Physical Play Development

Games with rules common
- sports
- invented games
Rough-and-tumble play
Video games
Adult-organized sports
Physical education

Piaget’s Theory:
Achievements of the Concrete Operational Stage

Conservation
- decentration
- reversibility
Classification
Spatial Reasoning
- directions
- maps

Seriation
- transitive inference

Transitive Inference

Experimental
Control
Test
Limitations of Concrete Operational Thought
Operations work best with concrete information.
- problems with abstract ideas
Continuum of acquisition
- master concrete operational tasks gradually, step by step

Follow-up Research on Concrete Operational Thought
Culture and schooling affect task performance.
- Going to school gives experience on Piagetian tasks.
- Relevant non-school experiences of some cultures can help, too.

Information-Processing View of Concrete Operational Thought
Neo-Piagetians: gains in information-processing speed, rather than shift to a new stage
- automatic schemas free working memory
- central conceptual structures

Key Information-Processing Improvements
Increase in information-processing speed/capacity
Gains in inhibition
Both may be related to brain development.
Attention in Middle Childhood

Attention becomes more
- selective
- adaptable
- planful

Development of Memory Strategies

Rehearsal (early grade school)
- repeating information to oneself

Organization (early grade school)
- grouping related items together

Elaboration (end of middle childhood)
- creating a relationship between pieces of information not in the same category

Attention-Deficit Hyperactivity Disorder

- Inattention
- Impulsivity
- Excessive motor activity

Results in
- social problems
- academic problems

ADHD Treatment

Stimulant medications
- some risks
- may not be enough

Family intervention
Adults with ADHD need ongoing assistance.
Theory of Mind

Metacognition becomes more elaborate and refined.
Views mind as active and controllable
- attention, concentration increase
- mental inferences
- false-belief knowledge

Second-Order False-Belief Task

Promoting Cognitive Self-Regulation

Point out important features of tasks.
Stress importance of planful learning.
Suggest effective learning strategies. Provide for evaluation of effectiveness.
Emphasize monitoring of progress.

Information Processing and Academic Learning

Reading
- Phonological awareness, information-processing speed, and practice contribute to reading skills.
- mix whole-language and phonics

Mathematics
- learn facts and skills through practice, reasoning, strategies
- blend drill and "number sense" approaches
Rules without Understanding

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>427</td>
<td>7,002</td>
</tr>
<tr>
<td>-138</td>
<td>-5,445</td>
</tr>
<tr>
<td>311</td>
<td>1,447</td>
</tr>
</tbody>
</table>

Intelligence Tests

Group Tests
- Allow testing of large groups
- Require little training to administer
- Useful for instructional planning
- Identify students who need individual testing

Individual Tests
- Examiners need training and experience
  - provide insights about accuracy of score
- Identify highly intelligent children and children with learning problems

Typical Intelligence Test Items

Sternberg’s Triarchic Theory of Successful Intelligence
Gardner’s Multiple Intelligences

- Linguistic
- Logico-mathematical
- Musical
- Spatial
- Bodily-kinesthetic
- Naturalist
- Interpersonal
- Intrapersonal

Genetics and IQ

Genetics may account for some differences.
Disagreement exists about interaction with environment.
Adoption studies show influence of both.
Ethnic differences may be more cultural than genetic.

Cultural Bias in Testing

Two views:

- Tests not biased; represent success in the common culture
- Cultural factors can hurt test performance.
  - communication styles
  - test content
  - stereotypes

Effects of Stereotype Threat on Performance

![Effects of Stereotype Threat on Performance](image)
Reducing Cultural Bias in Testing

Combine tests with assessment of adaptive behavior
Dynamic assessment
Reduce high-stakes testing
- NCLB
- undermine or upgrade?

Social and Emotional Intelligence

Perceiving
Understanding
Regulating emotions

Language Development

| Vocabulary | * Increases fourfold during school years * 20 new words a day |
| Grammar | * Mastery of sentence constructions * Advanced understanding of infinitive phrases |
| Pragmatics | * Adjust to people and situations * Adapted responses to get what they want |

Learning Two Languages

Bilingual development
- learn both languages at the same time
- OR learn first language, then second
- sensitive period during childhood

Bilingual education
- language immersion
- English-only programs
- risk of semilingualism
Educational Philosophies

Traditional v. Constructivist
New philosophical directions
- Social-constructivist
  - teachers and children as partners
  - many types of symbolic communication
  - meaningful activities
  - zone of proximal development
  - reciprocal teaching

Teacher–Student Interaction

Good teachers: caring, helpful, stimulating
- too many use repetitive drill
- better achievement in stimulating classrooms

Individual differences
- well-behaved, high achievers get more attention
- more impact of attention on low SES
- self-fulfilling prophecy

Grouping Practices in Elementary Schools

Homogeneous ability groups
Multigrade classrooms
Cooperative learning

Children with Learning Difficulties

Difficulties include:
- mild mental retardation
- learning disabilities
  - 5–10% of children

Law requires “least restrictive” environment
- mainstreaming
- full inclusion
Convergent and Divergent Thinking

Convergent
- Single correct answer
- Emphasized on intelligence tests

Divergent
- Generating multiple, unusual possibilities

Creativity and Divergent Thinking

The ability to produce original, appropriate work

Educating Gifted and Talented Children

Gifted ≈ high IQ
Talented ≈ outstanding in a specific field

Several education methods:
- enrichment in regular classroom
- pull out for special instruction
- move to higher grade
- multiple intelligences models

Academic Achievement Around the World
Asian Schools versus
North American Schools

Asian schools show more:
- cultural valuing of academic achievement
- emphasis on effort
- high-quality education for all
- time devoted to instruction