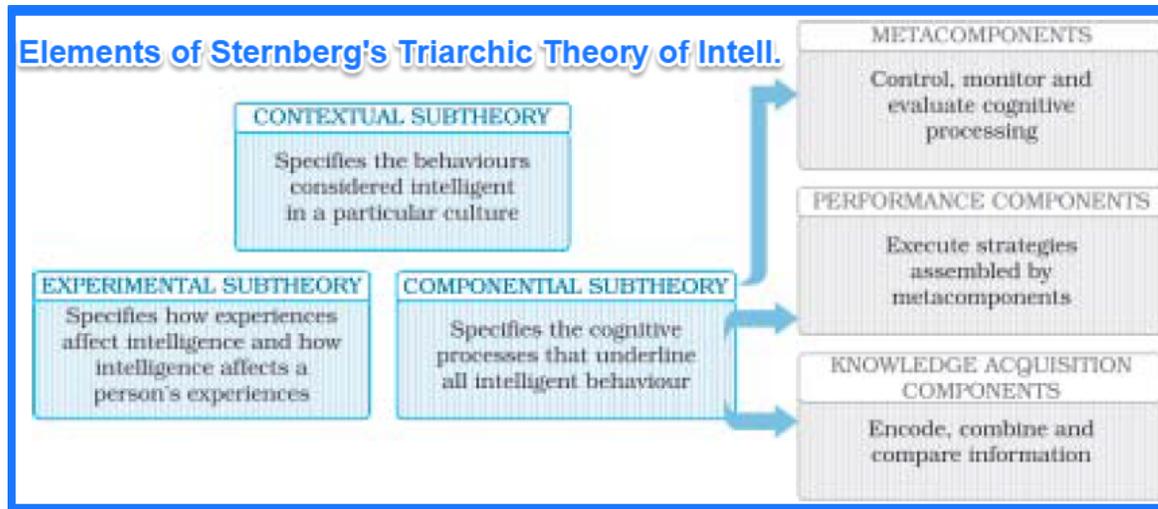
Pros :
The theory by itself was groundbreaking in that it was among the first to go against the psychometric approach to intelligence and take a more cognitive or **information processing** approach

Cons :

J.P. Das's Model of Intelligence aka **PASS Model**

PASS= Planning, Attention-arousal, and Simultaneous-successive (PASS)

This model has been developed by **J.P. Das**, Jack Naglieri, and Kirby (1994) and it represents the **information processing approach** to intelligence.

A/c to this model, intellectual activity involves the interdependent functioning of **three neurological systems**, called the functional units of brain. These units are responsible for :

1. arousal/attention
2. coding or processing
3. planning

1. **Arousal/Attention** : State of arousal is basic to any behaviour 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 would interfere with attention. For instance, when you are told by your teacher about a test which s/he plans to hold, it would arouse you to attend to the specific chapters. Arousal forces you to focus your attention on reading, learning and revising the contents of the chapters.

2. **Simultaneous and Successive Processing** : You can integrate the information into your knowledge system either simultaneously or successively. Simultaneous processing takes place when you perceive the relations among various concepts and integrate them into a meaningful pattern for comprehension. e.g. in **Raven's Progressive Matrices (RPM) Test,** a design is presented from which a part has been removed. You are required to choose one of the six options that best completes the design. Simultaneous processing helps in grasping the meaning and relationship between the given abstract figures.

   Successive processing takes place when you remember all the information serially so that the recall of one leads to the recall of another. Learning of digits, alphabets, multiplication tables, etc. are examples of successive processing.

3. **Planning** : This is an essential feature of intelligence. 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. e.g., to take the test scheduled by your teacher, you would have to set goals, plan a time schedule of study, get clarifications in case of problems and if you are not able to tackle the chapters assigned for the test, you may have to think of other ways (e.g., give more time, study with a friend, etc.) to meet your goals.

These PASS processes operate on a knowledge base developed either formally (by reading, writing, and experimenting) or informally from the environment. These processes are interactive and dynamic in nature; yet each has its own distinctive functions.

