Ch 1

Variations in Psychological Attributes

Bal Bharati Public School, Pitampura
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Class: XII
PSYCHOLOGY

SPECIAL ABILITIES

- APTITUDE
- INTEREST

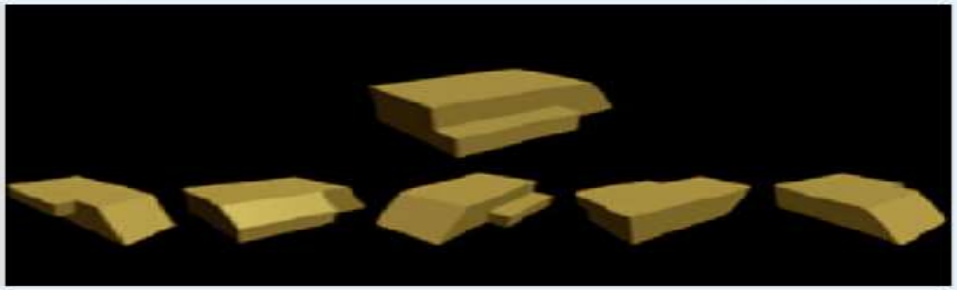
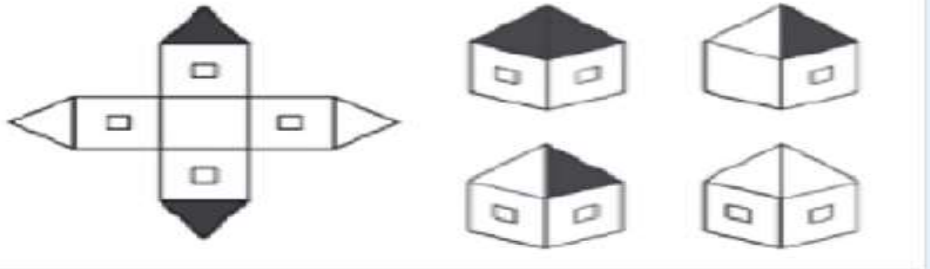
APTITUDE

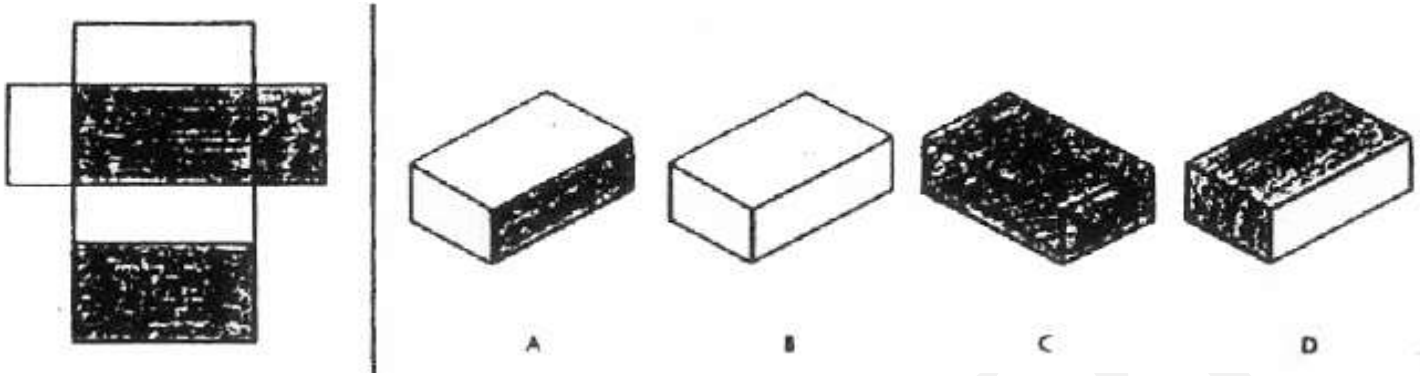
- While assessing intelligence, psychologists often found that people with similar intelligence differed widely in acquiring certain knowledge or skills.
- **Aptitude refers to special abilities in a particular field of activity.**
- It is a combination of characteristics that indicates an individual's capacity to acquire some specific knowledge or skill after training.
- We assess aptitude with the help of selected tests. The knowledge of aptitude can help us to predict an individual's future performance.

APTITUDE TESTS

Aptitude tests are available in two forms:

- **Independent (specialized) aptitude tests**
  - Clerical Aptitude, Mechanical Aptitude, Numerical Aptitude, and Typing Aptitude are independent aptitude tests.
- **Multiple (generalised) aptitude tests.**
  - Multiple Aptitude Tests exist in the form of test batteries, which measure aptitude in several separate but homogeneous areas.
  - E.g. Differential Aptitude Tests (DAT), the General Aptitude Tests Battery (GATB), the Armed Services Vocational Aptitude Battery (ASVAB).
  - DAT is most commonly used in educational settings. It consists of 8 independent subtests.

