AP Psychology 12 Miss Carey

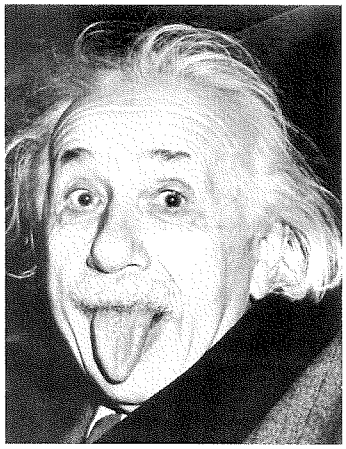
UNIT 11: Intelligence

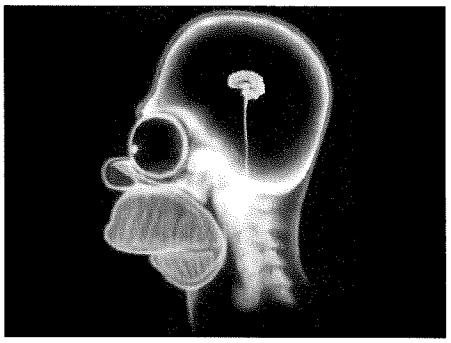
Myers AP Edition

(p. 522)

Vocabulary:

1. Intelligence Test
2. Mental Age
3. Stanford-Binet
4. Intelligence Quotient (IQ)
5. Intelligence
6. Factor Analysis
7. General Intelligence (g)
8. Savant Syndrome
9. Emotional Intelligence
10. Creativity
11. Aptitude test
12. Achievement Test
13. Wechsler Adult Intelligence Scale (WAIS)
14. Standardization
15. Normal Curve
16. Reliability
17. Validity
18. Content Validity
19. Criterion
20. Predictive Validity
21. Mental Retardation
22. Down Syndrome
23. Stereotype Threat





Chapter Objectives:

1. The Origins of Intelligence Testing (Binet and Terman)
2. What is Intelligence?
3. Assessing Intelligence (Modern Tests/Principles of test construction)
4. The Dynamics of Intelligence (Stability or change? Extremes?)
5. Genetic & Environmental influences on Intelligence

A) ORIGINS OF INTELLIGENCE TESTING

Western attempts to assess individual differences in mental ability began in earnest about a century ago. The historical story of intelligence testing illustrates an important lesson: Although science itself strives for objectivity, individual scientists are affected by their own attitudes.

B) ALFRED BINET: Predicting School Achievement

French psychologist who began assessing intellectual abilities (1857-1911).
When the French government passed a law requiring all children to attend school, teachers were faced with a huge range of individual differences (just like today). The Government was reluctant to trust the teachers, so they hired Alfred Binet as an un-biased doctor to study the problem.
- He and his partner (**Theodore Simon**) decided to develop an objective test to identify children who would have difficulty in regular classes. They set out to measure their **MENTAL AGE.** – NOTE: they did not make assumptions concerning why a particular child was slow, average or precocious.

Binet

Terman

C) LEWIS TERMAN: The Innate IQ

Binet might have been dismayed to discover that the test he designed as a guide for identifying slow learners in need of special help would soon be used as a numerical measure of inherited intelligence. After Binet's death in 1911, Stanford University Prof Lewis Terman attempted to use Binet's test but found that the Paris-developed age norms worked poorly with California school children. He also believed that intelligence was inherited. SO...he revised the test.

His revision of Binet's test remains today as the: **STANFORD-BINET TEST**

From such tests, German Psychologist **William Stern** derived the famous **INTELLIGENCE QUOTIENT** or **IQ.** The IQ was simply a person's mental age divided by chronological age and multiplied by 100 to get rid of the decimal point.

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

Modern intelligence tests do NOT use this anymore. (bias/racist/etc)

D) WHAT IS INTELLIGENCE?

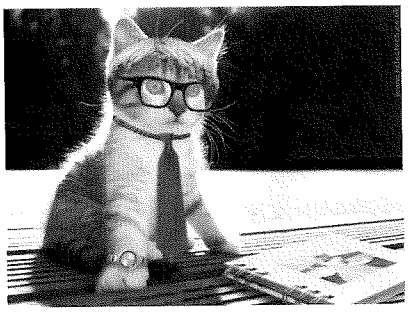
We use the term intelligence as though we all agree on what it means. We don't....Psychologists debate whether we should define it as an inherent mental capacity, an achieved level of intellectual performance, OR an ascribed quality that, like beauty, is in the eye of the beholder.

However...Intelligence experts do agree on this: Intelligence is not a 'thing'. When we refer to someone's "IQ" as if it were a fixed or objectively real trait like height, we commit a reasoning error called ***reification*** –viewing an abstract, immaterial concept as if it were a concrete thing.

So what is it?

