**PSY 499 Module 4a AVP Transcript**

**Title: Behaviorism: A Deeper Look**

**Title Slide**

**Narrator:** This presentation explains in some detail the basics of behaviorism, and provides some insight that you might or might not already have.

**Slide 2**

**Slide Title:** Famous Behaviorists

**Slide Content:** [*images of John B. Watson, Ivan Pavlov, B.F. Skinner and Edward Thorndike*]

**Narrator:** Though Watson, Skinner, Pavlov, and Thorndike are frequently given credit as the founders of behaviorism, people tend to forget about Clark Hull. Hull is responsible for our modern scientific understanding of how reinforcement works. In his view, reinforces help to reduce drives, which are aversive psychological states characterized by distraction and intrusive thoughts that come about from physiological imbalances or deficiencies. Think of thirst. Thirst is really just the subjective psychological experience of someone who is suffering from a depletion of water either within their cells or in the fluid environment outside of their cells.

**Slide 3**

**Slide Title:** Behaviorism Basics

**Slide Content**

* Pavlov’s Classical Conditioning
	+ Timing
	+ Predictability
	+ Signal strength
	+ Attention
	+ Bio-preparedness

**Narrator:** Russian physiologist and physician Ivan Pavlov is responsible for our modern understanding of classical conditioning. This is the standard stimulus-response conditioning that makes your cat come running when she hears the sound of the can opener. Extending the classic idea of associationism, Pavlov argued that animals are essentially cause-effect thinkers. A stimulus that comes before another one consistently enough is seen as predictive of the later stimulus in an animal’s mind. Some things that influenced the strength and rapidity with which two things are paired include the timing, predictability, signal strength, and attention. Timing is important because the second stimulus should come quickly enough after the first that the learner makes the association. Predictability involves the regularity with which the second thing follows the first. If we are trying to teach an animal to pair two things, the second thing should always come after the first, not just sometimes. Signal strength involves the intensity of the stimuli. If I’m trying to teach a dog to retreat when I turn a light on that predicts a shock, that shock should be strong enough to be aversive. Attention is important because, without paying attention, it is less likely that a learner will pair the things together as quickly.

One important consideration in tempering our expectations about classical conditioning is biological preparedness (also called biopreparedness). Biopreparedness makes us more likely to pair two things together if it makes sense to do so from an evolutionary perspective. Imagine that you are eating a hamburger and listening to Led Zeppelin. If you suddenly become violently ill it is far more likely that you’ll develop a taste aversion to hamburger than that you will develop an aversion to Led Zeppelin (despite what you might think about them as a rock band). Because of the way that your brain has been hard-wired as a result of your evolutionary past, you are uniquely biologically prepared to develop certain aversions and phobias. It’s not a coincidence that more people are scared of snakes, spiders, heights, the dark, and strangers than are scared of airplanes, cars, electricity, and the things that will *really kill you*. Your brain is hardwired to make the association between these things and fear.

**Slide 4**

**Slide Title:** Behaviorism Basics

**Slide Content:** [*table depicting the elements: prior to conditioning, conditioning and post conditioning*]

* Pavlov’s Classical Conditioning
	+ Elements

**Narrator:** If you’ve made it this far, I’m sure you’re intimately familiar with the basics of classical conditioning. So, I will insult your intelligence with a little review if you’ll indulge me. As the picture on this slide demonstrates, a stimulus that, before conditioning, caused nothing more than an orientation response (or turning the head to see what all the fuss was about) eventually causes another response after repeated pairings with the unconditioned stimulus. And there you have classical conditioning in one sentence. You are welcome.

**Slide 5**

**Slide Content:** [*image of one of Pavlov’s dogs*]

**Narrator:** This little cartoon illustrates a point: Just like there were a great number of agreements between the work of Skinner and Freud, there were a great number of agreements between Freud and Skinner. Primarily, this was because both viewed the ultimate genesis of behavior and personality as starting at the physiological level. Both are also very compatible with Clark Hull’s drive theory. Classical conditioning is only a part of the work of Pavlov. So, things aren’t always what they appear to be on the surface.

**Slide 6**

**Slide Title:** Types of Behaviorism

**Slide Content**

**Methodological** – Psychology should be the study of behavior, not the study of the mind. We should only study that which can be observed, verified, replicated, and tested scientifically. Mental events cannot be properly studied, so are not truly scientific and not under the purview of psychology.

