Myers Notes: Learning Modules 26-30 p262-312

Module 26 How we learn and Classical Conditioning

How do we learn?

Definition of Learning: “the process of acquiring new and relating enduring information or behaviors.”

- Learning includes adapting to our environment
- Involves expectations, expectancies are created
- We learn to repeat acts that bring rewards
- We learn to avoid things that bring unwanted results
- We learn from observation
- We learn through language
- We learn by association (connecting events that occur in sequence)
- Learning can occur subtly

Learned Association:
Repeated behaviors become associated with certain contexts

- Then the context evokes a response

Animals learn by association
Linking 2 events that occur to together = **Association Learning**
The organism **predicts** the immediate future… (**Expectancy is created**)
Conditioning is learning by association

Habituation:
An organism has decreasing response to a stimulus with repeated exposure

Classical Conditioning
Association of 2 stimuli = Association = expectancy

A **Stimulus** “is any event or situation that evokes a **response**.

Operant Conditioning:
“Association of a behavior (response) and a consequence
We repeat acts with good results
We avoid acts followed by bad results

Pg. 265
Cognitive Learning
Mental information guides behavior
“Acquisition of mental information- observing or through language”

Observational Learning:
We learn from others’ experiences

P266

Classical Conditioning:

What are basic components of classical conditioning, and what was behaviorism view of learning?”

Pavlov:

- Psychology’s most famous researcher.
- Identified Classical Conditioning
- MD
- Studying Digestion
- Salivating Dog
- At taste of food
- But also The sight of food or sight of dish, or the person, or the sound of the person’s footsteps…
- Food -Paired with Neutral Stimulus
- Events, normally not associated with food, are paired…
- Pairing = Associations
- Dogs Anticipated the coming food
- Unconditioned Stimulus = Unconditioned Response
- Unconditioned Stimulus + Neutral Stimulus = Conditioned Stimulus = Conditioned response = Conditioned = learned and Unconditioned = not learned
- NS UR CS CR

P267 Chart

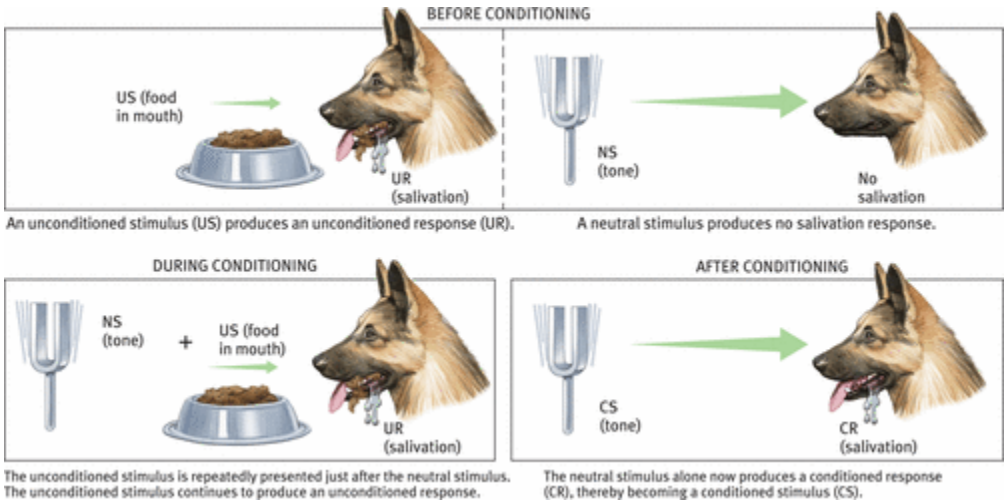


Figure 26.4 **Pavlov’s classic experiment** Pavlov presented a neutral stimulus (a tone) just before an unconditioned stimulus (food in mouth). The neutral stimulus then became a conditioned stimulus, producing a conditioned response.

