How Preschoolers Think

Overview of Chapter 8
- Physical & Motor Development
- Preoperational Development
- Information-Processing Approaches
- Privileged Domains
- Cognitive Development & Culture
- Reconciling Alternative Approaches

Overview of this week
- Bio-Behavioral Foundations
- The Play-Doh Task
- Piaget’s Account of Early Childhood Thinking

Early Childhood (age 2-6)
- Typical pattern of thinking in preschool years
  - Mixture of sound logic and magical thinking
  - Insight and ignorance
  - The reasonable and the irrational

Week 6

Early Childhood (age 2-6)
Typical pattern of thinking in preschool years
- Mixture of sound logic and magical thinking
- Insight and ignorance
- The reasonable and the irrational
The Play-Doh Task...
- a Piagetian task
- a window into the mind of the preschooler
- a “conservation” task
- “failure to conserve”
- how do you know it is the same?

The two pieces are the same because...

You understand:
Piaget: Failure to Conserve

Children below the age of 6 or 7 rarely display conservation of number, and will say that the elongated row has more.
People are more likely to pour extra alcohol into short, wide glasses than tall, narrow glasses, a study says.

The US researchers from Cornell University asked 198 students and 86 bartenders to pour a shot of alcohol. They found students poured 30% more into the short glasses, while bar workers fared only slightly better at 20%, the British Medical Journal said.

The groups poured more than a standard shot measure into both types of glasses. Students also said they thought the tall glasses held more, suggesting they were trying to compensate for size when pouring into the short, wide glasses.

Lead researcher Brian Wansink said the findings suggested people should think more carefully about the measures they pour and it might be useful to mark on glasses to signify what equates to a shot.

And he added: "If short tumblers lead even bartenders to pour more alcohol than tall highball glasses the way to better control alcohol consumption is to use tall glasses or to use glasses with the alcohol level marked on them - and to realise that, when alcoholic drinks are served in a short wide glass, two drinks are actually equal to two and a half."

Moira Plant, professor of alcohol studies at the University of the West of England, said: "The real problem is that people just do not know what constitutes a unit of alcohol."

Evidence suggests that at home, people will pour themselves larger measures than those served at pubs.

SEE ALSO:

UK alcohol sales 'buck the trend' 24 Aug 05 | Health
Surge in alcohol-related deaths 15 Aug 05 | England
Hospitals see child drinking rise 01 Aug 05 | Health
Alcohol 'as harmful as smoking' 04 Feb 05 | Health
Piaget’s Account of Early Childhood Thinking

Piaget’s Stages of Thinking

Infancy (Birth-2): Sensorimotor
- Intelligence based on overtly physical acts

Early childhood (2-6): Preoperational
- Intelligence based on mental representations
- But this intelligence show severe limitations

Middle childhood (6-12): Concrete Operational
- Manipulation of symbols and internalized mental operations that combine, separate, and transform information logically

Adolescence (12-19): Formal Operational
- Thinking systematically about all logical relations within a problem; keen interest in abstract ideas and thinking itself

The Limitations of Preoperational Intelligence

1. Egocentrism
2. Confusion of appearance and reality
3. Precausal reasoning

Limitation 1: Egocentrism
- Tendency to consider the world entirely in terms of one’s own point of view
- Preschoolers cannot “decenter” (i.e., see things from another’s perspective)
- Illustrated in
  - Lack of spatial perspective taking…
  - Egocentric speech…
  - Failure to understand other minds…
Lack of Spatial Perspective Taking

- Allowed to view diorama (3 mountain experiment) from all sides
- Seated on one side; doll on opposite side
- Shown pictures from various perspectives and asked to identify how things would look to doll
- Almost always choose view corresponding to their own point of view

Egocentrism - Preoperational

Egocentric Speech
Egocentric Speech

- Tendency to engage in “collective monologues”
- Speaker gave too little information (e.g., “Take this one”)
- Listener asked too few questions

Failure to Understand Other Minds

- Inability to engage in mental perspective taking (i.e., think about other people’s mental states – “theory of mind”)
- When the child corrects a false believe, they think others will too
  - Discover that a box with a picture of candy on the outside has only a pencil inside
  - Believe that a friend who has not yet seen what is in the box will think that it has a pencil
- Form of moral reasoning that does not take intentions into account, only consequences of actions
The Limitations of Preoperational Intelligence

1. Egocentrism
2. Confusion of appearance and reality
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Limitation 2: Confusing Appearance and Reality

- Tendency to focus exclusively on the most striking aspects of an object (i.e., surface appearance)
- A stick placed in water has really bent
- Become frightened when someone puts on a mask
- Believe that a cat with a dog mask actually turns into a dog…
Confusing Appearance and Reality

The Limitations of Preoperational Intelligence

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Limitation 3: Precausal Reasoning

Instead of reasoning from general premises to particular cases (deduction) or from specific cases to a more general premise (induction), preschoolers tend to think transductively (i.e., from one particular to another)

- "I haven’t had a nap, so it isn’t afternoon."
- Since graveyards are places where dead people are found, graveyards must be the cause of death

Piaget’s explanation of these limitations
Piaget sees the glass as half empty

- We must remember that the child is only beginning to use mental representations
- Mental actions are now possible, but not mental operations
- That’s why this is pre-operational intelligence
- But it’s still pretty amazing!
- The infant cannot think; the preschool-age child can, albeit with limitations

There are Various Explanations of Children's Uneven Cognition

1. Information-Processing Explanation
2. Domain-Specific Knowledge
   - Privileged domains: physics, biology, social
   - Biologically-based mental modules
   - Plus culturally-provided experience

How is a person like a computer?

2: Information-Processing Explanation

- Computer analogy
  Hardware (e.g., myelination of a particular brain region),
  Software (e.g., acquisition of a new strategy for remembering)
In this Information-Processing model:

- Cognitive difficulties may be due to:
  - poor attention
  - small working memory
  - slow transfer to long-term memory
  - few strategies for memorization

- Performance improves as children grow because:
  - ‘hardware’ matures
  - ‘software’ improves
  - ‘storage’ gets larger

What’s your favorite bedtime story?
**Where the Wild Things Are**

- On Sundays Maurice Sendak and his brother and sister were dressed up and had to sit in the living room with their adult relatives.
- Looking up, he saw "the most gruesome things, such as moles on noses and extra-long hairs coming out of noses . . . the bloodshot eyes, and . . . the very bad teeth".

**Mythic understanding**

- Oral language provides a new way of understanding the world
- analogous to ancient mythology
- in an oral culture, you know only what you can remember
- with stories, metaphors, rhythm & rhyme
- drama & roleplay
- abstract binary oppositions:
  - good/evil, love/hate, rich/poor
- a poetic world

**What Piaget ignored:**
Main Points: Cognition in Early Childhood

- Children can now represent the world around them, with images, words, and gestures.
- Mental actions are now possible - but not yet mental operations.
- Representations are simple, ego-centered, and static.
- So children can't identify cause & effect, tell appearance from reality, or take another's perspective.
- They show lack of conservation.
- But Piaget failed to see that fantasy in oral language is an important way of understanding the world.