Behaviorism/Cognitive Psychology

Methodologies for observing how people think

(Useful in the classroom?)

Website with a lot of useful information is
http://psychology.about.com
• **Behaviorism** is a school of thought in psychology based on the assumption that learning occurs through **interactions with the environment**. Two other assumptions of this theory are that the **environment** shapes behavior and that **taking internal mental states** such as thoughts, feelings and emotions into consideration is **useless** in explaining behavior.

• "**Behaviorism...holds that the subject matter of human psychology is the behavior of the human being.** Behaviorism claims that consciousness is neither a **definite nor a usable concept**. The behaviorist, who has been trained always as an experimentalist, holds, further, that belief in the existence of consciousness goes back to the ancient days of **superstition and magic.**"

• (Remember Thorndike and the Cats in the Puzzle Box)
• Thorndike is also often referred to as the father of modern day educational psychology.

• Books published
  - *Educational Psychology*, (1903)
  - *Introduction to the Theory of Mental and Social Measurements*, (1904)
  - *The Elements of Psychology*, (1905)
  - *Animal Intelligence*, (1911)
  - *The Measurement of Intelligence*, (1927)
  - *The Fundamentals of Learning*, (1932)
What Is Behaviorism?

Behavioral psychology, also known as behaviorism, is a theory of learning based upon the idea that all behaviors are acquired through conditioning. Conditioning occurs through interaction with the environment. According to behaviorism, behavior can be studied in a systematic and observable manner with no consideration of internal mental states.

There are two major types of conditioning:

- **Classical conditioning** is a technique used in behavioral training in which a naturally occurring stimulus is paired with a response. Next, a previously neutral stimulus is paired with the naturally occurring stimulus. Eventually, the previously neutral stimulus comes to evoke the response without the presence of the naturally occurring stimulus. The two elements are then known as the conditioned stimulus and the conditioned response.

- **Operant conditioning** (Instrumental conditioning) Operant conditioning (sometimes referred to as instrumental conditioning) is a method of learning that occurs through rewards and punishments for behavior. Through operant conditioning, an association is made between a behavior and a consequence for that behavior.

Major Thinkers in Behaviorism

- Ivan Pavlov, B. F. Skinner, Edward Thorndike, John B. Watson, Clark Hull
Examples of Operant Conditioning

• We can find examples of operant conditioning at work all around us. Consider the case of children completing homework to earn a reward from a parent or teacher, or employees finishing projects to receive praise or promotions.

• In these examples, the promise or possibility of rewards causes an increase in behavior, but operant conditioning can also be used to decrease a behavior. The removal of an undesirable outcome or the use of punishment can be used to decrease or prevent undesirable behaviors. For example, a child may be told they will lose recess privileges if they talk out of turn in class. This potential for punishment may lead to a decrease in disruptive behaviors.
Examples

An Example of Classical Conditioning

• One of the best-known aspects of behavioral learning theory is classical conditioning. Discovered by Russian physiologist Ivan Pavlov, classical conditioning is a learning process that occurs through associations between an environmental stimulus and a naturally occurring stimulus.

• It's important to note that classical conditioning involves placing a neutral signal before a naturally occurring reflex. In Pavlov's classic experiment with dogs, the neutral signal was the sound of a tone and the naturally occurring reflex was salivating in response to food. By associating the neutral stimulus with the environmental stimulus (the presentation of food), the sound of the tone alone could produce the salivation response.
What Is Cognitive Psychology?

Cognitive psychology is the branch of psychology that studies mental processes including how people think, perceive, remember and learn. As part of the larger field of cognitive science, this branch of psychology is related to other disciplines including neuroscience, philosophy and linguistics.

Important people in the history of Cognitive Psychology

Wilhelm Wundt, Edward B. Titchener, Hermann Ebbinghaus, William James, Wolfgang Kohler, Edward Tolman, Jean Piaget, Noam Chomsky, David Rumelhart, James McClelland
The art of being wise is the art of knowing what to overlook.
--William James
Cognitive Psychology’s Focus

The core focus of cognitive psychology is on how people acquire, process and store information. There are numerous practical applications for cognitive research, such as improving memory, increasing decision-making accuracy and structuring educational curricula to enhance learning.
How is Cognitive Psychology Different?

• Unlike behaviorism, which focuses only on observable behaviors, cognitive psychology is concerned with internal mental states.

• Unlike psychoanalysis, which relies heavily on subjective perceptions, cognitive psychology uses scientific research methods to study mental processes.
Should Teachers Study Cognitive Psychology

Teachers, educators and curriculum designers can benefit by learning more about how people process, learn, and remember information.

The three domains of learning are:
* The cognitive domain that emphasizes thinking;
* the affective domain highlighting attitudes and feelings;
and
* the psychomotor domain featuring doing.

The first domain that was characterized by Bloom was the cognitive, which is further divided into six levels or hierarchies.

- Cognitive (Thinking) Domain: Knowledge, Comprehension, Application, Analysis, Synthesis, Evaluation
- Sometimes the six hierarchies or levels listed above are grouped into three categories:
  - Level 1. Recall – Knowledge and Comprehension
  - Level 2. Interpretation – Application and Analysis
  - Level 3. Problem-Solving – Synthesis and Evaluation

Website: http://www.naacls.org/docs/announcement-writing-objectives.pdf
Examples of Objectives for the Cognitive Domain

- **Poor** To increase the student’s ability to visually identify white cells on a differential.
  
  **Better** The student will identify correctly all white cells on a differential.

- **Poor** The student will gain knowledge of automated chemistry tests.
  
  **Better** The student will state the principle for each automated chemistry test listed.

- **Poor** The student will be familiar with red blood cell maturation in the bone marrow.
  
  **Better** The student will diagram the maturation of red blood cells.
Behavioral Objectives:

These types of objectives indicate the specific behaviors students must demonstrate to indicate that learning has occurred.
Learning?

“We should be as concerned with how we teach as we traditionally have been concerned with what we teach” (SFT p. 53)

What connects all of these theories, cognitive domains (thinking) and behaviors?

A phenomenon call **TRANSFER**.

Transfer is central to designing and developing effective instruction