COGNITIVE DEVELOPMENT IN MIDDLE CHILDHOOD

PSY 356
Dr. Schuetze

Concrete Operational

- 6/7 to 11/12 years
- Understand concrete problems
  - Video
- Decentration

Conservation

<table>
<thead>
<tr>
<th>Conservation Problem</th>
<th>Beginning State (all identical)</th>
<th>Transformation</th>
<th>Ending State (something changed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>Are there the same number of small, medium, or large balls?</td>
<td>Remove one ball.</td>
<td>Are there now the same number of small, medium, or large balls?</td>
</tr>
<tr>
<td>Liquid Quantity</td>
<td>Is there the same amount of water in each glass, or are there two glasses with more?</td>
<td>Pour water into a taller glass.</td>
<td>Is there now the same amount of water in each glass, or are there two glasses with more?</td>
</tr>
<tr>
<td>Mass</td>
<td>Is there the same amount of clay in each brick, or does one brick have more?</td>
<td>Drain some clay out of a lower bowl.</td>
<td>Is there now the same amount of clay in each brick, or does one brick have more?</td>
</tr>
</tbody>
</table>
Child Learning and Memory – Why memory improves

- Basic capacities
  - Faster, more efficient processing
  - Storage capacity stable
  - Automaticity
- Strategies improve
  - Rehearsal by age 7
  - Organization by age 10
  - Elaboration later

Elaborative Rehearsal

Definitions of Intelligence

1-Psychometric Approach
IQ tests – focuses on how people perform on standardized tests which are designed to measure skills and knowledge you have already learned.

2-Cognitive Approach
Intelligence comes in different ways and one test can’t measure it all.
Measuring Intelligence - Psychometric Approach

- Binet-Simon Intelligence Scale
  - mental age
- Terman
  - intelligence quotient (IQ)
  - IQ = MA/CA x 100
- Standardized Intelligence Tests
  - Stanford-Binet
  - Wechsler Tests

Verbal Scale

- General Information
- Similarities
- Arithmetic Reasoning
- Vocabulary
- Comprehension
- Digit Span
### Range of Scores

<table>
<thead>
<tr>
<th>Range of Scores</th>
<th>% of Population</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>130 +</td>
<td>2%</td>
<td>Very superior</td>
</tr>
<tr>
<td>120 – 129</td>
<td>7%</td>
<td>Superior</td>
</tr>
<tr>
<td>110 – 119</td>
<td>16%</td>
<td>High average</td>
</tr>
<tr>
<td>90 – 109</td>
<td>50%</td>
<td>Average</td>
</tr>
<tr>
<td>80 – 89</td>
<td>16%</td>
<td>Low average</td>
</tr>
<tr>
<td>70 – 79</td>
<td>7%</td>
<td>Borderline</td>
</tr>
<tr>
<td>70 &amp; below</td>
<td>2%</td>
<td>Deficient</td>
</tr>
</tbody>
</table>

### Intellectual Disabilities

- Below normal intellectual functioning (IQ < 70)
- Deficits in adaptive behavior
- Onset early in life (before age 18)
Causes of Intellectual Disabilities

- Organic causes
- Cultural-familial retardation

Intellectually Gifted

- Individuals characterized by higher than average intelligence (IQ>130). Usually also have some superior talent or skill.

Intelligence in Childhood

- Considerable variability in IQ across childhood
- Cumulative-deficit hypothesis
- IQ stabilizes during adolescence
The Cognitive Approach
Robert Sternberg - Triarchic Theory of Intelligence

Analytical intelligence (academic ability)
Abilities to solve problems, compare and contrast, judge, evaluate, and criticize

Creative intelligence (creativity and insight)
Abilities to invent, discover, suppose, or theorize

Practical intelligence ("street smarts")
Abilities to adapt to the demands of one's environment, apply knowledge in practical situations

Gardner's Theory of Multiple Intelligence

Interpersonal
Intrapersonal
Naturalistic
Logical
Musical
Linguistic
Spatial
Tactical