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APPSC PAPER I: GENERAL STUDIES & MENTAL ABILITY · PSYCHOLOGY

Learning

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1 Learning: conditioning, observational learning and transfer (exam summary)

Learning is a relatively permanent change in behaviour that comes from experience; psychology papers test it through the term tables of classical (Pavlov) and operant (Skinner) conditioning, observational learning (Bandura), insight (Köhler), transfer of training and the role of motivation. The full stories and experiments are in EDU-LR-01 to EDU-LR-05; this note is the side-by-side summary for revision.

Core facts

- **Learning:** a **relatively permanent** change in behaviour (or behaviour potential) due to **experience or practice**. Changes due to **maturation, fatigue, illness, drugs or reflexes** are **not** learning (EDU-LR-01).
- **Two concepts central to behavioural psychology: classical conditioning** and **operant conditioning** (asked in 2023).
- **Classical conditioning:** discovered by **Ivan Pavlov** (dogs, salivation; EDU-LR-02). A **neutral stimulus** paired with an **unconditioned stimulus (UCS)** becomes a **conditioned stimulus (CS)** that calls out a **conditioned response (CR)**.
- **Operant (instrumental) conditioning: B.F. Skinner** (rats, pigeons; EDU-LR-03). A behaviour that is **rewarded is repeated**; one that is not rewarded or is punished fades (asked in 2023: "if you reward a behaviour, it will be repeated").
- **Reinforcement increases** a behaviour; **punishment decreases** it. **Positive** = something **added**; **negative** = something **removed**.
- **Schedules of reinforcement:** continuous; partial: **fixed ratio**, **variable ratio** (highest rate, hardest to extinguish), **fixed interval** (scallop), **variable interval** (table in EDU-LR-03).
- **Shaping:** rewarding **successive approximations**. **Chaining:** linking steps into one sequence, each step reinforced by the chance to do the next.
- **Escape learning:** a response ends an unpleasant stimulus already present. **Avoidance learning:** a response **prevents** it from starting (after a warning signal).
- **Learned helplessness: Martin Seligman and Steven Maier (1967):** dogs given **inescapable shocks** later **did not try to escape** when escape was easy. A learnt belief that one's actions do not matter; a model of **depression**.
- **Observational learning: Albert Bandura;** learning by **watching others' actions and their outcomes** (also called **modelling**, imitation, vicarious or social learning; Bobo doll, 1961; EDU-LR-05).
- **Bandura's four processes, in order: attention → retention → reproduction → motivation.**
- **Insight learning: Wolfgang Köhler,** chimpanzee **Sultan**; **sudden** grasp of relations (EDU-LR-04).
- **Latent learning** (Tolman): learning that stays hidden until a reward gives a reason to show it (EDU-LR-04).

- **Transfer of learning (training):** using knowledge or skills learnt in one situation in a **new** learning or problem-solving situation (asked in 2023).
- **Types of transfer: positive, negative, zero; lateral and vertical; bilateral** (one side of the body to the other).
- **Theories of transfer: formal discipline** (faculty psychology), **identical elements** (Thorndike and Woodworth, 1901), **generalisation** (Judd, 1908), **transposition** (Gestalt), **ideals** (Bagley) (EDU-LR-01).
- **Learning and motivation:** a motivated learner attends, practises and persists. **Yerkes-Dodson law (1908):** performance is best at a **moderate** level of arousal, and the best level is **lower for difficult tasks**.

Explained

1. Classical conditioning: the term table.

Term	Meaning	Pavlov's dog
UCS → UCR	Natural stimulus and natural, unlearned reflex	Food → salivation
CS → CR	Learnt stimulus and learnt response	Bell → salivation
Acquisition	The stage in which CS-UCS pairing builds the CR	Bell rung just before food, many times
Extinction	CS given again and again without the UCS; CR fades	Bell, no food → saliva stops
Spontaneous recovery	After a rest, the extinguished CR returns , weaker	Next day the bell brings some saliva
Generalisation	Similar stimuli also bring the CR	A bell of another tone works too
Discrimination	CR only to the CS, not to similar stimuli	Only one tone is followed by food
Higher-order conditioning	A strong CS conditions a new neutral stimulus	Light → bell → saliva

Timing of CS and UCS (best to worst):

- **Delayed (forward):** CS starts first and overlaps the UCS; **most effective**.
- **Trace:** CS starts and **ends** before the UCS; a gap the animal must bridge in memory.
- **Simultaneous:** CS and UCS start together; weak.
- **Backward:** UCS comes **before** CS; **least effective**.

