

# Driscoll Part Two

## Radical Behaviorism

### 1. Introduction

- There has been no more dominant theory of learning throughout the twentieth century than behaviorism. It is the foundation of most dominant educational institutions in America (and the world), from elementary school to corporate training. Whenever education seems to be failing, there is a “return to basics” that is in reality a re-affirmation of behavioristic principles.
- Behaviorism rode the early 20th century’s priority on objective science. The debate was between Watson and Thorndike on one side and Dewey and James on the other, and the behavioral arguments were much more in tune with early industrialized America. Also, the emerging American university only counted science as a valid source of knowledge. Behaviorism looked much more like physics than the “fuzzy” pragmatism, and was privileged in higher education.
- To put it simply, this is a theory that concentrates on observable, measurable results. This is a rational scientific stance - you can not admit any evidence that cannot be objectively observed and measured. There is no concern about *what* the mind does because there is no way to observe its workings.

### 2. Terms to Know

- Behaviorism
- Classical Conditioning (from chapter 1)
- Operant Conditioning
- Response
- Reinforcement
- Shaping
- Chaining
- Discriminating Learning
- Fading
- Instructional Objectives
- Teaching Machines
- Radical
- Primary Reinforcers

- Conditioned Reinforcers
- Premack Principle

### 3. People to Know

- John B. Watson
- B. F. Skinner

### 4. Reading Notes

- Behaviorism in General
  - Behaviorism comes from the stance that consciousness and complex mental states cannot be measured objectively (scientifically). Therefore these states are rejected, and all learning is measured by the results gained, the behavior of the organism. This is well illustrated by the example given about boot camp pp. 33 - 34. The soldier's motives for doing a good job are irrelevant; all a behaviorist cares about is that she kept the floors clear.
  - Note the issue that Skinner had with early behaviorists' notions of association. What was it that he said these theories smacked of? Do you see how the elimination of this quality led to "radical" behaviorism?
  - Skinner is primarily concerned with environmental cause and the resultant behavior. By controlling environmental input through observation of resultant behavior, Skinner felt it was possible to teach. Be sure to understand the relationship of the black box in this model (see Figure 2.1). The basic point of Skinner is that he was looking for **laws** of learning. Few theories we will look at the rest of this semester will shoot this high.
- Experimental Analysis
  - Behaviors
    - Be clear on operant behaviors, for this is Skinner's project. Respondent behaviors can be said to be passive, in that they are involuntary. "Operant" is a term meant to reflect the active role participants play in their environment.
  - Reinforcements
    - The basic rule of reinforcements is they are judged by their success. If I respond to my son's cleaning his room with ice cream, that only serves as a reinforcement to the extent Ben enjoys and values ice cream. Conversely, if he knows he will get a "time out" if he does *not* clean his room, he will be reinforced to the extent he does not want the timeout. Reinforcement is not necessarily a positive thing, but rather it is something that serves to produce the desired behavior.

- Managing Existing Behaviors
  - The basic points revolve around how to get the desired behavior to occur, and how to maintain that behavior over time. Note that in this section we are dealing with behaviors that already exist. This is a process of encouraging or discouraging those behaviors.
  - It is of great importance for you to understand the chart on page 39. Some of this may sound counter-intuitive at first, but read the text carefully. Understand the four uses of reinforcement, remembering that reinforcement is not always positive.
  - Two reinforcements *strengthen* a response:
    - Positive Reinforcement - This is a reward given . You do what you're told and you will get a nice reward.
    - Negative Reinforcement - This is taking away an undesirable reinforcement. My favorite is to do something to stop the nagging.
  - Two reinforcements *weaken* a response:
    - Punishment - This is an undesirable consequence of action.
      - Note the closeness to negative reinforcement. I think of punishment as an active application of an undesirable consequence. Punishment is given, while negative reinforcement is more directly under the control of the subject.
      - Also, the text talks about the problems with punishment. It is short-lived, may actually reinforce more undesirable action, and can result in a learned helplessness after long application.
    - Reinforcement Removal - Here one takes away the desirable rather than giving an undesirable (punishing). There are some principles involved:
      - Extinction - when the undesired behavior elicits no response. This is the parental game of outlasting the child.
      - Response cost - a fine, or giving back of some previously earned advantage. "We were going to watch a movie, but this has cost you..." Note the similarity to punishment; the point is again the locus of control in with the child, not the parent. Spanking is not taking away an earned reinforcer (the state of non-spanking). Canceling a treat is, if it was given because of some previously good behavior.
      - Timeout - the parent's friend. Remove the subject from the environment of the problem. It's almost eerie how well this works with my three year old, as it seems to break a cycle of action - response.

- Choosing Reinforcements
  - Primary Reinforcers - is biologically determined, i.e. food.
  - Conditioned Reinforcers - is where the value of the reinforcement has been learned, or conditioned. Be able to explain how gold stars or praise are conditioned reinforcers.
  - Premack - Use high-frequency behaviors to reinforce low-frequency behaviors. If you do x, I'll let you do something you really like to do.
  - Choosing effective reinforcers is a matter of observation and educated guess. You need to select that thing the target person values - if fear of punishment is not present, for instance, then referrals will not work as punishment.
  - Cuing - This is often needed to "get the ball rolling." Sitting and waiting is often cuing, and should be accompanied by reinforcement when the behavior is exhibited.
- Teaching New Behaviors
  - Reinforcement is about managing existing behaviors. But teaching new items requires a different set of skills in the behaviorist. Skinner, who worked on pigeons a lot, gave a great demonstration of all these techniques as a way of getting the birds to perform quite complex strings of actions.
  - Shaping - rewards an approximation of what you want, then slowly gets more discriminating. Say you want a pigeon to turn all the way around to the right. First, the pigeon turning a little to the right and got some seed. Eventually that bird will have to turn 360 degrees to the right to get seed. This is shaping the behavior.
  - Chaining - This is putting a number of disjunct behaviors together. You could chain a lot of shaped behaviors. Pigeon turns around to the right, pecks a target, walks across the cage and rings a bell. These are four shaped behaviors that can be chained into one action that gains a reward.
  - Discrimination Learning - The presence of a cue that tells you when an action is desirable and when it is not.
  - Fading - Is the gradual removal of DL cues as the skill is mastered.
- Maintaining behavior
  - Essentially this is a section about how to apply a schedule of reinforcement to avoid "backsliding" by the subject. Note how the different factors are good in different situations.

- Behaviorism in Instruction
  - This section is fairly straightforward. I think you will agree that behavioral principles dominate our traditional notions of schooling, from corporal punishment through standards of learning.
- Comments
  - Radical behaviorism has been rejected by most psychologists as inadequate to account for all human learning. The text lists some, most notable of which was verbal behavior. Noam Chomsky (yes, him) made his name by roundly debunking Skinner's behavioral account of language acquisition. Of course, one could say he was preaching to the choir by this point (late 1950's), as many cognitive psychologists felt that you simply could not "black box" the mind. Some model of mental activity had to be made in order to develop a theory of human learning in all its complexities.
  - Still, Skinner's basic critique bears consideration. The big problem with "mentalism" is that the only way you can tell what is going on in a subject's mind is to ask them to describe it. This is a very unreliable way to get at the truth. At least to a scientist it is.