

Intelligence



Learning Outcomes

- Define Intelligence
- Describe the various Theory of multiple intelligences.
- enumerate the disorders of intelligence

Definition



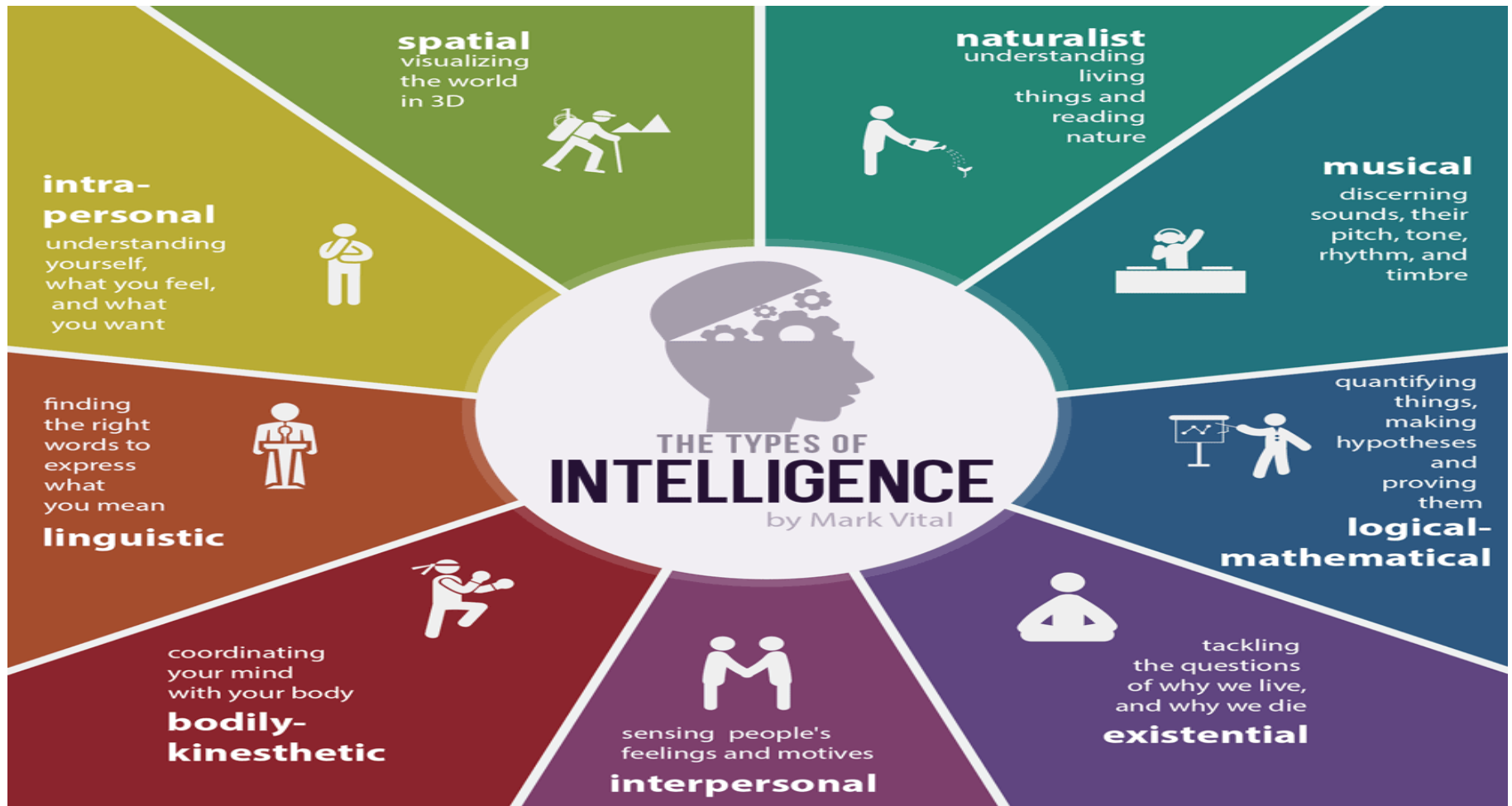
The global capacity of the individual to act purposefully, to think rationally, and to deal effectively with his environment.



IQ:DEFINITION

- An **intelligence quotient** or **IQ** is a score derived from one of several different standardized tests attempting to measure intelligence.
- IQ is the measure of cognitive abilities, such as the ability to learn or understand or to deal with new situations.
- The ability to apply knowledge to manipulate one's environment or to think abstractly as measured by objective criteria (as tests); mental acuteness; logic and analytical skills.

