

# VARIATIONS IN PSYCHOLOGICAL ATTRIBUTES

STUDYSHIP WITH KRATI



# INTRODUCTION

- Variability is a fact of nature and individuals are no exception hence within and across the species also, there are individual variations.
- Individual differences refer to distinctiveness and variations among people's characteristics and behaviour patterns.
- Situationism, which states that situations and circumstances in which one is placed influence one's behaviour. The situationist perspective views human behaviour as resulting from interaction of external and internal factors.



### **ASSESSMENT**

- Assessment is the first step in understanding a psychological attribute.
- It refers to the measurement of psychological attributes of individuals and their evaluation, often using multiple methods in terms of certain standards of comparison.

#### Assessment

#### Formal Assessment

(Objective, standardised, and organised)

#### Informal Assessment

(Varies from case to case and is open to subjective interpretations)



# Types of Assessments

- Informal- e.g. If we say Harish is dominant.
- <u>Based on our perception</u> and assessment of Dominance, <u>without applying any formal technique to measure</u>. Hence this type of assessment will vary the results from one assessor to another, depending on their opinions and will be open to <u>subjective interpretation</u> and <u>huge variation</u>.
- **Formal-** This is when we use a <u>defined technique</u> or measuring standards to assess any attribute <u>without letting our own perception change</u> the assessment. Its <u>objective</u>, <u>standardized and organized</u>.
- The formal assessment also <u>involves measurement</u> of an attribute with respect to its <u>application in a situation</u>.
- e.g. If Harish is assessed as dominant, some interventions might be needed to effect a change in his behaviour while dealing with his teams at work etc



# SOME DOMAINS OF PSYCHOLOGICAL ATTRIBUTES

- Intelligence- It is the global capacity to understand, think rationally and use available resources effectively in a situation/challenge. It represents general Cognitive competence/ability.
- **Aptitude-** Individual's **underlying potential for acquiring skills**. Aptitude assessment helps predict what an individual will be able to do if given proper environment and training. E.g. training a person with good language aptitude can help him become a good writer.
- Interest- It's individual's interest / preference to engage in a particular activity. Assessment of interest may help in deciding that in which occupation/activity an individual would be comfortable and happy/satisfied.
- **Personality-** Relatively **enduring characteristics** that make a person distinct from others. This test tells us how a person is likely to behave in future- Dominant, submissive, moody withdrawn or emotional.
- Values- Enduring Beliefs about an ideal mode of behaviour. A set of standard rules, guidelines which a person follows to live his life. This would help assess what kind of decisions a person would make in a specific situation..e.g. political, religious, social & economics.



# **ASSESSMENT METHODS**

- Several methods are used for Psychological assessment.
- **Psychological Test-** is an objective and standardized test to measure any of the individual's psychological attributes- mental, behavioural, aptitude etc as mentioned above. **g.** Clinical diagnosis, guidance, personnel selection, placement n training.
- **Interview-** involves seeking information on a one on one basis by a counsellor from the client. **g.** Door to door salesmen surveying about a product, journalists from important political people, employer while selecting employees use this technique to assess.
- Case Study- is a detailed study of a person in terms of his/her psychological attributes by collecting history, wide amount of data using interview, observation, and questionnaire of Psychological tests methods. To assess any of the attributes to draw learnings. g case study of an eminent leader to learn about his personality, aptitude and values etc.
- **Observation-** employing systematic, organized and objective procedure to record behavioural phenomena occurring naturally in real time. Observation methods are useful to study real events, situations however their interpretation can be subjective and in little control of the observer. g. studying Mother Child relationship by watching them objectively for a certain duration.
- **Self-report** It s a method in which an individual provides factual information about himself or opinions, beliefs etc.