Human examples: fears and phobias (Little Albert), taste aversion after one bout of food poisoning, anxiety at the sight of a hospital, advertisements pairing a product with a pleasant image. Therapy uses it in reverse: **systematic desensitisation** (Wolpe) and **aversion therapy**.

2. Operant conditioning: the term table.

	Stimulus added	Stimulus removed
Behaviour increases	Positive reinforcement (praise for homework)	Negative reinforcement (seat belt put on to stop the beeping)
Behaviour decreases	Positive punishment (scolding)	Negative punishment (phone taken away; time-out)

- **Primary reinforcers** meet biological needs (food, water); **secondary** (conditioned) reinforcers gain value through pairing (praise, money, grades, tokens).
- **What makes reinforcement work: immediate** rather than delayed reinforcement; **amount** and **quality** of the reinforcer; the **schedule** (continuous is fastest for acquisition, **partial** is most resistant to extinction: the **partial reinforcement effect**).
- **Extinction, generalisation, discrimination and spontaneous recovery** occur in operant learning too. A **discriminative stimulus** signals that a response will now be reinforced (the "open" sign on a shop).
- **Punishment's limits:** it shows what **not** to do, not what to do; it suppresses rather than removes a behaviour; it can breed fear, anger and avoidance of the punisher. It works best when **immediate, consistent** and paired with reinforcement of a correct alternative.
- **Learned helplessness explained:** in Seligman and Maier's study, dogs that had been able to **stop** shocks by pressing a panel later learnt to jump a barrier to escape; dogs given the **same shocks with no control** lay down and endured them. Lack of **control**, not the shock itself, produced the passivity. Human parallels: repeated failure in school, long-term unemployment, prisoners and institution inmates who stop trying. Remedy: experiences of **success and control**.

3. Classical vs operant conditioning.

Point	Classical	Operant
Name given by Skinner	Type S (stimulus)	Type R (response)
Response	Elicited , involuntary (reflex, emotion)	Emitted , voluntary
Order of events	Stimulus pairing comes before the response	Reinforcer comes after the response
Learner	Passive	Active, acts on the environment
Key name	Pavlov, Watson	Thorndike (law of effect), Skinner

4. Observational learning: what to remember.

- **Attention** (to a model who is attractive, similar, powerful or successful) → **retention** (in images and words) → **reproduction** (having the skill to copy) → **motivation** (a reason to perform).
- **Vicarious reinforcement / punishment:** seeing the model rewarded or punished changes how likely the observer is to copy.
- **Learning vs performance (Bandura, 1965):** children who saw a model **punished** for aggression copied less, but when later **offered a reward** for copying, the gap between the groups almost vanished: they reproduced the aggression about as well as the others. So they had **learnt** it; consequences decided only whether they **performed** it.

- **Uses:** teaching skills by demonstration, role models, peer tutoring; concern over violence in films and TV; **modelling therapy** for fears.

5. Insight learning: the features. Sudden solution after a pause; depends on seeing the **whole** problem; once found, it is **repeated without error**, **retained** and **transferred** to similar problems. Compare **trial and error** (Thorndike): gradual, random, error falls slowly.

