

Operant Conditioning

Defined: Learning that takes place when a spontaneous behavior is reinforced or punished

Edward Thorndike: early – mid 1900s

Law of effect: rewarded behavior is likely to recur

BF Skinner: elaborated on Thorndike's law of effect

Skinner Box or Operant Chamber - Rat/Maze - food pellet dispensed when lever was pushed by rat

Pigeons – taught them to walk in a figure eight, play Ping-Pong

Reinforcement: Any behavior that increases the likelihood a behavior will happen again

Punishment: Any behavior that decreases the likelihood a behavior will happen again

Parts:

Spontaneous behavior: any action (what you did)

Consequences: positive or negative result of behavior (what happened because of what you did)

Stimulus: Something that causes a response (why you did what you did)

Response: Behavior (what will happen in the future)

Schedules of Reinforcement:

*Reinforcement works better if it is not every time

- 1) **Fixed-ratio reinforcement:** reinforcement is based on a set number of responses (ex: every 3rd time, buy 2 get one free)
- 2) **Variable-ratio schedule:** reinforcement is based on you doing something, but it is not set (ex: slot machines – must put money in; fishing – worm, lure in the water—never know when you will win, or catch a fish)
- 3) **Fixed-interval schedule:** a set amount of time must pass for you to be rewarded, even if you have not done something (ex: payday every Friday)
- 4) **Variable-interval schedule:** based on time passing, but it is not set (ex: police waiting to catch someone speeding. may have to wait 5 minutes, or may have to wait an hour)

Shaping - the reinforcement of behaviors that approximate or come close to the desired new behavior. The steps involved are often called successive approximations because they successively approximate or get closer and closer to the desired behavior.

Chaining - The new behavior you want to build may be a series or chain of behaviors. A behavior chain is a series of related behaviors, each of which provides the cue for the next and the last that produces a reinforcer.

Example of chaining:

Practically any complex behavior we do in the way of operant behavior is part of a chain or a multitude of chains: eating, getting dressed, using the computer, counting, brushing your teeth, riding a bike, walking to school and so on. Behavior chains are very important to all of us; as is the procedure for building chains, which is called chaining.

Instinctive Drift - Although humans, animals, etc., can learn to perform different behaviors, there are times when they stop performing those behaviors in the way they learned and start reverting back to their more instinctual behaviors - this is the basic premise of Instinctual Drift. The animal no longer performs the behaviors it has been taught, but goes back to behaviors that are in its nature. It begins to do what it is driven to do regardless of the resulting punishment.

For example, a dog with the nature to bark at visitors thinking they are intruders might have been taught to sit quietly when a guest enters through reward and punishment. Under stress, however, it may have instinctual drift, disregarding the learned behavior and barking at the guest.

Types of Reinforcement

- 1) Primary – Satisfies a biological need, stimulus that is naturally rewarded (food, water, sleep)
- 2) Secondary – stimulus that becomes reinforcing through its link with a primary reinforcer
- 3) Positive – something added
- 4) Negative – something taken away

Reinforcement: Increase the likelihood that a behavior will occur again

Positive/Negative

Punishment: decrease likelihood

Positive/Negative

*As a general rule it is common to confuse punishment with negative reinforcement.

Keep in mind with:

Punishment – unpleasant event follows a behavior = less likely that behavior will happen again

Negative reinforcement – removing/preventing an unpleasant stimulus

Punishment - Behavior decreases

Disadvantages with punishment alone

- 1) Could produce unwanted side effects → rage, fear, aggression
- 2) Avoidance of person doing punishment

Aversive control

- Influencing behavior by either removing or adding something unpleasant

Avoidance – preventing the onset of an unpleasant stimulus

Escape – stopping an unpleasant stimulus

Avoidance/Escape behaviors increase