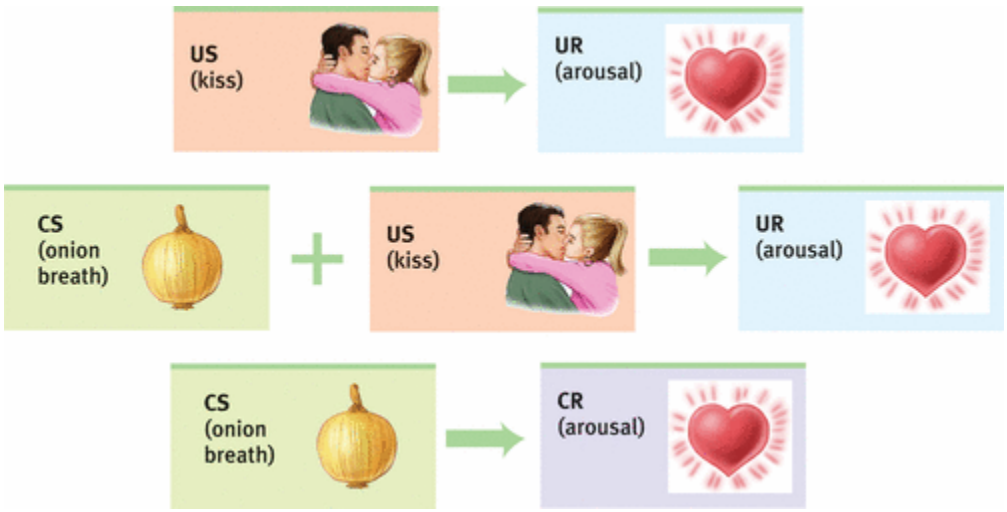


Figure 26.5 **An unexpected CS** Psychologist Michael Tirrell (1990) recalled: "My first girlfriend loved onions, so I came to associate onion breath with kissing. Before long, onion breath sent tingles up and down my spine. Oh what a feeling!"

What are the processes of:
Acquisition
Extinction
Spontaneous Recovery
Stimulus Generalization
Discrimination

Acquisition:
Initial learning of stimulus response relationship
Pair the NS+US (1/2 second pairing)
NS before the US

Classical Conditioning- is "biologically adaptive"

Higher Order-Conditioning:
A new NS can become a new CS
AKA- second order conditioning

P269

Extinction and Spontaneous Recovery

Extinction:
A diminished response that occurs when the CS no longer is associated with the US.

Spontaneous Recovery:
Occurs when extinction occurs then re-pairing of association is created again.

Generalization:
The tendency where stimuli similar to the CS elicits a CR

P269 Chart

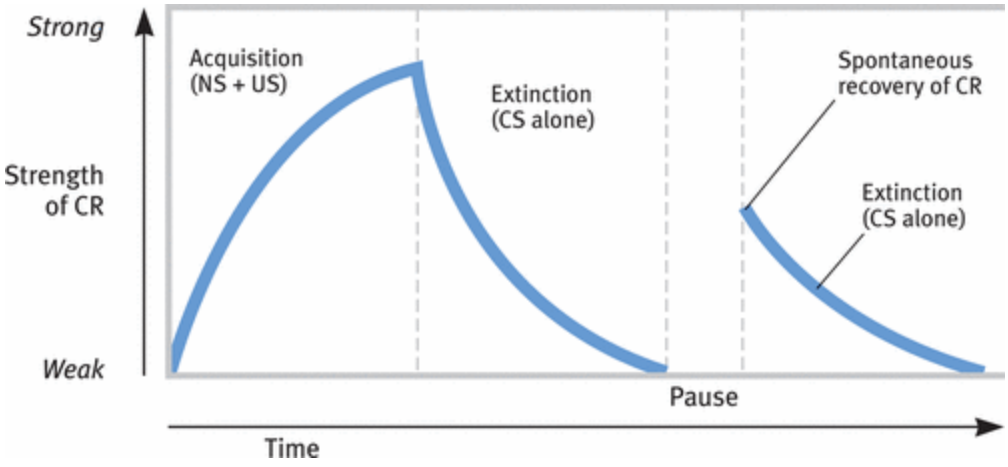


Figure 26.6 **Idealized curve of acquisition, extinction, and spontaneous recovery** The rising curve shows that the CR rapidly grows stronger as the NS becomes a CS as it is repeatedly paired with the US *(acquisition)*, then weakens as the CS is presented alone *(extinction)*. After a pause, the CR reappears *(spontaneous recovery)*.

Generalization Applies to Angry Faces and abused children… they are conditioned to respond to the angry face.

Discrimination

The ability to distinguish between a CS and other irrelevant stimuli

Pavlov's Legacy:

Most agree with Pavlov's analysis
Classical Conditioning helps people and organisms adapt to the environment.
Method of objective study of behavior as science
Isolating building blocks of complex behaviors

Applications of Classical Conditioning

Drug addicts are classically conditioned
Immune responses can be triggered by taste
Pavlov greatly influenced Watson

Led to **Watson** and the Behaviorism

Watson
rejected Inner thoughts
Rejected motives
Rejected Mental Processes
Advocated
Studying how organisms respond to stimuli
Psychology should be based on behavior
Psychology as an objective science

> Give me a dozen healthy infants, well-formed, and my own specified world to bring them up in and I'll guarantee to take any one at random and train him to become any type of specialist I might select—doctor, lawyer, artist, merchant-chief, and, yes, even beggar-man and thief, regardless of his talents, penchants, tendencies, abilities, vocations, and race of his ancestors."

