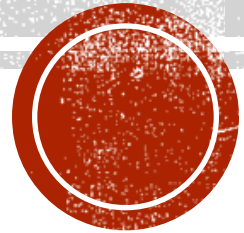
COGNITIVE ABILITY



OUTLINE

- Nature of the intelligence
- Structure of the intelligence
- Multiple intelligences (Gardner)
- The concept of IQ
- Intellectual disability and giftedness
- Assessment of the intelligence: IQ tests
- Emotional Intelligence

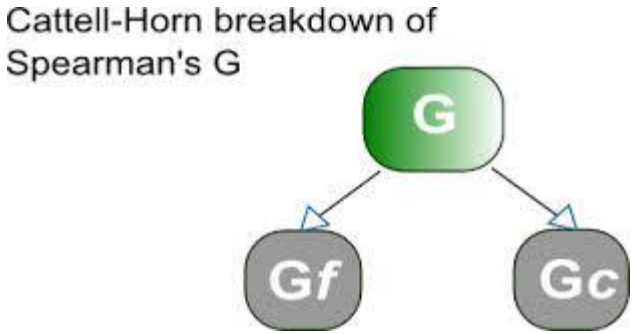
NATURE OF THE INTELLIGENCE

- Different definitions
  - Successful problem solving
  - Adaptation
  - Ability to perform skillfully very different activities
  - Flexibility, innovation and abstract reasoning ("think outside the box")

