

# Genetic & Environmental Influences on Intelligence

# OA

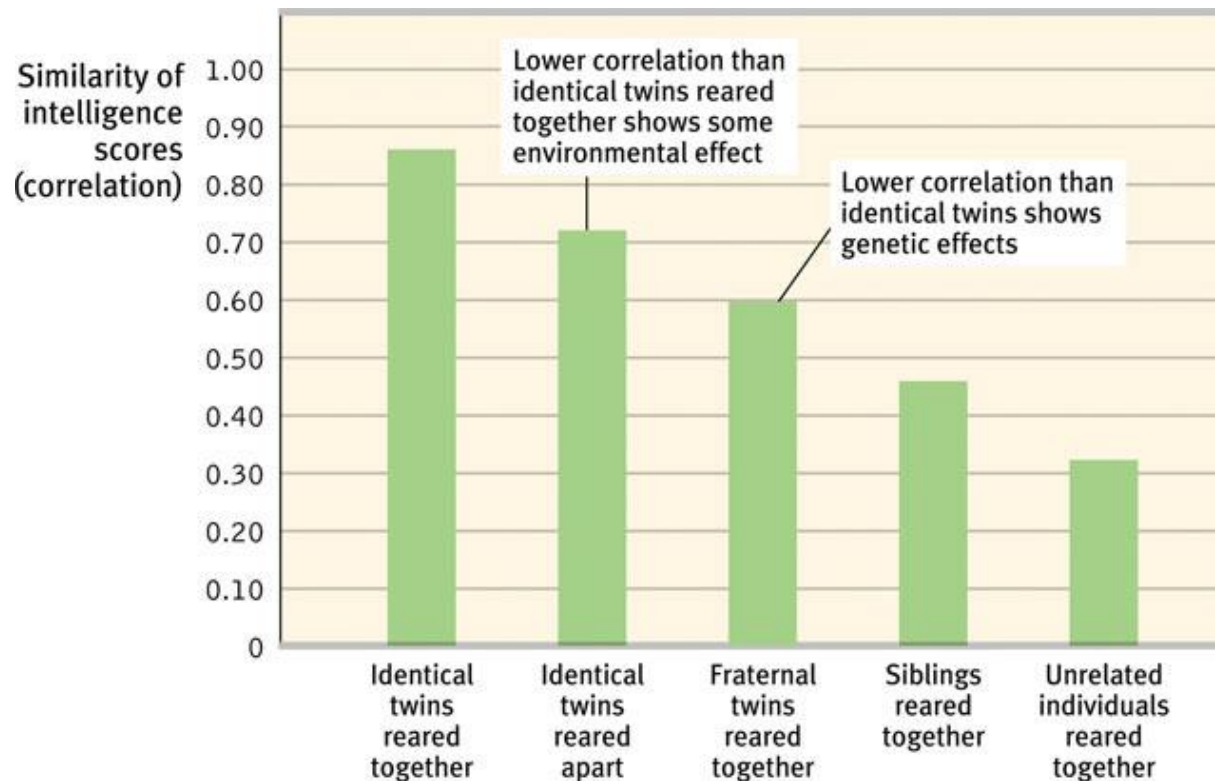
1. What type of studies can researchers use to see the relationship between heredity and intelligence? (Explain)
2. Studies have shown that majority groups do better in Intelligence tests than minority groups. Why do you think that is the case? Explain your answer.
3. Who are the majority groups and minority groups in the United States? Who are the majority groups and minority groups in Diamond Bar High School?