Measure	Example
Abstract-fluid intelligence (Gf)	
DAT-AR	**Example A** Domain ⇧ ⇨ ⇩ ⇦ Range ⇧ ⇨ ↙ ↗ ⇩ A B C D E
PMA-R	a b c a b c a b c >>> d a b c x
Verbal-crystallized intelligence (Gc)	
DAT-VR	..... is to water like eating is to ..... (A) Travelling-Driving, (B) Foot-Enemy, (C) Drinking-Bread, (D) Girl-Industry, (E) Drinking-Enemy
DAT-NR	Which number must be substituted by
	the letter P if the sum is correct?
	5P + 2 = 58
	(A) 3:(B) 4:(C) 7:(D) 9:(E) None of them
Spatial intelligence (Gv)	
Rotation of solid figures	
DAT-SR	



Differential Aptitude Tests - Mechanical Reasoning

Progress

Example 1

Which person has the heavier load? (If equal, select C.)

Person **B** has the heavier load because the weight is closer to him than to person **A**. Therefore, **B** is the correct answer.

○ A ◉ B ○ C

INTEREST

- **Interest is a preference for a particular activity; aptitude is the potentiality to perform that activity.**

- A few tests that are used to assess interest are
    1. Strong Vocational Interest Blank,
    2. Kuder Preference Record, and
    3. Thustone's Vocational Interest Schedule.

Aptitude or interest ?

- A person may be interested in a particular job or activity, but may not have the aptitude for it. Similarly, a person may have the potentiality for performing a job, but may not be interested in doing that. In both cases, the outcome will not be satisfactory. A student with high mechanical aptitude and strong interest in engineering is more likely to be a successful mechanical engineer.
- **In order to be successful in a particular field, a person must have both aptitude and interest.**

CREATIVITY

- **Creativity is the ability to produce ideas, objects, or problem solutions that are novel, appropriate and useful.**
- There are differences in the potential for creativity across individuals and the manner in which creativity is expressed.
  - Some are highly creative and others are not so creative.
  - Some may express creativity in writing, still others in dance, music, poetry, science and so on.
  - Manifestations of creativity can be observed in a novel solution to a problem, an invention, composition of a poem, painting, new chemical process, an innovation in law, a breakthrough in preventing a disease and the like.
- Despite differences, one common element among these is the production of something new and unique.

WHICH TASKS CAN BE CALLED CREATIVE?

- In recent years, our understanding of creativity has broadened.
- Creativity is not just limited to a selected few — the artist, the scientist, the poet or the inventor. An ordinary individual who is engaged in simple occupations like pottery, carpentry, cooking, etc. can also be creative.
- However, it has been said that they are not working at the same level of creativity as an eminent scientist or a writer.
- Hence, we can say that **individuals vary in terms of the level and the areas in which they exhibit creativity**

Development of Creativity

Research literature suggests that

- Children begin to develop their imagination during the **early years** of childhood but they express creativity mostly through physical activities and in non-verbal ways.
- **In later years**, when language and intellectual functions are fully developed and store of knowledge is adequately available, creativity is expressed through verbal modes too.
- Those who are outstanding in their creativity may give an indication about the direction in which their creativity lies through their self-chosen activities. In some cases, however, opportunities need to be provided before they can manifest their hidden potential for creativity.

Reasons for variation in creativity

- Variations in creativity can be attributed to the complex interaction of heredity and environment.
- Limits of the creative potential are set by heredity, environmental factors stimulate the development of creativity.
- How much of the creative potential can be realised, when and in what specific form and direction is largely determined by environmental factors such as motivation, commitment, family support, peer influences, training opportunities, etc.
- Although no amount of training can transform an average person to the level of Tagore, Shakespeare, etc. but it is also true that every individual can raise her/his level of creative potential beyond its present level.

CREATIVITY AND INTELLIGENCE

Creativity and Intelligence

- Sunita is regarded by her teachers as an excellent student. She does her work on time, scores the highest grades in her class, listens to instructions with care, grasps quickly, reproduces accurately but she rarely comes out with ideas which are her own.
- Rita is another student who is just average in her studies and has not achieved high grades consistently. She prefers to learn on her own. She improvises new ways of helping her mother at home and comes up with new ways of doing her work and assignments.
- The former is considered to be more intelligent and the latter as more creative. Thus, a person who has the ability to learn faster and reproduce accurately may be considered intelligent more than creative unless s/he devises new ways of learning and doing.

Creativity and Intelligence

- **Terman**, in the 1920s, found that persons with high IQ were not necessarily creative. At the same time, creative ideas could come from persons who did not have a very high IQ.
- Other researches have shown that not even one of those identified as gifted, followed up throughout their adult life, had become well-known for creativity in some field.
- Researchers have also found that both high and low level of creativity can be found in highly intelligent children and also children of average intelligence. The same person, thus, can be creative as well as intelligent but it is not necessary that intelligent ones, in the conventional sense, must be creative.
- **Intelligence, therefore, by itself does not ensure creativity**.

