

Cognitive Development

Reading Response #1

- Give a Freudian explanation for alcoholism. Then give a behaviorist explanation. Finally, invent a behaviorist treatment to get people to stop drinking

Who is my TF? (corrected)

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Cognitive Development

Big Questions

1. Morality
2. Continuity

Big Questions

3. Knowledge

Empiricism

v.

Nativism

v.

Constructivism

Jean Piaget

- 1896-1980
- Genetic epistemology
- Theories
- Methods
- Observations

Piaget's Theory of Cognitive Development

- Piaget believed that “children are active thinkers, constantly trying to construct more advanced understandings of the world”
- Little scientists
- These “understandings” are in the form of structures he called *schemas*

Development of Schemas

- Schemas are frameworks that develop to help organize knowledge
- Assimilation - process of taking new information or a new experience and fitting it into an already existing schema
- Accommodation - process by which existing schemas are changed or new schemas are created in order to fit new information

Piaget's approach

- Primary method was to ask children to solve problems and to question them about the reasoning behind their solutions
- Discovered that children think in radically different ways than adults
- Proposed that development occurs as a series of 'stages' differing in how the world is understood

Sensorimotor Stage (birth - 2)

- Information is gained through the senses and motor actions
- In this stage child perceives and manipulates but does not reason
- Object permanence is acquired

Object Permanence

- The understanding that objects exist independent of one's actions or perceptions of them
- Before 6 months infants act as if objects removed from sight cease to exist
 - Can be surprised by disappearance / reappearance of a face (peek-a-boo)
- Then, failure at A-not-B task

Preoperational Stage (2-7 years)

- Emergence of symbolic thought
- Egocentrism

Preoperational Stage (2-7 years)

- Emergence of symbolic thought
- Egocentrism
- Lack the concept of conservation

Concrete Operational Stage (7-12 years)

- Understanding of mental operations leading to increasingly logical thought
- Less egocentric
- But .. inability to reason abstractly or hypothetically

Formal Operational Stage (age 12 - adulthood)

- Abstract and scientific reasoning

Piaget: Scientific evaluation

Highly positive:

- interesting & falsifiable claims
- rich theoretical framework
- striking findings

Piaget: Scientific evaluation

Theoretical: Does he really explain development?

Methodological: Limitations of Q&A

Factual: What do infants and children really know?

The modern science of infant cognition

Methods for studying infants

- Brain waves

- Sucking
- Looking
 - preference
 - habituation & surprise

Infant understanding of the physical world

The case of object permanence

Much understanding of the
physical world is there from
the very start

But not everything ...

How do we explain development?

- Neural maturation
- Problems with inhibition
 - A-not-B
- The accumulation of
knowledge

Infant understanding of the social world

Social baby

Social prediction by babies (with Valerie Kuhlmeier & Karen Wynn)

- 9-month-olds & 12-month-olds
- Shown movies in which one character “helps” a ball achieve a goal, and another character “hinders” the ball
- Then shown test movies in which the ball interacts with these characters in an entirely different situation
- Do babies expect the ball to behave differently with regard to the helper vs. the hinderer?

Some understanding of the
social world may be there
from the very start

But there are also some striking
limitations ...

Open question I

Why do children do so poorly at these social tasks?

They need to learn more about minds

Vs.

They have the right knowledge but suffer from problems with inhibition and action

Open question II

What is the relationship between different sorts of development?

General changes in how children think
(Freud, Piaget)

Vs.

Separate modules
(Chomsky, Fodor)

A modular conception of development

- Separate partially pre-wired systems for reasoning about the physical and social world
- Innate knowledge
- Constrained development

A damaged module: Autism

- About 1 in 1,000
- Mostly boys
- Lack of social connectedness
- Language impairment
- Treat people “as objects”
- Mindblindness

Open question III

If there are modules, what are they?

- Physics and people, but also ...
 - artifacts
 - sociology
 - biology?

Open question IV

Are there any profound general differences between the minds of children and adults?

-- effect of language?

Why study development?

“Everything is the way it is
because it got that way.”

-- D'Arcy Thompson