# INTELLIGENCE

- Intelligence is the key attribute employed to know how individuals are different from each other.
- Psychological definition is very different from the common definition of intelligence.
- <u>Common Definition</u>: Mental alertness, ready wit, quickness to learn and grasp and ability to understand relationships.
- Oxford Definition: Power of Perceiving, Learning, Understanding and Knowing



### **PSYCHOLOGY DEFINITIONS**

- Alfred Binet: Ability to Judge well, Reason well and Understand well. One similar set of abilities used for solving any or every problem. His theory is called Uni or One factor theory.
- Wechsler: Ability to think rationally, act purposefully and to deal effectively with your environment.
- Charles Spearman: 1927, proposed a Two Factor Theory. As per hm Intelligence consists of a
- General factor (g- factor) are primary and common to all performances.
- Specific factors (s- factors) which are responsible for specific abilities-Singing, architects, scientists



- Louis Thurstone: Intelligence consists of 7 primary abilities, relatively independent. They are:
- Verbal Comprehension (meaning, words, concepts, ideas)
- Numerical Ability (speed & accuracy in numerical & computation skills)
- Spatial Relations (Visualising patterns and forms)
- Perceptual Speed (Speed in Perceiving details)
- Word Fluency (Using words fluently n flexibly)
- Memory (accuracy in recalling information)
- Inductive reasoning (Deriving rules from presented facts)



- Level1- Associative learning where Output is more or less similar to Input. (eg Rote learning & memory)
- Level2- Cognitive competence. Higher order skills. It transforms the input to produce effective output.
- **J.P. Guilford:** 3 dimensions:
- Operations- are the things that respondent does. Cognition, memory, recording, retention, convergent.
- Contents- Nature of material or information on which intellectual operations are performed. Visual, auditory, symbolic, semantic (words), behavioural.
- Products- Form in which information is processed by respondent.
- His theory has 6X5X6 = 180 cells





# THEORIES OF INTELLIGENCE

#### A. Psychometric Approach

- 1. Uni-Factor Theory
- 2. Two Factor Theory
- 3. Theory of Primary Mental
  Abilities
  - 4. Hierarchical Model of Intelligence
- 5. Structure of Intellect Model

# B. Information-Processing Approach

- 1. Theory of Multiple Intelligence
- 2. Triarchic Theory of Intelligence
- 3. PASS Model of Intelligence

### • PSYCHOMETRIC **APPROACH**

- ✓ It considers intelligence as an aggregate of abilities.
- ✓ It expresses the individual's performance in terms of a single index of cognitive abilities.

# • INFORMATION-



- ✓ Describes the processes people use in intellectual reasoning and problem solving.
- ✓ The major focus of this approach is on how an intelligent person acts.







• \( \subseteq \text{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.

### • 2. Two Factor Theory (Charles Spearman, 1927)

- ✓ Proposed that intelligence consisted of: g-factor- includes mental operations which are primary and common to all performances.
- \slant s- factor- Excellent singers, architects, scientists, and athletes may be high on g-factor, but in addition to this, they have specific abilities which allow them to excel in their respective domains.

### • 3. Theory of Primary Mental Abilities (Louis Thurstone)

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- \( \square \) It states that intelligence consists of seven primary abilities, each of which is relatively independent of the others. These primary abilities are:-
- (i) Verbal Comprehension Grasping meaning of words, concepts, and ideas.
- (ii) Numerical Abilities- Speed and accuracy in numerical and computational skills.
- (iii) Spatial Relations- Visualising patterns and forms.
- (iv) Perceptual Speed- Speed in perceiving details.
- (v) Word Fluency- Using words fluently and flexibly.
- (vi) Memory- The accuracy in recalling information.
- (vii) Inductive Reasoning- Deriving general rules from presented facts.



- 4. Hierarchical Model of Intelligence (Arthur Jensen)
- ✓ Proposed that Intelligence consists of abilities operating at two levels:-
- Level I (Associative learning) in which output is more or less similar to the input (e.g., rote learning and memory).
- Level II (Cognitive competence) involves higher-order skills as they transform the input to produce an effective output.



