Chapter 5: Learning

Learning Processes
- Classical conditioning
- Behaviorism
- Operant conditioning

Adaptation to the Environment
- Learning—any process through which experience at one time can alter an individual’s behavior at a future time

Adaptation to the Environment
- Conditioning—the process of learning the associations between environmental events and behavioral responses
Behaviorism

- The attempt to understand observable activity in terms of observable stimuli and observable responses.
- John B. Watson (1913)
- B. F. Skinner (1938)

Ivan Pavlov (1849–1936)

Pavlov’s Dogs

- Digestive reflexes and salivation
- Psychic secretion

Neutral Stimulus—Bell

- Does not normally elicit a response or reflex action by itself
  - a bell ringing
  - a color
  - a furry object
Unconditioned Stimulus—Food
- Always elicits a reflex action: an unconditioned response
  - food
  - blast of air
  - noise

Unconditioned Response—Salivation
- A response to an unconditioned stimulus—naturally occurring
  - Salivation at smell of food
  - Eye blinks at blast of air
  - Startle reaction in babies

Conditioned Stimulus—Bell
- The stimulus that was originally neutral becomes conditioned after it has been paired with the unconditioned stimulus.
- Will eventually elicit the unconditioned response by itself.

Conditioned Response
- The original unconditioned response becomes conditioned after it has been elicited by the neutral stimulus.
Classical Conditioning

- Extinction
- Spontaneous recovery
- Stimulus generalization
- Discrimination training

John B. Watson and Little Albert

- Conditioned emotional responses
- Generalization
- Extinction
Classical Conditioning and Drug Use

- Regular use may produce “placebo response” where user associates sight, smell, taste with the drug effect.
- Conditioned compensatory response (CCR)—classically conditioned response in which stimuli that reliably precede the administration of a drug elicit physiological reaction that is opposite to the drug’s effects.
- May be one explanation for the characteristics of withdrawal and tolerance.

Cognitive Aspects of Classical Conditioning

- Reliable and unreliable signals
- Actively process information
- Robert Rescorla

Evolutionary Perspective

- Conditioned taste aversions
- Internal stimuli—associate better with taste
- External stimuli—associate better with pain
- Biological preparedness
- John Garcia—not all neutral stimuli can become conditioned stimuli.
Early Operant Conditioning

- E. L. Thorndike (1898)
- Puzzle boxes and cats

First Trial in Box
- Scratch at bars
- Push at ceiling
- Dig at floor
- Howl
- Etc.
- Etc.
- Press lever

Situation: stimuli inside of puzzle box

After Many Trials in Box
- Scratch at bars
- Push at ceiling
- Dig at floor
- Howl
- Etc.
- Etc.
- Press lever

Situation: stimuli inside of puzzle box

Edward L. Thorndike (1874–1949)

B. F. Skinner’s Operant Conditioning

- Did not like Thorndike’s term “satisfying state of affairs.”
- Interested in emitted behaviors
- Operant—voluntary response that acts on the environment to produce consequences.

B. F. Skinner (1904–1990)
Operant Conditioning

Reinforcement—the occurrence of a stimulus following a response that **increases** the likelihood of the response being repeated.

Reinforcers

- Primary—a stimulus that is inherently reinforcing for a species (biological necessities)
- Conditioned—a stimulus that has acquired reinforcing value by being associated with a primary reinforcer

Punishment

Presentation of a stimulus following a behavior that acts to **decrease** the likelihood that the behavior will be repeated.

<table>
<thead>
<tr>
<th>Process</th>
<th>Consequence</th>
<th>Effect on Behavior</th>
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<tbody>
<tr>
<td>Positive reinforcement</td>
<td>Make dean's list</td>
<td>Increase studying in the future</td>
</tr>
<tr>
<td>Negative reinforcement</td>
<td>Avoid loss of academic scholarship</td>
<td>Increase studying in the future</td>
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</tbody>
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Problems with Punishment

- Does not teach or promote alternative, acceptable behavior
- May produce undesirable results such as hostility, passivity, fear
- Likely to be temporary
- May model aggression

Operant Conditioning Terms

- Shaping
- Extinction
- Spontaneous recovery
- Discriminative stimuli
- Schedules of reinforcement

