


Chapter 2 - Learning

stimulus - anything that causes a response
ex. noise of an alarm clock

response - a behavior that follows a stimulus
ex. hitting the alarm clock



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Reflexes

▶ Inevitable, involuntary responses to stimuli



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Instincts

▶ Inborn patterns of behavior elicited by environmental stimuli



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- Instincts are much more complex than reflexes, and are mediated by processing higher in the brain.
 - > contagious yawning, or yawning in response to seeing others yawn.
 - Although yawning has multiple functions, including cooling the brain, contagious yawning might be related to empathy, helping to synchronize the arousal state of whole groups.

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Learning

▶ A relatively permanent change in behavior or the capacity for behavior that occurs due to experience



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Associative Learning

▶ Occurs when we form connections among stimuli and/or behaviors

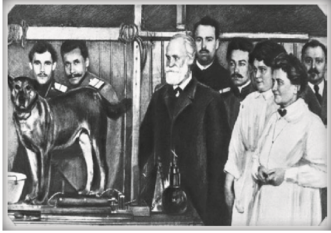
- Classical conditioning
- Operant conditioning

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Classical Conditioning

- This section covers:
 - Principles, phenomena, and applications of classical conditioning



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Classical Conditioning - Ivan Pavlov

Neutral stimulus (NS) - object that has nothing to do with a natural response **without** training
ex. bell

Unconditioned Stimulus (UCS) - a stimulus that leads to an involuntary response **without** training
ex. food

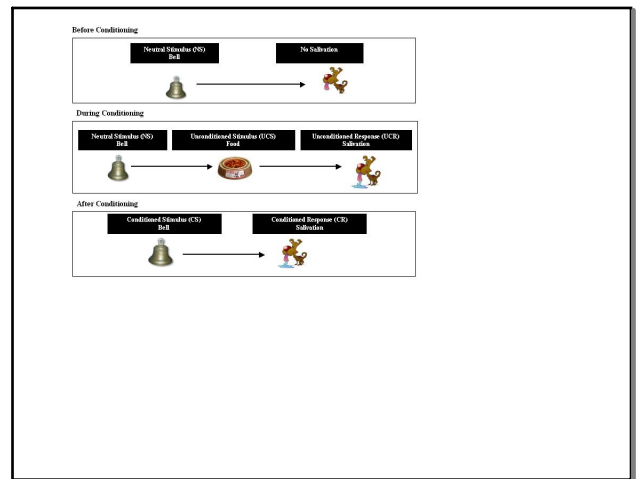
Unconditioned response (UCR) - behavior that occurs naturally when UCS is presented
ex. salivation

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Conditioned Stimulus (CS) - The NS will become the CS **after** training
ex. bell was NS, now CS

Conditioned Response (CR) - learned behavior to a NS
ex. dog salivates to bell

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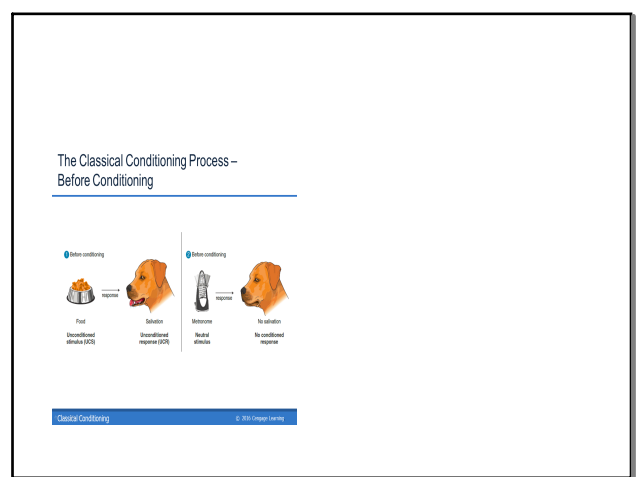
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Classical Conditioning Terms

