Purposes of Assessment

* Screening
  - To identify and provide services
  - Determine need for further evaluation

* Diagnosis
  - Needed for most eligibility decisions
  - Two categories
    - DSM-IV
    - IDEA

Purposes continued

* Eligibility
  - Generally for services through special education
    - Follow taxonomy
    - Eligibility for what?
    - Three tiered model
  - Intervention planning and program monitoring
    - How is intellectual information useful
    - Functional approach

Test vs. Assessment vs. Evaluation

* Tests are instruments used in the assessment process
* Medical model vs. ecological approach vs. problem solving
* Psycho-educational evaluation is planning, collection and evaluation of information pertinent to concern
Four Pillars of Assessment

- Norm referenced tests
- Interviews
- Observations
- Other assessment procedures (informal)

TRADITIONAL AND PROBLEM SOLVING APPROACHES TO ASSESSMENT

<table>
<thead>
<tr>
<th>Assumptions</th>
<th>Traditional</th>
<th>Problem-Solving</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cause of problem experienced by individual</td>
<td>Problems viewed as reflection of underlying traits or state within the individual</td>
<td>Problems viewed as discrepancy between individual's performance and the expectations of the environment. Conditions maintaining the problem are sought in environment.</td>
</tr>
</tbody>
</table>

TRADITIONAL AND PROBLEM SOLVING APPROACHES TO ASSESSMENT

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Traditional</th>
<th>Problem-Solving</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Methods</td>
<td>Emphasis on norm-referenced psycho-educational and projective measures</td>
<td>Emphasis on direct methods such as observation of behaviors and academic skills in comparison to peers</td>
</tr>
<tr>
<td>2. Purpose</td>
<td>To diagnose problem</td>
<td>To understand how the problem can be resolved and then to measure progress in order to adjust</td>
</tr>
<tr>
<td>3. Scope</td>
<td>Global measures used to diagnose, show improvement</td>
<td>Specific measures of target behaviors in appropriate contexts</td>
</tr>
</tbody>
</table>
### Problem Solving Model

<table>
<thead>
<tr>
<th>SATTLER</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Referral</td>
<td>Review referral information</td>
</tr>
<tr>
<td></td>
<td>Decide whether to accept</td>
</tr>
<tr>
<td>Investigate Problem</td>
<td>Obtain relevant background info.</td>
</tr>
<tr>
<td></td>
<td>Consider the influence of others</td>
</tr>
<tr>
<td></td>
<td>Observe child in several settings</td>
</tr>
<tr>
<td></td>
<td>Select and administer an appropriate test battery</td>
</tr>
<tr>
<td>Setting Expectations/Goals</td>
<td>Interpret the assessment results</td>
</tr>
<tr>
<td>Monitor Progress</td>
<td>Write a report</td>
</tr>
<tr>
<td></td>
<td>Develop intervention strategies and recommendations</td>
</tr>
<tr>
<td></td>
<td>Meet with parents, exam other,</td>
</tr>
<tr>
<td>Decision Point</td>
<td>Follow up on recommendations and reevaluation</td>
</tr>
</tbody>
</table>

### Theoretical Perspectives for Understanding Data

- Developmental
- Normative Developmental
- Cognitive-Behavioral

### Names to Know

- Binet
- Goddard
- Terman
- Spearman
- Thorndike
- Thurstone
- Guilford
- Cattell
- Horn
- Jensen
- Kaufman
- Wechsler
- Gardner
- Sternberg
- Das and Naglieri
- Campione-Brown-Borkowski
Early Influences

- The mind can be measured
- Universal education
- Galton
  - Intelligence is inherited
- Cattel
  - Experimental paradigm

Influence of Binet

- Moved from measuring sensory tasks to measuring cognitive tasks
- All children
- What was poor achievement due to?
- Provide objective data
- Goddard brought Binet's work to U.S.
- Terman published Stanford-Binet: ratio IQ

Early Historical Events

- Yerkes developed point scale format
- World War 1
  - Army Alpha was first group IQ test
- Wechsler Scale developed in 1939 at Bellevue Hospital
  - Intelligence one factor of personality
Intelligence Tests Differ in Approach

- Single or multiple factor
  - Single can be essence, unity or mixed
  - Multiple differ in number of factors
- Empirical or theoretical basis
  - Most tests have empirical basis