NATURE OF THE INTELLIGENCE

Three perspectives

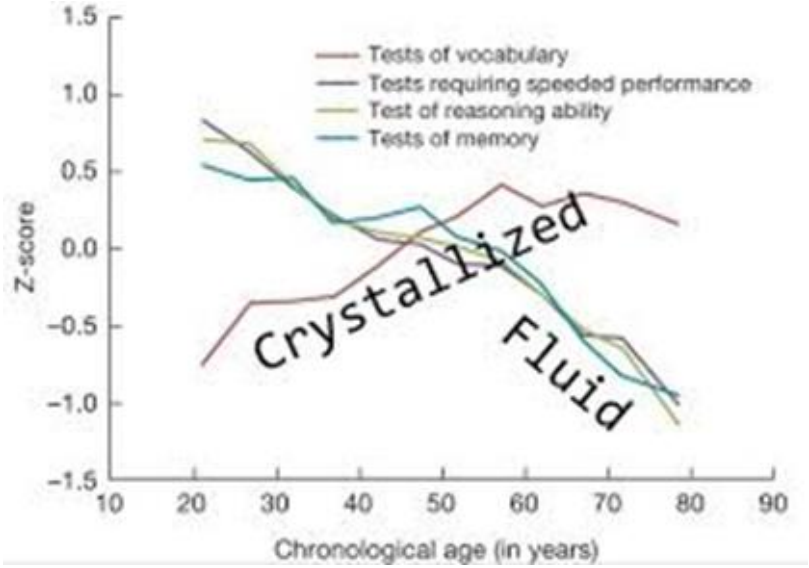
Biology



Psychology

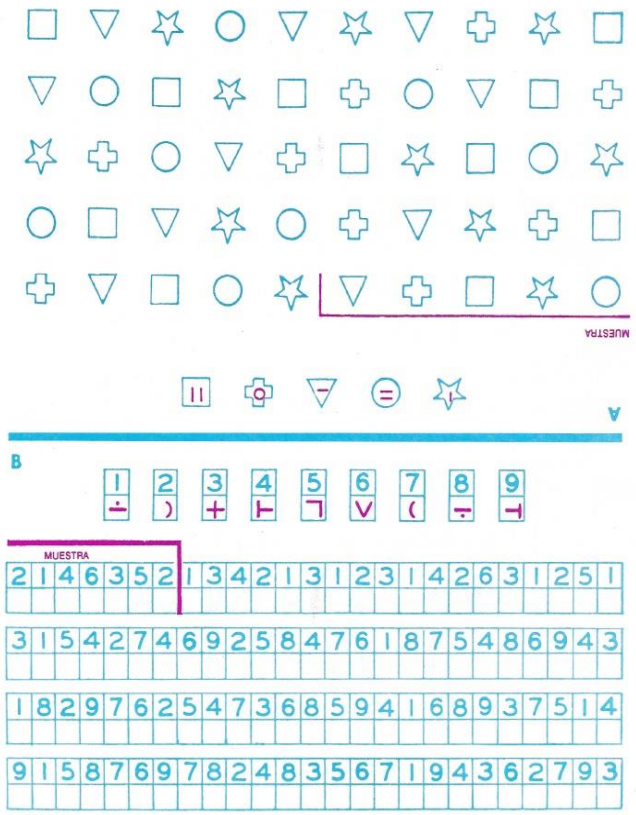
Psychometric

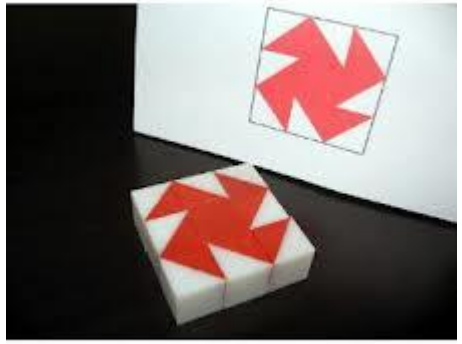
NATURE OF THE INTELLIGENCE



Psychology

NATURE OF THE INTELLIGENCE





Psychometric

STRUCTURE OF THE INTELLIGENCE

How is our intellectual capacity organized?

Psychometric or Diferential Theory

- Quantitative measure of inter-subject differences
- Intelligence is organized in "factors"
- Static Intelligence
- Intellectual Quotient (IQ)
- Spearman´s Bifactorial Theory (1923)

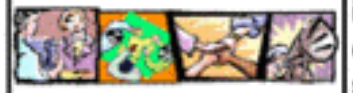
Cognitive Theory

- Cognitive processes involved in a task
- Dynamic intelligence
- Applied intelligence
- Learning Potential and cognitive modifiability

MULTIPLE INTELLIGENCES (GARDNER)

- Not only one, but multiple intelligences
- Set of abilities that allow us to solve problemas and create useful product for our society (great applied character)
- 7 intelligences
  - Different neurological circuits
  - Individual differentes: each person presents different combinations
  - Susceptible to improvement by training

GARDNER'S MULTIPLE INTELLIGENCES

Intelligence Area	Is strong in:	Likes to:	Learns best through:
Verbal-Linguistic 	reading, writing, telling stories, memorizing dates, thinking in words.	read, write, talk, memorize, work at puzzles.	reading, hearing and seeing words, speaking, writing, discussing and debating.
Math-Logic 	math, reasoning, logic, problem-solving, patterns.	solve problems, question, work with numbers, experiment.	working with patterns and relationships, classifying, categorizing, working with the abstract.
Spatial 	reading, maps, charts, drawing, mazes, puzzles, imaging things, visualization.	design, draw, build, create, daydream, look at pictures.	working with pictures and colors, visualizing, drawing.
Bodily- Kinesthetic 	athletics, dancing, acting, crafts, using tools.	move around, touch and talk, body language.	touching, moving, processing knowledge through bodily sensations
Musical 	singing, picking up sounds, remembering melodies, rhythms.	sing, hum, play an instrument, listen to music.	rhythm, melody, singing, listening to music and melodies.
Interpersonal 	understanding people, leading, organizing, communicating, resolving conflicts, selling.	have friends, talk to people, join groups.	sharing, comparing, relating, interviewing, cooperating.
Intrapersonal 	understanding self, recognizing strengths and weaknesses, setting goals.	work alone, reflect, pursue interests.	working alone, doing self-paced projects, having space, reflecting.

MULTIPLE INTELLIGENCES (GARDNER)

- Supported by
  - Individuals with brain damage
  - Different evolutionary trajectory
  - Prodigies, gifted children and "idiot savants"

- Are there more intelligences?
  - Naturalist intelligence
  - Spiritual intelligence
  - Existential intelligence

    - They are not frequently included in the model

LET´S TEST YOUR INTELLIGENCES

SHORT VERSION

LOOOOOONG VERSION

INTELLECTUAL QUOTIENT (IQ)