- 5. Structure- of Intellect Model (J.P Guilford)
- ✓ Classifies intellectual traits among three dimensions:-
- 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) etc.
- Operations are what the respondent does. These include cognition, memory recording, memory retention, divergent production, convergent production, and evaluation.
- Products refer to the form in which information is processed by the respondent.
- \( \text{Products are classified into units, classes, relations, systems, transformations, and implications. Since this classification (Guilford, 1988) includes 6X5X6 categories, therefore, the model has 180 cells.



# INFORMATION- PROCESSING APPROACH

#### • Theory of multiple intelligence

- Howard Gardner: Intelligence is not a single entity, rather distinct type of intelligences exist. They are independent of each other but do work together at times to find solution to a problem. (MISLLB) to remember
- Gardner studied extremely talented people and arrived on eight types of intelligences:
- Linguistic (production and use of language skills): Such people are word-smart, articulate, poets & writers.
- Logical-Mathematical (Scientific thinking & Problem solving): Think Logically, critically, abstract reasoning, symbols & mathematical problem solving. Scientists, mathematicians who won nobel prize.
- Spatial (Visual images & Patterns): Forming, using, transforming mental images. Pilots, sailors, sculptors, painters, architects, interior decorators, surgeons.
- Musical (Sensitivity to rhythm & sound pattern): Produce, create and manipulate music patterns.
- Bodily-Kinaesthetic (using body flexibly & creatively): Athletes, dancers, sportsmen, gymnasts, surgeons etc.
- Interpersonal (awareness of one's own feelings, motives & desires): Using their knowledge about their strengths, limitations and using this awareness effectively to relate to others. Human existence, finer sensibilities regarding their identity, meaning of life. Philosophers, spiritual leaders.
- Naturalists: (sensitivity towards the natural world): Awareness of relationship with the natural world. Beauty of flora, fauna, ecology. Hunters, farmers, tourists, botanists, environmentalists, animal activists.



### • Triarchic Theory of Intelligence:

- Robert Sternberg (1985): Intelligence is Ability to adapt, to shape and select environment to accomplish one's goals and those of society/culture.
- 3 basic types of intelligence:
- **Componential-** Analysis of information to solve problems. Such people think analytically and critically. This intelligence has 3 components, each serving different function:
- Knowledge acquisition-Learn, encode, combine & compare information (Find stage)
- **Meta component:** Control, evaluate, monitor, plan (cognitive processing- analyse & solve stage)
- **Performance components:** Action, actually executing the planned task (Operational skill-transfer stage)
- Experiential Intelligence: Using past experiences creatively to solve new problems. Such people make new discoveries and inventions. They have the ability to filter crucial information for a given situation.
- Contextual Intelligence: This intelligence involves the ability to deal with environmental demands. The manifestation needed to adjust to the situation. Street smart, Business sense. Such people adapt to the environment or modify environment as per their needs and hence are more successful.



### • PASS Model of intelligence: (Planning, Attention Arousal and Simultaneous-Successive model)- by J.P. Das, Jack Naglieri, Kirby

- Arousal/Attention: Arousal helps in paying attention to the stimuli. Too much or too little arousal with interfere with the attention. E.g Teacher informs you about the upcoming test, which stimulates you to attend to the chapters. Arousal helps you in focusing your attention to reading, learning, revising.
- Simultaneous & successive progressing: Simultaneous processing allows you to perceive the relationship between various concepts and integrate them into meaningful patterns. Relationship among abstract figures..eg. Solving Jigsaw puzzles.
- Successive processing takes place when you remember things sequentially. Learning digits, alphabets etc.
- **Planning:** It is an essential part of the intelligence. After the information is attended to and processed, planning is activated. It allows us to think of possible courses of action need to be implemented to reach the target and evaluate their effectiveness.
- In case the plan doesn't work this part of intelligence also help review the gaps and device alternate plan.



