

Learning

- Definition: the change of behavior as a function of experience
 - Sum of experiences and how you behave as a result of them
 - Stimuli that occur close together in time will come to elicit the same response
 - Rewarded behaviors will probably be repeated; punished behaviors probably won't.
 - Attempts to explain personality in terms of learning principles

Behaviorism

- Definition: study of how a person's behavior is a direct result of his or her environment, particularly the environment's rewards and punishments
- People should be studied from the outside
 - We can't read minds
 - All knowledge worth having comes from direct, public observation
 - Overt behavior can be observed, predicted, controlled
 - Can be modified and we can see modification

Behaviorism

- Personality is the sum of everything a person does (their learning)
- Parents and teachers encourage or discourage behaviors
- Experiences become linked, either accidentally or deliberately, and the person learns to avoid or seek out certain things.
- World beyond parents and teachers gives you feedback that encourages/discourages certain behaviors.
 - IE) everyone always tells you you're good at computers, trip at track → going to MIT not sports school

The Philosophical Roots of Behaviorism

- Empiricism: idea that all knowledge comes from experience
 - Experience is the direct product of reality
 - Reality determines personality, the structure of the mind, and behavior
 - In opposition to rationalism implies that at birth the mind is essentially empty (screen on which we can print whatever we want)
 - No real objective reality, only constructs (way you look at world)
 - John Locke: tabula rasa, or blank slate
 - Very democratic

Roots of Behaviorism

- Associations: idea that any two things, including ideas, become mentally associated as one if they are repeatedly experienced close together in time
- Hedonism: organisms learn for two reasons: to seek pleasure and to avoid pain
- Simple → democratic, reward and punishment

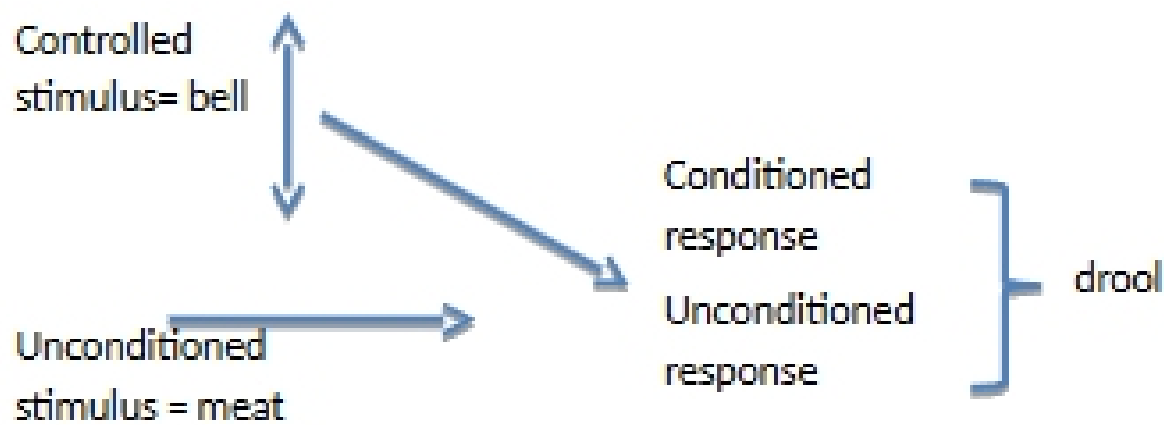
Behaviorism: Three Kinds of Learning

- Habituation: a decrease in responsiveness with each repeated exposure to something
 - Simplest form of behavior change as a result of experience
 - To maintain the intensity of the original response, the stimulus has to change or continually increase (otherwise we just get used to it)
 - E.g., habituation to violence, disability, wealth
- Classical Conditioning (Learning)

–Classical Conditioning=Pavlovian Conditioning=Respondent Conditioning

–Way of pairing a stimulus which elicits a natural, unlearned response with a stimulus that wouldn't usually elicit that response. If paired often enough, the new stimulus will elicit the same response → principle of association