**Psychological** – Behavior can be described and explained without making reference to mental events or to internal psychological processes. The sources of behavior are external (in the environment), not internal (in the mind).

**Analytical** – In the course of theory development in psychology, if, somehow, mental terms or concepts are deployed in describing or explaining behavior, then either (a) these terms or concepts should be eliminated and replaced by behavioral terms, or (b) they can and should be translated or paraphrased into behavioral concepts.

**Radical** – Very deterministic view that even mental processes are just behaviors to be explained. Combines the above 3.

For more, see the *Stanford Encyclopedia of Philosophy*, http://plato.stanford.edu/entries/behaviorism

**Narrator:** Those who believe that there is only one type of behaviorist are mistaken. There are, in fact, multiple kinds. Most of the people you think of when you hear the term behaviorism were psychological behaviorists, who thought that it was unnecessary and unproductive to refer to the black box of cognition at all when trying to explain the reasons for behavior. A methodological behaviorist would most likely withhold judgment on whether mental events were causal in behavior or not, but would certainly argue that they are not an appropriate thing for any self-respecting scientist to study. Skinner’s radical behaviorism combined analytical, psychological, and methodological behaviorism. In a nutshell, he’d argue that not only should we not be studying mental events, but that we are not causal in behavior. Not only are they not causal in behavior, they themselves are just another kind of behavior to be explained. All causes to him were environmental.

**Slide 7**

**Slide Title:** John B. Watson

**Slide Content:** [*image of John B. Watson holding a baby who is holding onto a bar, and a woman watching*]

**Narrator:** Coming from the tradition of animal research, John B. Watson is more responsible for the foundation of behaviorism than anyone else. Much of the momentum behind behaviorism came from the serious concerns about whether the introspective methods used to explore mental events through introspection could be overcome. In 1913, Watson wrote this:

“Our minds have been so warped by the fifty-odd years which have been devoted to the study of states of consciousness that we can envisage these problems only in one way. We should meet the situation squarely and say that we are not able to carry forward investigations along all of these lines by the behavior methods which are in use at the present time…the introspective method itself has reached a *cul-de-sac* with respect to them. The topics have become so threadbare from much handling that they may well be put away for a time. As our methods become better developed it will be possible to undertake investigations of more and more complex forms of behavior. Problems which are now laid aside will again become imperative, but they can be viewed as they arise from a new angle and in more concrete settings.”

He cautioned against trying to force an explanation for behavior that involved the black box of mental processes. Again in 1913, he wrote that “Any other hypothesis than that which admits the independent value of behavior material, regardless of any bearing such material may have upon consciousness, will inevitably force us to the absurd position of attempting to *construct* the conscious content of the animal whose behavior we have been studying. On this view, after having determined our animal's ability to learn, the simplicity or complexity of its methods of learning, the effect of past habit upon present response, the range of stimuli to which it ordinarily responds, the widened range to which it can respond under experimental conditions -- in more general terms, its various problems and its various ways of solving them -- we should still feel that the task is unfinished and that the results are worthless, until we can interpret them by analogy in the light of consciousness.”

**Slide 8**

**Slide Title:** John B. Watson

**Slide Content:** [*image of John B. Watson*]

**Narrator:** Watson offered a solution, summing up behaviorism simply enough:

“Psychology as the behaviorist views it is a purely objective experimental branch of natural science. Its theoretical goal is the prediction and control of behavior. Introspection forms no essential part of its methods, nor is the scientific value of its data dependent upon the readiness with which they lend themselves to interpretation in the terms of consciousness.”

**Slide 9**

**Slide Title:** Behaviorism Basics

**Slide Content**

* Thorndike’s instrumental conditioning and learning as an implicit process

**Narrator:** Thorndike’s instrumental conditioning predated Skinner’s operant conditioning. Some of Thorndike’s pet peeves involved people assuming that some form of insight or ideas mediated animal learning. He argued that learning is incremental and occurs by trial and error. Something that leads to desirable outcomes is more likely to be repeated in the future, while something that leads to an unpleasant outcome is somewhat less likely to reoccur (this was called the Law of Effect). The law of exercise basically stated “use it or lose it.” We learn by doing, and repetitions lead to learning while connections between a stimulus and response are weakened through lack of practice (again, though, to a somewhat lesser extent). His law of readiness explained that it was easier to teach some things in combinations with others. For example, breaking a complex behavior into a series of stimulus-response chains would lead to more efficient learning.

