Classical Conditioning Applications

**Advertising examples:** Do ads based on classical conditioning work? YES. One study studied 2 groups of men: one saw an ad for a car, and the other group saw the same ad but with a beautiful woman sitting on top of the car. The group with the beautiful woman in the picture rated the car as more appealing, faster, and better designed than the control group did. When asked, the men refused to believe that the model had anything to do with their judgments.

Another study: Gorn (1982) paired slides of either blue or beige pens (the CS) with music that the subjects had previously rated as enjoyable or not enjoyable (UCS). When they left the study, they were given the opportunity to select a pen. 79% who had heard music they liked paired with a particular color of pen selected the pen that had been paired with the music, whereas only 30% of those who had heard music they hated picked the pen that went with that music. (Subliminal processing??)

In general, ads relying on classical conditioning work only for people who are distracted or not motivated to pay attention when viewing the ads (skimming through a magazine). If you’re really motivated to look at the ad (reading an ad for a medication, a new car, etc.), then you take a more “central processing route” and aren’t susceptible to conditioned responses. Ad designers keep their target audience in mind when designing ads.

1. **Optimal pairings for conditioned responses** (trace, delayed, simultaneous, backward).
* *Real-world examples:*
* Delayed conditioning—getting your eyebrows waxed; alcohol before a shot. Best conditioning paradigm.
* Trace conditioning—lightning appears, then thunder claps (children begin to fear the loud boom of thunder when they see the lightning) 2nd best.
* Simultaneous—taming a hamster by putting food in your hand and then putting your hand in the hamster cage. Both your hand and the food are presented simultaneously with the goal of teaching the hamster not to fear your hand. Weak conditioning produced.
* Backward—getting a Band-aid or sticker after a shot. Not effective. Do you learn to fear the Band-aid? No.
1. **Other factors involved in learning**:
	1. The stronger the UCS, the stronger the conditioning. (Taste aversions, phobias)
	2. The more times the UCS and CS are paired, the stronger the conditioning.
	3. Acquisition occurs rapidly at first, but then there’s a plateau effect as you can’t really “learn” any more.
	4. The optimal delay between the pairing of the CS and UCS is small—about half a second (no more than 2 seconds or less than .2 seconds).

Once conditioning is acquired, then what? Generalization, discrimination, extinction, and spontaneous recovery.

1. **Generalization:** conditioning occurs to objects that are similar to the CS.
* Ken’s mouth waters every time he hears the ice cream truck’s familiar song in the distance. One day a slightly different song is heard in the distance and Ken’s mouth waters.
* Kevin gets sick from a seafood dinner on a cruise ship. The food poisoning coupled with sea sickness led to a terrible vacation, and now Kevin shivers at the mere sight of a cruise ship.
1. **Discrimination**:
* Little Albert learned to fear white rats, but he did not fear white cotton balls.
* You got caught in the undertow and almost drowned in an ocean. Now you fear the ocean. However, you do not fear swimming in lakes.
* You were bitten by a German shepherd as a child. As an adult, you’re still leery of German shepherds, but you don’t mind other dogs.
1. **Extinction**

Sometimes you want to get rid of a classically conditioned response. The best way to do this is to stop pairing the CS with the UCS. The conditioned response should weaken over time and disappear.