Single Factor Theories/Tests

- Spearman
  - Higher order g and specific factors
- Wechsler
  - Measuring different ways to express intelligence
- Stanford-Binet LM (early)
- Jensen
  - g is closely tied to speed of processing

Early Multiple Factor Theories/Tests

- Thorndike
  - Several aspects of intelligence
  - IQ measures abstract only
- Thurston
  - Primary Mental Abilities
- Guilford
  - Structure of Intellect
Later Multiple Factor Theories/Tests

- Kaufman
  - Dichotomous theory
  - Successive-Simultaneous
  - Kaufman Assessment Battery for Children
- Elliot
  - Differential Ability Scales
- Horn gf-gc

Later "Mixed" Factor Theories

- Wechsler III
  - Two ways in which g is expressed
- Stanford Binet IV
  - Multiple ways in which intelligence is expressed

Current Multi-Factor Theories of Intelligence

- Gardner's Theory of Multiple Intelligences
- Neuropsychological Model (Luria, Das, Naglieri)
- PASS
- Sternberg
  - Triarchic Theory
  - Practical Intelligence
- CHC: Cattel, Horn and Carrol
Other Theories of Intelligence

- Information processing theories
  - Brown, Campione
- Cognitive modifiability theories
  - Feurstein
  - Learning Potential Assessment Device
- Piagetian developmental approach
- Greenspan's Model of Personal Competence
Theory-Practice Gap
Progress in Psychometric Theories of Intelligence

- General Ability
- Multiple Intelligences
- Interacting Cognitive and Non-cognitive Factors

Spearman Original Gf-Gc
Simultaneous-Successive
Thurstone PMAs
PASS
Carroll Three-Stratum
Cattell-Horn Gf-Gc
CHC Theory

Examples
- Stanford-Binet LM
- Wechsler (Rs)
- K-ABC
- KAIT
- CAS
- DAS
- WJ-R
- WJ-III
- WAIS-III
- WISC-III
- WJ
- WJ-R
- WAIS-III
- WISC-III
- WJ-III
- WAIS-III

Progress in Applied Measurement of Intelligence

Most influential instrument practice in this

WJ-R
WJ-III
WJ
WAIS-III
WISC-III
WJ-III
WAIS-III
WISC-III
WJ-III
WAIS-III
WISC-III
WJ-III

http://science.howstuffworks.com/brain7.htm

Major Internal Parts of the Human Brain

- Cingulate Sulcus
- Corpus Callosum
- Diencephalon
- Anterior Commissure
- Temporal Lobe
- Midbrain
- Pons
- Medulla
- Cerebellum

Major Brain Sections

http://science.howstuffworks.com/brain7.htm

Synapse
Neurology of Intelligence

- Structural differences
- Speed of connections
- Number of connections
- Neurotransmitters

The Questions?

So, what is intelligence?

Why do we measure it?

Qualities of Intelligence Tests

- Considerable common variance among tests
- Psychometrically sound
- Predictors of job and school success
- Differ in
  - Tasks
  - Constructs measured
  - Approaches to scoring and administration
- Scores are generally quite stable
Influences of Nature on Intelligence

- Inherit a genotype which sets parameters
- Polygenic model
- Specific abilities as well as global scores are genetically linked
- Genetic influences increase with age

“Nurture” Influences Are Varied

- Physical
- Social
- Instructional
- Cultural

Nature-Nurture Issues

- What conclusions can we draw about intelligence?
Other Issues

- Gender
  - Spatial visualization
- Constancy of scores
  - After age 5
  - More change for children with early high IQ
    - Why?

Questions to Consider

- IQ and Social Order
- Schools that screen all children with IQ test
  - Why would they do this?
  - What can we say to persuade them to stop the practice?
- GATE testing
  - What is the rationale for it?

Sattler Test Score

INPUT

INTERVENING VARIABLES

OUTPUT
School Success Affected By:

- What student brings to situation:
  - Cognitive
  - Affective

- Environmental variables in larger context:
  - Family
  - School
  - Community

- Instructional variables:
  - Teacher behaviors
  - Classroom processes

School Learning Equation:

- Learning is a function of
  - Time available for learning and perseverance of student
  - Attributes of student such as ability and aptitude
  - Quality of instruction
Topics to Remember

- History?
- Theories?
- Assessment process?