**Slide 10**

**Slide Title:** Behaviorism Basics

**Slide Content:** [*drawn image of a scientist*]

* Skinner’s Operant Conditioning

**Narrator:** BF Skinner was the founder of operant conditioning (so called because he studied behaviors that operate on, or influence, the organism’s environment in some way). His operant conditioning was simple enough. In 1956 he wrote that “all we need to know in order to describe and explain behavior is this: actions followed by good outcomes are likely to reoccur and actions followed by bad outcomes are less likely to reoccur.”

**Slide 11**

**Slide Title:** Behaviorism Basics

**Slide Content**

* Skinner’s Operant Conditioning-Elements
	+ Schedules of Reinforcement

**Narrator:** Of course, continuous reinforcement is the quickest way to teach any animal in an operant framework. It is, however, not the most efficient way, nor is it the way that the real world works. The real world is characterized by partial reinforcement. Ratio schedules of reinforcement lead to quicker learning than do interval schedules of reinforcement. A big reason behind this is the post-reinforcement pause. Even the lower animals are intuitive enough to realize that if they are being rewarded on the basis of time, the time frame in which they are LEAST LIKELY to be reinforced is immediately after having received a reinforcement. No matter how much you got paid on Friday, you will still hate to go to work on Monday, especially when you know that you won’t get paid for nearly two more weeks.

**Slide 12**

**Slide Title:** Operant Conditioning

**Slide Content:** [*image of B.F. Skinner*]

**Narrator:** According to Skinner, “all behavior is followed by a consequence, and the nature of that consequence modifies the organisms’ tendency to repeat the behavior in the future.”

**Slide 13**

**Slide Title:** How Reinforcers Work

**Slide Content**

* Primary reinforcers satisfy basic physiological needs
* Secondary reinforcers signal the eventuality of primary reinforcement (e.g., money, praise)
* Other things, like nicotine, caffeine, alcohol, and other drugs, stimulate the brain’s pleasure centers
	+ Acetylcholine and Dopamine have been implicated in this effect

**Narrator:** But HOW does it modify the tendency to behave? Primary reinforcers work by helping to satisfy some physiological need. In doing so, they consequently reduce a drive that resulted from that physiological need. One important point: Skinner argued that things are pleasurable because they are reinforcing, they are not reinforcing because they are pleasurable. Like many other scientists, he knew that there is no such thing as something being pleasurable in and of itself. We experience it as pleasurable because of what it does for (and to) us. But explaining behaviors on the basis of just those things that reduce physiological (or even psychological) drive states would be woefully insufficient.

What about things like money, praise, and status? What are they reinforcing? Skinner would argue that they are associated (or connected, in Thorndike’s terms) with primary reinforcers. Money doesn’t taste good in my opinion, but if you have some of it you can buy some tasty food. Thus, these secondary reinforcers can take on a positive value all on their own as a function of the fact that they predict primary reinforcers. One more thing to consider: Some things that are reinforcing don’t really meet a physiological need until we create that need ourselves. That first cigarette in the morning tastes so good not because nicotine is pleasurable in and of itself, but because it stimulates the natural pleasure centers in our brain. A big part of withdrawal results from the fact that, over time, our brain stops producing natural endorphins if we keep taking in synthetic chemicals that mimic endorphins closely enough.

**Slide 14**

**Slide Content:** [*image of a table depicting desirable/undesirable and introduced/removed*]

**Narrator:** As you are aware, there are two kinds of reinforcement and two kinds of punishment. An example of positive reinforcement would be giving you a cookie. An example of negative reinforcement would be if I stopped mocking you when you finally wash the dishes. Punishment can involve either presenting something you don’t care for, like when we spank a child, or taking away something you enjoy, like when we ground them. An important distinction is that reinforcement should always INCREASE the probability of the organism performing the behavior in the future, while punishment should always REDUCE the likelihood.

