Learning Theory & Behaviorism

Classical Conditioning

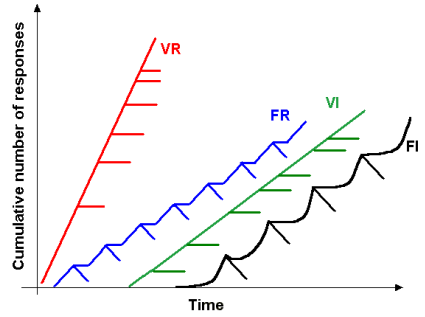
Ivan Pavlov (1849-1936)	Russian physiologist; work on digestion in dogs
Neutral Stimulus - NS	No predictable response
Unconditioned Stimulus - US	Causes an **Unconditioned Response - UR**
Conditioned Stimulus - CS	Causes **Conditioned Response CR**
Acquisition	**NS** has become a **CS**
Extinction	**CS** no longer causes **CR**
Spontaneous Recovery	**CR** returns after rest period
Stimulus Generalization	**CR** for similar stimuli
Stimulus Discrimination	**CR** only for **CS**, not similar
Second-order / Higher-order conditioning	Associate new stimulus w/ **CS** (i.e. *light* → bell → food)
"Little Albert" study Watson & Rayner (1920)	Conditioning of "fear" response to white rat; *aversive conditioning*

Operant Conditioning

Edward Thorndike (1874-1949)	Cats escape "puzzle box"; consequences of behavior
Law of Effect	+ consequences ↑ behavior
Instrumental learning	Learn to perform behaviors based on consequences
B. F. Skinner (1904-1990)	*Radical behaviorism*, operant conditioning
Reinforcement	**Increases** a behavior **Positive:** add desirable **Negative:** remove undesirable
Punishment	**Reduces** a behavior **Positive**: add undesirable **Negative:** remove desirable (*omission training*)

Operant chamber / "Skinner box"	Delivers reinforcement & measures rate of behavior
Chaining	Connect simple behaviors
Shaping	Reward successive approximations of behavior
Primary vs. Secondary Reinforcer	Satisfy basic drive (food) vs. learned associations (money)

Schedules of Reinforcement



Continuous v. Intermittent Reinforcement	Behavior rewarded each time vs. only some times
Fixed-ratio (Vending machine)	Behavior reinforced after a set # of behaviors
Variable-ratio (Slot machine)	Behavior reinforced after unpredictable # of behaviors
Fixed-interval (Paycheck)	Behavior reinforced after set time period
Variable-interval (Pop quiz)	Behavior reinforced after varying time period
"Superstitious" behavior	Caused by random reinforcement not related to a specific behavior
Premack Principle	Behaviors can be used to reinforce other behaviors

Biological Aspects of Learning

Learned Taste Aversion	Avoid food after 1 pairing & long delay btw stimulus & illness (Garcia & Koelling)
Biological Preparedness	Some associations learned more easily than others (imprinting, taste aversion, instinctual drift, etc.)
Instinctive / Instinctual Drift	Instinct prevents conditioning of a similar behavior (Brelands)
Rescorla-Wagner model	Salience & reliability influence learning

Observational Learning

Albert Bandura	"Bobo Doll" study of learned aggression
Modeling	Copying / imitating observed behaviors
Vicarious reinforcement	Observing others reinforced or punished for a behavior
Mirror neurons	Fire when performing action or observing the action

Cognitive Aspects of Learning

Latent Learning	Occurs without incentive to demonstrate (E. Tolman)
Cognitive map	Mental representation of locations (Tolman)
Abstract learning	Forming complex mental concepts, categories, etc.
Insight Learning	Sudden awareness of solution (Wolfgang Köhler)