Watson said emotions and behaviors are conditioned responses
Little Albert and Phobias
Ethical Standards

Treatment Using Extinction

Module 27 Operant Conditioning

What is Operant Conditioning?

Associative Learning

Organisms Associate their actions with consequences

Actions followed by:

Reinforcement

Increase behaviors

Punishers

Decrease behaviors

Behaviors that operates on the environment produces rewards or punishment.

P275

Skinner Experiments

B.F. Skinner built on **Thorndike's Law of Effect**

"Behaviors followed by favorable consequences are more likely to re-occur"

Operant Chamber: AKA Skinner Box

Lever to release food

Shows power of reinforcement

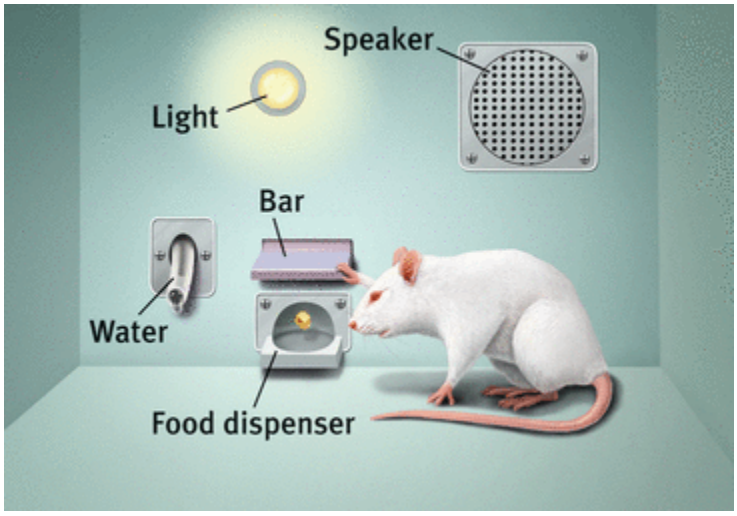


Figure 27.2 **A Skinner box** Inside the box, the rat presses a bar for a food reward. Outside, a measuring device (not shown here) records the animal's accumulated responses.

Diverse Types of Reinforcers

Parise

Attention

Paycheck

Food/Water

Shaping Behaviors:

Gradually guiding the organism's (Rat's) actions toward the desired behavior

- Builds on behaviors incremental rewards to induce behavior

- AKA Successive Approximations

P277

Discrimination

Proof of perceiving different stimulus

Discrimination can be trained

Types of Reinforcers:

Positive + Negative Reinforcement (sometimes they work together)

Positive Reinforcement- strengthens a response by providing a pleasurable stimulus

P278

Negative Reinforcement- strengthens a response by reducing or removing a negative stimulus

Increases a behavior by removing aversive stimuli

Is not a punishment

Primary Reinforcers:

Are unlearned

Innately satisfying

Secondary Reinforcers are Conditioned Reinforcers

Learned in association with Primary Reinforcers

Reinforcement Schedules: How do different reinforcement schedules affect behavior?

Immediate + Delayed Reinforcement

Delayed Reinforcement

The reward is not immediate

Problem it limits conditioning/association

Continuous Reinforcement

After every desired response the reward is given

Very effective supporting learning

Extinction/Spontaneous Recovery

Partial Reinforcement/Intermittent Reinforcement

Very good at persistent behavior

Reinforcement occurs periodically

Not a set schedule

Responses are sometimes reinforced and sometimes not

Gambling: occasional reinforcement/unpredictable

Fixed Ratio Schedule

Reinforces behavior after a set number of responses

Variable Ratio Schedule

Slot machine

Reinforced after unpredictable number of responses

Fixed Interval

Reinforces first response after a fixed time

Time interval

Stop start pattern

Variable Interval Schedules

Reinforces the first response after varying time interval
Slow steady responding
You never know when reward will occur

"In general response rates are higher when reinforcement is linked to the number of responses (ratio schedule) rather than time (interval)"

"Responding is more consistent when reinforcement is unpredictable. (variable schedule)"

Reinforcement linked to number of responses

Produces higher response rate than reinforcement linked to time.

Predictability of reward also matters

An unpredictable/variable schedule produces more consistent responding!

P281

Punishment

How does punishment differ from negative reinforcement?
How does punishment affect behavior?
Punishment decreases behavior.