# INTELLIGENCE: INTERPLAY OF NATURE AND NURTURE

✓ The evidence for hereditary influences on intelligence comes mainly from studies on twins and adopted children.

- The intelligence of identical twins reared together correlate almost 0.90.
- The intelligence of identical twins reared in different environments correlate 0.72.
- Those of fraternal twins reared together correlate almost 0.60.
- Those of Siblings reared together correlate about 0.50.
- While siblings reared apart correlate about 0.25.

✓ The evidence for the role of environment comes mainly from studies on adopted children. It has been observed that as children grow in age; their intelligence level tends to move closer to that of their adoptive parents. Children from disadvantaged homes adopted into families with higher socioeconomic status display increase in their intelligence scores. There is evidence that environmental deprivation lowers intelligence while rich nutrition, good family background, and quality schooling increases intelligence.

✓ Conclusion- Therefore intelligence is a product of complex interaction of heredity (nature) and environment (nurture). Heredity can best be viewed as something that sets a range within which an individual's development is actually shaped by the support and opportunities of the environment.



# **ASSESSMENT OF INTELLIGENCE**

- \( \sqrt{\text{In 1905}}, \text{Alfred Binet and Theodore Simon, made the first successful attempt to formally measure intelligence. In 1908, they gave the concept of Mental Age (MA).
- ✓ MA- measure of a person's intellectual development in comparison to people of her/his age group.
- ✓ Chronological Age (CA) is the biological age from birth.
- \( \sqrt{\text{A bright child's MA is more than her/his CA; for a dull child, MA is below the CA.} \)
- ✓ Retardation was defined by Binet and Simon as being two mental age years below the chronological age.
- ✓ In 1912, William Stern, devised the concept of Intelligence Quotient (IQ).
- ✓ IQ refers to mental age divided by chronological age, and multiplied by 100.
- ✓ The number 100 is used as a multiplier to avoid the decimal point.



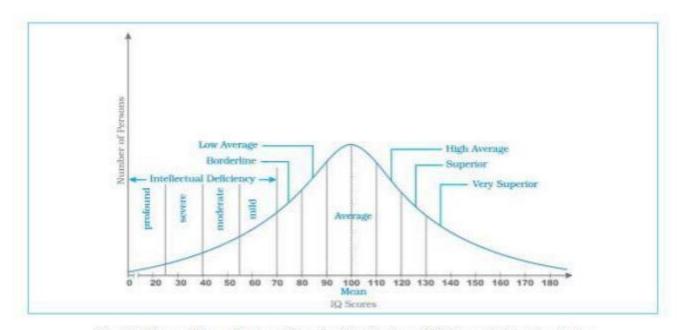
# DISTRIBUTION OF IQ SCORES IN POPULATION

- \( \sqrt{IQ} \) IQ scores are distributed in the population in such a way that the scores of most people tend to fall in the middle range of the distribution.
- ✓ Only a few people have either very high or very low scores.
- \sqrt{The frequency distribution for the IQ scores tends to approximate a bell shaped curve, called the normal curve. This type of distribution is symmetrical around the central value, called the mean. This is because the majority falls in the centre (Average).



Table 1.1: Classification of People on the Basis of IQ

IQ Range	Descriptive Label	Per cent in the Population
Above 130	Very Superior	2.2
120 – 130	Superior	6.7
110 – 119	High average	16.1
90 – 109	Average	50.0
80 - 89	Low average	16.1
70 – 79	Borderline	6.7
Below 70	challenged/ retarded	2.2



 ${\it Fig. 1.2: Normal\ Curve\ Pattern\ Showing\ Distribution\ of\ IQ\ Scores\ in\ the\ Population}$ 



### VARIATIONS OF INTELLIGENCE

### 1. Intellectual Deficiency

American Association on Mental Deficiency (AAMD) views mental retardation as "significantly sub-average general intellectual functioning existing concurrently with deficits in adaptive behaviour and manifested during the developmental period".