Das and Naglieri have also developed a battery of tests, known as the **Cognitive Assessment System (CAS)**. It 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. The

Pros : results of CAS can be used to remedy cognitive deficits of children with learning problems

Cons :
A frequently cited criticism is based on the factor analysis of the test battery. Are Attention and Planning two distinct factors - Kranzler, Keith & Flanagan (2000) found only a marginal fit for the four- factor model ; the attention and planning factors were indistinguishable. However the usefulness of considering planning and attention as separate constructs in distinguishing clinical groups, as well as in application of Planning apart from Attention in management decision making has not been questioned.

Further tests that measure mainly attention such as vigilance, and tests that include strategies and higher levels of planning are necessary . The criticism of CAS measures cannot be repudiated until such additions have been made.

Gardner's theory of multiple intelligences

Distinct types of intelligences exist. Each of these intelligences are independent of each other. Gardner also put forth that different types of intelligences interact and work together to find a solution to a problem.

Gardner studied extremely talented persons, who had shown exceptional abilities in their respective areas, and described eight types of intelligence :

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 it.

2. **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. 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 images. The person high on this intelligence can easily represent the spatial world in the mind. 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, create and manipulate musical patterns. Persons 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 creatively) : This consists of the use of the whole body or portions of it for display or construction of products and problem solving. Athletes, dancers, actors, sportspersons, gymnasts, and surgeons are likely to have such kind of intelligence.

6. **Interpersonal** (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 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 examples 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.

Catell's theory of fluid and crystallized intelligences

R.B. Cattell said that general intelligence is composed of two factors— **fluid intelligence (G)** and **crystallized intelligence (Gc)**. This is similar to **Vernon's distinction of intelligence A which is product of heredity and intelligence B,** which is due to environment. Fluid intelligence, like 'intelligence A', depends more on heredity and crystallized ability on environment.

Fluid-ability is general to many fields, and crystallized intelligence is specific to certain fields, like school learning. Fluid intelligence is used more in tasks requiring adaptation to new situations, while crystallized intelligence is used to tasks where habits have become fixed. These two factors—fluid and crystallized intelligence—are distinct but correlated.

Fluid intelligence or fluid reasoning is the capacity to reason and solve novel problems, independent of any knowledge from the past.[2] It is the ability to analyze novel problems, identify patterns and relationships that underpin these problems and the extrapolation of these using logic. It is necessary for all logical problem solving, e.g., in scientific, mathematical, and technical problem solving. Fluid reasoning includes inductive reasoning and deductive reasoning.

Crystallized intelligence is the ability to use skills, knowledge, and experience. It does not equate to memory, but it does rely on accessing information from long-term memory. Crystallized intelligence is one's lifetime of intellectual achievement, as demonstrated largely through one's vocabulary and general knowledge. This improves somewhat with age, as experiences tend to expand one's knowledge.

The terms are somewhat misleading because one is not a "crystallized" form of the other. Rather, they are believed to be separate neural and mental systems.

Emotional Intelligence

Emotional intelligence is a set of skills that underlie accurate **appraisal, expression, and regulation** of emotions. It is the *feeling side* of intelligence. One may find people who are academically talented, but are unsuccessful in their own life. They experience problems in family, workplace and interpersonal relationships. What do they lack? Some psychologists believe that the source of their difficulty may be a lack of emotional intelligence.

Salovey and Mayer : This concept of emotional intelligence was first introduced by Salovey and Mayer who considered emotional intelligence as

"the ability to

1. *monitor one's own and other's emotions,*
2. *discriminate among them*
3. *use the information to guide one's thinking and actions".*

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

Characteristics of emotionally intelligent persons:

• Perceive and be sensitive to your feelings and emotions.

• Perceive and be sensitive to various types of emotions in others 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.

Although the term Emotional Intelligence first appeared in a 1964 paper by Michael Beldoch, it gained popularity in the 1995 book by that title, written by the author, psychologist, and science journalist **Daniel Goleman**. Since this time, Goleman's 1995 analysis of EI has been criticized within the scientific community, despite prolific reports of its usefulness in the popular press

There are currently several models of EI. Goleman's original model may now be considered a mixed model that combines what have subsequently been modeled separately as **ability EI** and **trait EI.**

Goleman defined EI as the *array of skills and characteristics that drive leadership performance.*

The **trait model** was developed by **Konstantin Vasily Petrides** in 2001. It "*encompasses behavioral dispositions and self perceived abilities and is measured through self report*".

