Assessing Achievement and Aptitude

Chapter 8

Achievement & Aptitude Differences

- Achievement tests provide information about what an individual has learned or acquired.
- Aptitude tests predict future performance or ability to learn new tasks.

*The contrast between achievement and aptitude tests is one of purpose more than of content.

Assessment of Achievement

- Survey achievement batteries
- Individual achievement tests and diagnostic achievement tests
- Criterion-referenced tests and minimum-level skills assessments
- Subject area tests

Survey Achievement Tests

- Administered to thousands of students in multiple school districts throughout the nation
- Typically have a number of subtests that measure achievement in certain academic areas.
- Can provide information on strengths, limitations, and the student’s progress from year to year.
- Often also have an indicator of general ability or academic intelligence.
Survey Achievement Tests (cont.)

- If major discrepancies are identified between ability and achievement, then additional testing that is more thorough and individually administered may be warranted.
- *TerraNova, The Second Edition* – a current, well-known and used achievement battery for K-12; modular series that offers multiple measures of achievement
- Achievement batteries are also available for adults.

Individual Achievement Tests and Diagnostic Achievement Tests

- Individually-administered instruments often used in psychoeducational evaluations, such as screening children for learning disabilities, mental handicaps, behavioral disorders, or other academic issues.
  - Can also be used with adults (e.g., settings providing retraining).
- Some commonly used achievement tests
  - Wide Range Achievement Test 4 (Wilkinson & Robertson, 2007)
  - Woodcock-Johnson III Complete Battery (McGrew & Woodcock, 2001)

Individual Achievement Tests and Diagnostic Achievement Tests (cont.)

- Diagnosing learning disabilities
  - The *Woodcock-Johnson III* (WJ-III) was developed to examine possible differences between individual achievement and intelligence tests
  - This is the discrepancy model
  - WJ-III is comprised of two co-normed batteries that can be administered in tandem
    - WJ Tests of Cognitive Abilities
    - WJ Tests of Achievement
  - WJ-III is often used to examine intra-individual discrepancies in achievement, variations in ability areas, and differences between ability and achievement

Individual Achievement Tests and Diagnostic Achievement Tests (cont.)

- Diagnosing learning disabilities
  - There is significant debate about whether the discrepancy model accurately assesses individuals with specific learning disabilities
  - Some argue that the diagnosis of a learning disability should not be a one-step process, where an individual is tested once and diagnosed
    - *Response to Interventions (RTI)* models may better assess the complexities of learning disabilities
      - Multiple assessments over time to monitor unexpected achievement and impact of different types of interventions
Criterion-Referenced Tests & Minimum-Level Skills Assessments

- Criterion-referenced achievement instruments are designed to determine if a certain academic standard is met.
- With the increasing focus on standards and accountability within education, criterion-referenced achievement tests are becoming more common.
- Minimum-level skills tests are criterion-referenced tests where the minimum level is the “criterion” for passing.
- There is great controversy over the institution of minimum competency examinations as a prerequisite to earning a high school diploma.

Subject Area Tests

- Single subject tests comprised by teachers make up the largest number of achievement tests.
- These instruments vary in quality, and content validity must be taken into consideration.
- Advocates of authentic assessment and performance assessment have had a major influence on these tests.

Issues in Achievement Testing

- Increase in standardized achievement testing in all 50 states
  - Known as “high stakes testing”
- The No Child Left Behind Act of 2001
- The National Assessment of Educational Programs (“the nation’s report card”)
- AERA’s conditions for high-stakes achievement testing programs in education

Aptitude Assessment

- Scholastic Aptitude Tests
  - Scholastic Assessment Test (SAT)
  - American College Testing (ACT)
  - Graduate Record Examination (GRE)
- Vocational/Career Aptitude Tests
  - Armed Services Vocational Aptitude Test Battery (ASVAB)
  - O*NET Ability Profiler
  - Differential Aptitude Test (DAT)
Validity of Scholastic Aptitude Tests
- Validity of the SAT and the ACT are about the same.
- Best predictor of college success is combination of SAT/ACT scores and high school grades – average correlation of .65.
- Best predictor of graduate school success is combination of GRE scores and undergraduate grade point average.

Vocational/Career Aptitude Tests
- Used in career counseling to predict job or occupational performance.
- Effective selection of instruments requires that they accurately predict successful performance of job duties – a difficult task for many reasons:
  - Job duties within an occupation vary depending on the organization and the setting.
  - What is “successfully performing?”
  - Job performance can rarely be measured unidimensionally.
  - Difficult to recruit large norming groups.

Test Preparation and Performance
- Test sophistication – an individual's level of knowledge in test-taking skills.
- Coaching – involves training or practice on questions that are the same or similar to the items on the test.
- Education – occurs when the domain or area is covered more broadly, with the intent of helping the test taker learn the content or information.

Test Sophistication
- Test scores do improve when individuals retake an alternate form of a test.
- Individuals with extensive experience in taking standardized tests have an advantage; however, short orientation and practice sessions tend to equalize performance.
- Those who can afford test sophistication training have an advantage over those who cannot afford it, but various publishers are trying to attend to this by providing free test preparation materials.
Coaching

- Methodological flaws plague research that investigates the effects of coaching on test results – mixed and inconsistent results.
- The closer the resemblance between the coaching material and the actual test content, the greater the improvement in scores.
- “Teaching to the test” approach
- General conclusions: coaching programs may increase scores slightly, but significant changes occur only if the programs are longer and the content is closely aligned with the material on the test.