Chapter Menu

Chapter Introduction
  - Classical Conditioning
  - Operant Conditioning
  - Social Learning

9.1 Classical Conditioning

Describe classical conditioning, the learning procedure in which associations are made between a neutral stimulus and an unconditioned stimulus.

9.2 Operant Conditioning

Explain how operant conditioning occurs when the consequences that follow a behavior increase or decrease the likelihood of that behavior occurring again.

9.3 Social Learning

Discuss how social learning involves people making decisions and acting upon the information available to them.

Main idea

People acquire certain behaviors through classical conditioning, a learning procedure in which associations are made between a neutral stimulus and an unconditioned stimulus.

Key Terms

- classical conditioning
- neutral stimulus
- unconditioned stimulus (US)
- unconditioned response (UR)
- conditioned stimulus (CS)
- conditioned response (CR)
- generalization
- discrimination
- extinction

- classical conditioning
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- discrimination
- extinction
- Objectives
  - Describe the principles of classical conditioning.
  - Outline the techniques of classical conditioning.

Classical Conditioning

- Classical conditioning is a learning procedure in which associations are made between a neutral stimulus and an unconditional stimulus.
  - Ivan Pavlov discovered this type of learning accidentally while using dogs to study the process of digestion.
  - Learning is a relatively permanent change in a behavioral tendency that results from experience.

Classical Conditioning Experiment

- Neutral stimulus
- Unconditioned stimulus (US)
- Unconditioned response (UR)
- Conditioned stimulus (CS)
- Conditioned response (CR)

Acquisition of a classically conditioned response that occurs gradually and increases each time the CS and US are paired.
- The timing of the association between the conditioned stimulus and the unconditioned stimulus also influences learning.

Pavlov also experimented with generalization and discrimination (using circles and ovals):
  - Generalization
  - Discrimination
  - Extinction

If a rest period is given following extinction, the CR may reappear when the CS is presented again but not followed by the US.

John B. Watson and Rosalie Rayner used conditioning on a human infant in the case of Little Albert.

O. Hobart and Mollie Mower discovered a solution to bed-wetting by using classical conditioning.

Examples of Common Conditioned Reactions

- Classical conditioning is an example of a behaviorist theory.
  - Behaviorism is the attempt to understand behavior in terms of relationships between observable stimuli and observable responses.
  - Behaviorists are psychologists who study only those behaviors that they can observe and measure.
Operant conditioning occurs when the consequences that follow a behavior increase or decrease the likelihood of that behavior occurring again.

**Key Terms**
- operant conditioning
- reinforcement
- primary reinforcer
- secondary reinforcer
- fixed-ratio schedule
- variable-ratio schedule
- fixed-interval schedule
- variable-interval schedule
- shaping
- response chain
- aversive control
- negative reinforcement
- escape conditioning
- avoidance conditioning

**Main Idea**
Operant conditioning is the study of how behavior is modified by the consequences that follow it. It is based on the idea that behavior is controlled by the consequences that follow it.

**Burrhus Frederic Skinner** is the psychologist most closely associated with operant conditioning. He believed that most behavior is influenced by a person's history of rewards and punishments.

**Reinforcement**
- Positive reinforcement occurs when something the animal wants is added after an action.
- Negative reinforcement occurs when something unpleasant is taken away if the animal performs an action.

**Schedules of reinforcement**
- **FIXED** = the same thing every time
- **VARIABLE** = unpredictable
- **RATIO** = the number of responses
- **INTERVAL** = the time between responses

**Objectives**
- Outline the principles of operant conditioning.
- Describe applications of operant conditioning.

**Outline the principles of operant conditioning.**
- The term operant is used because the subject operates on or causes some change in the environment.
- The participant in operant conditioning must engage in a behavior in order for the programmed outcome to occur.

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Schedules of reinforcement
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So... 4 possible combinations

**Fixed** × **Ratio**

**Fixed** × **Interval**

**Variable** × **Ratio**

**Variable** × **Interval**

Don’t copy this slide.
It’s for review.