Creativity and Intelligence

- Researchers have found that the **relationship between creativity and intelligence is positive**.
- All creative acts require some minimum ability to acquire knowledge and capacity to comprehend, retain, and retrieve.
- Creative writers, for example, need facility in dealing with language. The artist must understand the effect that will be produced by a particular technique of painting, a scientist must be able to reason and so on.
- Hence, a certain level of intelligence is required for creativity but beyond that intelligence does not correlate well with creativity.

- **It can be concluded that creativity can take many forms and blends. Some may have more of intellectual attributes, others may have more of attributes associated with creativity.**

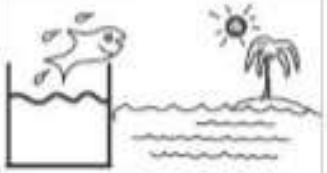
CREATIVITY TESTS

General feature of creativity tests

- They are **open-ended**. They permit the person to think of different answers to the questions or problems in terms of her/his experiences, whatever these may have been. These help the individual to go in different directions.
- There are no specified answers to questions or problems in creativity tests. Therefore, there is **freedom to use one's imagination and express it in original ways**.
- Creativity tests involve **divergent thinking** and assess such abilities as ability to produce a variety of ideas, i.e. ideas which are off-the-beaten track, ability to see new relationships between seemingly unrelated things, ability to guess causes and consequences, ability to put things in a new context, etc.

Torrance Test

In a standardized Torrance Test of Creative Thinking, subjects are given simple shapes (*left column*) and are asked to use them (*top row*) or combine them (*middle row*) in a picture or to complete a partial picture (*bottom row*). Evaluators judge whether the results are more or less creative.

	Starting Shapes	Completed Drawing	
		More Creative	Less Creative
Use		 Mickey Mouse	 Chain
Combine		 King	 Face
Complete		 A fish on vacation	 Pot

- Since expressions of creativity are varied, tests have been developed using different stimuli like words, figures, action, and sounds.
- These tests measure general creative thinking abilities like ability to think of a variety of ideas on a given topic/ situation, alternative ways of looking at things, problems or situations, to guess causes and consequences, to think of unusual ideas to improve and to use common objects, ask unusual questions and so on.
- A few investigators have also developed tests of creativity in different areas such as literary creativity, scientific creativity, mathematical creativity, etc.
- Some of the famous psychologists who have developed creativity tests are **Guilford, Torrance, Khatena, Wallach and Kogan, Paramesh, Baqer Mehdi, and Passi.**

Test defined elements of creativity

PRODUCT
- Originality
- Relevance
- Usefulness
- Complexity
- Understandability
- Pleasingness
- Elegance/Well-craftedness
- Germinality

PROCESS
- "Uncensored" perception and encoding of information
- Fluency of ideas (large number of ideas)
- Problem recognition and construction
- Unusual combinations of ideas (remote associates, category combination, boundary breaking)
- Construction of broad categories (accommodating)
- Recognizing solutions (category selection)
- Transformation and restructuring of ideas
- Seeing implications
- Elaborating and expanding ideas
- Self-directed evaluation of ideas

MOTIVATION
- Goal-directedness
- Fascination for a task or area
- Resistance to premature closure
- Risk-taking
- Preference for asymmetry
- Preference for complexity
- Willingness to ask many (unusual) questions
- Willingness to display results
- Willingness to consult other people (but not simply to carry out orders)
- Desire to go beyond the conventional

PERSONALITY/ABILITIES
- Active imagination
- Flexibility
- Curiosity
- Independence
- Acceptance of own differentness
- Tolerance for ambiguity
- Trust in own senses
- Openness to sub-conscious material
- Ability to work on several ideas simultaneously
- Ability to restructure problems
- Ability to abstract from the concrete

CREATIVITY TESTS

- They are open-ended.
- involve divergent thinking
- Assess abilities to produce a variety of ideas, ideas off-the-beaten track, see new relationships, guess causes and consequences, put things in a new context
- there is freedom to use one's imagination and express it in original ways

INTELLIGENCE TESTS

- They are close ended
- mostly involve convergent thinking
- the focus is on assessing abilities such as memory, logical reasoning, accuracy, perceptual ability, and clear thinking.
- little scope for the expression of spontaneity, originality, and imagination.

Watch the following videos to build a better understanding of the concepts

- https://youtu.be/9XT49etweek
  (9.30 onwards)
- https://youtu.be/880h3yM3uxo
- https://youtu.be/Zj6_pAE_ffw
- https://youtu.be/SSnUOJN8puk

Attempt the following questions.

1. Name
   a) Any two psychologists who have developed creativity tests.
   b) Any two multiple aptitude tests
2. Differentiate between
   a) Aptitude and interest
   b) creativity tests and intelligence tests
3. Aptitude or interest – what is more important to determines success? Justify your answer.
4. Discuss how is creativity related to intelligence.