This definition points to three basic features:-

- People having IQs below 70 are judged to have Intellectual Deficiency.
- These people are unable to adapt to their environment.
- The deficits are observed during the developmental period that is between 0 and 18 years of age.

S. No.	Levels of Retardation	IQ Range	Level of Functioning
1.	Mild	55-69	☐ They typically slower than that of their peers ☐ They can function quite independently, hold jobs and families
2.	Moderate	40-54	☐ Lag behind their peers in language and motor skills ☐ Can be trained in self-care skills, and simple social and communication skills.
3.	Severe	25-39	☐ Incapable of managing life and need constant care for their entire lives
4.	Profound	Below 25	☐ Incapable of managing life and need constant care for their entire lives







Giftedness is the exceptional general ability shown in superior performance in a wide variety of areas.

Talent is a narrower term and refers to remarkable ability in a specific field (e.g., spiritual, social, aesthetic, etc.). The highly talented are sometimes called 'prodigies'. Characteristics of gifted children are:

- Advanced logical thinking, questioning and problem solving behaviour.
- High speed in processing information.
- Superior generalisation and discrimination ability.
- Advanced level of original and creative thinking.
- High level of intrinsic motivation and self-esteem.
- Independent and non-conformist thinking.
- Preference for solitary academic activities for long periods.





• Performance on intelligence tests is not the only measure for identifying the gifted. Many other sources of information, such as teachers' judgment, school achievement record, parents' interviews, peer and self-ratings, etc. can be used in combination with intellectual assessment.

### Special Educational Intervention

• To reach their full potential, gifted children require special attention and different educational programmes beyond those provided to normal children in regular classrooms. These may include life enrichment programmes that can sharpen children's skills in productive thinking, planning, decision-making, and communication.



# Types of Intelligence Tests

#### A - Based on administration

S. No.	Individual Test	Group Test
1.	Can be administered to one person at a time.	Can be administered to several
		people together.
2.	Rapport can be established with the subject & his	Rapport can't be established
	feelings and expressions can be observed during the	with the subject & his feelings
	test.	and expressions can't be
		observed during the test.
3.	Questions have to be answered orally/ in a written	Is usually in a multiple-choice
	form or through manipulation of the objects.	format.

### B - Based on nature of items used

S No.	Verbal Test	Non- Verbal Test	Performance Test
1.	The answers are in	The questions are in the	Require subjects to
	oral/written form.	form of pictures and	manipulate objects and
		illustrations.	other materials to
			perform a task.
2.	The subject should be	The subject should be	The subject need not be
	literate.	literate enough to at	literate.
		least read & understand	
		the instructions.	

### C - Based on Culture

S No.	Culture Fair Test	Culture Biased Test
1.	A test that does not discriminate	Tests show a bias to the culture
	examinees on the basis of their	in which they are developed.
	culture experiences.	





## **CULTURE AND INTELLIGENCE**

Culture is a collective system of customs, beliefs, attitudes, and achievements in art and literature. According to Vygotsky while elementary mental functions (e.g., crying, attending to mother's voice, sensitivity to smells, walking, and running) are universal, the manner in which higher mental functions such as problem solving and thinking operate are largely culture-produced.



**Technological Intelligence-** Technologically advanced societies foster skills of generalisation and abstraction, speed, minimal moves, mental manipulation & achievement orientation. It is valued in western cultures unlike Asian and African Societies.

Non-western societies value self-reflection and collectivistic orientation as opposed to personal achievement and individualistic orientation in the western societies.



