

Lecture 14 Cognitive Development

- How do children learn?

Old idea: kids didn't know things but think like adults, so give them knowledge

Actual: children think differently

→ Struggle with space, scale, etc.

→ Sitting on super small small

→ Trying to get inside small car

All while as if normal
They haven't learnt that yet.

#1 Piaget — developmental psychologists

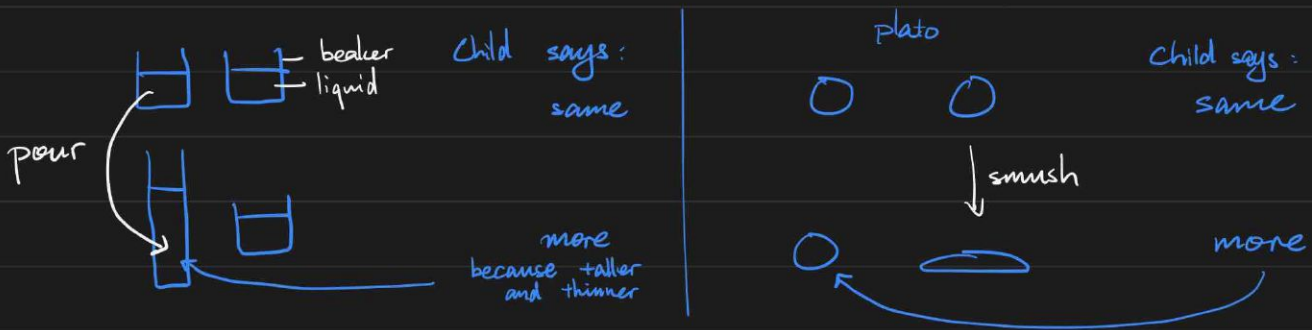
↙ with guest lecturer

* Children think fundamentally differently

* They learn in phases viz. step by step

↳ well there are linear learning of some other things

How 5-year old think ↙ live demo on 2 children



"mom knows it's M&Ms in there"

etc.

can't understand why ppl not know something they know.

↳ Conservation tasks. ← things we learn as adult

- volume

- number

- false belief

- mass

- class inclusion ← can't understand subsets

Stage Based Models (its features)

- Qualitative differences - e.g. ways they process size rather than ^{quantitative} memorising words
- Structured whole - each stage is either 0 or 1.
- Invariant sequence - same order
- Universal sequence - people all go through these stages
- Hierarchical integration - can always understand previous phase

Phases according to Piaget

← developed before neurosci imaging stuff

- Sensorimotor (< 2 years old)
only understand objects through physical interaction
- Preoperational (2-7)
basic mental representation but no mental manipulation
- Concrete operational (7-11)
concrete manipulation but no abstraction
- Formal operational (> 11)
abstract thinking

⚠ There are all models if you take Developmental Psych class

#2 Developmental Methods

- Infant challenges
 - they don't speak
 - short attention span
 - they don't follow instructions
 - long term, ethical considerations

* Habituation

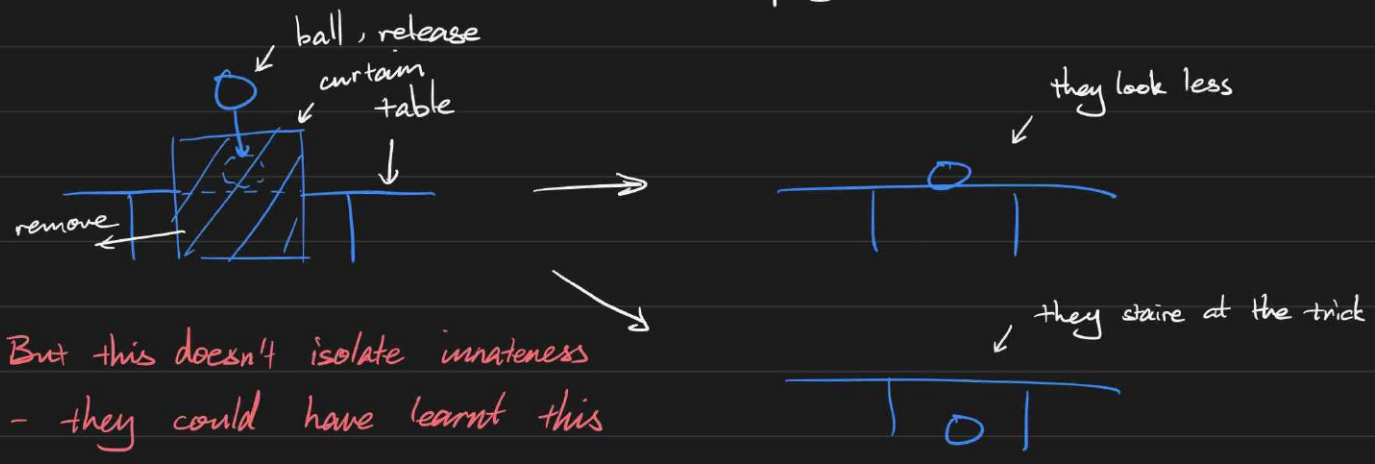
- Attend to novel things
- Get bored with repetition

Operationalisation

- Tend to suck when excited
- Track looking time

#3 Innateness debate

- Are these innate?
- language
- math
- naïve physics
- theory of mind



⚠ But this doesn't isolate innateness
 - they could have learnt this

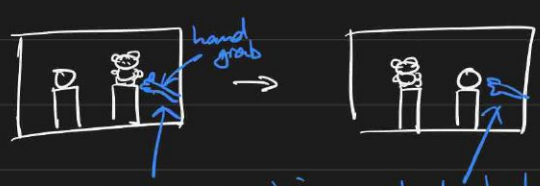
→ Project Prakash - born with sth covering eyes, effectively blind for many years.
 Then do surgery, and ask questions.

- ↳ turns out they can't map new vision to names
 - ↳ look at   → says 2 objects
 - ↳ look at  → says 3 objects
- they haven't learnt object recognition by what move together.

#4 Theory of mind

perspective thinking

- phone call: says "this" without realising the other side can't see.
- Appearance reality: looks like rock but is sponge
- Goal direction.
- Habituation studies.



same position, but baby surprised by grabbing different thing.

ability to understand what others are thinking