# Heredity vs. Environment: Which is More Important?

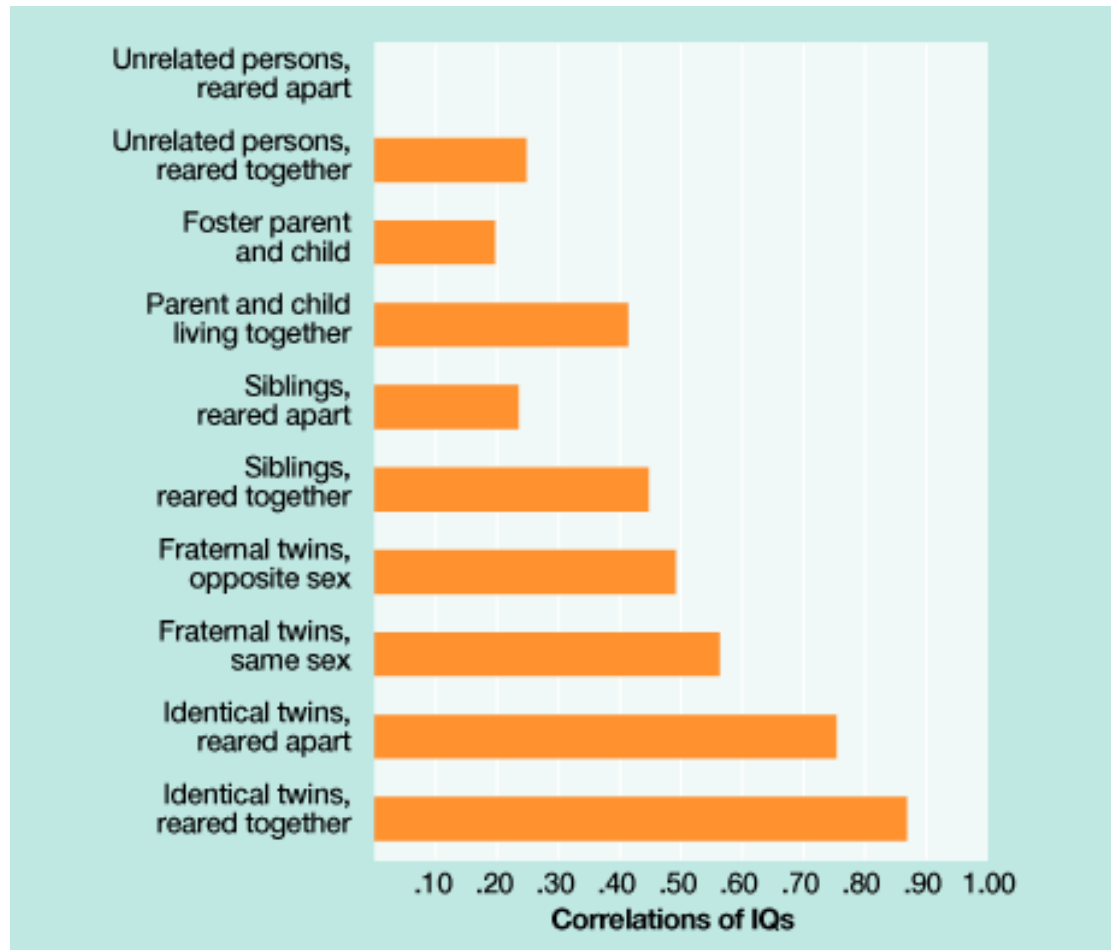
- There is general agreement that both heredity and environment affect IQ scores
- Debate centers around the relative contribution of **nature (heredity)** and **nurture (environment)** to the development of intelligence
- No other topic in psychology is so passionately followed as the one that asks the question, “Is intelligence due to genetics or environment?”

# Genetic Influences

Studies of twins, family members, and adopted children together support the idea that there is a significant genetic contribution to intelligence.