# INTEGRAL INTELLIGENCE- INTELLIGENCE IN THE INDIAN TRADITION

- Indian thinkers view intelligence from a holistic perspective where equal attention is paid to cognitive and non-cognitive processes.
- Buddhi, according to J.P. Das, includes such skills as mental effort, determined action, feelings, and opinions along with cognitive competence.
- Following competencies are identified as facets of intelligence in the Indian tradition:



## **EMOTIONAL INTELLIGENCE**

- The notion of emotional intelligence broadens the concept of intelligence as it considers that Intelligence includes **emotions**.
- This encompasses- Appraisal, expression and regulation of emotions.
- It is the Feeling side of intelligence. A good IQ/Scholastic record is not enough to be successful in life. Even the people who are most successful in academics face problems in managing their personal life. Psychologists refer to this as a lack of emotional intelligence.
- It is represented as EQ.
- Salovey & Mayer first defined EQ as- The ability to monitor one's own and other's emotions and discriminate them to use them to guide one's thinking and actions.
- Characteristics of the people with high EQ:
- Perceive and be sensitive to your feelings and emotions.
- Sensitive to observing others' emotions by noting their body language, voice, tone & facial expressions.
- Use emotions and thoughts while solving problems and taking decisions.
- Understand the **nature and intensity of emotions** and their powerful influence.
- Control on emotions/feelings while dealing with others to achieve peace and harmony.



# APTITUDE

- Mental ability in a special/particular field is referred as Aptitude.
- Aptitude is also- Ability to acquire some specific knowledge and skill after training.
- People with similar intelligence- IQ differ widely in acquiring certain type of skills.
- They can be good in different areas/subjects.
- This means people can have aptitude of different fields with similar measure of intelligence.



# DIFFERENCE BETWEEN APTITUDE & INTEREST

- Aptitude is the potential to perform any activity/task
- Interest is the <u>preference</u> for performing certain activity.
- To excel in any field a person needs to have both Aptitude and Interest.



# MEASURING APTITUDE

- There are several types of Aptitude tests largely available in two forms:
- Independent (specialised) aptitude tests. Mechanical, clerical, numerical, tests for specialized fields.
- Multiple (generalized) aptitude tests.- Exist in the form of test batteries. Differential Aptitude test (DAT), General aptitude test battery (GATB), Armed services vocational aptitude battery (ASVAB) are well known.
- DAT is commonly used in educational settings, consisting eight specialized subtests- Verbal, Numerical, Abstract, Clerical speed and accuracy, Mechanical, Space, Spellings and Language tests. (common test)



### **CREATIVITY AND INTELLIGENCE**

- Creativity is a phenomenon whereby <u>something new</u> and somehow <u>valuable</u> is formed. The created item <u>may be intangible</u> (such as an idea, a scientific theory, a <u>musical composition</u> or a joke) <u>or a physical object (such as an invention, a literary work or a painting).</u>
- There are differences in the potential for creativity across individuals and the manner in which Creativity is expressed.
- Creativity can be expressed in writing, dance, poetry, science and so on.
- <u>Manifestation of creativity</u> can be seen in <u>a poem, painting, new chemical process, an innovation of law, a breakthrough in science in preventing a disease.</u>
- Names of some <u>highly creative persons</u> in the history: <u>Tagore, Einstein, C.V.Raman, Ramanujan etc.</u> for their outstanding contribution.



• The definition of creativity has broadened and it includes ordinary people in creative occupations like Pottery, carpentry, cooking etc.



# VARIATION IN POTENTIAL FOR CREATIVITY

- Creativity is determined both by **Heredity and Environment**.
- Limit of the creative potential are set by heredity and Environmental factors help stimulate the development of creativity. Environmental factors such as motivation, commitment, family support, peer influence, training n opportunities to polish skills really help enhance the realisation of true creative potential.