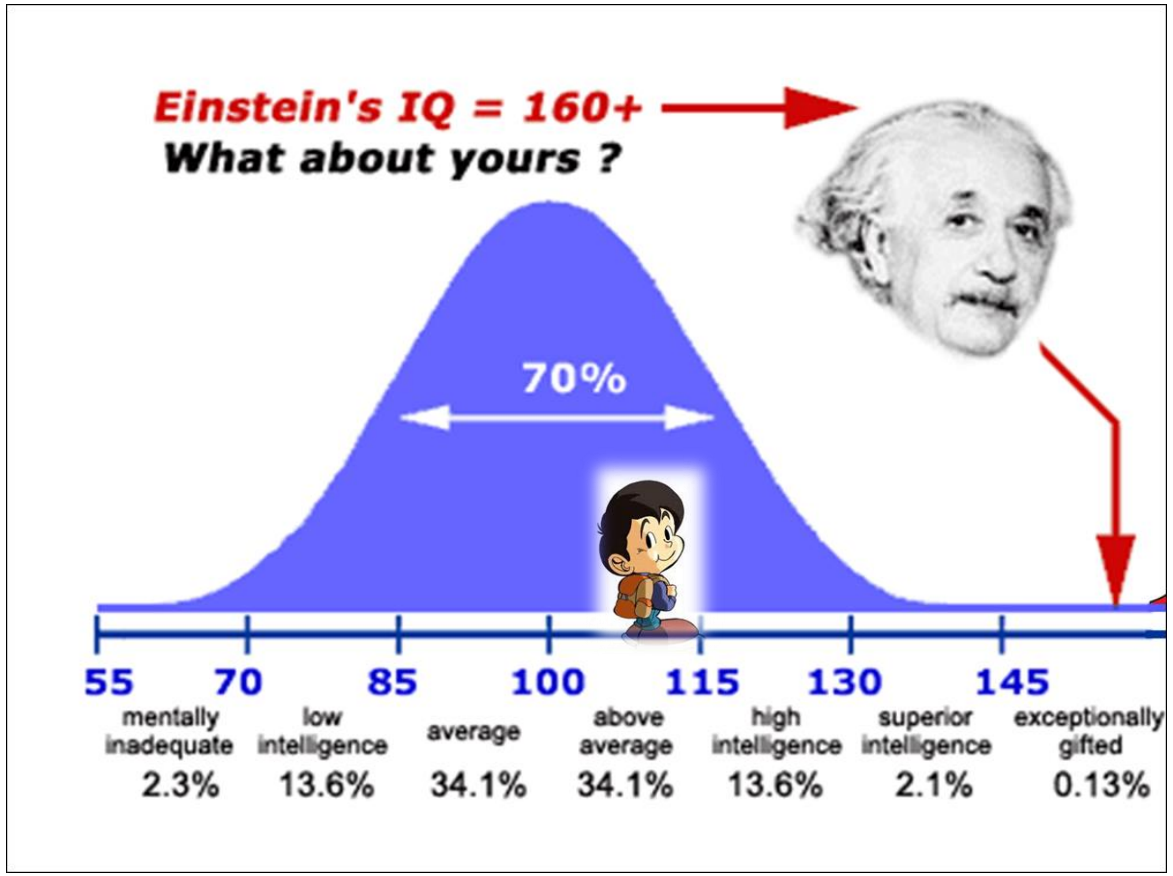
$$IQ = \frac{\text{mental age}}{\text{chronological age}} \times 100$$

E.g. Peter is 7 years old, but his mental age is 8.

His IQ is 8/7 x 100 = 114

INTELLECTUAL QUOTIENT (IQ)