Positive punishment

Traditional punishment
Administering an aversive stimulus

Negative Punishment

Withdrawal a rewarding stimulus

Drawbacks to Physical Punishment = spanking
1.
2
3
4 Physical punishments = modeling of aggression

Punishment or Reinforcement?

Better to support positive behavior
Punishment teaches avoidance

Skinner Legacy

1. Rejected Mental Processes
2. Only observation matters/empirical analysis
3. Suggested operant conditioning as a means to influence behavior especially using REWARDs

Module 28 Operant Conditioning Applications, Comparison to Classical Conditioning (p286)

P289

Contrasting Classical and Operant Conditioning
How are classical and operant conditioning different?

1. Both associative learning number to
2. Both use acquisition and
3. Both extinction number three
4. Both use spontaneous recovery number for
5. Both use generalization and discrimination

Differences

Classical is automatic response

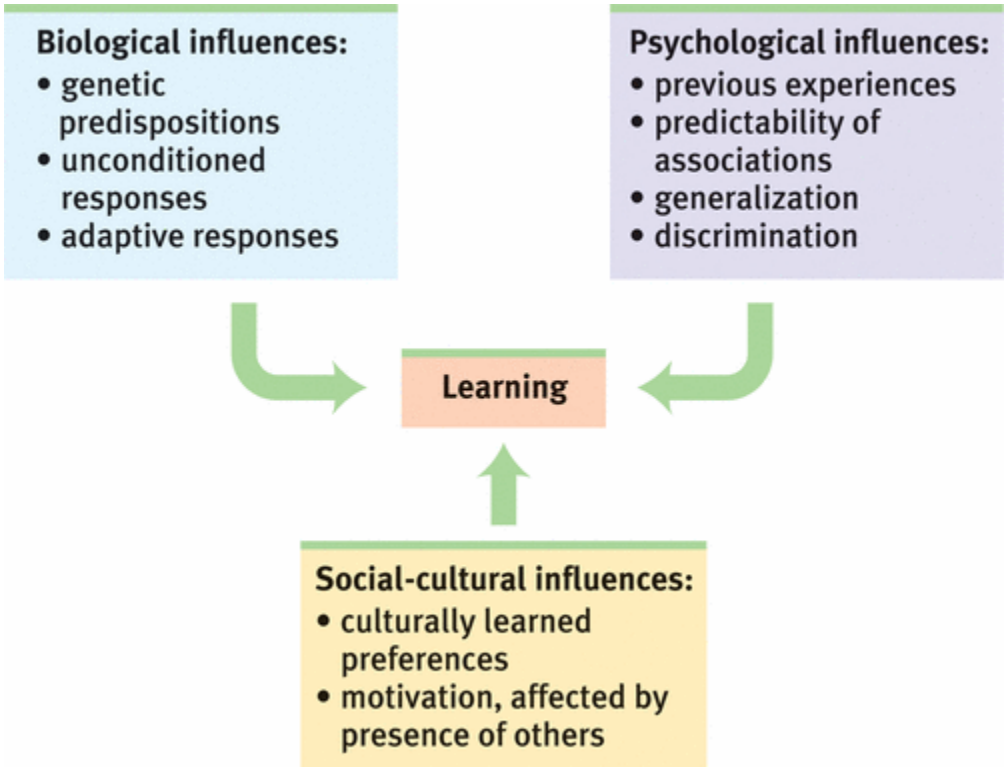
Operant we operate on our environment rewards and punishments

See chart page 290

Table 28.1 Comparison of Classical and Operant Conditioning

	Classical Conditioning	Operant Conditioning
Basic idea	Organism associates events.	Organism associates behavior and resulting events.
Response	Involuntary, automatic.	Voluntary, operates on environment.
Acquisition	Associating events; NS is paired with US and becomes CS.	Associating response with a consequence (reinforcer or punisher).
Extinction	CR decreases when CS is repeatedly presented alone.	Responding decreases when reinforcement stops.
Spontaneous recovery	The reappearance, after a rest period, of an extinguished CR.	The reappearance, after a rest period, of an extinguished response.
Generalization	The tendency to respond to stimuli similar to the CS.	Organism's response to similar stimuli is also reinforced.
Discrimination	The learned ability to distinguish between a CS and other stimuli that do not signal a US.	Organism learns that certain responses, but not others, will be reinforced.

Module 29 Biology, Cognition, and Learning



Idea: learning is the interaction of biological-psychological-social influences.

Biological aspects example:

Some organisms are biologically prepared to learn some associations (our brain's adapt)

Page 293 to 294

Taste Aversion

Page 295

Limits on Operant Conditioning

Breland animal training

Cognition and Conditioning

How do cognitive processes affect classical and operant conditioning?