Components (Theory of multiple intelligences)



Components (Theory of multiple (*Howard Gardner*): intelligences)

multiple components for intelligence that enable human being to take on such diverse roles as physicist, farmer ,chairman and dancer .

1-Logical-mathematical (relationship, abstract thoughts)

2-Linguistic (phonology, speech, grammar, comprehension)

3-Spatial(spatial or visual information , 3-dimension images)

4-Bodily-kinesthetic(control of one's bodily motions skillfully: [athletes](#), [pilots](#), [dancers](#), [musicians](#))

5-Musical (use of pitch, rhythm , create and understand sounds)

6-Interpersonal(the ability to understand others(feeling, intentions and motives).

7-Intrapersonal (the ability to understand one's own (feeling, intentions and motives).



Intelligence Quotient

- ★ Ability to think
- ★ Get through school
- ★ Not possible to raise IQ level.
- ★ Cannot be earned

Intelligence quotient (Alfred Binet)

- **IQ= Mental AGE** (measure individual level of intelligence at a given time /**chronological age**(actual age in years) **x 100**
- Mean IQ of 100 and a standard deviation of 15.
- Approximately 95% of the populations have scores within a range of 70 to 130. Alternatively, two-thirds of the populations have IQ scores within the range 85-115

MEASUREMENT AND EVALUATION OF INTELLIGENCE

The formula for intelligence quotient is

Whereas :

