Cognitive Development: how we acquire the ability to learn, think, communicate and remember over time – how we come to understand our words. Cognitive developmental theories differ in 3 core ways:

1. **Stage-like** changes in understanding (sudden spurts in knowledge followed by periods of stability), others more *continuous* (gradual, incremental) changes in understanding
   - Piaget, Erikson, Kohlberg
2. **Domain-general** or **domain-specific**. Domain general – propose that changes in children's cognitive skills affect most or all areas of cognitive function in tandem. Domain specific proposes that children's cognitive skills develop independently and at different rates across different domains, such as reasoning, language and counting.
3. Differ in their views of the **main source of learning**. Some models emphasise physical experience, others social interaction, and others biological maturation

Vygotsky – social and cultural influences on learning

PIAGET'S THEORY OF COGNITIVE DEVELOPMENT

Jean Piaget was the first to present a comprehensive account of cognitive development. He attempted to identify stages that children pass on their way to adult-like thinking (stage theorist).

- Children's minds aren't miniature versions of adult mind – there are profound differences; qualitative and quantitative
  - Children's understanding of world is different from adults, but rational given their limited experience of the world.
  - E.g. children believe their teacher lives in school, as that's the only place they've seen their teachers
- Child is **active** (not passive) – constructs understanding of world through exploration and experience , seeking information and observing consequences of their actions

Developmental Progress

Piaget proposed that cognitive change is a result of children's need to achieve equilibrating

Equilibration – maintaining a balance between new experiences and what we already or think we know

   o **Assimilation**: new information 'assimilated' into existing schemas. Reinterpreting new experiences to fit into what is already known

   o **Accommodation**: schemas updated to accommodate new information. Altering belief about world to make them more compatible with experience. stage changes are the result of accommodation

Piaget's 4 Main Stages of Intellectual Growth	Description

Sensorimotor Stage (birth – 2 years)	***Object permanence***
	
	• < 8 months
	   - Out of sight, out of mind – no effort to retrieve hidden object
	• 9 – 12 months
	   - Search – BUT where last found – **A not B effect** – object doesn't exist independent child's actions

	• 12 – 18 months - Understand not only that objects continue to exist, but that they can be moved while out of sight – **invisible displacements**
Conservation: Pre-operational Stage (2-7 years)	Can construct mental representations of experience Mental representations (e.g. toy doll represents baby, holding a banana represents phone), but pre-logical/egocentric, conservation a challenge However: - Children are hampered by **egocentrism** – an inability to see the world from others' points of view - Fail conservation tasks (i.e. experimented with 2 glasses with same amount of liquid. Poured one glass in another taller glass but failed to realise both glasses had same amount of water. ▪ Prelogical thinking – child has rationale for errors their making, and their errors are about reception. Can't mentally manipulate 2 or 3 dimensions of the task, e.g. mentally pour the water back into the glass
Concrete Operational Stage (7-11 years)	Mental operations, but only for physical/concrete materials – e.g. add/subtract Can pass conservation tasks Can perform organisational tasks that require mental operations on physical objects (e.g. sorting coins by size)
Formal Operations Stage (11 years – adulthood)	Hypothetical reasoning – mental operations on abstract concepts (e.g. algebra), hypothesize (e.g. pendulum, see-saw)

STRENGTHS & LIMITATIONS OF PIAGET'S THEORY

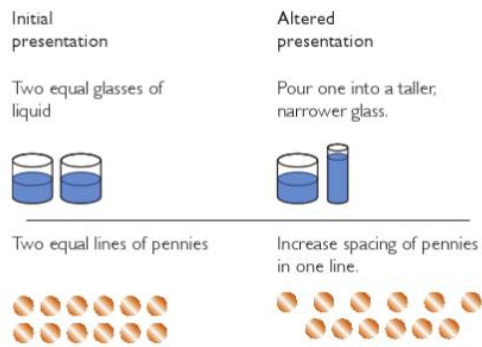| Strengths	Critiques

• Landmark theory – not just miniature adults – fascinating aspects of pre-logical thinking
• Learning as an active process – influences on education
• Processes cross domains – e.g. conservation
	• Stages too rigid/prescriptive; subsequent research revealed that much of development is more continuous than stage-like
	• Under-estimated children's abilities
	  - Methodological issues – task demands/language
	• Thought these were universal
	  - Had a Western bias
	  - Many don't reach higher levels of thinking required
	  - Context not sufficiently considered

Initial presentation

Altered presentation

Two equal glasses of liquid

Pour one into a taller, narrower glass.

Two equal lines of pennies

Increase spacing of pennies in one line.

FIGURE 10.8 Piaget's conservation tasks. Piaget's conservation tasks ask the child to examine two equal amounts and then watch as the researcher manipulates one of the two amounts in some way. The researcher then asks the child to compare the two quantities. The conservation of liquid task is on the top, the conservation of number task on the bottom. To succeed at the conservation task, children need to say that the amounts remain the same even though they appear unequal.

OTHER THEORETICAL APPROACHES TO COGNITIVE DEVELOPMENT

Sociocultural approach (Vygotsky)

o Children would learn what's useful through environment in which they live in
o Learning **collaborative** – social contexts
o **Social** – Motor learning happened by copying/being encouraged by older siblings/peers/parents rather than child being individual explorer
   - *Scaffolding* – adult sees child is on cusp of knowing something, and structures situation so child will make that discovery (e.g. moving coin experiment, so child will come to understand their own error)

The term *scaffolding* is used to refer to the way parents structure the learning environment for their children. Here, the father is instructing his child on how to fit the shape onto a peg, but allowing the child to insert the shape herself.

o **Zone of proximal development** – phase when children are receptive to learning a new skill but aren't yet successful at it. Adult recognises child is about to acquire a new capacity/understanding, structure environment so child can make that discovery for themselves
o With any given skill, children move from phase when they can't learn it, even with assistance, to zone of proximal development, during which they're ready to make use of scaffolding.