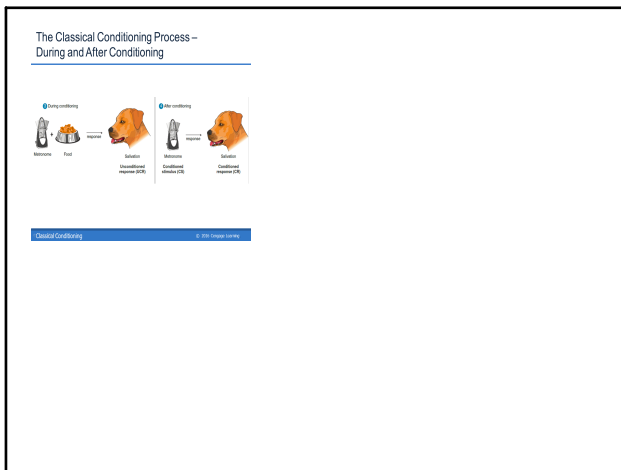
Term	Abbreviation	Definition
Unconditioned stimulus	US	A stimulus that naturally and reliably evokes a response
Unconditioned response	UR	The response that is naturally and reliably elicited by the unconditioned stimulus
Neutral stimulus	NS	A stimulus that does not initially elicit the unconditioned response
Conditioned stimulus	CS	A stimulus that was once neutral but, through association with the US, now elicits a response
Conditioned response	CR	After conditioning has occurred, the response that is elicited by the conditioned stimulus

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Dec 8-2:10 PM



Dec 8-2:11 PM

Principles of Classical Conditioning

Generalization - same reaction to different stimuli
ex. dog also salivates to a telephone

Discrimination - able to respond differently to different stimuli
ex. dog only salivates to the bell

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Principles of Classical Conditioning

Generalization - same reaction to different stimuli
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Principles of Classical Conditioning cont.

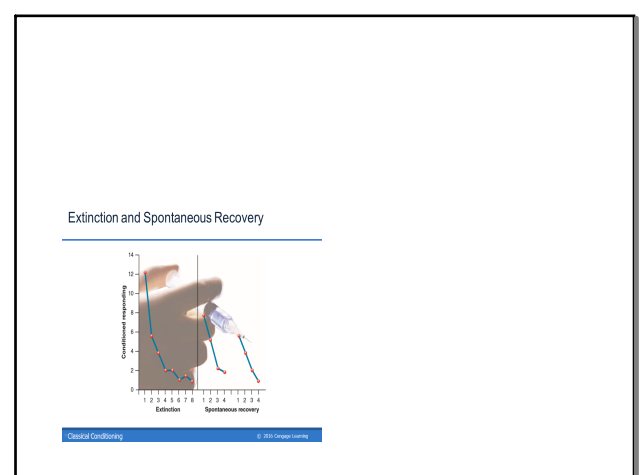
Extinction - the CR dies out
ex. dog won't salivate to the bell

Spontaneous Recovery - CR reappears if rewarded
ex. dog salivates at bell when given food
1. comes back quicker, but not as strong

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Sep 12-9:08 AM



Dec 8-2:11 PM

Baby Albert Experiment

The Little Albert Experiment.mp4

Jan 19-9:38 AM

Taste Aversion

- ▶ The types of stimuli used as conditioned and unconditioned stimuli do matter



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Classical Conditioning Application: Aversion Therapy

- ▶ Conditioning a taste aversion to alcohol
 - Pair alcohol with drug that produces nausea

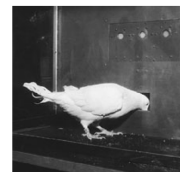


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Operant Conditioning

- ▶ This section covers:
 - Principles, phenomena, and applications of operant conditioning



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The Skinner Box and Behaviorism

- ▶ B. F. Skinner (1904-1990) proposed that the consequences of a behavior are critical for learning



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Operant Conditioning - B.F. Skinner

Behavior is the result of LEARNING

Difference from Classical Conditioning


1. learner behaves in a way that produces consequences
 2. voluntary behavior rather than natural
- Classical=reflexes



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Schedules of Reinforcement

- ▶ Continuous
 - Every time a behavior occurs
- ▶ Partial
 - Ratio or interval
 - Fixed or variable



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1. Fixed-ratio schedule - reinforcement based on quantity (#) of responses
ex. piecework (paid every 5 hinges)
2. Variable-ratio schedule - based on varying (#) of responses
ex. slot machine
3. Fixed-interval schedule - reinforcement based on pre-determined TIME (hour, day, week)
ex. paycheck every 2 weeks
4. Variable-interval schedule - TIME varies
ex. math teacher randomly checking homework

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Fixed Ratio Schedules

- ▶ In the garment industry, workers are often paid "by the piece"




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Variable Ratio Schedules

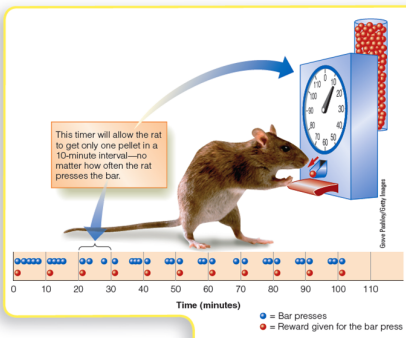
- ▶ Checking your cell phone for new email can be a kind of variable ratio schedule



