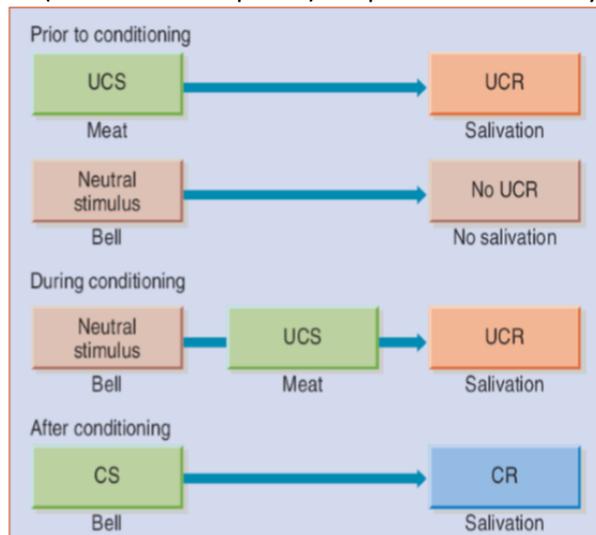


Learning:

- Process by which experience or practice results in a relatively permanent change in behavior or in potential behavior.
 - Learning studies use animal subjects for precise control of conditions
 - This assumes a level of comparative similarity between species for generalization.

Classical conditioning:

- Ivan Pavlov: salivating dogs, salivating before food was placed on tongue (conditioned response)
- Always involves a reflex behavior
 - A reflex is a simple unlearned response governed by nervous system that occurs naturally
- Stimulus-response relationship is learned by association
- Pairing a neutral stimulus with a natural (unlearned stimulus) that elicits automatic response
 - UCS (unconditioned stimulus): unlearned stimulus that always elicits specific response
 - UCR (unconditioned response): response elicited by unconditioned stimulus
 - CS (conditioned Stimulus): an originally neutral stimulus that is paired with unconditioned stimulus and eventually produces formally unconditioned response.
 - CR (conditioned response): response as elicited by conditioned stimulus.



- UCR and CR are the same behavior, what distinguishes them is the stimulus that preceded them.
 - Natural response – UCR
 - Learned response – CR
- Conditioning strengthened by:
 - Frequent pairings of CS and UCS
 - Timing: CS is presented immediately prior to UCS to make the CS predictive of the UCS.

- Extinction: gradual weakening of CR, occurs when CS presented without UCS
 - Is not an un-learning, rather a learned inhibition of response.
 - Partially reinforced responses harder to extinguish
- Spontaneous recovery: The reappearance of a previously extinguished response
- Rapid reacquisition: once extinction has occurred, re-learning occurs faster than initial learning

Classical conditioning does not require repeated exposure, one bad experience is enough.

Biological preparedness: organisms are biologically prepared to learn certain associations quickly because they ensure survival.

Phobias are example of biological preparedness. Evolutionary adaptation.

- Phobias can be unlearned via gradual pairing with positive experience.
 - Cognitive-behavioral therapy

Desensitization therapy: relax in the presence of fearful stimuli (cant be relaxed and fearful at same time)

Drugs:

- Conditioned response to drugs: Placebo.
- Anticipation of drug elicits a conditioned compensatory response (CCR) – natural tendency to reverse anticipated effect (homeostasis)

Fetishes: sexual attraction to non-living things. Can be conditioned

Operant conditioning

- Goal-orientated learning
- Learning by trial and error
- Become faster at goal-orientated action on subsequent trials due to rewarded behavior
- Consequences shape behavior – unsuccessful responses gradually eliminated
 - Satisfactory Responses rewarded
 - Unsatisfactory responses punished
- Operant describes any active (voluntary) behaviour that is produced in order to generate consequences, or is instrumental in generating consequences
- Reinforcement: increases likelihood of action being repeated. increases preferred behavior
 - Positive reinforcement: stimulus presented, increases behavioral reoccurrence
 - Negative reinforcement: stimulus removed/reduced, increases behavior reoccurrence
- Reinforcement schedules:
 - Continuous reinforcement
 - Intermitted/partial reinforcement (sometimes reinforced)
 - Only given for some
 - Generates behavior that persists longer: learners keep testing for reward

- Ratio schedules:
 - Fixed ratio: rewarded after fixed no. correct responses
 - Variable ratio: rewarded after average no. correct responses
 - Timing schedules:
 - Fixed interval
 - Variable interval
- Shaping: Learning more complex behaviors by reinforcing successive approximations to the desired behavior. Shaping of behaviour that's not already in the animals repertoire.
 - Reward high frequency component of desired response
 - Drop reinforcement – behavior becomes more variable again
 - Await response that is still close to desired response – then reintroduce reinforcement
 - Keep cycling until close approximations achieved.
- Punishment:
 - Use of aversive consequences to reduce undesirable behavior
 - Positive punishment: stimulus added to situation (eg electric shock)
 - Negative punishment: stimulus taken away (eg food removed)
 - Punishment more effective when swift
 - Less effective than reinforcement
 - Only causes suppression of behavior
 - When threat of punishment is removed, behavior returns