–Developed by Russian scientist, Ivan Pavlov



EX) Flu brewing in stomach, gets sick as soon as eats Chipotle, can't be near Chipotle again
 CS= Chipotle
 UCS= flu
 CR/UCR= puke

EX) Women recalls father take her to fair, ride, cotton candy → now when she eats cotton candy she feels loved
 CS= cotton candy
 UCS= father
 CR/UCR= feeling loved

EX) child w abusive alcoholic has a panic attack when he smells the communion wine at church (to be afraid of wine, first need to be afraid of father)
 CS= smell of wine
 UCS= abuse from alcoholic father
 CR/UCR= panic attack

EX) Little Albert fear video (bang w mice=fear, then fear all things furry)
 UCS= bang
 CS= mice/
 UCR= fear of bang
 CR= fear of furry things

Limits of classical conditioning

- Association, or pairing between conditioned stimulus and unconditioned stimulus isn't permanent
- If not ever reinforced, conditioned stimulus will cease to cause the conditioned response —this is extinction (Little Albert won't care about furry things?)
- Not all stimuli can be paired, or associated—e.g. dead fish smell and a good joke?

Behaviorism: Three Kinds of Learning

- Operant conditioning: the process of learning in which an organism's behavior is shaped by the effect of the behavior on the environment
 - Thorndike's (1911) Law of Effect: responses followed by a rewarding state of affairs will be strengthened and responses followed by an aversive state of affairs will be weakened
 - Operant Conditioning (cont.)

Steps of operant conditioning

1. Organism engages in a spontaneous behavior
2. Behavior is either reinforced or punished
 - **Reinforcement**=any consequence that *increases* the behavior in the future → reward
 - What is reinforcing depends on organism and situation

- **Punishment**=any consequence that *decreases* the behavior in the future
- Operant Conditioning (cont.)
- Two ways to increase behavior:
 - **positive reinforcement**: give something good following a behavior (reward)
 - **negative reinforcement**: take away something bad following a behavior (still a reward)
 - ie) yoga takes knot in neck away, negative reinforcement to do yoga again
- Operant Conditioning (cont.)
- Two ways to decrease behavior:
 - **punishment**: make something bad happen following a behavior—either apply an aversive stimulus or take away something desired.
 - **Positive punishment**- give aversive (spanking)
 - **Negative punishment**- take away favorite toy
 - these days, we talk about positive and negative punishment also
 - must be immediate, consistent, and replacement behav. avail.
- 2. **extinction**: remove a reward that has been attached to a behavior and let the behavior extinguish (die out on its own). → stop pairing stimulus w particular response, stop action (cookie for reading, cookie stops, don't like reading, stop reading bc not paired w cookie)

- Operant Conditioning (cont.)
- **Stimulus Generalization**: responding to similar stimuli similarly in order to get the same response.
 - E.g., rat with a large and small lever
- **Stimulus Discrimination**: process by which an organism learns to respond only to stimuli that result in reinforcement, and not respond to similar stimuli that won't result in a reward.
- Operant Conditioning (cont.)

Premack's Principle: a higher frequency behavior can be used as a reward (reinforcement) for a lower frequency behavior

- Works even if the higher frequency behavior isn't much of a reward
- Rather do laundry than read textbook → higher frequency= laundry
- Operant Conditioning (cont.)

Reinforcement Schedules

- How often you reward a behavior--four types:
 1. **fixed-interval**: reinforcer presented following the first response that occurs after a fixed time interval has elapsed. (rat always rewarded after 3 minutes, not going to work as hard)
 2. **fixed-ratio**: reinforcers given only after the organism has made a specified number of responses.
 - often causes the organism to work harder (food every ten taps, push faster and work harder)
 3. **variable-interval**: reinforcement given at more or less random intervals.
 4. **variable-ratio**: reinforcement schedule based on an average number of responses

between reinforcers

- often great variability on # of responses
- used with slot machines
 - pay out average of 15 pulls, sometimes 10 sometimes 30