* Extinction of phobias: systematic desensitization
* Extinction of whining behavior in children: Stop pairing the whining with giving in to the child
* Extinction of dogs’ morning feeding time: Dogs used to bark every morning at 10 a.m. for breakfast. Distract them at this time and don’t feed them. They’ll stop expecting food then.
* Teach babies to go to sleep on their own by refusing to go in there to comfort them when they cry. Their expectations that you’ll be there will weaken and their crying will extinguish within a few days.
* Want to stop thinking of your ex every time you hear “your song” on the radio? Flood yourself with the song and listen to it in many different situations so that it becomes linked with other activities/memories.
* Extinction involves breaking a conditioned response and pairing it with a new response (in Pavlov’s experiment, the “new response” is really the “absence of salivation.” Extinction is an active process that involves not just the vanishing of an old CR but the emergence of a new CR in its place. Example: If you’re trying to quit smoking but always want a cigarette when you go to a bar, you have two options: Stop going to bars, or replace your cigarette craving with something else (Nicotine gum, a lollipop, an appetizer, etc.) to replace the cigarette.
1. **Spontaneous recovery:**
* Smoking or drug use
* Fear response (think you’re not afraid of dogs any more, but after awhile, you see one, and the fear comes back)
* Professor conditions his class by raising his arm, shouting “NOW!” and then firing a pistol. Class learns to fear his arm raising. Then he stops firing the pistol when he shouts NOW! The fear response is extinguished. He lectures on something else for 20 minutes but then suddenly raises his hand again and shouts “NOW!” Fear response comes back.
* You fall off a horse but get right back on and continue riding before you develop a fear of riding. Everything is fine for a few days, but one day you start to get on the horse and have a brief moment of panic.

## Little Albert Case:

Watson & Raynor (1920) set out to disprove the current thinking that emotional responses were instinctual or, as Freud thought, who thought that fears and phobias were the result of deep-seated, repressed conflicts buried in the unconscious.

Little Albert was the son of a wet nurse in an orphanage. Although raised in the orphanage, he grew up normally and was considered emotionally stable. Albert was the subject of several experiments from the time of 8 to 11 months. First, Watson and Raynor allowed him to play with a white rat, which Albert liked, but then they snuck up behind him and struck a gong with a steel hammer. The noise was deafening, and Little Albert was terrified. After seven pairings of the rat and the noise, he developed a conditioned fear response to the white rat. Five days later, his fear was still going strong but had now generalized to rabbits, a dog, a furry coat, and to a Santa Claus mask & even Watson’s hair. Watson & Raynor had demonstrated that fear responses can be classically conditioned.

Watson had planned to “decondition” Little Albert’s fear responses, perhaps by pairing the objects he was afraid of to candy or toys. However, Little Albert’s mother withdrew him from the study, and he was never heard of again. We still don’t know what happened to Little Albert and whether he had a lifelong fear of white furry objects.

\*\*Classical conditioning cannot explain ALL phobias. Some phobias are picked up through operant conditioning or modeling parents’ phobias, and there’s even some evidence that some phobias are genetic. A 2001 study from Barcelona found that 97% of people with phobias and other anxiety disorders had a mutation on chromosome 15. (Only 7% of the non-anxious control sample had this mutation.) His study suggested that a gene on some other chromosome, or some environmental factor early in development, may cause in some people an abnormality in chromosome 15. The defect may in turn make people more susceptible to panic attacks and anxiety. It’s not a given that if you have this abnormality that you’ll develop panic attacks or phobias; rather, it is probably triggered by something in the environment. In addition, a 2007 study from Hopkins found that phobias are related to the inborn personality traits of neuroticism and introversion. However, animal phobias were not linked to personality traits. It appears that some phobias are learned and some are genetic.

**Other classical conditioning applications:**

* Fetishes—sexual interest in neutral objects (such as shoes). Researchers have been able to classically condition a fetish to a terrycloth cylindrical object in Japanese quails by repeatedly pairing it (about 30 times) with a female quail they mated with. After 30 such pairings, about half the quails attempted to mate with the terrycloth object. Hasn’t been consistently generalized to humans yet, but there is some evidence that at least some people have developed fetishes by repeated pairing the neutral objects with sexual activity.
* Disgust reactions (eating fudge shaped like feces). Study by D’Amato et al. (1998)—Subjects were asked to put on a perfectly preserved 70-year-old sweater. No problem there. Then half the subjects were told that the sweater was worn by Adolph Hitler. Most subjects hesitated to put the sweater on because of a disgust reaction.