6. Transfer of training in one table.

Type	Meaning	Example
Positive	Earlier learning helps the new task	Cycling → riding a scooter
Negative	Earlier learning hinders the new task	Typing on one keyboard layout, then another
Zero	No effect	Learning to swim → learning history
Lateral	To a task at the same level	Classroom sums → shop bills
Vertical	To a higher -level task	Addition → multiplication
Bilateral	From one side of the body to the other	Mirror-drawing practice with the right hand helps the left

- **Theories in one line each: formal discipline:** hard subjects train the mind's "faculties" like muscles (rejected by James and Thorndike); **identical elements:** transfer only as far as the tasks share elements; **generalisation:** understanding a **principle** transfers (Judd's darts at an underwater target); **transposition:** transfer of a grasped **relationship** (Gestalt); **ideals:** values transfer when taught as ideals.
- **Learning to learn (learning set): Harry Harlow (1949):** monkeys given hundreds of different discrimination problems got faster at each new one until they solved it in a single trial. Practice in a **type** of problem transfers.
- **Teaching for transfer:** teach principles, not only facts; use varied examples; link lessons to real life; point out the similarities between old and new tasks; practise to mastery.

7. Learning and motivation.

- **Motivation** starts, directs and keeps up learning (motive cycle and Maslow are in EDU-LR-05). Without some drive or interest, practice is mechanical and little is learnt.
- **Intrinsic vs extrinsic:** learning for its own sake (curiosity, mastery) lasts longer than learning for marks or prizes.
- **Overjustification effect: Lepper, Greene and Nisbett (1973):** nursery children who enjoyed drawing were promised a reward for it; later they drew **less** in free time than children who were not promised one. An **expected** external reward can weaken intrinsic interest.
- **Praise and reproof: Elizabeth Hurlock (1925):** in arithmetic classes, the **praised** group improved most, the **reproved** group next, and the **ignored** group least. Any attention beats none, and praise works best.
- **Knowledge of results (feedback)** improves learning, especially when **immediate** (the basis of programmed learning; EDU-LR-03).
- **Level of aspiration, achievement motivation, competition and co-operation** also shape effort (EDU-LR-05).

- **Too much arousal hurts:** exam anxiety lowers performance on hard papers (Yerkes-Dodson).

Common traps

✗ "Negative reinforcement is punishment." ✓ Negative reinforcement **removes** something unpleasant and **increases** the behaviour; punishment **decreases** it.

✗ "Extinction means the response is erased for ever." ✓ **Spontaneous recovery** shows it is only suppressed.

✗ "Backward conditioning works best." ✓ **Delayed (forward)** works best; backward works least.

✗ "Classical responses are voluntary." ✓ Classical responses are **elicited** and involuntary; operant responses are **emitted** and voluntary.

✗ "Observational learning was proposed by Skinner (or Watson)." ✓ **Albert Bandura**.

✗ "Bandura's order: attention, motivation, retention, reproduction." ✓ **Attention** → **retention** → **reproduction** → **motivation**.

✗ "Learned helplessness is Skinner's (or Bandura's)." ✓ **Seligman and Maier (1967)**.

✗ "Identical elements theory is Judd's." ✓ Identical elements = **Thorndike** (with Woodworth); generalisation = **Judd**.

✗ "Fixed ratio is hardest to extinguish." ✓ **Variable ratio** is.

✗ "More arousal always means better learning." ✓ **Moderate** arousal is best (Yerkes-Dodson), lower for hard tasks.

Quick revision

- Learning = relatively permanent change from experience; not maturation, fatigue or drugs.
- Classical (Pavlov): UCS, UCR, CS, CR; extinction, spontaneous recovery, generalisation, discrimination.
- Timing: delayed best, then trace, simultaneous; backward worst.
- Operant (Skinner): reward → repeated; positive = add, negative = remove; reinforcement up, punishment down.
- Partial reinforcement resists extinction; variable ratio strongest.
- Learned helplessness: Seligman and Maier 1967, inescapable shock, model of depression.
- Bandura: attention, retention, reproduction, motivation; learning vs performance.
- Köhler insight = sudden; Tolman latent learning; Harlow learning set = learning to learn.

- Transfer: positive, negative, zero, lateral, vertical, bilateral; identical elements (Thorndike), generalisation (Judd).
- Yerkes-Dodson: moderate arousal best; Hurlock: praise > reproof > ignored; expected rewards can kill interest.