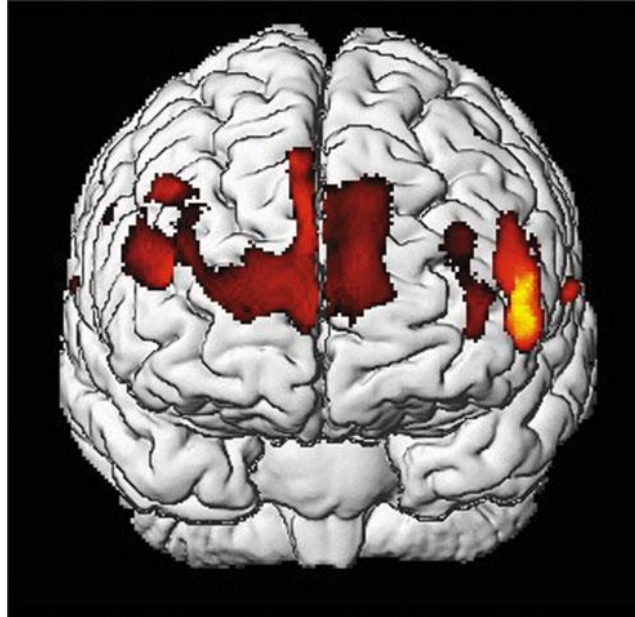


# Correlation of IQ Scores of Family Members



# Is Intelligence Neurologically Measurable?

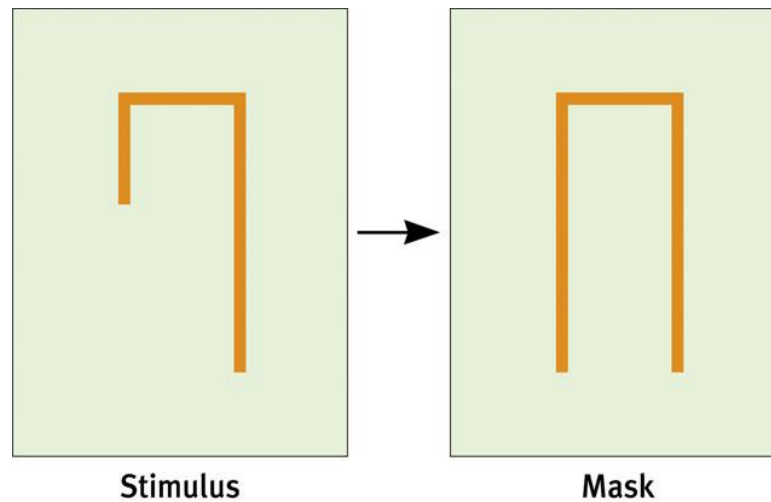
Recent Studies indicate some **positive correlation** (about  $+0.40$ ) between **brain size** and **intelligence**. As brain size decreases with age, scores on verbal intelligence tests also decrease.



Gray matter concentration in people with high intelligence.

# Brain Function

Studies of brain functions show that people who score high on intelligence tests perceive stimuli faster, retrieve information from memory quicker, and show faster brain response times.



Question: Long side on left or right?

People with higher intelligence respond correctly and quickly to the above question.

# Environmental Influences

Studies of twins and adopted children also show the following:

1. Fraternal twins raised together tend to show similarity in intelligence scores.
2. Identical twins raised apart show slightly less similarity in their intelligence scores.



# Early Intervention Effects

**Early neglect** from caregivers leads children to develop a lack of personal control over the environment, and it **impoverishes their intelligence**.



Romanian orphans with minimal human interaction are delayed in their development.

# Schooling Effects

Schooling is an experience that pays dividends, which is reflected in intelligence scores. **Increased schooling correlates with higher intelligence scores.**



To increase readiness for schoolwork, projects like Head Start facilitate learning.

# Reaction Range

- Intelligence may increase or decrease as a result of environment
- Extent to which traits, abilities, or IQ scores may increase or decrease as a result of environmental factors
  - Have you received tutoring as a child?
  - Have you attended Preschool?
  - Do you think these factors would have had an impact on your abilities or IQ scores?

# Group Differences in Intelligence Test Scores

Why do groups differ in intelligence? How can we make sense of these differences?

# Ethnic Similarities and Differences

To discuss this issue we begin with two disturbing but agreed upon facts:

1. Racial groups differ in their average intelligence scores.
2. High-scoring people (and groups) are more likely to attain high levels of education and income.

# Discussion

Which groups in America experienced greatest discrimination and disadvantage?

# Racial (Group) Differences

If we look at racial differences, white Americans score higher in average intelligence than black Americans (Avery and others, 1994). European New Zealanders score higher than native New Zealanders (Braden, 1994).