# **CREATIVITY AND INTELLIGENCE**

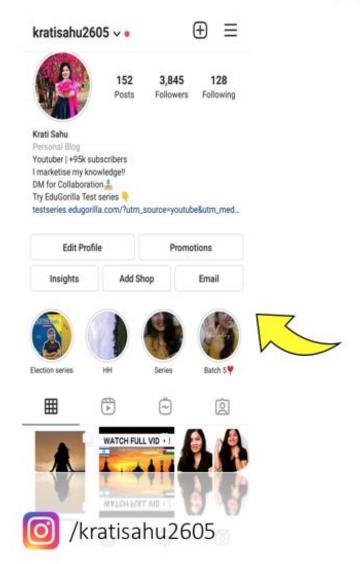
- Intelligence is the <u>overall ability to understand</u>, <u>analyse and adapt</u> in different situations. It is a brain function which helps individuals to perform and excel in multiple domains. <u>Creativity is the ability to use intelligence in order to churn out something unique and novel</u> in a specific field.
- Thus a person who has the ability to learn faster, reproduce accurately is considered intelligent more than creative until he /she devices new ways of learning and doing.
- Terman in 1920 found that <u>Person with high IQ were not necessarily creative</u>.( He s just a faster computer/processor).
- And creative ideas can come from persons who did not have very high IQ. Ability to think differently.
- The relationship between Intelligence and creativity is positive. All creative abilities require a minimum level of intelligence to acquire knowledge, capacity to comprehend, retain and retrieve.
- e.g. to express creativity in writing, one must possess adequate language skills and to express creativity in creating new laws of science, one must have to intelligence to acquire basic knowledge of the subject.
- Creativity test are open ended and involve making a person think of different answers to the questions and problems. They give freedom to individuals to go in different direction and freedom to use their imagination and express in original ways.

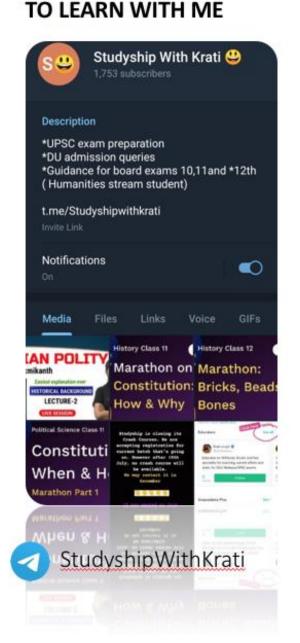
S. No.	Creativity Tests	Intelligence Tests
1.	Open ended	Close Ended
2.	There can be multiple answers to questions	There is only one correct answer
3.	Involves Divergent thinking	Involves Convergent thinking
4.	Involves ability to see new relationships between seemingly unrelated things, ability to guess causes and consequences, ability to put things in a new context,	The focus is on assessing abilities such as memory, logical reasoning, accuracy, perceptual ability, and clear thinking.
	to put things in a new context, etc.	



### LET'S CONNECT





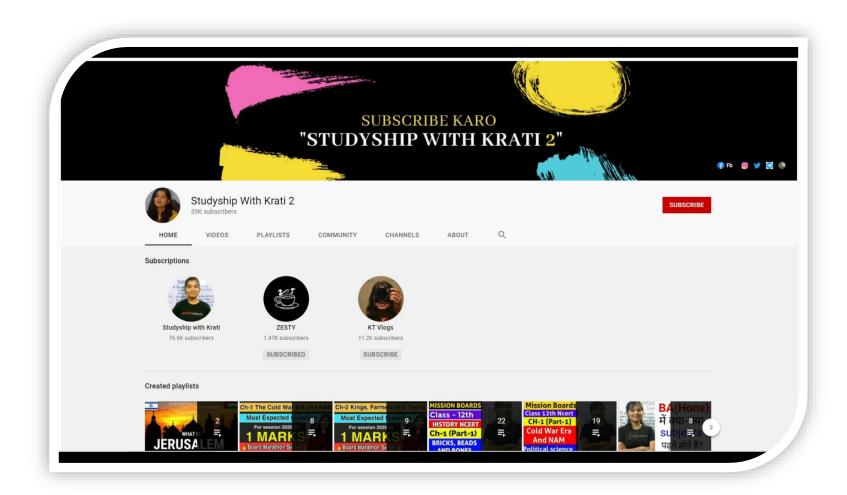








### MY OTHER YT CHANNELS





### THANKS FOR WATCHING!

