Chapter 10: Intelligence
Module 10.2: Measurement and Individual Differences

Psychology 100
Introduction to Psychology

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Measuring Individual Differences; An Overview

• Components of a good intelligence test
• IQ: The Intelligence Quotient
• Extremes of Intelligence
• The validity of intelligence testing
• Individual differences related to intelligence

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“Good” Intelligence Tests Have:

• Reliability: A measure of the consistency of the test results
  • Reliable tests produce similar results with repeated administration to the same person
• Standardization: Practice of keeping the testing, scoring, and interpretation procedures consistent across all administrations of a test
• Well-standardized tests are administered the same way to every test taker, every time

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Another Characteristic of “Good” Tests: Validity

• An assessment of how well a test measures what it is supposed to measure
• Three kinds of validity
  • Content validity: Degree to which content of the test samples broadly across domain of interest
  • Predictive validity: How well the test predicts some future criterion, such as school performance
  • Construct validity: How well a test taps into a particular theoretical construct
    • Example: Theoretical idea of “creativity”

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Major modern tests (Psychometric approach)

• later versions of Army Alpha (all group pencil & paper tests)
• Wechsler’s tests (individually administered)
  • WAIS (Wechsler Adult Intelligence Scale)
  • WISC (Wechsler Intelligence Scale for Children)
  • Raven Progressive Matrices Test (another attempt to avoid bias)
• Issue of cultural bias directed at these tests (still)

Fig. 10.5
IQ: The Intelligence Quotient

- Originally, mental age divided by chronological age, multiplied by 100
- Now: Defined in terms of deviation from the average score on an IQ test
- Mental age: Chronological age that best fits a child’s level of performance, calculated by comparing with average test scores from different age groups
- Invented in 1904 by French psychologists Binet and Simon
- Purpose: Identify quicker, slower learners and recommend special schooling

Another Approach: Deviation IQ

- An intelligence score derived from determining where your performance sits in an age-based distribution of test scores
- Helps overcome problem of comparing scores across age groups
- How it is calculated:
  - Average score for a particular age group = 100
  - Score determined by how much more or less you scored relative to others in your age group

Extremes of Intelligence: Mental Retardation

- Mental retardation: Label assigned to someone who scores below 70 on a standard IQ test
- Other factors, such as ability to adapt to one’s environment, also important
- Affects between 1% and 3% of population
- Many causes, including:
  - Genetic abnormalities, such as Down’s syndrome
  - Environmental factors, such as inadequate nutrition
  - Teratogens

The Other End of the of the Intelligence Spectrum: Giftedness

- A label assigned to someone who scores above 130 on a standard IQ test
- Do gifted children grow up to be successful, socially well-adjusted, and happy?
  - Some research suggests yes (Terman;Winner)
  - Profoundly gifted children do seem to show some emotional, social problems as adults
  - However: Hard to know the exact cause of this correlation
How Valid is IQ?

- Or: Does IQ testing measure what it is supposed to measure (intelligence)?
- Different specific IQ tests: WAIS, WISC, Stanford-Binet
- These tend to correlate well with school performance, but not as well with broader ideas of how a person adapts to environment
- Labeling effects: Does being labeled as high-IQ or low-IQ tend to affect educational opportunities?
  - If so, IQ can become a self-fulfilling prophecy

Individual Differences Related to Intelligence

- What adaptive characteristics often go along with intelligence?
  - Creativity: Ability to generate ideas that are original, novel, useful
  - Emotional Intelligence: Ability to perceive, understand, express emotion in useful, adaptive ways
  - Tacit Knowledge: Unspoken practical knowledge about how to perform well on a job