Behaviorist reject mental processes

Cognition and conditioning

Rescorla and Wagner

Demonstrated predictability of associations = conditioning

Expectancies created

Cognition means awareness

Cognitive processes are your thoughts perceptions expectations

P 297

Latent learning Tolman study

Tolman's about rats in mazes they make **cognitive maps**

Insight**:**

Is a sudden realization of a problem's solution

Intrinsic Motivation:

Placing artificial rewards on an already Intrinsically rewarding activity, diminishes the appeal of that activity

Extrinsic Motives:

Behavior to gain external rewards or avoid punishment vs. Intrinsic Motivation

P298

Learning and Personal Control

What 2 ways do people learn to cope with personal problems?
Cope: Alleviating stress

1. Emotional Methods
2. Cognitive Methods
3. Behavioral Methods

Problem Focused Coping

We have enough control to solve the problem

Emotion Focused Coping

No control
We cannot change a situation
Example: support through friends
Adaptive strategies

P299

Learned Helplessness

Uncontrollable threats cause the most stress response
Is a feeling of helplessness and being resigned to passive coping
Feeling that nothing to be done except suffer
They learn personal helplessness vs. learning personal control
Example- like the dog story p 299
Helpless, hopeless, depressed

Self-Efficacy-

Increase perception of self-control to enhance work
Health problems due to stress/hormones

Julian Rotter- Internal Locus of Control vs. External Locus of Control

People can be conditioned to think in these ways

External Locus of Control:

The person's perception that chance or outside forces determine your fate.

Internal Locus of Control:

Personal Control
Believe they can control their own destiny
People with Internal LOC
- Achieve more
- Better Health
- Less Depressed
- Better at delaying gratification

Will Power and Self-Control

Module 30 Learning by Observation

Observational learning A.k.a. social learning

Cognition is a factor in observational learning

"Humans learn by watching in imitating others"
We learn through modeling

Albert Bandura

researcher

Bobo Doll Study

- Script "sock him in the nose, hit him down, kick him"
- Example child who observe the aggressive outburst last out at the door imitating the behavior even the words
- "by watching the model we experience vicarious reinforcement"
- We learn to anticipate the behaviors consequence and situations we observe.
- We are more likely to learn from people we perceive as similar or successful or admirable.

Biological aspects

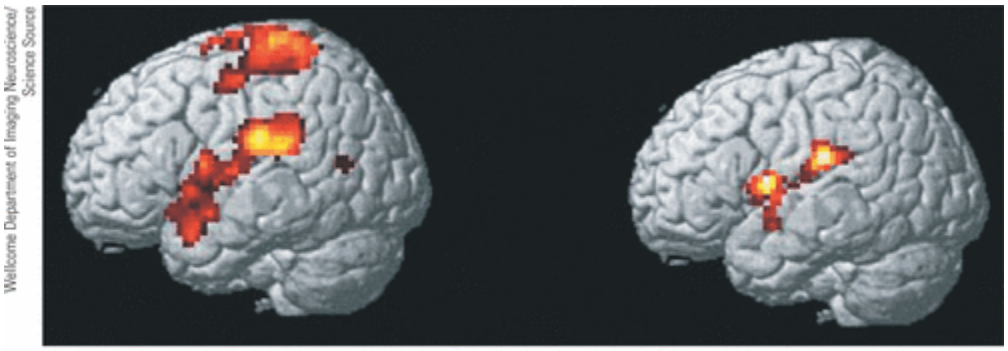
Brain scans show when we identify with someone else and they receive every ward
P 305
Their own brain reward system activates it was vicariously rewarded

Mirrors and Imitation in the Brain

Monkey study "Monkey See-Monkey Do"
Motor Cortex-brain monitoring
Monkey's brain reacted to observing movement of another monkey or person

Mirror Neurons

May be neural basis for observational Learning
These neurons "fire"



P307
Imitation is related to these neurons-
Observation
Imitation

Theory of Mind (Knowing/perceiving emotions through observation)

The Neurology of Empathy
"Observing others position, facial expression, voices, we consciously synchronize our own to theirs. Which helps us fee what they are feeling.
Example: Smoking observed = cravings

Applications of Observational Learning

We look
We mentally imitate
We learn

Pro-social Effects
Positive and Helpful
Models can have pro-social effects

Behavioral Modeling
Consistent Modeling is helpful

Anti-Social Effects
Observation of anti-social behavior are connected

Does viewing Media Violence trigger violent behavior?

Correlational studies suspect the link

Studies do not prove viewing violence causes aggression

2 factors to violence-

1. Imitation
2. Desensitization- people are less affected by violence (less sympathy)