

Principles of Reinforcement

One of the greatest achievements in twentieth century psychology was the explanation of reinforcement and how it influences behavior. Early work by Pavlov, Thorndike, and Watson demonstrated how behavior patterns are formed by pairing two different stimuli together (e.g., electric shock and a flash of light, or a piece of food and the ringing of a bell) to produce the same behavioral reaction (escape in the first example and approach in the second), but it was B. F. Skinner who first demonstrated instrumental reinforcement and the many ways it works in everyday life, not just in animals but in human beings as well.

What Is It?

Reinforcement is not so much a thing as it is relationship between a behavior and an event that follows it. Behaviors often increase when closely followed by certain events. Example: A dog looks up at its master during supper and gets a scrap of meat from the table --Voila! instead of going away the dog looks up again, maybe with more eagerness this time. Everyone has seen this kind of behavior in animals, children, and even adults, but Professor Skinner was able to measure precisely the strength of the effect across a variety of schedules of reinforcement.

Terms

Positive reinforcement is any consequence to an action that increases the likelihood that action will happen again. Such events are called Positive Reinforcers. Notice that this definition allows for individual variation, so that what reinforces one person on one occasion may not reinforce another or even the same person on another occasion. However, there are many reinforcers that work for most human beings. For example, if you make eye contact with a person who smiles at you in the course of a conversation, you will make more eye contact with that person during your conversation. Smiling and making eye contact are simple but powerful reinforcers of social behavior. If you give a child a piece of candy each time he says "please" or "thank you" she will be more likely to use those words again in the same context. But reinforcers don't have to be things. If you tell an employee "Good job!" each time he gets a task done on time he will be more likely to work harder at the next task. Positive reinforcement is strongest when it occurs just after the behavior you want to increase. It weakens the longer you wait to use it.

Negative reinforcement. Negative reinforcement occurs when an aversive experience suddenly stops. It occurs most commonly in social interactions. Example: You are in a heated argument with someone who is getting louder and more aggressive. You feel faint, the blood drains from your face, and you collapse into a chair. The other person suddenly stops arguing, changes tone and asks in a worried voice if you are OK. Your "fainting spell" has just been negatively reinforced, and the next time you argue with this person you will be more likely to have the same reaction. It is the removal of the other person's angry tone that is reinforcing. Notice that neither person's action is deliberate or even something they are aware of. Yet it is the first building block of a habitual way of ending

arguments for these two people. Here is a less dramatic example: You are in a conversation with someone at a party who is boring you to tears. Your eyes glaze over and you yawn. The other person stops talking and moves on, which reinforces your glazed eyes and yawning, which are more likely to occur again in a similar context. Here again neither person may be aware of how the removal of one behavior affects the behavior that just preceded it.

Lots of our daily habits, especially those that momentarily relieve stress or discomfort, operate within the framework of negative reinforcement. In a study years ago at the University of Oregon people were observed at a particularly long traffic light to see what they would do with their hands during the two minutes they had to wait to go. Smokers often lit up at this intersection, whereas other people would pick their noses or bite their fingernails. (Today they would probably flick open their cell phones.) Why? Probably because each of these simple actions provided just enough “relief” from the discomfort to be reinforcing and thus became habits.

Punishment is an aversive event that suppresses ongoing behavior and causes avoidance or even escape. Going back to the dog looking up at its master at the dinner table, if instead of giving it a scrap of meat from the table it got a slap on the nose the dog would likely withdraw with a slight yelp. Its looking up for food would be suppressed, at least momentarily. If it got a slap every time it tried to look up, the act of coming up to the table would eventually be suppressed. If its master came after it with a stick it would try to escape. Notice that punishment does not reinforce anything or teach any new behaviors. It merely causes the animal to stop whatever it’s doing and try to get away.. It works the same way for people. Example: A work crew is standing around visiting before starting a job. Suddenly the boss jumps out of the pickup hopping mad and starts yelling at them to get busy or else! The talk immediately stops and the workers take off in all directions. Punishment is a common strategy for parents who want their children to stop what they are doing (e.g. making too much noise) or clear out and leave the parent in peace. For humans even the threat of punishment is enough to suppress behavior.

Extinction is the removal of reinforcement, which is ultimately followed by a lessening of the behavior that was previously reinforced. Going back to the dog at the table example, if the dog’s entreaty was completely ignored by its master, the approach and looking up would eventually fade away. However, even a look from the master can be just reinforcing enough for the dog to keep looking up, so extinction of a response is not always as easy as you might think. For extinction to work the reinforcement must be withdrawn completely and consistently. Ignoring the dog most of the time but giving in to it once in a while actually makes things worse through an operation called intermittent reinforcement.

Intermittent reinforcement is the off-and-on use of reinforcement, and it is very effective in locking in behaviors that precede it. For example, the first time you tell your employee “Good job!” for completing a task in a timely manner it will have more effect than after the fourth or fifth time in a row that you say it. After a while the employee comes to expect it, and it loses some of its reinforcing value. By fading the “Good job!”

comment to once in a while the desired behavior will actually occur more consistently. Dr. Skinner actually mapped out schedules of reinforcement in thousands of studies showing how the strength of reinforcement changed as a function of how often the reinforcer occurred. Intermittent reinforcement can also work against you when you are trying to modify a behavior. Going back to the person at the party, if you slip and make eye contact or otherwise show interest when you would actually like the other person to stop talking, you are accidentally reinforcing the behavior you want to stop. Even occasional “slip-ups” in showing attention become a kind of intermittent reinforcement.