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
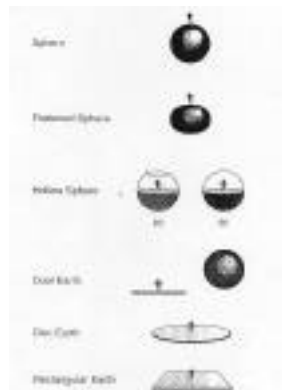
Vernica, Grade 3
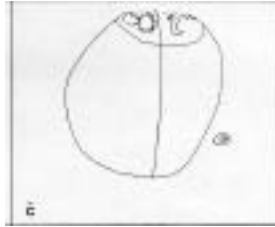
hollow sphere

Stage Theory

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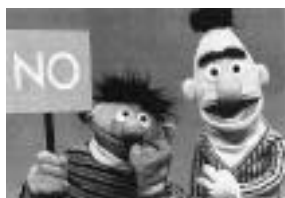- Concrete operations (7 - 11 yrs)
- Formal operations (11 - adult)

Preschool Thought

Characteristics of Preschool Thought

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

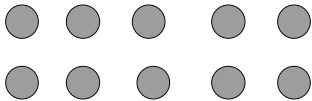## Number conservation

---

Number conservation
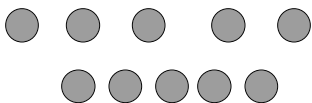
Conservation of Liquid
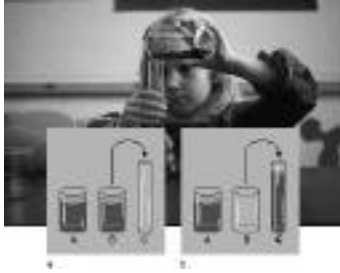
Variety of Conservation Tasks

Egocentrism

"Look what I can do, Grandma!"

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