The **ability model,** developed by **Peter Salovey and John Mayer** in 2004, focuses on the individual's ability to process emotional information and use it to navigate the social environment

Social Intelligence

Social intelligence is the capability to effectively navigate and negotiate complex social relationships and environments.

Social scientist **Ross Honeywill** believes social intelligence is an aggregated measure of self- and social-awareness, evolved social beliefs and attitudes, and a capacity and appetite to manage complex social change.

Psychologist **Nicholas Humphrey** believes that it is social intelligence, rather than quantitative intelligence, that defines humans.

The original definition by **Edward Thorndike** in 1920 is "*the ability to understand and manage men and women and girls, to act wisely in human relations*".

It is equivalent to **interpersonal intelligence**, one of the types of intelligence identified in Howard Gardner's theory of multiple intelligences, and closely related to **theory of mind.**

Some authors have restricted the definition to deal only with knowledge of social situations, perhaps more properly called **social cognition** or **social marketing intelligence**, as it pertains to trending socio-psychological advertising and marketing strategies and tactics.

According to **Sean Foleno,** social intelligence is a person's competence to understand his or her environment optimally and react appropriately for socially successful conduct.

The **social intelligence hypothesis** states that social intelligence, that is, complex socialization such as politics, romance, family relationships, quarrels, collaboration, reciprocity, and altruism, was the driving force in developing the size of human brains and today provides our ability to use those large brains in complex social circumstances. That is, it was the demands of living together that drove our need for intelligence generally.

The social intelligence quotient (SQ) is a statistical abstraction, similar to the 'standard score' approach used in IQ tests, with a mean of 100. Scores of 140 or above are considered to be very high. However, unlike the standard IQ test, it is not a fixed model.

SQ has until recently been measured by techniques such as question and answer sessions. These sessions assess the person's pragmatic abilities to test eligibility in certain special education courses, however some tests have been developed to measure social intelligence. Some social intelligence measures exist which are self-report.

George Washington University Social Intelligence Test : Is one of the only ability measure available for assessing social intelligence and was created in June 1928 by **Dr.Thelma Hunt** a psychologist from George Washington University. It was originally proposed as a measurement of a person's capacity to deal with people and social relationships. The test is designed to assess various social abilities which consisted of observing human behavior, social situation judgement, name & face memory and theory of mind from facial expressions. The George Washington University Social Intelligence Test revised second edition consists of items as quoted:

- Observation of human behavior
- Recognition of the mental state of the speaker
- Memory for names & faces
- Judgement in social situations
- Sense of humor

People with low SQ are more suited to work with low customer contact, as well as in smaller groups or teams, or independently, because they may not have the required interpersonal communication and social skills for success on with customers and other co-workers

Measurement of Intelligence

Aptitude

Aptitude refers to special abilities in a particular field of activity. It is a combination of characteristics that indicates an individual's capacity to acquire some specific knowledge or skill after training.

Aptitude is assessed with the help of selected tests. The knowledge of aptitude can help us to predict an individual's future performance. Clerical Aptitude, Mechanical Aptitude, Numerical Aptitude, and Typing Aptitude are independent aptitude tests.

Multiple Aptitude Tests exist in the form of test batteries, which measure aptitude in several separate but homogeneous areas. Differential Aptitude Tests (DAT), the **General Aptitude Tests Battery (GATB)**, and the **Armed Services Vocational Aptitude Battery (ASVAB)** are well-known aptitude test batteries.

Among these, DAT is most commonly used in educational settings. It consists of 8 independent subtests:
(i) Verbal Reasoning,
(ii) Numerical Reasoning,
(iii) Abstract Reasoning,
(iv) Clerical Speed and Accuracy,
(v) Mechanical Reasoning,
(vi) Space Relations
(vii) Spelling
(viii) Language Usage.

J.M. Ojha has developed an Indian adaptation of DAT.

Several other aptitude tests have been developed in India for measuring scientific, scholastic, literary, clerical, and teaching aptitudes.e.g. CSAT

While assessing intelligence, psychologists often found that people with similar intelligence differed widely in acquiring certain knowledge or skills.

In order to be successful in a particular field, a person must have both **aptitude** and **interest**. Interest is a preference for a particular activity; aptitude is the potentiality to perform that activity