

Development and Learning

AP Psychology • Unit 3

AP Psychology



Development and Learning

What we will cover

- 1 Studying Development
- 2 Physical Development
- 3 Gender and Sexual Orientation
- 4 Cognitive Development
- 5 Language Development
- 6 Social and Emotional Development

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Studying Development

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└ Studying Development

Studying Development

- Is change **continuous** 连续的 (gradual and smooth) or **discontinuous** 不连续的 (in stages)?
- Is a trait **stable** 稳定的 across life, or does it change?

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└ Studying Development

Two designs for studying change over time

- cross-sectional 横断研究** compares different age groups at one time – fast and cheap
- its weakness** differences may come from the **cohort** 世代 rather than from age: an 80-year-old grew up in a different world, not just a longer one
- longitudinal 纵向研究** follows the **same people** over years – no cohort confound
- its weakness** slow, expensive, and people **drop out**, often not at random
- the three debates** nature/nurture, stability/change, and continuity/discontinuity

When a study reports that “older people are more conservative”, ask which design. Cross-sectional data cannot tell aging from cohort.

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└ Studying Development

Two research designs, and what each costs

- Cross-sectional study** A **cross-sectional study** compares different ages at one time – fast, and it confounds age with generation.
- Longitudinal study** A **longitudinal study** follows the same people for years – it separates age from cohort, and loses participants along the way.
- What the field asks** **Developmental psychology** runs three questions through every topic: nature and nurture, stability and change, continuity and stages.
- Socialization** **Socialization** is how a child learns the norms and **gender roles** of the culture – from family, peers, school and media.

A cohort effect is the standard criticism of a cross-sectional finding. Name it, and say which way it would bias the result.

2 Physical Development

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└ Physical Development

Physical Development

Development before birth can be disrupted by **teratogens** 致畸物 (harmful agents such as alcohol), maternal illness, genetic mutations, and hormonal or environmental factors.

The **visual cliff** 视崖 experiment shows that infants perceive depth early.

Physical development, from reflexes to puberty

reflexes 反射	newborn rooting, sucking, grasping and Moro reflexes – their presence indicates healthy neural development
the order	the sequence is the same everywhere; only the rate varies
adolescence 青春期	the growth spurt 青春期发育突增 and puberty 青春发育期
primary sex characteristics 第一性征	the reproductive organs themselves
secondary sex characteristics 第二性征	the non-reproductive signs – body hair, voice change, breast development
later life	sensory acuity, muscle mass and reaction time decline; crystallised knowledge does not

"Sequence fixed, rate variable" is the sentence to write. A child walking late is not developing in a different order.

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└ Physical Development

Physical development, start to end

Newborn reflexes	The rooting reflex turns the head towards a touch on the cheek – present at birth, gone by four months.
Language	Babbling, then the one-word stage at about a year, then telegraphic speech – the same sequence in every language.
Adolescence	The adolescent growth spurt and puberty, with identity versus role confusion as Erikson's stage for the period.
Later life	Menopause ends fertility; adverse childhood experiences (ACEs) predict health decades later.

Separation anxiety appears at about eight months in every culture – evidence that attachment is maturational, not learned.

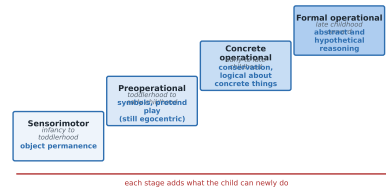
3 Gender and Sexual Orientation

4 Cognitive Development

What becomes possible, and what is still missing

Piaget's four stages: each one names what becomes possible, and what is still missing.

What becomes possible, and what is still missing, in detail



Piaget's four stages, each defined by what the child can newly do

Cognitive Development

Adult cognition changes too, and here the fluid/crystallised split from Unit 2 returns: reasoning speed declines while accumulated knowledge does not. **Dementia** 痴呆 is a decline beyond normal ageing.

- **Sensorimotor stage** 感知运动阶段 (infancy to toddlerhood): the child learns through senses and action, and develops **object permanence** 客体永久性 – knowing an object still exists when hidden.
- **Preoperational stage** 前运算阶段 (toddlerhood to early childhood): the child uses symbols and pretend play but shows **egocentrism** 自我中心 (difficulty taking another view) and lacks **conservation** 守恒 (knowing quantity stays the same when shape changes).
- **Concrete operational stage** 具体运算阶段 (early to late childhood): the child reasons logically about concrete things and gains conservation.
- **Formal operational stage** 形式运算阶段 (late childhood onward): abstract and

Vygotsky: development is social

the claim	children learn through interaction with more capable others, not by solitary discovery
zone of proximal development 最近发展区	the gap between what a child can do alone and what they can do with help
scaffolding 支架式教学	the support a teacher gives inside that zone, withdrawn as the child takes over
against Piaget	Piaget saw fixed stages driven from within; Vygotsky saw culture and language driving development from outside

Teaching aimed at the current level teaches nothing new. Teaching aimed just above it is where learning happens – that is the whole practical point of the ZPD.