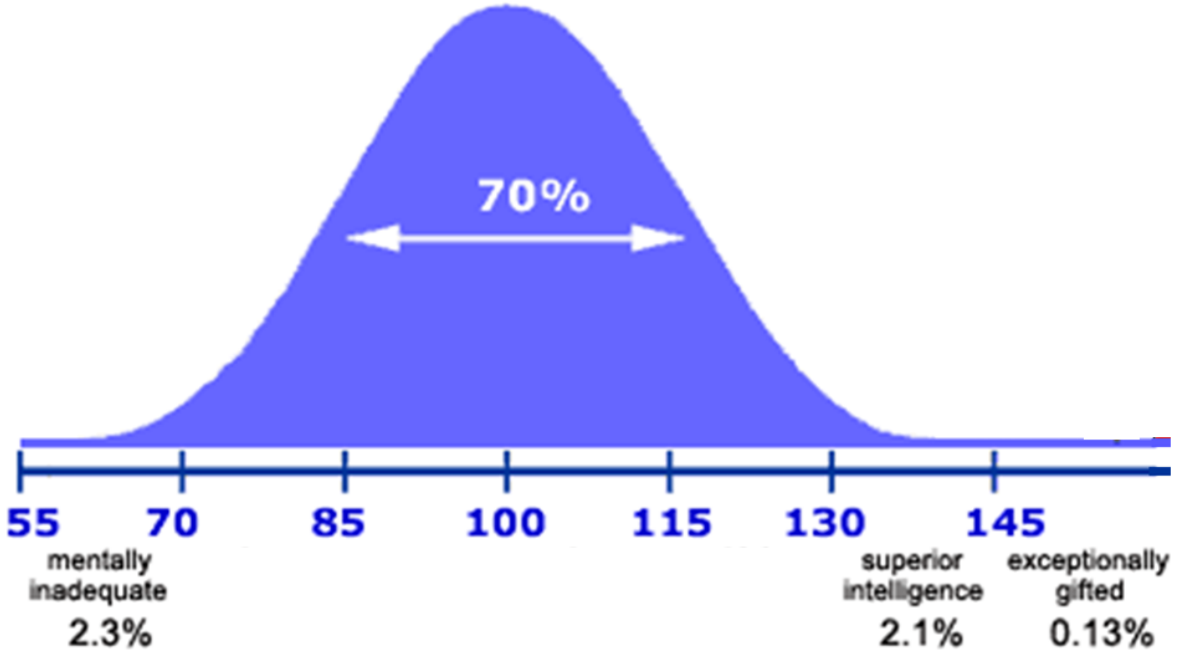
Gaussian IQ distribution (The Bell Curve)



INTELLECTUAL DISABILITY AND GIFTEDNESS

- ***What happens when IQ is under 70? And above 130?***

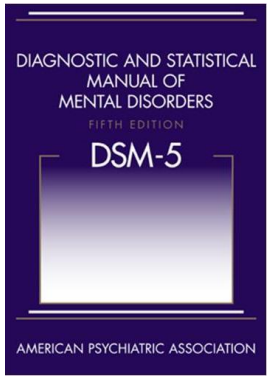
- About 2% of population
- It is difficult to stimate these extreme values



INTELLECTUAL DISABILITY

DSM-5 (APA, 2013): Intellectual Disability (Intellectual Developmental Disorder)

- A. Deficits in intellectual functions (reasoning, problem solving, planning, abstract thinking, academic learning …) confirmed by both clinical assessment and individualized, standardized intelligence testing.
- B. Deficits in adaptive functioning that result in failure to meet developmental and sociocultural standards for personal independence and social responsibility.
- C. Onset of intellectual and adaptive deficits during the developmental period.



INTELLECTUAL DISABILITY

Different levels (not based on IQ)

Mild Intellectual Disability

85 percent of all ID cases

It may not become apparent until a child is of school age and has difficulty meeting educational demands

Children acquire both communication and social skills during the preschool years

Moderate Intellectual Disability

10 percent of individuals affected

They usually develop communication skills during early childhool

Adults can be trained to perform unskilled work under close supervision

Severe Intellectual Disability

3 to 4 percent of the affected population

Communicative speech usually does not develop during early childhood, but it may be acquired during the school-age years

They can learn basic self-care, but need supervision

Profound Intellectual Disability

1 to 2 percent of individuals

Communication skills and sensorimotor functioning are significantly impaired

They need nearly constant supervision and generally benefit from a one-to-one relationship with a caregiver

GIFTEDNESS

- World Health Organization
  - Based on the Triadic Model of Renzulli (1977)
  - 3 main features:
    - Intellectual ability above average: IQ of 130 or upper
    - Great intrinsic motivation and dedication to activities or topics that interest children and that are consistent with their capabilities.
    - High levels of creativity.

PROBLEMS ASSOCIATED WITH GIFTEDNESS

ACADEMIC ACHIEVEMENT AND SOCIAL ADAPTATION

- Giftedness refers to potential (≠ achievement)
- Some gifted students have academic failure
- WHY?
  - Boredom
  - Lack of attention
  - Pressure
  - Non-accceptance

ASSESSMENT OF THE INTELLIGENCE: IQ TESTS

IQ TESTS

- To determine strengths and weaknesses that students show while perform a task

Stanford-Binet Intelligence Scales (Forms L and M: Terman & Merril, 1960, 1976)

•From 2 years to adult age
•General IQ
•Comprehension, perception, memory and reasoning
•It provides a measure of the Learning Potential
•Individual administration
•**Highly recommended to measure extreme values**

IQ TESTS

WISC-IV (Wechsler Intelligence Scale for Children: Wechsler, 2004)

