Middle Childhood Cognitive Development

Psychology 313 Lecture 14

Piaget’s Theory

- **Preoperational Thought**
  - formation of stable concepts
  - emergence of mental reasoning
  - egocentrism
  - construction of magical belief systems
- **Concrete Operational Thought (6-12)**
  - allow child to do mentally what was done physically before
  - Conservation
  - Decentration
  - Reversibility

**Characteristics of Concrete Operational Thought**

- Can use operations, mentally reversing action; shows conversation skills
- Logical reasoning replaces intuitive reasoning; but only in concrete circumstances
- Not abstract (can’t imagine steps in algebraic equation, for example)
- Classification skills -- can divide things into sets and subsets and reason about their interrelations
A Change in the Logic of Thinking

- Piaget: Concrete Operations
  - "Concrete" because these mental actions are directed toward concrete objects in everyday activities
  - Distinguished from preoperations by their double-sidedness
  - Results in more flexible and organized thinking
  - Can think through actions, mentally combine, separate, order, and transform objects & actions

Conservation

- Understanding that some properties of an object remain the same even when its appearance is altered
- Mental operations
  - Identity
  - Compensation
  - Reversibility
Piaget: Conservation of Quantity

Step 1: Present two beakers with equal amounts of liquid.

Step 2: Nestle taller, thinner beaker, and pour contents of B into C.

Step 3: Ask, “Which beaker has more liquid, A or C—or do they contain the same amount?”

Piaget: Conservation of Number

Stage A: Child’s row

Stage B: Incomparative row

Children below the age of 6 or 7 rarely display conservation of number, and will say that the elongated row has more.

An understanding of logical necessity—that “it has to be that way”—is Piaget’s key criterion of a stagelike change in thinking.

Causes of Dev Change in Cog

- Piaget believed that all cognitive growth is driven by assimilation and accommodation
- Other, more recent, explanations
  - Memory capacity
  - Accumulating knowledge
  - Development of cognitive strategies
Influence of Memory on Cognition

Factor 1: Increased speed & capacity of memory processing
- Memory span
- Retrieval speed
- Speed and capacity are interrelated...

Factor 2: Expanded knowledge base
- Retention improves because child has more prior info

Factor 3: Acquisition of improved memory strategies
- Rehearsal
- Memory Organization
- Elaboration

Factor 4: Emergence of metamemory
- Ability to think about one’s own memory processes

Additional Cognitive Bridging Strategies
- Attention
- Planning
- Metacognition
Increased Classification Skills

- **Piaget**: Set of brown beads and white beads
  “Are there more brown beads or more beads?”
  - Children 4-6 cannot attend to the subclass and the superordinate class at the same time;
  - In middle childhood gain ability to understand the hierarchical structure of categories and can categorize objects according to multiple criteria
  - Begin to collect stamps, baseball cards, etc.

Is conservation acquisition universal?

Children in non-industrial societies lag a year or more behind Piaget’s norms, and in some cases never acquire it, even as adults

Is conservation acquisition universal?

- Performance improves, however, with **training**, and when interviewed in their **native language** and with **content** with which they are more familiar
- Thus, conservation is a universal cognitive achievement of middle childhood, as Piaget assumed it was, when these conditions are taken into account