White-Americans	Black-Americans
Average IQ = 100	Average IQ = 85



Hispanic Americans

# Performances on Aptitude Tests

1. Asian Americans
2. White Americans
3. Latinos
4. Black Americans
5. Native Americans

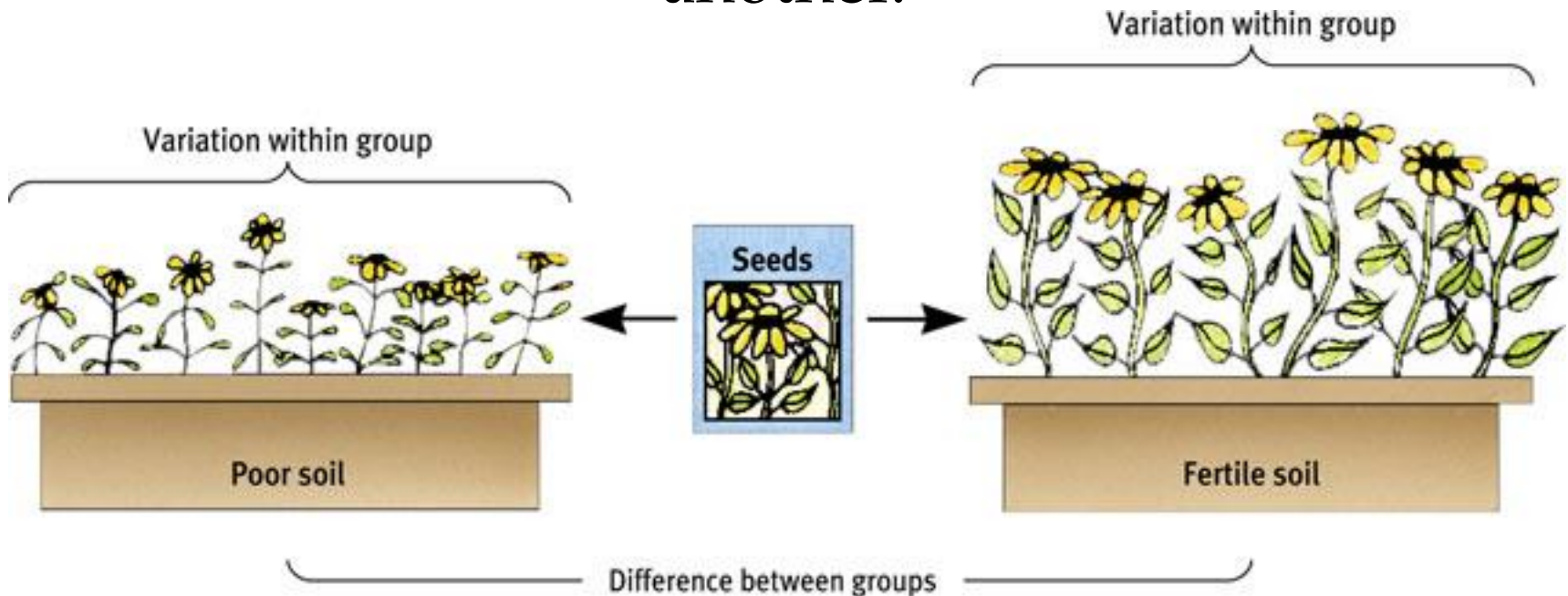
So... are Aptitude tests culturally biased?



- **YES! Social and cultural experiences!**

# Environmental Effects

Differences in intelligence among these groups are largely environmental, as if one environment is more fertile in developing these abilities than another.



# Reasons Why Environment Affects Intelligence

1. Races are remarkably alike genetically.
2. Race is a social category. (concept!)
3. Asian students outperform North American students on math achievement and aptitude tests.
4. Today's better prepared populations would outperform populations of the 1930s on intelligence tests.
5. White and black infants tend to score equally well on tests predicting future intelligence.
6. Different ethnic groups have experienced periods of remarkable achievement in different eras.