5 Language Development

Language Development

Children generalise rules before they master exceptions, which produces **overgeneralization** 过度规则化 – saying "goed" instead of "went".

This is evidence that they are learning rules, not just copying.

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└ Language Development

The sequence of language, everywhere the same

language 语言a shared system of arbitrary symbols used to communicate

the ordergestures 手势, then cooing 咕咕声, babbling 咿呀学语, one-word, telegraphic speech 电报式语言, then full sentences

overgeneralisation 过度规则化“goed” and “foots” – evidence the child has learned the rule, not just the words

critical period 关键期a window in which language is acquired far more easily; after it, fluency is much harder to reach

An error like “goed” is a sign of progress. The child who says “went” first has memorised it; the child who says “goed” has extracted a rule.

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Social and Emotional Development

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└ Social and Emotional Development

Social and Emotional Development

Research identifies parenting styles 教养方式: authoritarian 专制型 (high demands, low warmth), authoritative 权威型 (high demands, high warmth), and permissive 放任型 (low demands, high warmth).

Peer relationships develop through parallel play 平行游戏 and pretend play 假装游戏 in childhood, and adolescents rely on peers more as they age.

Two theories of the whole lifespan

Erikson 埃里克森eight stages of psychosocial development 心理社会发展, each posing a conflict to resolve

the adolescent oneidentity against role confusion – the stage AP asks about most

the patterntrust, autonomy, initiative, industry, identity, intimacy, generativity, integrity

ecological systems theory 生态系统理论development as nested environments: the immediate family, then school and neighbourhood, then wider society and culture

the pointa child is shaped by settings they are never in – a parent’s workplace, a national policy

Erikson looks inside at the task each age must resolve; ecological systems theory looks outside at the layers pressing on it.

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└ Social and Emotional Development

Attachment styles

■ Attachment 依恋 is the emotional bond between infant and caregiver, studied with the strange situation 陌生情境.

■ Secure attachment 安全型依恋 against the insecure forms – avoidant 回避型, anxious 焦虑型, disorganized 混乱型.

■ Monkeys chose contact comfort 接触安慰 over food, which changed how attachment was understood.

The reunion is the discriminating moment, not the separation.

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└ Social and Emotional Development

Attachment styles, in detail

STYLE	ON SEPARATION	AT REUNION — THE TELL
SECURE	distressed	seeks contact, is comforted, returns to exploring
ANXIOUS (resistant)	highly distressed	seeks contact and resists it; not comforted
AVOIDANT	little distress shown	ignores or avoids the caregiver
DISORGANISED	variable	no consistent strategy — approach and fear together

Monkeys chose contact comfort 接触安慰 over food, which changed how attachment was understood.

7 Classical Conditioning

Classical Conditioning

The **behavioral perspective** 行为主义视角 explains behaviour through learning rather than thought.

- An **unconditioned stimulus (UCS)** 无条件刺激 naturally produces an **unconditioned response (UCR)** 无条件反应 – food causes salivation.
- A **neutral stimulus** 中性刺激 paired with the UCS becomes a **conditioned stimulus (CS)** 条件刺激, producing a **conditioned response (CR)** 条件反应.
- **Acquisition** 习得 depends on the order and timing of the pairing.
- **Extinction** 消退 occurs when the CS is no longer paired with the UCS; **spontaneous recovery** 自发恢复 is the reappearance of an extinguished CR.
- **Generalization** 泛化 is responding to similar stimuli; **stimulus discrimination** 刺激辨别 is responding only to the exact CS.

Classical Conditioning, continued

Emotional responses can be conditioned, and **taste aversion** 味觉厌恶 shows that some associations are learned in a single trial because they aided survival.

Habituation 习惯化 is a diminished response to a repeated stimulus.

The extra classical-conditioning terms

higher-order conditioning 高级条件作用	an established CS acts as the UCS for a new one – so a bell conditioned to food can itself condition a light
generalisation 泛化	stimuli <i>similar</i> to the CS also trigger the response
discrimination 辨别	learning to respond only to the exact CS
extinction 消退	the CR fades when the CS appears repeatedly <i>without</i> the UCS
spontaneous recovery 自发恢复	the CR reappears after a rest – so extinction <i>suppresses</i> the learning, it does not erase it

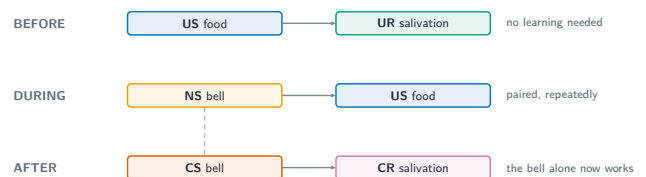
Spontaneous recovery is the evidence for that last point, and the exam uses it to test whether you think extinction is forgetting. It is not.

