Developmental Psychology (PSY1B.1)

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An interdisciplinary approach in getting somthing from nothing

1. **JEAN PIAGET (4)**
2. **VYGOTSKY (2)**
3. **IMFORMATION APPROACHES TO COGNITIVE DEVELOPMENT (3)**
4. **THEORY OF MIND (4)**
5. **CONCEPTS (2)**

1. JEAN PIAGET

Founding father of developmental psychology; entirely wrong but foundational to the field.

1.0) THEORY

Children aren't primative grown ups, their fundamentally different

- designed to serve a different evolutionary purpose (learning/exploring to create knowledge of world)
- **Genetic epistemology** (from genesis) - childrens worldview different to adults
- Children are creating knowledge of the world
- ★ Building mental representations that allow them to interact with the world in more complex ways
- ★ **Initial condition:** sensory motor representations

1.1) OBEJCT PERMENANCE TEST

7mo will on reach for an object if not in sight

1.2) A NOT B TEST

Finding correct object under 1 of two hidden cloths

- Habituated to motor pattern
- JP: make error due to being egocentric - thinking they're the cause (wrong?)

1.3) COIN STRETCH TEST (CONSERVATION TASK)

Child asked to count coins occupying different physical space

- children perform better on conservation tasks when they don't think the change is deliberate (teddy)

1.4) COMPETENCE VS PERFORMENCE

? *Do performance tests produce the same results in simpler environments?*

★ **Internal** (Piaget) vs. **Social** (Vygotsky) &. **Computational**

2. VYGOTSKY (0)

Explored social contribution to learning and development; not a vacuum

- **Zone of proximal development:** maximum range of mental representations a person is capable of mastering at a point in time
- **Scaffolding -** process of adults/peers actively working to maximise a child's learning and development
  - E.g. Motherese - infant directed speech
- Numerical Development for children who grow up in languages with a more transparent number word system (Chinese, Korean) learn to count at a younger age on average

2.1) ROLE MODELS OF IMITATION

Children evaluate who they believe to be a trustworthy role model

- **Vicarious Punishment:** do not model those who are punished
- **Selective imitation:** model older, more competent individuals

2.2) HOW DO CHILDREN LEARN TO LEARN? (BOWLBY)

Infants instincts are to gain security from their care giver

- Crying, smiling, following, Clinging.
- ★ Attachment figure supports exploration, seperation anxiety when removed from attachment figure

3. INFORMATION APPROACHES TO DEVELOPMENT

The human mind is a system that processes information, can be modelled somewhat like a computer algorithm

3.0) LEVELS OF ABSTRATION (DAVID MARR)

Ways to explain information processing system (levels of abstraction)

1. **Computational Explanation**: arithmetic (e.g. calculator)
2. **Algorithmic Explanation**: process of equations
3. **Implementational Explanation**: circuitry & transistors

3.1) WORKING MEMORY

A not B error is due to limit in working memory

- holding back the child from responding increases the age at which the child will fail
- A not B error works even when the objects are hidden in transparent boxes
- Once response is 'primed' which children struggle to suppress

3.2) MUMMY BLOB TEST (OBJECT PERMANENCE)

Experiment where (baby) small blob tries to join (mummy) large blob.

- when the obstructive block is removed, the Infants (12mo) more surprised by localised curved movement pattern
    - shows understanding of object permanence

4. THEORY OF MIND (0)

★ *Ability to accurately explain peoples actions in terms of their beliefs, desires, goals, emotions etc.*

- The world is x, I believe the world is y, you believe the world is z

4.1) SALLY-ANN TASK

Sally moves ball between two baskets when Ann's (where is the ball, where will sally look for it?)

- Children dont understand that are different from the state of the world

4.2) FALSE PHOTO-TASK

Photo of duck moved from bath to under bed. Children think photo will change to show duck under bed.

4.3) HABITUALTED REACHING

Habituated event reaching for one of two items, children reach for same object when items switched

- Shows they have some ability to encode peoples goals rather than be anchored to the motor action

4.4) CULTURAL INTELIGENCE HYPOTHESIS

human cognition is special because we have evolved specific skills for facilitation of social interaction

- Chimps and orangutuns perform physical cognition tasks as well as two year olds
- By contrast; children outperform primates in social problem tasks
    - If animals are raised by humans they develop better social skills

5. CONCEPTS (0)

★ - Early assumptions: combination of necessary and sufficient features (breaks down)
- Rosch (1973): You have a representation of the archetypal bird
- Types of concept:

- **Natural concepts** (sun)
- **Artefact concepts** (tools)
- **Abstract concepts** (weight, justice)

5.1) NUMBERS AS A CONSTRUCT

Analogue Magnitude - the ability to perceive the magnitude of some stimulus (redness, length of time, amount)

- If you habituate 12mo's to an array of 8 dots, then they will not dishabituate to an array of 12 dots. They will dishabituate to an array of 16 dots.
- Infants represent number, but representation is noisy

5.2) CHILDREN LEARNING NUMBER

- Children learn the number as individual precise representations at first
- But then the rule becomes mapped onto Analouge magnitude
- Piraha tribe doesnt have the number representation so unable to map quantities 1 to 1