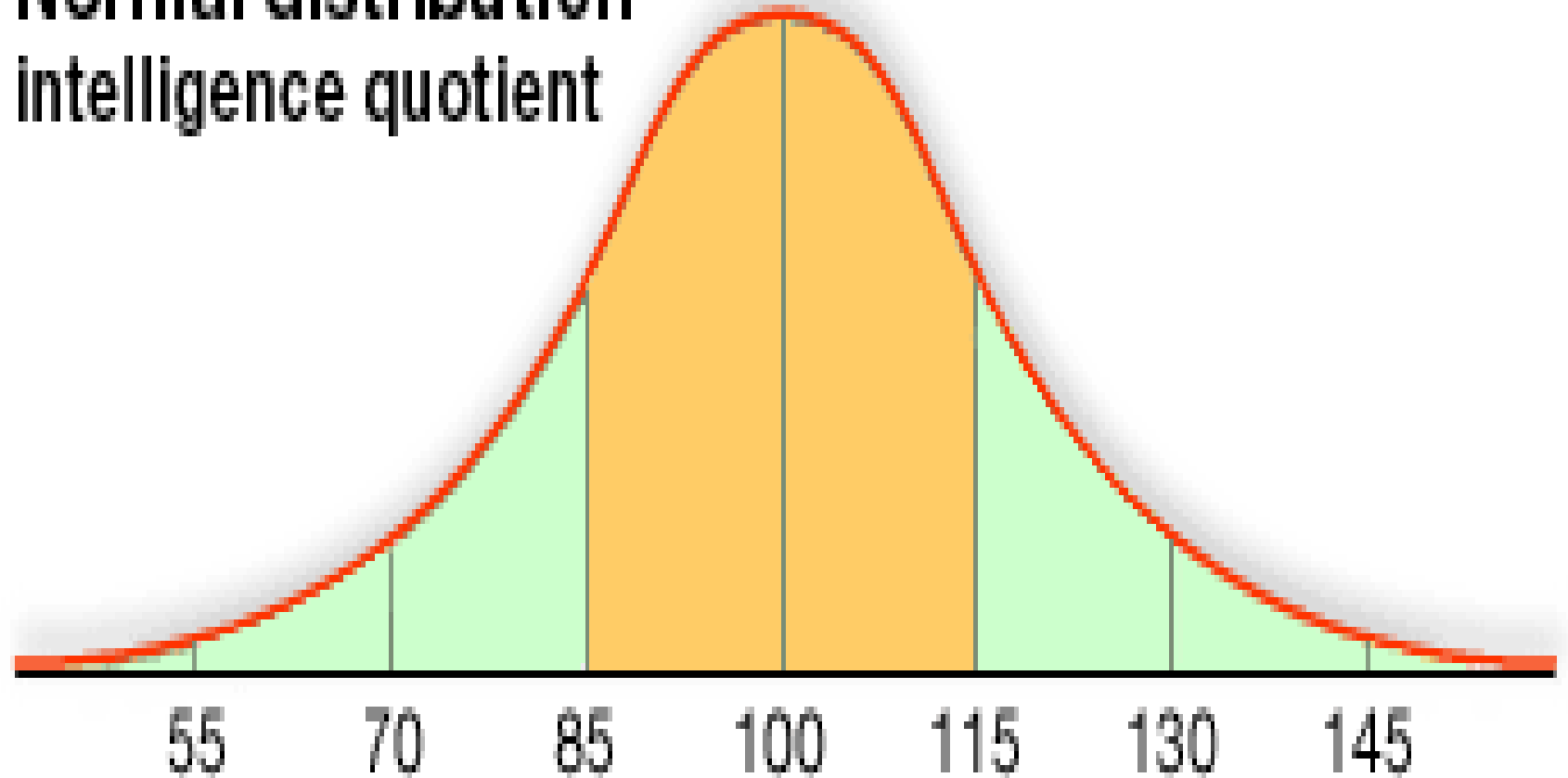
IQ = intelligence quotient

MA = Mental age

CA = chronological or actual age

Formula $IQ = MA/CA \times 100$

Normal distribution intelligence quotient



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Intelligence quotient (Alfred Binet)

Binet Scale of Human Intelligence

IQ Score	Original Name	"Politically correct" Term
Over 140	Genius	
120–139	Very Superior	
110–119	Superior	
90–109	Average or Normal	
80-90	Below average	
70–80		Borderline
50–70		Mild
35–50		Moderate
20–35		Severe
Below 20		Profound

Intelligence quotient (Alfred Binet)

- **IQ and age**

IQ can change to some degree over the course of childhood.

The peak of capacity for both fluid intelligence and crystallized intelligence occurs at age 26. This is followed by a slow decline.

IQ tests

- **Uses** : Intelligence tests are widely used in educational, business, family guidance , intellectual deterioration and military settings due to their efficacy in predicting behavior.
- **Well-known modern include**
- [Raven's Progressive Matrices](#)
- [Wechsler Adult Intelligence Scale](#) (WAIS-IV, 16–90 years)
- Wechsler Intelligence Scale for Children ([WISC](#), 6-16 years)
- Wechsler Preschool and Primary Scale of Intelligence ([WPPSI](#), 2½ – 7 years&3 months)



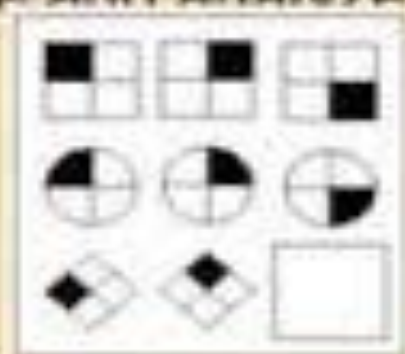
Raven's Progressive Matrices

- Test written in the 1930s to examine general intelligence.
- Consists of 60 multiple-choice visual analogy problems.
- Unique in that problems are strictly visual.
- Widespread usage as a valid test for intelligence.

Raven Progressive Matrices test

- This is a widely used intelligence test in many research and applied settings.
- In each test item, one is asked to find the missing pattern in a series. Each set of items gets progressively harder, requiring greater cognitive capacity to encode and analyze.

