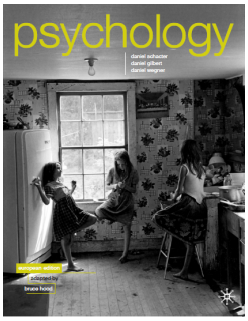

Lecture 4 Evaluating Piaget's Theory

Outline

- Background
- Three Challenges
  Children are more precocious
  Development is more gradual
  Development is domain-specific

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Background

Challenges to Piaget

What did we learn in the last lecture?

- • That children make surprising errors (e.g., A-not-B, conservation)
- *But are they really so late developing*

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Background

- That development takes place in stages

But is development that sequential and discrete?

- That development occurs across the board

But are they really no 'special' domains?

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Challenges to Piaget

1 – children are more precocious

E.g., do children have a better conception of object permanence than Piaget gave them credit for?

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Evidence of Object Permanence

Hood & Willatts (1986)

5-month-olds shown an object to left/right

The lights go out!

Significantly reaches to the correct side

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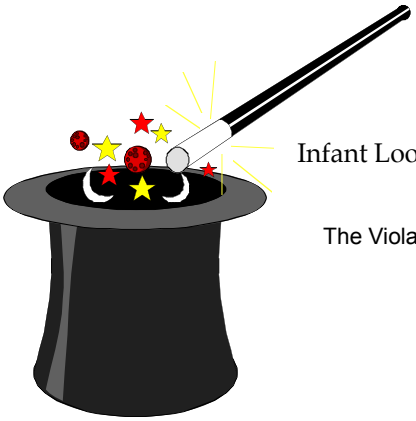


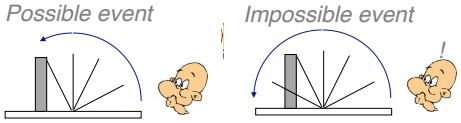
Infant Looking Time Studies

The Violation of Expectancy

Violation of Expectancy

Baillargeon et al (1985)

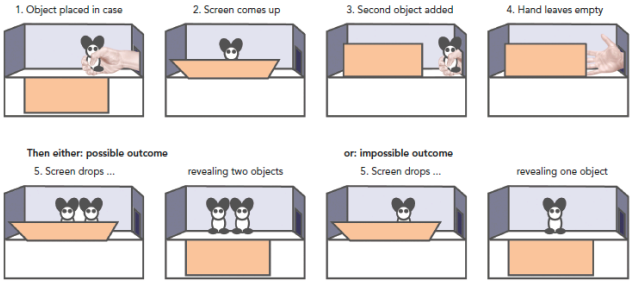
4-month-olds



Infants surprised (dishabituate) to impossible event

1) They 'know' the box is there 2) 'know' about solidty

Infant Arithmetic



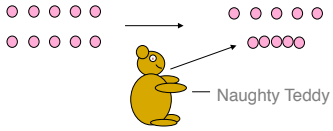
Five-month-olds can keep track of up to 4 objects Wynn (1992)

Interpreting Adult Intentions

Evaluating conservation

McGarrigle & Donaldson (1974)

80 4- to 6-year olds



72% correct in this condition (compared to 34% in standard test)

Why does this work?

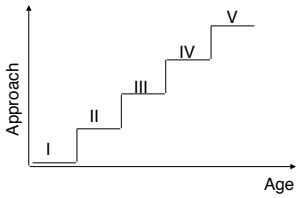
Because the child assumes if an adult does something it must mean something has changed

Asking the Question Twice

"Are they the same?" – "Are they still the same?"
Rose & Blank (1974)

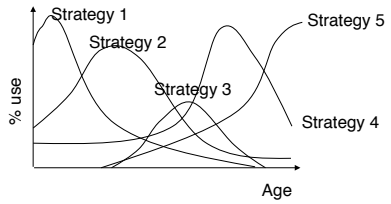
2 – Development is more gradual

How does performance improve on a task?
A staircase model (like Piaget)



Or more gradual and piece meal?

An 'overlapping waves' model



Siegler (1995)

45 Five-year-olds failing number conservation on 'pretest problems' - some include conservation, some transformation

Given various types of training on same problems

Explanation	% pretest	% training
Transformation	4	19
Length	52	24
Counting	4	2
Back and forth	2	3
Don't know	36	49

Alternatives

<u>The social context</u>

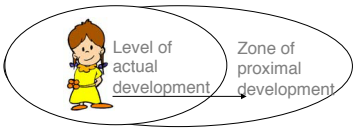
Piaget's underestimation of children's abilities follows largely from a failure to contextualise the problem, and a failure to appreciate the social influence of the adult

Lea Vygotsky (1896-1934)

Child constructs reality alright, but why would they do it on their own when there are more competent people around?

Alternatives

The Zone of Proximal Development

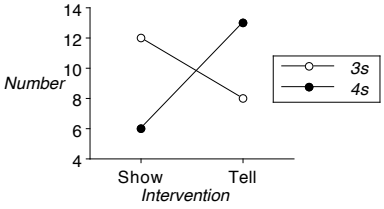


Alternatives

Wood et al. (1976)

Tutor helping 20 3-, and 4-year olds to build a complex pyramid

How does the tutor instruct the child?



Alternatives

- Chomsky suggests that language is 'special'
- Why can't all domains be like this?

3. Domain Specificity

What is the architecture of the Mind?

Specialized adaptations or general problem solving mechanisms?

Domain General
Key changes apply across all aspects of cognition
General : memory/attention/associative learning

Domain Specific
Changes occur within specialized knowledge systems
Dedicated mechanisms and internal structures

Evolutionary Considerations for Domain Specificity

Pinker (1997) – "How the mind works"

The mind is structured in terms of a series of dedicated, domain-specific systems

"The mind is a system of organs of computation, designed by natural selection to solve the kinds of problems our ancestors faced"

Domain-Specificity

- Evolution prompts specification
- For specification it helps to have things 'hard-wired'
- To be hard-wired things need to be innate

General Problem With Piaget's Account

Failures on his tasks may be *performance* rather than *competence* limitations.

The criticisms of Piaget's theory generated alternative theoretical accounts (see next lecture)

Summary

Piaget did underestimate children's abilities

Need to take into account social context

But: doesn't alter his findings
does it really undermine his theory?

There is evidence that development involves less discrete stage changes

And evidence for differential development across domains