**Slide 15**

**Slide Title:** Potential Problems of Punishment

**Slide Content**

* Typically doesn’t change an undesirable habit
* Punishment can produce unwanted side effects
* Often ineffective unless it is given immediately after the undesirable behavior and each time the that behavior occurs
* Can model aggression; can be abusive
* Signals that an inappropriate behavior has occurred but does not specify what should be done instead

**Narrator:** Skinner himself argued that positive reinforcement was much preferable to punishment. In addition to being a less effective means of teaching in his opinion, there are a number of known problems with punishment that must be kept in mind. One thing is that, even if it stops the behavior, it might only stop the behavior while the punisher is there to witness it. In addition to being a potential model for aggression, it doesn’t really provide the learner with anything to do to avoid the punishment in the future. Much punishment is not swift enough and not certain enough, regardless of its severity, to have the desired effect.

**Slide 16**

**Slide Title:** Guidelines for Effective Punishment

**Slide Content**

* Explain reasons for punishing
* Emphasize that the behavior, not the person, is being punished
* Make sure the punishment immediate, fits the crime, and aversive enough
* Identify, point out, and positively reinforce more appropriate responses
* Do not model abuse or aggression

**Narrator:** Punishment cannot always be avoided. One option is to ignore negative behaviors and then reinforce positive behaviors when they DO occur. This isn’t always feasible. If you are anything like the rest of us, it grates your nerves a bit when a child is screaming at the top of their lungs or throwing a temper tantrum on the plane or at the grocery store and the mother just ignores it. If you must punish, be sure to do it right. Make the punishment fit the crime. Make it swift enough that they can draw the cause-effect relationship, and explain to them what they did wrong and how they can avoid the punishment in the future. Make it certain enough that they will know that the punishment is DEFINITELY GOING TO HAPPEN if they do what they shouldn’t be doing. Make it severe enough that it is aversive. For example, don’t just send them to their room where their computer, cell phone, MP3 player, and video game console await them. But don’t punish in anger, or you may either cross that delicate abuse line or make threats that you never intend to carry out. You may undermine your own credibility if you do. As you do these things, keep in mind that it is important to model appropriate behaviors as well. Do as I say, not as I do, because I said so, just doesn’t work very well.

**Slide 17**

**Slide Title:** Behaviorism - Applications

**Slide Content**

**Shaping** - Helps to teach animals complex behaviors where novel responses and combinations of responses are required

**Narrator:** One good technique for teaching that came out of the operant conditioning tradition is shaping. Through shaping, people and animals can be taught to do very complicated things. It basically works through reinforcing successive approximations of the behavior. It’s being used to teach pigeons to play ping-pong. Your music teacher might have used it to teach you to play the guitar. Shaping works through discrimination of responses where the animal learns that it must respond in a certain way to approach the likelihood of receiving reinforcement. Imagine playing “warmer…colder”, with the rule that no reinforcement occurs unless you get warmer than you’ve ever been before.

**Slide 18**

**Slide Title:** Behaviorism - Applications

**Slide Content**

* Understanding gambling and other addictions, as well as superstitious behaviors
* Control of human behavior
	+ Punishment
	+ Socialization of individual
	+ Societal changes
	+ Token economies
	+ Modern applied behavior analysis

**Narrator:** Our understanding of the schedules of reinforcement help us to understand why people do things that are less than rational, like gambling away their paycheck, buying drugs when they can’t afford food, and believing that they can affect the outcome of random events by performing strange rituals. You sports fans know what I mean. Go ahead, admit it. Doesn’t that feel better?

If we look at gambling as a schedule of partial reinforcement, then we know that the partial reinforcement extinction effect applies to it. The partial reinforcement extinction effect shows that behaviors learned on a schedule of partial reinforcement are harder to extinguish than are those learned through continuous reinforcement. A slot machine is one of the best examples of variable ratio reinforcement. Combine this effect with superstitions that the gambler’s fallacy and you have quite a powerful combination. The gambler’s fallacy is the belief that we are DUE a win if we have had a recent string of losses.

**Slide 19**

**Slide Title:** Behaviorism - Applications

**Slide Content**

* Treatment of phobias
	+ Systematic desensitization

**Narrator:** One important treatment is derived from the fact that phobias can be classically conditioned into us. If they can be conditioned in, they can be conditioned out. Phobias are basically learned irrational fears. Systematic desensitization extinguishes them through gradual relaxation and concurrent (simultaneous) gradual introduction of the fear inducing stimulus. Eventually, the person learns to break the association between the fear-inducing stimulus and the fear response and make a new association between the stimulus and a relaxation response.

**Slide 20**

End of presentation