Discriminative Stimuli

Environmental cues that tell us when a particular response is likely to be reinforced.
Reinforcement Schedules

- Continuous—every correct response is reinforced; good way to get a low-frequency behavior to occur

- Partial—only some correct responses are reinforced; good way to make a behavior resistant to extinction

Partial Schedules—Ratio

- Ratio schedules are based on the number of responses emitted.
  - Fixed ratio (FR)—a reinforcer is delivered after a certain (fixed) number of correct responses
  - Variable ratio (VR)—a reinforcer is delivered after an average number of responses, but varies from trial to trial

Partial Schedules—Interval

- Interval schedules are based on time.
  - Fixed interval (FI)—reinforcer is delivered for the first response after a fixed period of time has elapsed.
  - Variable interval (VI)—reinforcer is delivered for the first response after an average time has elapsed, differs between trials.
Cognitive Aspects of Operant Conditioning

- Cognitive map—term for a mental representation of the layout of a familiar environment

- Latent learning—learning that occurs in the absence of reinforcement, but is not demonstrated until a reinforcer is available

- Learned helplessness—phenomenon in which exposure to inescapable and uncontrollable aversive events produces passive behavior

Biological Predispositions

- Animal training issues

- Instinctive drift—naturally occurring behaviors that interfere with operant responses

Classical Conditioning Versus Operant Conditioning

Observation Learning

- Observation

- Modeling

- Imitation

- Albert Bandura and the Bobo doll study
Bandura’s Social Learning Theory

- Bandura’s early observational learning studies showed preschoolers enthusiastically mimicking the movie actions of an adult pummeling a Bobo doll.
- He found that observed actions were most likely to be imitated when:
  - They were performed by a model who is attractive, and who has high status or is a dominant member of the viewer’s social group.
  - The model is rewarded for his or her behavior.
  - The model is not punished for his or her actions.

Table 5.6

Factors That Increase Imitation
You’re more likely to imitate:
- People who are rewarded for their behavior
- Warm, nurturing people
- People who have control over you or have the power to influence your life
- People who are similar to you in terms of age, sex, and interests
- People you perceive as having higher social status
- When the task to be imitated is not extremely easy or difficult
- If you lack confidence in your own abilities in a particular situation
- If the situation is unfamiliar or ambiguous
- If you’ve been rewarded for imitating the same behavior in the past

Source: Based on research summarized in Bandura (1977, 1996, 1997).

Mirror Neurons

- Types of cells in the premotor cortex which are activated when a person:
  - executes object-directed actions
  - when the individual sees another individual performing actions of the same type

Violence and Television Watching

- Staggering findings
- National Television Violence Study found that more than 60 percent of television programs contained depictions of violence.
  - Depicted in ways that are known to increase the likelihood of imitation.
  - In 80% of the violent shows, the violence did not result in any long-term consequences.
  - Television and film depictions of violence have become more graphic, not less – and more readily available.
Exposure to Media and Aggression

- Studies have shown that exposure to media violence produces short-term increases in laboratory measures of aggressive thoughts and behavior.
- Links between exposure to violent media and aggressive behavior both in and out of the classroom.
- The American Psychological Association, the American Academy of Pediatrics, and four other public health organizations issued a joint statement on the impact of entertainment violence on children. Based on a review of more than 30 years of research, they concluded that "viewing entertainment violence can lead to increases in aggressive attitudes, values, and behavior, particularly in children."

Media Violence as a Cause of Violent Behavior?

- Violent behavior unlikely to have a single cause.
- Longitudinal research has shown that hours spent viewing violent television programming was associated with lower cognitive performance and negative social behavior in:
  - white males
  - African American females
  - White females
  - but not in African American males
- Vast majority of studies in this area are criticized to be correlational, which does not imply causation.
- Some viewers are highly susceptible to the negative effects of media violence.
- Current trend is to look at which factors are most likely to be associated with media violence's harmful effects, rather than whether it causes aggressive behavior

Famous Last Words???

Do as I say, not as I do.

*This* will teach you to hit your brother!

Why do you do that? You know you get in trouble for it.