Schedules of Reinforcement
- Four basic methods, or schedules, of intermittent reinforcement have been studied:
  - Fixed-ratio schedule
  - Variable-ratio schedule
  - Fixed-interval schedule
  - Variable-interval schedule

Partial Schedules of Reinforcement
- Shaping
- Response chain

Aversive Control: unpleasant consequences
- Negative reinforcement – an unpleasant stimulus is removed
  - Escape conditioning
  - Avoidance conditioning
- Punishment—an unpleasant consequence occurs and decreases the frequency of the behavior that produced it.

Disadvantages of aversive control:
Aversive stimuli can produce unwanted side effects such as rage, aggression, and fear.
People learn to avoid a person delivering the aversive consequences.

Punishment is likely to suppress, but not eliminate, bad behavior.
Punishment alone does not teach appropriate and acceptable behavior.

Social Learning
- Social learning, consisting of cognitive learning and modelling, involves how people make decisions and act upon the information available to them.

Key Terms
- behavior modification
- token economy

Objectives
- Cite the principles involved in cognitive learning and modelling.
- Identify the principles of learning used in behavior modification.
SOCIAL LEARNING
Cognitive learning
Latent learning
Cognitive maps
Modeling
Copying styles and verbal expressions of peers
Observational learning
Disinhibition

How much control do we have?

Two examples of cognitive learning:
- Latent learning
- Cognitive maps

INABILITY TO CONTROL EVENTS
- People become less motivated and thus stop trying.
- People may have a lowered sense of self-esteem and think negatively about themselves.
- People may feel depressed.

LEARNED HELPLESSNESS
- If a person has many experiences in which his or her actions have no effect, he or she may experience learned helplessness.
- Martin Seligman believes learned helplessness is a major cause of depression.

LEARNED HELPLESSNESS
Three important elements of learned helplessness:
- Stability—a person’s belief that the state of helplessness results from permanent characteristics.
- Globality—generalization—a student believing he or she fails tests because he or she is “dumb.”
- Internality—attributing undesirable outcomes to one’s own inadequacies instead of blaming them on external circumstances.

Three important elements of learned helplessness:

Three types of behavior modification:
- Computer-aided instruction
- Token economy
- Self-control

Classical and operant conditioning and social learning work together to determine what and how we learn.

Classical Conditioning Experiment

Walker_Maryann  Thursday, January 6, 2011 12:20:54 PM ET
Examples of Common Conditioned Responses

<table>
<thead>
<tr>
<th>SS</th>
<th>CR</th>
<th>UR</th>
<th>LR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doctor visits</td>
<td>Tension</td>
<td>DTH</td>
<td>Tension</td>
</tr>
<tr>
<td>Pressure</td>
<td>Formative feeling</td>
<td>Cathey pulse on palpate</td>
<td>Formative feeling</td>
</tr>
<tr>
<td>Feeding pets</td>
<td>Clothes</td>
<td>Spacing step</td>
<td>Clothes</td>
</tr>
</tbody>
</table>

Classical Conditioning vs. Operant Conditioning

Classical conditioning and operant conditioning both involve the establishment of relationships between two events. However, they use very different procedures to reach their goals.

Operant Conditioning

We do not just react to our environment; we behave in ways that seem designed to produce certain environmental changes. For example, I flip the light switch to illuminate a room. I say, "Please, pass the salt," to get the salt shaker.

Partial Schedules of Reinforcement

B.F. Skinner pointed out many examples of how schedules of reinforcement maintain and control different behaviors. The different schedules produce different response rates.

Learned Helplessness

What happens when it is impossible for a learner to have an effect on the environment? What happens when a learner is punished and cannot escape the punishment? The learner may give up trying to learn.

How Social Learning Works

Social learning theorists argue that much learning results from observing the behavior of others and from imagining the consequences of our own behavior.

