

## Chapter 7- Learning

- Learning- collection of different techniques, procedures, and outcomes that produce changes in an organism's behaviors
  - Involves acquisition of new knowledge, skills, or responses from experience that results in a relatively permanent change in the state of the learner
- Habituation- a general process in which repeated or prolonged exposure to a stimulus results in gradual reduction in responding
- Sensitization- presentation of a stimulus leads to increased response to later stimulus

### Classical Conditioning: One Thing Leads to Another

- Classical conditioning- when a neutral stimulus produces a response after being paired with a stimulus that naturally produces a response
  - Unconditioned stimulus (US)- something that reliably produces a naturally occurring reaction in an organism
  - Unconditioned response (UR)- reflexive reaction that is reliably produced by an unconditioned stimulus
  - Conditioned stimulus (CS)- previously neutral stimulus that produces a reliable response after being paired with a US
  - Conditioned response (CR)- reaction that resembles an unconditioned response but is produced by the CS
- Acquisition- the phase of classical conditioning when the CS and US are presented together
- Second-order conditioning- conditioning where a CS is paired with a stimulus that became associated with the US earlier
- Extinction- the gradual elimination of a learned response when the CS is repeatedly presented without the US
- Spontaneous recovery- the tendency of a learned behavior to recover from extinction after a rest period
- Generalization- the CR is observed even though the CS is slightly different from the CS used during acquisition
- Discrimination- the capacity to distinguish between similar but distant stimuli
- Classical conditioning occurs when an animal sets up an expectation
- Conditioning is easier with unfamiliar event than familiar
- Biological preparedness- propensity for learning particular kinds of associations over others

### Operant Conditioning: Reinforcements from the Environment

- Operant conditioning- a type of learning in which the consequences of an organism's behavior determine whether it will be repeated in the future
- Instrumental behavior- behavior that required an organism to do something (Thorndike)

- Law of effect- Behaviors that are followed by a “satisfying state of affairs” tend to be repeated and those that produce an “unpleasant state of affairs” are less likely to be repeated
- Operant behavior- behavior an organism produces that has some impact of the environment (Skinner)
- Reinforcer- any stimulus or event that functions to increase the likelihood of the behavior that led to it
- Punisher- any stimulus or event that functions to decrease the likelihood of the behavior that led to it
- Positive reinforcement- rewarding stimulus is presented
- Negative reinforcement- unpleasant stimulus is removed
- Positive punishment- unpleasant stimulus administered
- Negative punishment- rewarding stimulus is removed
- Reinforcement works better than punishment
  - Punishment signals and unacceptable behavior occurred but doesn't specify what should be done instead
- Primary reinforcers- satisfy biological needs
- Secondary reinforcers- effective through associations with primary reinforcers through classical conditioning
- ^ time= less effective reinforcement
- operant behavior undergoes extinction when reinforcement stops
- Schedules of Reinforcement
  1. Interval schedules- based on the time intervals between reinforcements
  2. Ratio schedules- based on ratio of responses to reinforcements
    - Fixed-interval schedule (FI)- reinforcers are presented at fixed time periods, provided that the appropriate response is made
    - Variable-interval schedule (VI)- behavior is reinforced based on an average time that has expired since last reinforcement
    - Fixed-ratio schedule (FR)- reinforcement is delivered after a specific number of responses have been made
      - Each response= continuous reinforcement
    - Variable-ratio schedule (VR)- delivery of reinforcements is based on a particular average number of responses
      - ^ ratio= ^response
      - Intermittent reinforcement- when only some of the responses made are followed by reinforcement
      - Intermittent reinforcement effect- operant behaviors that are maintained under intermittent reinforcement schedules resist extinction better than those maintained under continuous reinforcement
- Shaping- learning that results from the reinforcement of successive steps to a final desired behavior
- Successive approximation- behavior that gets incrementally closer to the overall desired behavior

- Superstition= behaviors accidentally reinforced
  - Tolman's means-end relationship- rats and mazes
- Latent learning- something is learned, but it is not manifested as a behavioral change until sometime in the future
- Cognitive map- mental representation of the physical features of the environment
- Pleasure centers- brain areas that produce intensely positive experiences
  - Medial forebrain bundle

### Observational Learning: Look at Me

- Observational learning- learning takes place by watching the actions of others
- Diffusion chain- individuals initially learn a behavior by observing another individual perform that behavior, and they serve as a model from which other individuals learn the behavior
- Enculturation hypothesis- being raised in human culture has a profound effect on the cognitive abilities of chimpanzees; especially their ability to understand the intentions of others when performing tests

### Implicit Learning: Under the Wires

- Implicit learning- learning that takes place largely independent of awareness of both the process and the products of information acquisition

### Learning in the Classroom

- Judgments of learning- people tend to devote more time to studying items they judge they have not learned well