# Inner City vs Suburbs



# Stereotype Threat

- Situational predicament in which people are or feel themselves to be at risk of confirming negative stereotypes about their social group.
- Black students who was proctored by a white teacher scored poorly than black students who was proctored by a black teacher.
  - Real or imagined sense of discrimination



# Gender Similarities and Differences

There are seven ways in which males and females differ in various abilities.

1. Girls are better spellers

2. Girls are verbally fluent and have large vocabularies

3. Girls are better at locating objects

4. Girls are more sensitive to touch, taste, and color

5. Boys outnumber girls in counts of underachievement

6. Boys outperform girls at math problem solving, but under perform at math computation

7. Women detect emotions more easily than men do

# EMOTIONAL INTELLIGENCE

WHY IT MATTERS

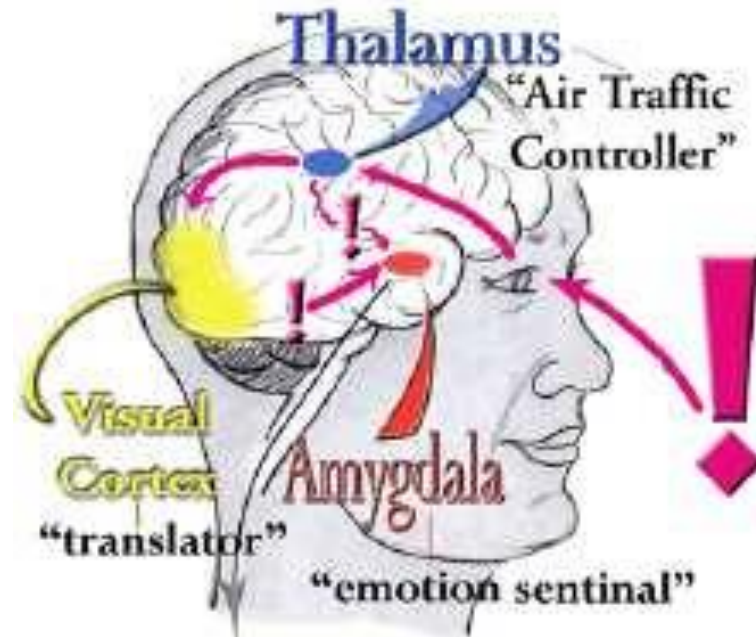
# HISTORICAL OVERVIEW

- 1990 – Salovey & Mayer coin term “emotional intelligence
- “it is an intelligence that involves the ability to **monitor one’s own and others’ feelings and emotions**, to discriminate among them, and to use this information to guide one’s thinking and action.”
- 1995 - Daniel Goleman publishes “Emotional Intelligence.”
  - **Important to Social intelligence**



# GOLMAN'S THEORY

- THE BRAIN HAS EMOTIONAL ARCHITECTURE
  - Limbic structures generate feelings & emotions
  - Reptilian brain downshift as the amygdala performs “neural hijacking”



# COMPONENTS OF E.I.

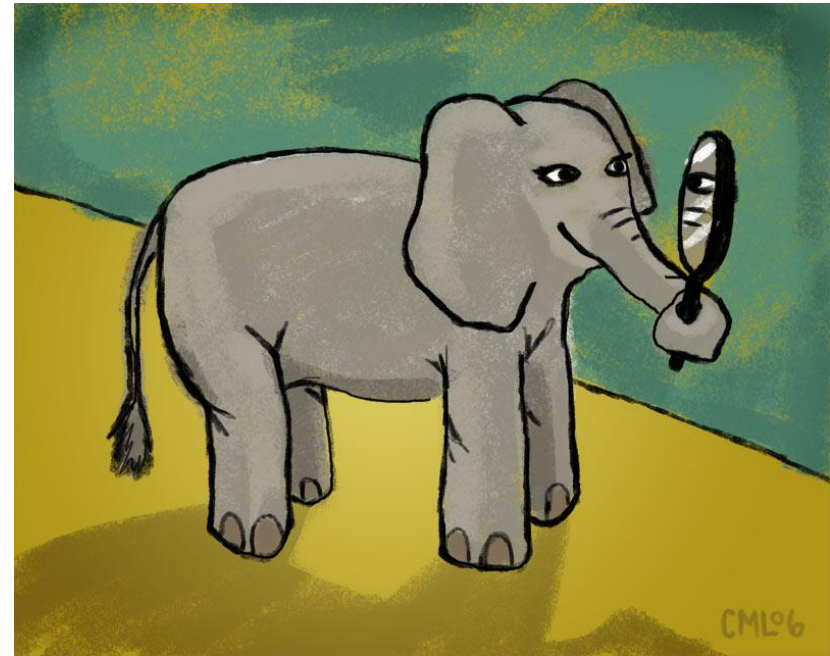
- Self-Awareness
- Self-Management or trustworthiness
- Motivation or resilience
- Empathy or recognizing emotions in others
- Social skills or handling relationships