Improving Study Habits

Studying effectively is an active process. By using successive approximations (reading one more page each time you sit down to study) and positive reinforcements (rewarding yourself for productive studying), you can improve your study habits. The SQ4R and PQ4R methods are active methods of studying.

Ivan Petrovich Pavlov

1849–1936

"While you are experimenting, do not remain content with the surface of things. Don't become a mere recorder of facts, but try to penetrate the mystery of their origin."

Chapter Concepts

Transparencies

Using Classical Conditioning to Conquer Fears

Schedules of Partial Reinforcement
classical conditioning: a learning procedure in which associations are made between a neutral stimulus and an unconditioned stimulus

neutral stimulus: a stimulus that does not initially elicit any part of an unconditioned response

unconditioned stimulus (US): an event that elicits a certain predictable response typically without previous training

unconditioned response (UR): an organism’s automatic (or natural) reaction to a stimulus
conditioned stimulus (CS): a once-neutral event that elicits a given response after a period of training in which it has been paired with (occurred just before) an unconditioned stimulus.

c conditioned response (CR): the learned reaction to a conditioned stimulus.

generalization: responding similarly to a range of similar stimuli.

discrimination: the ability to respond differently to similar but distinct stimuli.

derivation: a gradual disappearance of a conditioned response when the conditioned stimulus is repeatedly presented without the unconditioned stimulus.

operant conditioning: learning in which a certain action is reinforced or punished, resulting in corresponding increases or decreases in occurrence.

reinforcement: stimulus or event that follows a response and increases the likelihood that the response will be repeated.

primary reinforcer: stimulus that is naturally rewarding, such as food or water.

secondary reinforcer: stimulus such as money that becomes rewarding through its link with a primary reinforcer.
<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>fixed-ratio schedule</td>
<td>a pattern of reinforcement in which a specific number of correct responses is required before reinforcement can be obtained</td>
</tr>
<tr>
<td>variable-ratio schedule</td>
<td>a pattern of reinforcement in which an unpredictable number of responses are required before reinforcement can be obtained</td>
</tr>
<tr>
<td>fixed-interval schedule</td>
<td>a pattern of reinforcement in which a specific amount of time must elapse before a response will elicit reinforcement</td>
</tr>
<tr>
<td>variable-interval schedule</td>
<td>a pattern of reinforcement in which changing amounts of time must elapse before a response will obtain reinforcement</td>
</tr>
<tr>
<td>shaping</td>
<td>technique in which the desired behavior is &quot;molded&quot; by first rewarding any act similar to that behavior and then requiring ever-closer approximations to the desired behavior before giving the reward</td>
</tr>
<tr>
<td>response chain</td>
<td>learned reactions that follow one another in sequences, each reaction producing the signal for the next</td>
</tr>
<tr>
<td>aversive control</td>
<td>process of influencing behavior by means of unpleasant stimuli</td>
</tr>
<tr>
<td>negative reinforcement</td>
<td>increasing the strength of a given response by removing or preventing a painful stimulus when the response occurs</td>
</tr>
<tr>
<td>escape conditioning</td>
<td>training of an organism to remove or terminate an unpleasant stimulus</td>
</tr>
</tbody>
</table>
avoidance conditioning: training of an organism to respond so as to prevent the occurrence of an unpleasant stimulus

social learning: process of altering behavior by observing and imitating the behavior of others

cognitive learning: forms of altering behavior that involves mental processes and may result from observation or imitation

cognitive map: a mental picture of spatial relationships or relationships between events

latent learning: alteration of a behavioral tendency that is not demonstrated by an immediate, observable change in behavior

learned helplessness: condition in which repeated attempts to control a situation fail, resulting in the belief that the situation is uncontrollable

modeling: learning by imitating other; copying behavior

behavior modification: systematic application of learning principles to change people's actions and feelings

token economy: conditioning in which desirable behavior is reinforced with valueless objects, which can be accumulated and exchanged for valued rewards