Overview of Ch 4: Learner Differences and Learning Needs

- What is Intelligence
- Measurement of Intelligence
- Issues and Controversies surrounding intelligence
- Learning Disabilities – read on your own +Lab

What is Intelligence?

- Spearman's model: 1 g factor. Specific factors also exist, but play minor role
- Thurstone's model: 7 primary mental abilities. g also exists, but plays minor role
- Cattell's 2-factor model:
  - fluid intelligence
  - crystallized intelligence

Contemporary Models of Intelligence

- Luria's information processing model
  - simultaneous processing
  - successive processing

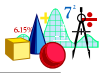
- Gardner's multiple intelligences model: 8 independent intelligences

  Logical-mathematical, Linguistic, Musical, Spatial, Bodily-kinesthetic, Interpersonal, Intrapersonal, Naturalistic.

Contemporary Models Cont'd

- Sternberg's triarchic model
  - Componential: Knowledge acquisition components, performance components, & metacomponents
  - Experiential: creativity, insight, novelty & automicity
  - Contextual: cultural & practical factors. Adapting to, shaping, or selecting the environment

Measuring Intelligence



- "IQ" scores are no longer Intelligence Quotient (MA/CA X 100) scores. Rather they are deviation scores that reflect how one compares to others of the same age
- Wechsler's tests: most frequently used today
  - Based on Cattell's model. Follows Binet's lead.
  - Used in diagnostic applications ex. assessment of ADHD
- Group Tests of Intelligence: Efficient for use in schools, M.C. format, machine scoring
- Tests for Special Populations: By law, tests given to students with disabilities must be ones that were validated and normed on that population. Ex. Human-figure Drawing test

Issues and Controversies

- All tests have some degree of bias:
  - Bias at the item level: indicated by differences in the probabilities of a correct response by members of different groups whose ability is identical.
  - Bias at the test level: indicated by different test scores for members of different groups whose criterion scores are identical.
- Group Tests of Intelligence likely to yield invalid scores:
  - Should be used for mass screening only, not diagnosis or remedial planning

Issues and Controversies Cont'd

- Tests for special populations inadequate. Typical Problems: low test-retest reliability & low predictive validity
- General overuse of intelligence tests: Tests often used to be predict things other than school success.
- Misuse of Intelligence Tests: Tests sometimes used to label in order to limit, rather to identify in order to improve

Issues and Controversies Cont'd

- If heritability if intelligence is about .5. Does this mean that Interventions/Remedial programs doomed? Need to consider:
  - Higher r for identical twins compared to fraternal twins & siblings could be due to similar environment
  - Even a heritability of .5, leaves a lot of room for environmental influences--range of reaction.
  - Intervention programs, such as "Head Start" do have lasting effects in several important domains of functioning
  - "fadeout" in intelligence scores of Head Start children means we need to adopt the "nutrition model" vs. "inoculation model"

Issues and Controversies Cont'd

- Is creativity (divergent thinking) at risk when we focus on fostering intelligence? Perhaps creativity should be intentionally assessed and reinforced. Ex. Torrence test
- General tendency to confuse intelligence with the larger concept of giftedness. Giftedness includes:
  - Above average intellectual ability
  - High task commitment & motivation
  - High level of creativity