The reinforcement schedules

Continuous reinforcement	Continuous reinforcement rewards every response: fastest learning, and fastest extinction.
Partial reinforcement	Partial reinforcement rewards some responses: slower learning, and far more resistant to extinction.
Ratio schedules	Fixed-ratio rewards every <i>n</i> th response (a pause after each reward); variable-ratio rewards on average every <i>n</i> th – the highest, steadiest rate, and how a slot machine works.
Interval schedules	Fixed-interval rewards the first response after a set time (a scallop of activity before it); variable-interval produces slow, steady responding.

Reinforcement schedules predict the *pattern* of responding, not just the amount. Sketch the cumulative record and the differences are obvious.

Conditioning, in three stages



NS and CS are the same stimulus at different times, and so are UR and CR. Identify the US first – everything else follows from it

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Operant Conditioning

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└ Operant Conditioning

Operant Conditioning

- **Reinforcement** 强化 increases a behaviour; **punishment** 惩罚 decreases it.
- **Positive** 正 means something is added; **negative** 负 means something is removed. So **negative reinforcement** 负强化 increases behaviour by removing something unpleasant – it is not punishment.
- A **primary reinforcer** 原级强化物 satisfies a biological need; a **secondary reinforcer** 次级强化物 (money) is learned.
- **Shaping** 塑造 rewards **successive approximations** 逐步接近 of a target behaviour.

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└ Operant Conditioning

The four operant procedures

Reinforcement 强化 increases a behaviour; **punishment** 惩罚 decreases it. Positive adds; negative removes.

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└ Operant Conditioning

What conditioning produces by accident

superstitious behavior 迷信行为

a consequence reinforces an **unrelated** action – the ritual before the free throw

learned helplessness 习得性无助

repeated **uncontrollable** aversive events teach an organism to stop trying, even once escape becomes possible

instinctive drift 本能源移

a conditioned behaviour drifts back toward the species' instinctive pattern

shaping 塑造

reinforcing **successive approximations** toward a target behaviour

Learned helplessness is the bridge from the learning unit to the clinical one – it is a leading model of how depression is acquired.

Development and Learning
└ Operant Conditioning

The four operant procedures, in detail

	BEHAVIOUR INCREASES	BEHAVIOUR DECREASES
ADD	POSITIVE REINFORCEMENT add something wanted — praise, a treat	POSITIVE PUNISHMENT add something unwanted — a fine, extra work
REMOVE	NEGATIVE REINFORCEMENT remove something unwanted — the alarm stops	NEGATIVE PUNISHMENT remove something wanted — a phone taken away

Two questions fix every case: is something **added** or **removed** (positive/negative), and does the behaviour then **rise** or **fall** (reinforcement/punishment)?

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Observational and Cognitive Learning

Development and Learning ↳ Observational and Cognitive Learning	
Observational and Cognitive Learning	Learning without reinforcement
Not all learning needs direct experience.	insight learning 顿悟学习 a sudden solution with no gradual conditioning – Köhler's chimpanzee and the stacked boxes latent learning 潜伏学习 learning that happens without reinforcement and stays hidden until there is a reason to show it cognitive map 认知地图 Tolman's rats had learned the maze while wandering it unrewarded, and ran it well the moment food appeared observational learning 观察学习 learning by watching a model – Bandura's Bobo doll All three show that learning and performance are different things. Reinforcement affects whether behaviour is shown, not whether it was learned.

Development and Learning ↳ Observational and Cognitive Learning	
Worked example – applying a concept to a detail	Exam tips
2024 exam: "Explain how Jean Piaget's concept of assimilation could relate to Gavin's experience with the glass marble." ■ Full marks: "Gavin already had a schema for balls, which bounce. He assimilated the marble into that schema by treating it as a ball and trying to bounce it." ■ Define the term and tie it to the specific detail in the stimulus. A definition alone earns nothing on an application item, and so does retelling the scenario. Both halves, in one sentence.	■ Negative reinforcement increases behaviour. If you can say what was <i>removed</i>, and the behaviour went <i>up</i>, it is not punishment. ■ Match a Piaget stage to its achievement – object permanence, conservation, abstract reasoning – rather than to an age. ■ Classical conditioning links two stimuli and produces an involuntary response; operant conditioning links behaviour to consequence. ■ Variable-ratio schedules resist extinction best. Use it whenever a question describes gambling-like persistence. ■ Keep critical period for the narrow window and sensitive period for the softer one. ■ On scenario questions, name the term and then point at the detail in the scenario that proves it. The detail is what earns the mark.

Development and Learning ↳ Recap	
Unit 3 – key takeaways	
10Recap	1 Piaget name the achievement, not just the age
	2 Classical vs operant two stimuli vs behaviour–consequence
	3 Reinforcement negative reinforcement <i>increases</i> behaviour
	4 Schedules variable-ratio resists extinction (gambling)

Check yourself

- 1 Seatbelt beep stops when you buckle: reinforcement or punishment?
- 2 Object permanence: which Piaget stage?
- 3 Gambling persistence: which schedule?
- 4 Classical or operant: salivating to a bell?

Answers: negative reinforcement ▪ sensorimotor ▪ variable-ratio ▪ classical