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Fixed Interval Schedules




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Variable Interval Schedules

- ▶ Fish (the reinforcers) are caught after periods of waiting for fish to bite that vary in length



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Extinction

- ▶ Learned behaviors stop when they are no longer followed by a reinforcing consequence



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Reinforcers

Primary reinforcer - rewards that someone will naturally work for
ex. chimp will work for banana

Conditioned reinforcer - without conditioning, reward would be NS (no value)
ex. chimp won't work for poker chip without training

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Case Study: Token Economies

- ▶ Offer effective rewards that are truly valuable to the people you wish to motivate



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Signal - stimuli are associated with rewards/punishments
ex. school bell

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Consequences of Conditioning

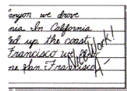



- ▶ Add some element to one's environment ("positive"), or remove an element ("negative")
- ▶ This can lead to an increase in the behavior ("reinforcement"), or a decrease in the behavior ("punishment")

	Add stimulus to environment	Remove stimulus from environment
Make behavior more frequent	Positive reinforcement	Negative reinforcement
Make behavior less frequent	Positive punishment	Negative punishment

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	Behavior Encouraged	Behavior Suppressed
Stimulus Presented	POSITIVE REINFORCEMENT ("Reward") Example: good grades 	PRESENTATION PUNISHMENT ("Type I" Punishment) Example: after school detention 
Stimulus Removed or Withheld	NEGATIVE REINFORCEMENT ("Escape") Example: excused from chores 	REMOVAL PUNISHMENT ("Type II" Punishment) Example: no TV for a week 

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Positive reinforcement - give something pleasant to increase behavior

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Positive Reinforcement

POSITIVE REINFORCEMENT

Behavior
You put coins into a vending machine.

Presentation of a pleasant or positive stimulus
You receive a bag of chips.

Frequency of behavior increases
You put coins in vending machines in the future.

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Aversive Control - Unpleasant consequences that affect a person's behavior

1. Negative reinforcement - removal of something undesirable in order to increase wanted behavior
NOT A PUNISHMENT!!!!
ex. take away life 360 if you come home on time for a week
2. Positive Punishment - giving an unpleasant consequence that decreases frequency of behavior
ex. giving a detention for swearing
3. Negative Punishment - taking away something desired to decrease frequency of behavior
ex. Take away cell phone for inappropriate texting

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Negative Reinforcement

NEGATIVE REINFORCEMENT

Behavior
In the middle of a boring date, you say you have a headache.

Termination of an unpleasant stimulus
The date ends early.


Frequency of behavior increases
You use the same tactic on future boring dates.

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Positive Punishment

- ▶ This cat's behavior (scratching the furniture) is punished by adding an unpleasant outcome (a squirt from a water bottle)



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Negative Punishment

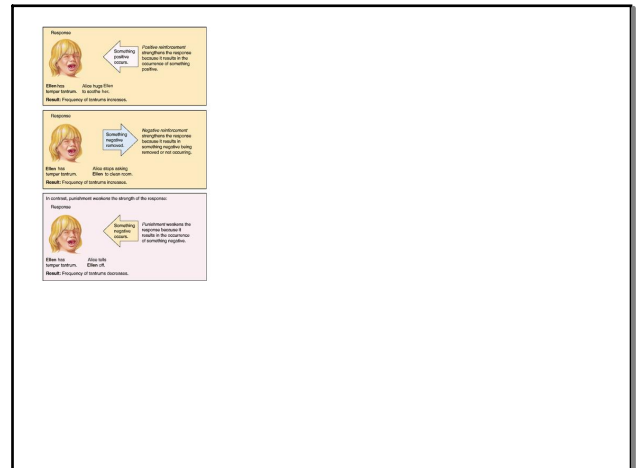
- ▶ If we use a punisher that is too mild for a particular individual, there is little incentive for that person to change his or her behavior

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- Punishment is most effective when *immediate* and *consistent*

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Factors that affect learning

Feedback - finding out the results of a performance
ex. getting quiz back <http://www.youtube.com/watch?v=wcsD8BTVOLs>

Transfer

positive transfer - skills you know help new learning
ex. s

negative transfer - skills you know hurt learning
ex. driving in England after learning in U.S.

