Behavioral & Cognitive Approaches to Learning

Learning is a relatively permanent influence on behavior, knowledge, and thinking skills, which comes about through experience.

- **Behavioral**
  - Emphasis on experiences, especially reinforcement and punishment, as determinants of learning and behavior
  - First part of this chapter (7)

- **Social Cognitive**
  - Emphasis on interaction of behavior, environment, and person (cognitive) factors as determinants of learning
  - Last part of this chapter (7)

- **Information Processing**
  - Emphasis on how children process information through attention, memory, thinking, and other cognitive processes
  - Chapters 8 and 9

- **Cognitive Constructivist**
  - Emphasis on the child's cognitive construction of knowledge and understanding
  - Chapter 2 (Piaget) and some parts of chapters 8 and 9

- **Social Constructivist**
  - Emphasis on collaboration with others to produce knowledge and understanding
  - Chapter 2 (Vygotsky); Chapter 10
Behavioral and Cognitive Approaches to Learning

Behavioral Approaches to Learning

Classical Conditioning

Operant Conditioning
Classical Conditioning

BEFORE CONDITIONING
- US: Food → UR: Dog salivates
- Neutral stimulus: Bell → No response

CONDITIONING
- Neutral stimulus: Bell + US: Food → UR: Dog salivates

AFTER CONDITIONING
- CS: Bell → CR: Dog salivates
## Classical Conditioning Principles

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
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<tbody>
<tr>
<td><strong>Generalization</strong></td>
<td>The tendency of a new stimulus similar to the original conditioned stimulus to produce a similar response.</td>
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<tr>
<td><strong>Discrimination</strong></td>
<td>The organism responds to certain stimuli but not others.</td>
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<tr>
<td><strong>Extinction</strong></td>
<td>The weakening of the conditioned response (CR) in the absence of the unconditioned stimulus (UCS).</td>
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Patty’s Classical Conditioning

Theory into Practice

Patty does poorly on a math test. This makes her feel anxious. From that point on, she always becomes anxious when taking a math test. As the school year progresses, she begins experiencing anxiety when she has tests in other subject areas as well.

Q.1: Identify the US in the example above.
Q.2: Identify the UR in the example above.
Q.3: Identify the CS in the example above.
Q.4: Identify the CR in the example above.
Patty’s Classical Conditioning

Theory into Practice

Patty does poorly on a math test. This makes her feel anxious. From that point on, she always becomes anxious when taking a math test. As the school year progresses, she begins experiencing anxiety when she has tests in other subject areas as well.

Q: Why would Patty begin to experience anxiety in response to tests in content areas other than math?
Skinner’s Operant Conditioning

Consequences are contingent on the organism’s behavior.

- **Reinforcement** increases the probability that a behavior will occur.

- **Punishment** decreases the probability that a behavior will occur.
# Reinforcement and Punishment

<table>
<thead>
<tr>
<th></th>
<th>Behavior</th>
<th>Consequence</th>
<th>Future Behavior</th>
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<tbody>
<tr>
<td><strong>Positive Reinforcement</strong></td>
<td>Student asks a good question</td>
<td>Teacher praises student</td>
<td>Student asks more good questions</td>
</tr>
<tr>
<td><strong>Negative Reinforcement</strong></td>
<td>Student turns homework in on time</td>
<td>Teacher stops criticizing student</td>
<td>Student increasingly turns homework in on time</td>
</tr>
<tr>
<td><strong>Punishment</strong></td>
<td>Student interrupts teacher</td>
<td>Teacher verbally reprimands student</td>
<td>Student stops interrupting teacher</td>
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</table>
Nick frequently gets out of his seat and entertains his classmates with humorous remarks. Mr. Lincoln often scolds Nick for his behavior. However, Nick’s classmates laugh when Nick makes remarks. The scolding rarely has any impact. Nick continues with his antics.

Q.1: What is Mr. Lincoln attempting to do when he scolds Nick?
Q.2: Why does Nick continue his antics in spite of being scolded?
Q.3: What are three strategies Mr. Lincoln could try to keep Nick more on task?
Increasing Desirable Behaviors and Decreasing Undesirable Ones

- Choose effective reinforcers
- Make reinforcers contingent and timely
- Use differential reinforcement
- Withdraw positive reinforcement, take student away from positive stimuli – time out
Behavioral and Social Cognitive Approaches

Social Cognitive Approaches to Learning

Observational Learning

Bandura’s Social Cognitive Theory

Evaluating the Social Cognitive Approaches

Cognitive Behavior Approaches and Self-Regulation
Observational Learning
*You can learn by observing others*

**Attention**
Students must attend to what a model is doing or saying.

**Retention**
Students must code information and keep it in memory so that they can retrieve it.

**Production**
Students must be able to reproduce the model’s behavior.

**Motivation**
Students must be motivated to imitate the modeled behavior.
Observational Learning

Theory into Practice

Nick frequently gets out of his seat and entertains his classmates with humorous remarks. Mr. Lincoln often scolds Nick for his behavior. However, Nick’s classmates laugh when Nick makes remarks. The scolding rarely has any impact. Nick continues with his antics. After several days of this, other boys in the class begin to get out of their seats and make humorous remarks as well.

Q.1: Why do the other boys begin to misbehave? Explain.

Q.2: What can Mr. Lincoln do to get these behaviors under control?
Classroom Use of Observational Learning

- Decide what type of model you will be
- Demonstrate and teach new behaviors
- Use peers as effective models
- Use mentors as models
- Consider the models children observe in the media
Bandura’s Social Cognitive Theory

Behavior

Person/Cognitive  Environment
Bandura’s Social Cognitive Theory

The case of achievement motivation

**Cognition influences behavior**
Student develops effective cognitive strategies that improve his/her performance

**Behavior influences cognition**
Better study strategies produce better grades, better grades produce positive expectations

**Environment influences behavior**
A study-skills program provides the tools for effective achievement behavior

**Behavior influences environment**
Improving student performance prompts the school to expand the study-skills program
SELF-EFFICACY

*Self-efficacy* is a personal expectation about one’s capability to accomplish some task. It is a specific view of one’s capabilities in a given domain.

“I am a smart person.”  “I am confident I can get an A in my educational psych course.”

(self-concept)  (self-efficacy)

*Four sources of self-efficacy:* your own assessment of your performance (“Hey, I can do this!”), other’s assessment of your performance (“You can do this!”), your assessment of other learners (“They can do it, so can I!”), your physiological state (I’m calm, no more anxiety)
A Model of Self-Regulatory Learning

- Monitoring Outcomes and Refining Strategies
- Self-Evaluation and Monitoring
- Goal Setting and Strategic Planning
- Putting a Plan into Action and Monitoring It
Strategies for Encouraging Students to be Self-Regulated Learners

- Gradually guide students to become self-regulated
- Make classroom learning challenging & interesting
- Provide tips that will help students engage in self-regulation
- Pay special attention to low-achieving students
- Model self-regulated learning