# COMPONENTS OF E. I.

- FIRST THREE ARE PERSONAL
  - SELF-AWARENESS
  - SELF-REGULATION
  - MOTIVATION
- LAST TWO ARE SOCIAL
  - EMPATHY
  - SOCIAL SKILL

# SELF-AWARENESS

- “THE ABILITY TO RECOGNIZE AND UNDERSTAND YOUR MOODS, EMOTIONS, AND DRIVES, AS WELL AS THEIR EFFECTS ON OTHERS
- Do I know how I’m coming off in this situation?



# SELF-REGULATION

- “THE ABILITY TO CONTROL OR REDIRECT DISRUPTING IMPULSES AND MOODS OR THE ABILITY TO SUSPEND JUDGMENT TO THINK BEFORE ACTING.”
- Can I stop the R brain downshifting?



# SELF-REGULATION

- ABILITY TO RELAX
- ABILITY TO MANAGE STRESS
- ABILITY TO CONTROL MOODS
- ABILITY TO RECOVER FROM EMOTIONAL UPSET MORE QUICKLY
- ABILITY TO EMPLOY THE 6 SECOND PAUSE

# SELF-REGULATION

- PEOPLE WHO SELF-REGULATE
  - CREATE AN ATMOSPHERE OF TRUST AND FAIRNESS
  - REDUCE EMOTIONAL REACTIVITY IN ENVIRONMENT

# MOTIVATION

- “A PASSION TO WORK FOR REASONS THAT GO BEYOND MONEY OR STATUS”
- JOB CAPABILITIES
  - Achievement drive
  - Commitment
  - Initiative
  - Optimism





# MOTIVATION

IF A PRETTY POSTER AND A CUTE SAYING ARE ALL IT TAKES TO MOTIVATE YOU, YOU PROBABLY HAVE A VERY EASY JOB. THE KIND ROBOTS WILL BE DOING SOON.

# EMPATHY

- “THE ABILITY TO UNDERSTAND THE EMOTIONAL MAKE-UP OF OTHER PEOPLE.”



# EMPATHY

- ABILITY TO TAKE OTHER'S PERSPECTIVE
- CARING ATTITUDE
- CAN BETTER READ VERBAL & NONVERBAL CUES
- ATTUNED TO NEEDS & EMOTIONS OF OTHERS

# EMPATHY

- EMPATHY BUILDS ON SELF-AWARENESS.
- THE MORE OPEN WE ARE TO OUR OWN EMOTIONS, THE MORE SKILLED WE ARE IN READING OTHERS' EMOTIONS

# SOCIAL SKILLS

- “PROFICIENCY IN MANAGING RELATIONSHIPS AND BUILDING NETWORKS.”
- Using your empathetic knowledge



**L E A D E R S H I P**

*The leader always sets the trail for others to follow.*

# ASSESSMENT INSTRUMENTS

- Work Profile Questionnaire—EI Version
- Emotional Competence Inventory 360
- Emotional Intelligence Appraisal
- BarOn Emotional Quotient Inventory
- Mayer-Salovey-Caruso-EI Test

# Emotional Intelligence: Criticism

Gardner and others criticize the idea of emotional intelligence and question whether we stretch this idea of intelligence too far when we apply it to our emotions.