Practice - repetition of a task
mental practice - thinking of performing a task

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Learning Strategies

Learned Helplessness - Martin Seligman
when a human/animal's actions don't make a difference, they give up

<http://www.youtube.com/watch?v=gFmFOmprTt0>

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Learned Helplessness

Stability - helplessness results from a permanent characteristic to specifics (internal)
ex. I failed the math test because I suck at math

Global - helplessness results from a permanent characteristic (internal)
ex. I failed the math test because I am stupid

Internality - stability and global focus on internal reasons for helplessness rather than external

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Learned Laziness - Martin Seligman
if rewards come without effort the person won't work

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Shaping

▶ A method of successive approximations of the target behavior



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Learning complicated skills

Shaping - reinforcement used to shape new behaviors
 ex. clapping experiment

Rat Basketball at Wofford College.wmv Shaping the lever press response.wmv

response chains - responses that follow one another in a sequence
 ex.


A response chain is a collection of individually shaped behaviors that follow one another to form a cohesive set of behaviors. For example, a person is going to take a bus from home to work. This involves going to the bus stop, waiting for the bus to stop and open the door, entering the bus, paying with exact change, finding a seat, sitting down and waiting for your stop, getting up when the bus stops, walking to the door and exiting. This set of behaviors is easy for a normally intelligent adult, but involves a number of steps that can be challenging for a child or intellectually handicapped adolescent or adult to master.

Sep 12-8:38 AM

Observational Learning

▶ This section covers:

- Principles and applications of observational learning



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Modeling - Teaching through demonstration

- behaviors of others increases chances that we will do the same thing
- observational learning - learning through imitation
The Brain A Secret History - Emotions; Bandura Bobo Doll Experiment.mp4
- disinhibition - observer watches threatening behavior (without punishment) are more likely to engage in behavior
 ex. if friend skips school and doesn't get caught, more likely to skip
 ex. holding a snake

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Bandura's Experiments



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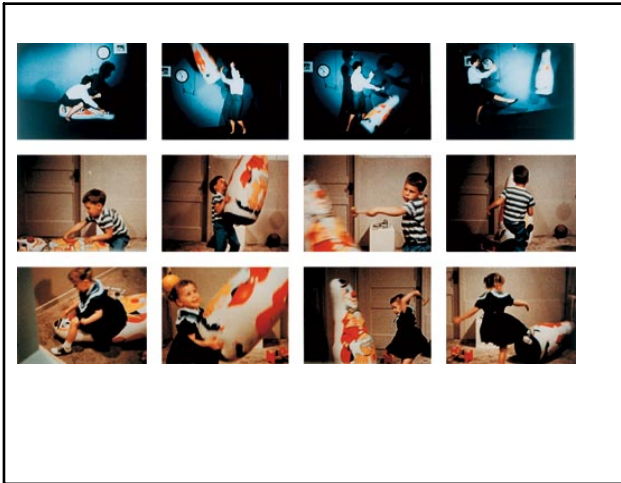
FIGURE 5.14 Bandura's Study on Observational Learning



These groups of children were tested, the groups differed only in the first part of the study. Children in one group watched an adult abuse a Bobo doll, for example, by slapping it with a mallet, kicking it, and yelling at it. Children in a second group watched an adult play with Tinker-toys and ignore the Bobo doll. Children in a third group never use a model (an adult) in the playroom.

In the second part of the study, all the children played in a room with a variety of toys, including Bobo. Children in the first group tended to imitate what they had seen, reproducing the doll and enacting new ways to abuse it and being more aggressive with the other toys in the room. Children who observed the adult ignoring the Bobo doll were even less aggressive toward it than the control group!

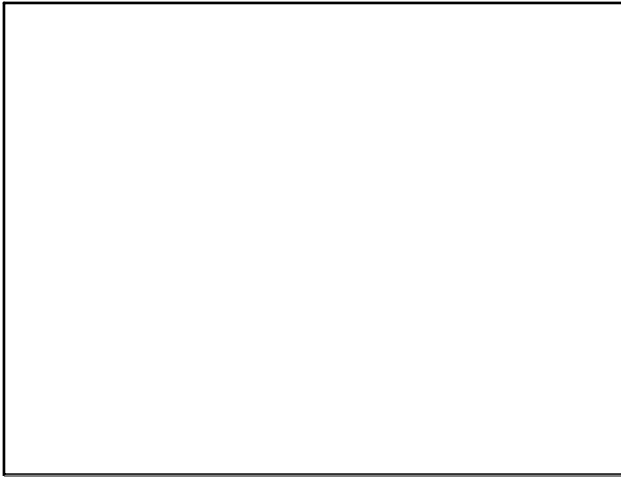
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Attachments

The Little Albert Experiment.mp4

Shaping the lever press response.wmv

Rat Basketball at Wofford College.wmv

The Brain A Secret History - Emotions; Bandura Bobo Doll Experiment.mp4