Sample item
from the
Raven
Progressive
Matrices tests





Raven's

Progressive Matrices™ Practice Test 60 Questions With Explanations



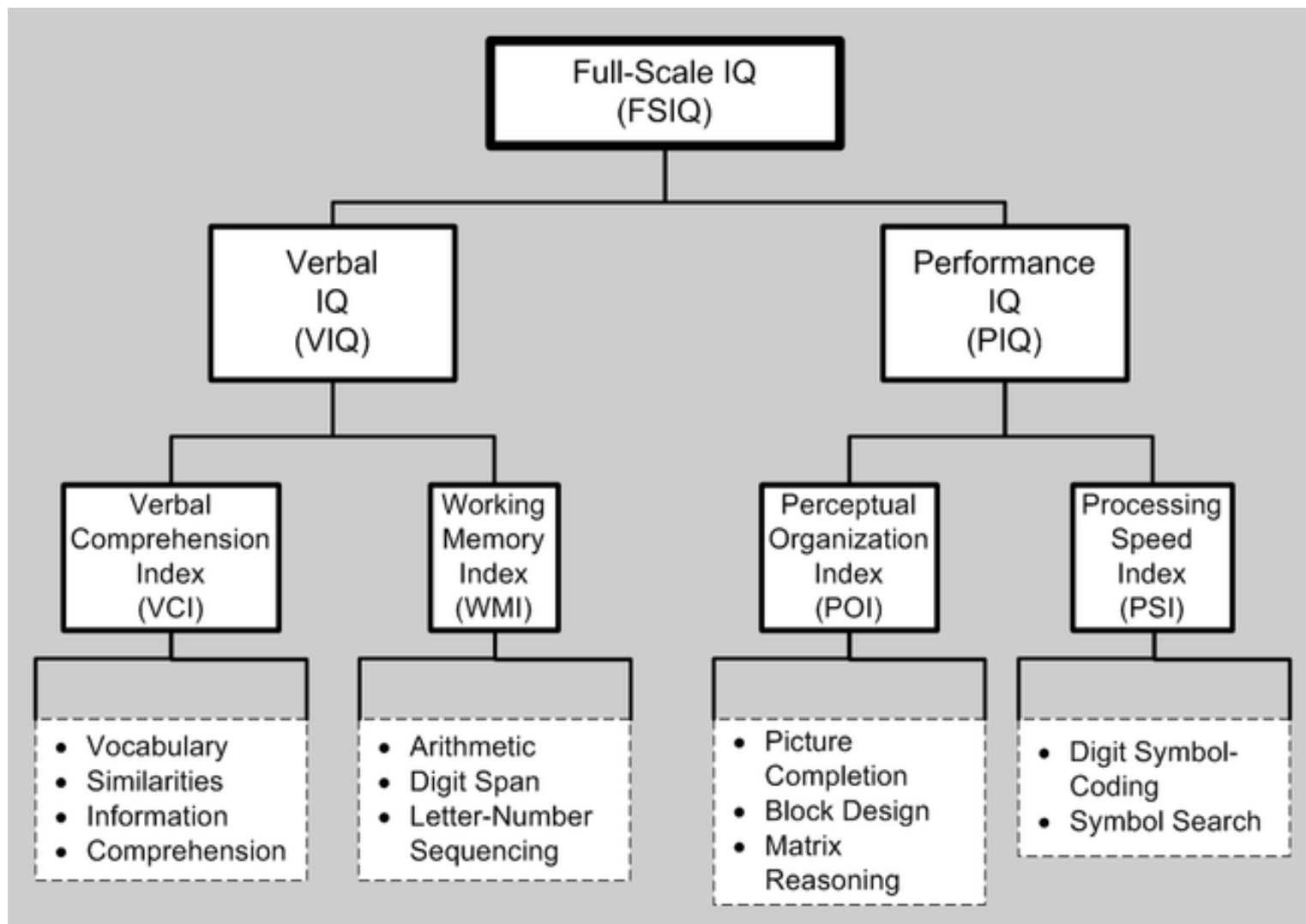
Explanation:

Rule 1: From left to right, the shapes in each row alternate between three types of shapes. The next column has the same logic.

Rule 2: From top to bottom, each column has crossed lines, parallel lines or plus lines.

Notice: The missing cell completes the pattern.

Zoe Hampton



Verbal Comprehension Index Scale

Core Subtests

Similarities
Vocabulary
Information

Supplemental Subtest

Comprehension

Perceptual Reasoning Index Scale

Core Subtests

Block Design
Matrix Reasoning
Visual Puzzles

Supplemental Subtests

Figure Weights (16–69 only)
Picture Completion

Full Scale

Working Memory Index Scale

Core Subtests

Digit Span
Arithmetic

Supplemental Subtest

Letter–Number Sequencing (16–69 only)

Processing Speed Index Scale

Core Subtests

Symbol Search
Coding

Supplemental Subtest

Cancellation (16–69 only)



Disorders of intelligence



Def : Is a generalized disorder appearing before adulthood, characterized by significantly impaired cognitive functioning It has been defined as an [Intelligence Quotient](#) score under 70.

Consequences: - learning problems / social skills / personal needs and abnormal behaviors.

Signs & Symptoms

- Delay in language development.
- Find it hard to remember things.
- Difficulty in learning social rules.
- Have trouble learn specific subject
- Have trouble solving problems
- Lack of social inhibitors.
- Lack of self care skills.
- Persistence of infantile behaviour .
- Unable to take higher education.

