

CUET · PSYCHOLOGY · CLASS XI · CODE 324

Learning

CUET unit: Learning (Paradigms of learning, conditioning, observational/cognitive/verbal/skill learning, learning disabilities)

By UniDrill · NCERT-grounded study material

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Snapshot

- Defines learning as any relatively permanent change in behaviour or behavioural potential produced by experience; excludes changes due to drugs, fatigue, and maturation.
- Distinguishes learning (inferred process) from performance (observed behaviour) and surveys six paradigms — classical and operant conditioning, observational, cognitive, verbal and skill learning.
- Explains Pavlov's S-S classical conditioning and Skinner's operant/instrumental conditioning along with their determinants (time relations, type and intensity of US; types, schedules and delay of reinforcement).
- Covers key learning processes — reinforcement, extinction, generalisation, discrimination and spontaneous recovery — plus learned helplessness.
- Concludes with Bandura's observational learning, Kohler's insight and Tolman's latent learning, methods of verbal learning, Fitts' three-phase skill acquisition, motivation/preparedness, and learning disabilities (including dyslexia). CUET regularly draws factual and case-based MCQs from these areas.

Detailed Notes

2.1 Core concepts

NCERT Chapter 5 frames learning as "any relatively permanent change in behaviour or behavioural potential produced by experience" (NCERT §Nature of Learning, p. 78). Two parts of this definition are critical: the change must be (a) **relatively permanent** and (b) the result of **experience**. Temporary changes brought about by drugs, fatigue, illness or maturation are therefore excluded from the category of learning. **Learning** — an internal, inferred process — is distinct from **performance**, the observed behaviour from which learning is inferred (NCERT pp. 78-79). A musician may have learned a piece thoroughly but perform poorly on a given day because of nervousness; learning has occurred even though performance has dipped.

NCERT lists six **paradigms of learning** (NCERT §Paradigms of Learning, p. 79). The simplest are the two forms of **conditioning** — **classical** and **operant (instrumental)**. The remaining paradigms are **observational, cognitive, verbal** and **skill** learning. Each is introduced with its proponent and characteristic experimental setting.

Classical conditioning was discovered by **Ivan Pavlov** while studying digestion in dogs (NCERT §Classical Conditioning, pp. 79-80). Pavlov noticed that dogs began to salivate before food actually reached the mouth — in response to footsteps or the sight of the dish — and conducted systematic experiments using a harness apparatus (Fig. 5.1, p. 80). The famous procedure pairs a **bell (CS)** with **food (US)**; the food naturally elicits **salivation (UR)**, and after repeated pairings the bell alone elicits **salivation (CR)**. Classical conditioning is therefore an **S-S learning** in which one stimulus comes to signal the imminent appearance of another (NCERT Table 5.1, p. 80). Three determinants govern its strength: (1) **time relations between CS and US** — simultaneous, delayed, trace and backward, with **delayed conditioning being the most effective** and backward conditioning rarely successful; (2) **type of US** — appetitive USs (food, water) require many trials whereas aversive USs (mild shock, loud noise) can establish a CR in just 1-3 trials; and (3) **intensity of CS** — more intense conditioned stimuli require fewer trials to produce conditioning (NCERT §Determinants of Classical Conditioning, p. 81).

Operant or instrumental conditioning was developed by **B.F. Skinner**, who studied voluntary responses ("operants") emitted by the organism and strengthened by their consequences (NCERT §Operant Conditioning, pp. 81-82). His apparatus, the **Skinner Box**, contained a lever and food dispenser; hungry rats placed inside learned to press the lever to obtain food pellets. The chief determinant is **reinforcement** — any stimulus or event that increases the probability that the response will occur again. Reinforcement varies in (a) **type** — positive (presenting a desired stimulus) and negative (removing an aversive stimulus); (b) **number/frequency**; (c) **quality** (superior such as preferred food vs inferior); and (d) **schedule** — continuous (every response reinforced) versus partial/intermittent. Crucially, **negative reinforcement is not punishment**: negative reinforcement **increases** the probability of avoidance/escape responses while punishment **suppresses** a response (NCERT §Determinants of Operant Conditioning, pp. 82-83). The **partial reinforcement effect** holds that intermittent reinforcement produces **greater resistance to extinction** than continuous reinforcement because the organism cannot readily detect when reinforcement has been discontinued (NCERT pp. 83, 91). Delayed reinforcement also weakens learning — smaller immediate rewards typically outweigh larger delayed ones (NCERT p. 83). Box 5.1 (p. 83) systematically contrasts the two forms: classical responses are reflexive and elicited (respondent), the CS and US are well-defined, and the experimenter controls reinforcement; operant responses are voluntary, the CS is not directly known, and the organism itself controls when the reinforcer occurs.