Intelligence is a socially constructed concept. In western countries, it is superior performance on cognitive tasks. In each context, intelligence is the ability to learn from experience, solve problems, and use knowledge to adapt to new situations. In research studies, intelligence is whatever intelligence tests measure, which historically has tended to be school smarts. Despite this general agreement, two controversies remain:

1) Is intelligence a single overall ability or several specific abilities?
2) With the tools neuroscience now offers, can we locate and measure intelligence within the brain itself?



E) Is Intelligence One General Ability or is it Several Specific Abilities?

Are you good at math but no social studies? A good artist but cannot understand physics? Then how can we use the term 'intelligence'?

1) THE FACTOR ANALYSIS APPROACH

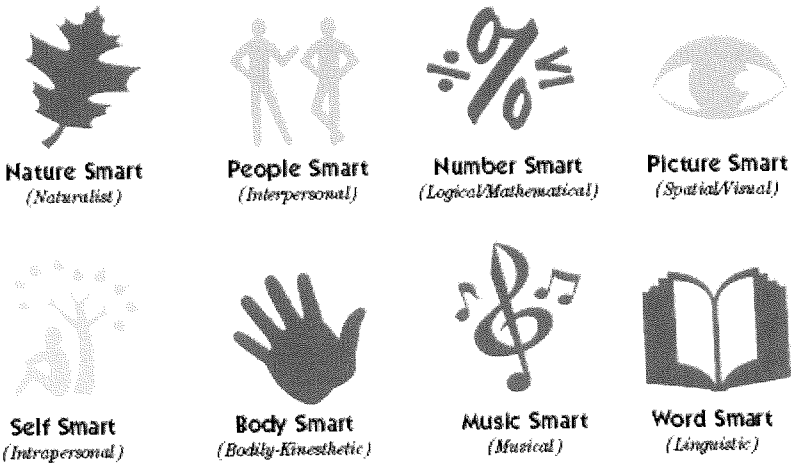
A statistical method/procedure that enables researchers to identify clusters of related items (called factors) on a test.

Charles Spearman: helped develop the factor analysis theory & believed in a general intelligence (known/represented as ***g***)

2) CONTEMPORARY INTELLIGENCE THEORIES

Multiple Intelligences – *Howard Gardner* (1983) believed that intelligence comes in different packages.

a) **Multiple Intelligences:**



b)**Successful Intelligence-** *Robert Sternberg* (1985) believed with Gardner and his Multiple Intelligences but distinguishes more among three aspects of intelligence:

1) Analytical Intelligence (academic problem solving)
2) Creative Intelligence (generating ideas to solve problems)
3) Practical Intelligence (everyday tasks/problem solving)

c) **Emotional Intelligence-** *Nancy Cantor and John Kihlstrom* (1987) first called this "Social Intelligence"- the know-how involved in comprehending social situations and managing oneself successfully.

- called 'Emotional Intelligence' in 1990 by *Peter Salovey and John Mayer*.
- not related at all to academic intelligence
- In 2000, *Mayer, Salovey and David Curuso* developed the **MEIS** (Mutifactor Emotional Intelligence Scale) that assess three things:
  1) Perceiving Emotions
  2) Understanding Emotions
  3) Regulate Emotions

F) Intelligence and Creativity

Creativity= the ability to produces ideas that are both novel and valuable.

- Studies of intelligence and creativity suggest that a certain level of aptitude is necessary but not sufficient for creativity. In general, people who do well on intelligence tests also do well on creativity tests.

- Studies of creative people suggest **FIVE** other components of creativity:

1) **Expertise** – a well developed base of knowledge
2) **Imaginative Thinking Skills**- ability to organise, see things in new ways, find patterns, etc.
3) **A Venturesome Personality**- overcome obstacles
4) **Intrinsic Motivation**- most creative when motivated
5) **A Creative Environment**- sparks, supports, and refines creative ideas

G) Is Intelligence Neurologically Measurable?

a) Brain Size & Complexity

In the early 1800's, phrenologist Franz Gall that human intelligence surpasses animal intelligence because the human cortex is more developed. He therefore wondered whether intelligence differences among humans might similarily be due to different brain structures, detectable in skull protrusions.

Does intelligence correlate with brain size??

= NO PERFECT ANSWER...still ongoing debate in psychology

BUT: Although not notably heavier or larger in total size than the typical Canadian's brain, Einstein's brain was 15% larger in the parietal lobe's lower region- which just happens to be a center for processing mathematical and spatial information. ☺

b) Brain Function & Intelligence

Even if the modest correlations between brain anatomy and intelligence prove reliable, they hardly explain intelligence differences. Searching for other explanations, neuroscientists are studying the brain's functioning:

i) Processing speed
ii) Perceptual speed
iii) Neurological speed and processing

REVIEW ASSIGNMENT

Please read + review questions 1-11 on p. 557-559. Also complete the MC.