CAUSES:

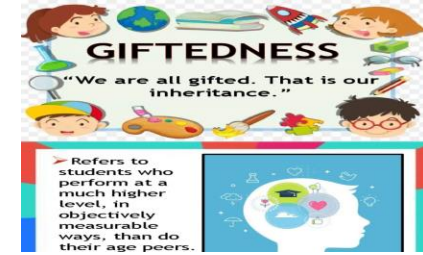
genetic (1ry) or induced by disease or injury (2ry)
incidence: 1%.

Causes of Mental Retardation

Genetic and Constitutional Factors

- chromosomal abnormalities are the most common cause of severe MR
- Down syndrome due to an additional 21st chromosome
- Fragile-X syndrome, the most common cause of inherited MR, is associated with the FMR-1 gene
- Prader-Willi and Angelman syndromes both associated with abnormality of chromosome 15; believed to be spontaneous genetic birth defects occurring around the time of conception
- inborn errors of metabolism (referred to as single-gene conditions) can result in syndromes such as PKU

Intellectual giftedness



Is an intellectual ability significantly higher than average.

Like a talent, intellectual giftedness is usually believed to be an innate, personal aptitude for intellectual activities that cannot be acquired through personal effort.





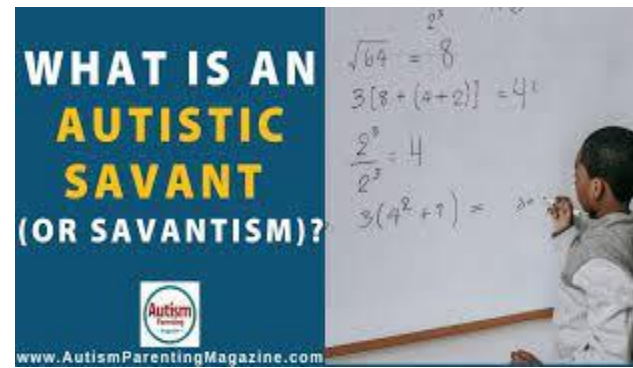
Common Gifted Traits

- Intellectual Curiosity
- Creative Thinking
- Learns Rapidly
- Challenges Authority
- Advanced Vocabulary
- The ability to focus on a subject intently for an extended period of time
- Difficulty making transitions
- Engages easily with adults
- Perfectionism
- A complex sense of humor
- A need to explore subjects in surprising depth
- Extreme Intensity
- Emotional Sensitivity
- High Energy Levels
- Advanced Empathy
- Nonconformity
- A Vivid Imagination
- The ability to think about problems in "out of the box" ways





Savantism



Savants are individuals who perform exceptionally in a single field of learning.

Autistic savantism refers to the exceptional abilities occasionally exhibited by people with autism or other pervasive developmental disorders.

Savantism

- Through media documentation of exceptional ability autism has become associated with reports of savantism.
- Savant artists make up a very small percentage of the autism population
- Drawing skills appear to be at an advanced stage of artistic development, well beyond the scribble stage
- These individuals seem 'to have acquired sets of drawing skills or approaches to the activity which become fixed and rigidified' (Evans and Dubowski. 2001. 95)
- What appears to be sophisticated drawing can actually be a symptom of autistic behaviour
- The formula driven approach serves as a 'safety net', (Evans. 1998) a defence strategy, an attachment to a special interest and/or an attempt to alleviate stress and anxiety
- There seems to be no motivation or drive to develop a symbol system of shared meaning

5 Stages of the Creative Process



Quiz



- **What is the global capacity of an individual ?**
- a) Ability to speak multiple languages
- b) Ability to act purposefully, think rationally, and deal effectively with the environment
- c) Ability to solve complex mathematical problems
- d) Ability to create and understand sounds
- e) Ability to control bodily motions skillfully
- **Model Answer: b) Ability to act purposefully, think rationally, and deal effectively with the environment**

- **Which component of intelligence involves the use of pitch, rhythm, and the ability to create and understand sounds?**
- a) Logical-mathematical
- b) Spatial
- c) Musical
- d) Interpersonal
- e) Intrapersonal
- **Model Answer: c) Musical**

- **What is the incidence of mental retardation, as mentioned in the text?**
- a) 5%
- b) 3%
- c) 1%
- d) 10%
- e) 20%
- **Model Answer: c) 1%**