Several **key learning processes** apply to both paradigms (NCERT pp. 84-85; Fig. 5.3, p. 85): **reinforcement** (strengthens responses), **extinction** (removal of reinforcement weakens the response), **generalisation** (responding to stimuli similar to the CS), **discrimination** (responding differently to similar stimuli), and **spontaneous recovery** (reappearance of an extinguished CR after a rest period). NCERT also distinguishes **primary reinforcers** (biologically important — food for a hungry organism) from **secondary reinforcers** (money, praise, grades — acquiring reinforcing properties

through experience) (NCERT §Reinforcement, p. 84). Box 5.2 (p. 84) describes **learned helplessness**, demonstrated by **Martin Seligman and Steven Maier** in dogs: animals given inescapable shock in a first (classical) phase later failed to escape avoidable shock in a second (operant) phase. The phenomenon is widely regarded as an animal analogue of human depression.

Observational learning, also called imitation, modeling or social learning, was demonstrated by **Albert Bandura** in his classic **Bobo doll study** (NCERT §Observational Learning, p. 86). Children who watched an adult model behave aggressively toward an inflatable doll later imitated those specific aggressive acts; whether the children spontaneously performed the behaviour depended on whether the model had been rewarded or punished. **Cognitive learning** focuses on what the learner **knows** rather than **does**. **Wolfgang Köhler** demonstrated **insight learning** in chimpanzees who suddenly grasped the solution to a banana-reaching problem in a "flash"; **Edward Tolman** demonstrated **latent learning** in rats who explored a maze without reinforcement and developed an internal **cognitive map** that was only displayed once food reward was introduced (NCERT §Cognitive Learning, p. 87).

Verbal learning is unique to humans and uses **nonsense syllables, familiar and unfamiliar words** as material. The standard methods are **paired-associates learning** (similar to S-R conditioning), **serial learning** with the serial-anticipation procedure, and **free recall**, in which **Bousfield** showed **category clustering** — participants spontaneously recall words from the same semantic category together (NCERT pp. 87-89; Tables 5.2, 5.3). Determinants of verbal learning include list length, meaningfulness and the **total-time principle** — a fixed amount of total practice time is required to master a list regardless of how trials are distributed (NCERT p. 89).

Skill learning treats a skill as a chain of perceptual-motor S-R associations. **Paul Fitts** described three phases — **cognitive** (understanding the task), **associative** (linking responses into sequences) and **autonomous** (smooth, automatic execution); transitions between phases produce a **performance plateau**, and the final phase achieves automaticity (NCERT §Skill Learning, p. 90). Two facilitating factors are **motivation** (intrinsic preferred over extrinsic) and **preparedness** — a species-specific biological constraint on what associations can easily be learnt. Finally, **learning disabilities** are heterogeneous CNS-based disorders involving difficulty in acquisition, reading, writing, speaking, reasoning or mathematical activity; symptoms include attentional problems, poor space/time orientation, poor motor coordination, perceptual disorders and **dyslexia** (confusion between letters such as b/d and p/q). Learning disabilities are seen even in children of average to superior intelligence (NCERT §Learning Disabilities, pp. 92-93).

2.2 Definitions to memorise

Term	Definition	Page
Learning		78

Term	Definition	Page
	Any relatively permanent change in behaviour or behavioural potential produced by experience	
Performance	Person's observed behaviour or response/action (distinct from inferred learning)	79
Classical conditioning	S–S learning where one stimulus signals the occurrence of another (Pavlovian/respondent)	80
Unconditioned Stimulus (US)	A stimulus that naturally elicits a response (e.g., food → salivation)	80
Conditioned Stimulus (CS)	Originally neutral stimulus that, after pairing, elicits the response	80
Unconditioned Response (UR)	Natural reflexive response to the US	80
Conditioned Response (CR)	Learned response elicited by the CS after conditioning	80
Operant conditioning	Conditioning of voluntary operants whose occurrence is strengthened by reinforcement	81
Reinforcer	Any stimulus/event that increases the probability of the occurrence of a (desired) response	82
Positive reinforcement	Presentation of a desired stimulus to increase a response	82
Negative reinforcement	Reinforcement by removal of painful/aversive stimuli — increases avoidance/escape response	82
Punishment	Aversive consequence that suppresses a response	82
Partial reinforcement effect	Greater resistance to extinction produced by intermittent reinforcement vs continuous	83, 91
Extinction	Disappearance of a learned response due to removal of reinforcement	84
Generalisation	Responding similarly to stimuli similar to the original CS	85
Discrimination	Differential responding based on stimulus difference	85
Spontaneous recovery	Reappearance of an extinguished CR after a rest period when CS is presented	85
Observational learning	Acquiring knowledge by observing a model (imitation/ modeling/social learning)	86
Insight learning	Sudden grasp of the solution to a problem (Kohler, chimpanzees)	87
Latent learning	Learning that occurs without reinforcement, displayed only when reinforcement is provided (Tolman)	87
Cognitive map	Mental representation of spatial layout used to reach a goal	87

Term	Definition	Page
Category clustering	Tendency to recall words of the same semantic category together (Bousfield)	89
Skill	Ability to carry out complex tasks smoothly and efficiently; a chain of S–R associations	90
Performance plateau	Stationary level of performance during transition between skill-learning phases	90
Preparedness	Biological/genetic constraint determining what associations a species can easily learn	91
Learning disability	Heterogeneous disorders in acquisition of learning, reading, writing, reasoning — CNS-based	92
Dyslexia	Specific learning disability — failure to copy letters, confusion between b/d, p/q, etc.	93

