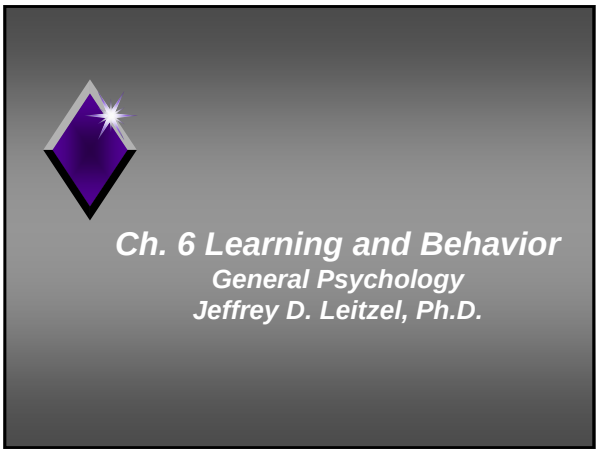

Chapter Outline

- Types of Learning
- Classical Conditioning
- Operant Conditioning
- Observational Learning

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Learning

Learning: Relatively permanent change in behavior (or potential behavior) resulting from experience

- *How do classical and operant conditioning differ?*
- *How do phobias develop?*
- *How do we learn to perform complex behaviors?*
- *Does watching TV violence lead to aggression?*

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Classical Conditioning (CC)

Classical Conditioning: Learning by associating two stimuli together

- cat learns to salivate at sound of can opener
- adult learns to salivate at sight of "Golden Arches"
- child learns to fear the nurse giving shots
- addict learns to avoid places associated with drugs

learning occurs when organism recognizes that one event predicts another

cerebellum plays key role in associating stimuli together

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CC Terminology

- **UCS- stimulus that automatically triggers a reflexive response**
  - **food, pain, shock, predators, needles**
- **UCR- unlearned, natural response elicited by UCS**
  - **salivation, HR, fear, avoidance**
- **CS- originally neutral stimulus (NS; produces no reaction), which after association with UCS, triggers a learned response**
  - **bell, tone, lights, waiting room**
- **CR- learned response to a CS**
  - **salivation, HR, fear, avoidance**

Note: conditioned = learned; unconditioned = unlearned

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CC Examples

- **Pavlov**
  - **food (UCS) ⇨ salivation (UCR)**
  - **tone (NS) ⇨ no salivation**
  - **tone (NS) + food (UCS) ⇨ salivation (UCR)**
  - **tone (CS) ⇨ salivation (CR)**
- **Getting Shots**
  - **long needles (UCS) ⇨ fear (UCR)**
  - **nurse (NS) ⇨ no fear**
  - **nurse (NS) + long needles (UCS) ⇨ fear (UCR)**
  - **nurse (CS) ⇨ fear (CR)**

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CC: Basic Principles

- **Acquisition-** gradual strengthening of a CR
  - forward conditioning (delayed and trace)- CS precedes UCS
  - simultaneous conditioning- CS and UCS occur at same time
  - backward conditioning- UCS preceded CS
- **Extinction-** weakening of a CR by presenting CS without UCS
- **Spontaneous recovery-** reappearance of an extinguished CR after a pause
- **Generalization-** learning to respond to stimuli similar to CS
  - child learns to fear wasps then hornets and bumble bees
- **Discrimination-** learning to distinguish stimuli similar to CS
  - child learns to discriminate friendly dogs from mean dogs

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CC Exceptions

- **Biological constraints on learning**
  - degree of conditioning depends on stimulus and species
- **Taste Aversions**
  - strong CS-UCS association after only one trial
- **Role of Cognition**
  - expectations
  - forming representations

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CC Applications

- **Treating Phobias**
  - **Flooding-** high exposure to feared stimulus
  - **Systematic Desensitization-** progressive technique designed to replace anxiety with relaxation
- **Treating Unwanted Behaviors (alcoholism)**
  - **Aversive Conditioning-** associate unpleasant state with unwanted behavior
- **Enhance Immune System Functioning**

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Operant Conditioning (OC)

Operant Conditioning: Learning by associating a behavior with its consequences

- **Reinforcement-** strengthens behavior it follows
  - Positive- present positive stimulus
  - Negative- remove or avoid unpleasant stimulus
- **Punishment-** weakens behavior it follows
  - Positive- present aversive stimulus
  - Negative- remove pleasant stimulus

Note: neg. reinforcement strengthens behavior, whereas punishment weakens the behavior it follows

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Types of Reinforcement

- **Primary- food, water, sex**
- **Conditioned- money, status, praise**

- **Continuous- use to develop new behaviors**
- **Partial- use to maintain behaviors**
  (see reinforcement schedules)

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Operant Conditioning

Using operant conditioning to solve "real" problems

- **Shaping- reward behavior as it successfully approximates desired behavior**
  - teaching infant to say "Mama"
- **Chaining- reward behavior after completing a sequence of responses**
  - training dolphins to jump through hoops

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Schedules of Reinforcement

- **fixed interval-** reinforce after fixed amount of time
  - reduced studying after each exam
- **variable interval-** reinforce after variable amount of time
  - pop quizzes
- **fixed ratio-** reinforce after fixed number of responses
  - frequent flier miles (25,000)
- **variable ratio-** reinforce after variable number of responses
  - slot machines

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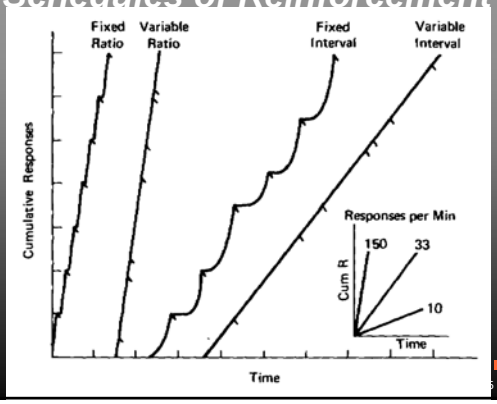
Schedules of Reinforcement



Role of Cognition and Applications of OC

- **Role of Cognition**
  - Learned Helplessness
  - Beliefs about reinforcement
  - Contrast effects
  - Cognitive maps- memory of reward events
- **Applications**
  - Improving classroom teaching, employee performance
  - Solving community-based problems (crime)
  - Using stimulus control (Mr. Yuk sticker)

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Observational Learning

Observational Learning: Learning by observing and imitating others

- **Key Factors in Observational Learning**
  - pay attention to the model
  - remember the modeled behavior
  - possess ability to do the observed behavior
  - motivation to do the observed behavior

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Applications

- **Negative Effects of Observational Learning**
  - Aggression
    - **"Bobo Doll" studies**
    - **Media violence**
  - Smoking
- **Positive Effects of Observational Learning**
  - Helping handicapped learn new skills
  - Appreciating cultural diversity

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