- From 6 years to 16 years and 11 months
- Different measures (general and specific):
  - General IQ
  - Verbal comprehension, perceptual reasoning, processing speed and working memory
- 15 tasks (10 primary, 5 additional)
- Individual administration

IQ TESTS

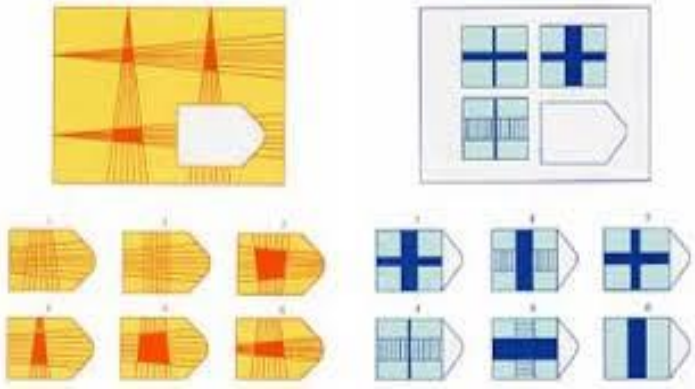
Battery of differential and general aptitudes (BADyG: Yuste et al., 2011)

- Three levels
  - BADyG-E1 (grades 1 and 2), BADyG-E2 (grades 3 and 4), BADyG-E3 (grades 5 and 6)
- **General measure**
- Specific factors: **reasoning, verbal, numerical, and spatial.**
- Individual or collective administration
- 9 tasks (6 basic, 3 additional)

IQ TESTS

Raven's Progressive Matrices Test (Raven, 1938).

- Measure of the **"G Factor"**
- Non-verbal, free of cultural influences and academic factors.
- Self-application, individual application and collective
- Three versions
  - General Scale: 10-65 years.
  - Color scale: 4-10 years or mental deficiency
  - Advanced Matrices: people with higher capacity



EMOTIONAL INTELLIGENCE

EMOTIONAL INTELLIGENCE

- Rooted in intra- and inter-personal intelligences (Gardner)

(Salovey & Mayer, 1990, p. 185)

- *Set of abilities […] that contribute to:*
  - *An adequate expression and recognition of emotions (in oneself and in others)*
  - *A proper regulation of emotions in oneself and in others*
  - *Using emotions to motivate, plan and achieve one´s life goals*

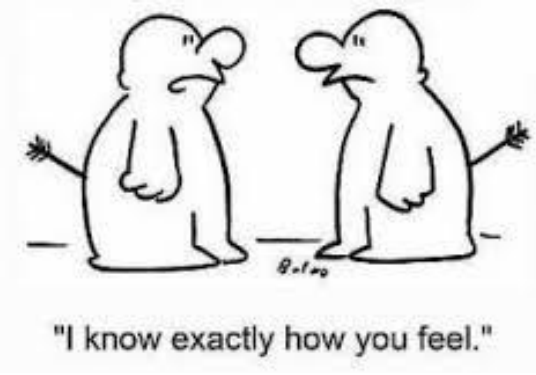
EMOTIONAL INTELLIGENCE

- EI generates
  - Internal skills of self-knowledge
  - External skills like empathy and social skills
- **Daniel Goleman**: Success cannot be reduced to IQ or academic results

"Let´s speak heart to heart "

HOW TO BOOST EMOTIONAL INTELLIGENCE

- COMPONENTS
  1. Emotions perception (in oneself and the others)
     1. Facial expression
     2. Body language
     3. Bodily sensations and physiological responses
     4. Empathy
     5. Increase emotional lexicon
  2. Self-concept and self-steem
  3. Emotions management (in oneself and the others)
     1. Avoid conflict
     2. Breathing and relaxation
     3. Seek help from others
     4. Adequate expression of negative emotions
     5. Control of distorted thinking



RESOURCES

VIDEO KIM PEAK "IDIOT SAVANT"

https://www.youtube.com/watch?v=dhcQG_KItZM

TEST YOUR INTELLIGENCES

SHORT

http://www.edutopia.org/multiple-intelligences-assessment

LONG

http://www.literacynet.org/mi/assessment/findyourstrengths.html

DSM-V

http://www.dsm5.org/Pages/Default.aspx

RESOURCES

GIFTED CHILDREN SPEAK

https://www.youtube.com/watch?v=xVQBXr2l8Zs

DANIEL GOLEMAN

https://www.youtube.com/watch?v=vCjexQzsreY