2.3 Diagrams / processes to remember

- **Fig. 5.1 — Pavlovian harness (p. 80):** Dog in harness with tube from salivary glands and cup measuring saliva; one-way glass wall separates dog from experimenter so that only the bell (CS) and food (US) function as stimuli — the canonical apparatus for classical conditioning.
- **Table 5.1 — Stages of conditioning (p. 80):** Before — Food (US)→Salivation (UR), Bell→Alertness; During — Bell (CS)+Food (US)→Salivation (UR); After — Bell (CS)→Salivation (CR). Three rows must be memorised in this order.
- **Fig. 5.2 — Skinner Box (p. 82):** Sound-proofed chamber with lever, food container and recording mechanism for studying operant conditioning of rats; the rat's spontaneous lever press is followed by a food pellet, raising the probability of the response.
- **Box 5.1 — Classical vs Operant differences (p. 83):** Reflexive vs voluntary; CS/US well-defined vs not; experimenter vs organism controls reinforcement; passive vs active subject — a high-yield comparison table.
- **Fig. 5.3 — Spontaneous recovery curve (p. 85):** Three phases — Acquisition (CS+US presented together, CR strength rises), Extinction (CS alone, CR strength falls), Spontaneous Recovery (CS alone after rest, CR strength partially returns).
- **Tables 5.2 & 5.3 (p. 88):** Sample nonsense syllables, unfamiliar and familiar words used in verbal-learning experiments and the paired-associate stimulus-response format.

2.4 Common confusions / NTA trap points

- **Negative reinforcement ≠ punishment.** Negative reinforcement increases an avoidance/escape response; punishment suppresses a response (p. 82).

- **Most effective time-relation = delayed conditioning**, not simultaneous; backward conditioning is rarely successful (p. 81).
- **Partial reinforcement produces greater resistance to extinction**, not continuous (pp. 83, 91).
- **Insight vs latent learning:** Kohler used chimpanzees (insight); Tolman used rats in a maze (latent learning + cognitive map) — students often swap.
- **Pavlov vs Skinner vs Bandura vs Kohler vs Tolman vs Seligman:** Match the psychologist with the paradigm — Pavlov (classical), Skinner (operant/Skinner Box), Bandura (observational/Bobo doll), Kohler (insight), Tolman (latent learning), Seligman & Maier (learned helplessness).
- **Learning is inferred** from changes in performance — performance itself is the observable behaviour, not learning (p. 79).
- **Appetitive US** takes more trials; **aversive US** establishes a CR in 1-3 trials. NTA often flips this.
- **Primary vs Secondary reinforcers:** primary = biological (food, water); secondary = acquired (money, praise, grades).
- **Generalisation vs Discrimination:** generalisation = responding to similar stimuli alike; discrimination = responding differently to similar stimuli. The same child who fears a bearded man (generalisation) but not a clean-shaven one (discrimination) illustrates both.
- **Fitts' phases:** Cognitive → Associative → Autonomous (in that order). Confusing the order is a frequent trap.

2.5 Thinkers and theories at a glance

Name	Theory / Contribution	Key idea	NCERT page
Ivan Pavlov	Classical conditioning	S-S learning where a neutral stimulus paired with US comes to elicit a conditioned response	79-80
B.F. Skinner	Operant/ Instrumental conditioning	Voluntary operants are strengthened by their consequences (reinforcement); studied with the Skinner Box	81-82
Albert Bandura	Observational learning / Bobo doll study	Children imitate aggressive behaviour of a model; performance depends on whether the model is rewarded	86
Wolfgang Köhler	Insight learning	Chimpanzees suddenly grasp the solution to a problem — solution appears in a "flash"	87
Edward Tolman	Latent learning / cognitive map		87

Name	Theory / Contribution	Key idea	NCERT page
		Rats learn maze without reinforcement; develop internal cognitive map displayed when reward is added	
Martin Seligman & Steven Maier	Learned helplessness	Inescapable shock in dogs leads to passive failure to escape even avoidable shock — model of depression	84
Paul Fitts	Three phases of skill acquisition	Cognitive → Associative → Autonomous phases of skill learning, ending in automaticity	90
W.A. Bousfield	Category clustering in free recall	Recalled words spontaneously cluster by semantic category, revealing organisation in memory	89

Practice MCQs

PYQ Alignment

The Learning chapter is a high-yield CUET Psychology topic — typically 5–7 MCQs per year. Frequently tested areas include the Pavlov/Skinner distinction (Box 5.1), determinants of conditioning, reinforcement vs punishment, schedules of reinforcement, processes like generalisation/discrimination/extinction, matching psychologists (Bandura, Kohler, Tolman, Seligman) with paradigms, and definition-based items on cognitive map, latent learning, dyslexia, and preparedness.