Preschool Thought

- Piaget’s theory
- Characteristics of preschool thought
- Alternative accounts

Piaget: Key Concepts

- Scheme
- Assimilation/accommodation
- Actions and operations
- Constructivism
- Stage theory

Schemes
Assimilation/Accommodation

• And equilibration

Mental Actions

• Combining
• Separating
• Transforming
• Reversing (undoing)
Operations

- Mental actions that fit into a system:
  - Identity
  - Reversibility
  - Compensation

Constructivism

Vosniadou & Brewer
Stage Theory

- Sensori-motor (0 - 2 yrs)
- Preoperational (2 - 7 years)
- Concrete operations (7 - 11 yrs)
- Formal operations (11 - adult)
Characteristics of Preschool Thought

- Egocentrism
- Centration
- Fooled by appearances
- Little understanding of mental states

Number conservation

Number conservation
Three Mountains Task

PIAGET'S MOUNTAIN TASK

Three Mountain Task Perspective

Centration

1 2 3 4 5 6 7 8
1 2 3 4 5 6 7 8 9
Fooled by Appearances

Maynard the Cat

Little understanding of mental states
“Theory of Mind”

• People have mental states
  – beliefs
  – desires
  – thoughts
• Mental states influence action

False belief - Astington
Knowledge Change

• Astington

• Procedure
  – “What is in the box?”
  • Then reveals unexpected contents.
  – “What did you thing was in the box before I showed you?”

• Result
  – 3 yr olds say they knew the true contents of the box, 4 yr olds don’t.

Knowledge Change

• Knowledge change
  Taylor at al, 1994
  novel facts
  age 5

Deception

• Fooling the Experimenter
  – Child & adult try to deceive experimenter

• Peskin’s naughty monkey
  – Deceiving the monkey on your favorite sticker
Criticisms of Piagetian Interpretation

- Tasks don’t make sense
- Rely too heavily on language
- Unevenness “horizontal decalage”
- Mysterious mechanisms

Alternative Accounts

- Neo-Piagetian
- Information Processing
- Environmental-Learning
- Biological-Maturational
- Cultural-Contextual

Information Processing Accounts

- Computer Analogy: Development as changes in:
  - Hardware
    - Brain Development, Processing speed
  - Software
    - Strategies, Knowledge, Encoding
- With Development child gains greater control over processing.
Neo-Piagetian

- Basic Piagetian theory with modifications:
  - Domain Specific Development
    - Knowledge, experience, etc
  - Domain General Development
    - Memory Limitations
- Reconciling Domain General vs Specific
  - Central Conceptual Structures
    - Apply to wide range of problems within a domain.

Learning Environmental

- Experience & Practice
  - Child Dinosaur Expert (Chi & Koeske, 1983)
  - Child Chess Experts (Chi et al)
- Continuous vs Discontinuous Development?

Biological-maturational

- Growth of the Brain
  - Continued Myelination
    - Increase in frequency & size of brain waves during cognitive tasks
    - Memory & Hippocampus
  - Frontal Cortex Development & Planning
- Modularity Theory (p. 354)
  - Specific Inputs -> Specific Outputs
- Skeletal Principles
- Explaining Horizontal Decalage
Cultural-Contextual

• Event Representations (Scripts)
  – Who, What, When, Where, & How

The Bathtime Script

Cultural Scripts

• Children learn within the scripts of the culture
  – External: Language, procedures, routines
  – Internal: mental Representations of the artifacts
  – Become more internal over time
• Guide action & social interaction
• Organize & Acquire new skills

Culture & Uneveness of Development

• Arranging occurrence of activities
• Determining frequency of activities
• Establishing relationships of activities
• Regulating child’s role in the activity

• Notion of Guided Participation
  – Vygotsky’s Zone of Proximal Development