


# What Is Operant Conditioning and How Does It Work?

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## More in Theories

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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.

For example, when a lab rat presses a blue button, he receives a food pellet as a reward, but when he presses the red button he receives a mild electric shock.

As a result, he learns to press the blue button but avoid the red button.

But operant conditioning is not just something that takes place in experimental settings while training lab animals; it also plays a powerful role in everyday learning. Reinforcement and punishment take place almost every day in natural settings as well as in more structured settings such as the classroom or therapy sessions.

Let's take a closer look at how operant conditioning was discovered, the impact it had on psychology, and how it is used to change old behaviors and teach new ones.

## The History of Operant Conditioning

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Operant conditioning was coined by behaviorist B.F. Skinner, which is why you may occasionally hear it referred to as Skinnerian conditioning. As a behaviorist, Skinner believed that it was not really necessary to look at internal thoughts and motivations in order to explain behavior. Instead, he suggested, we should look only at the external, observable causes of human behavior.

Through the first part of the 20th-century, behaviorism had become a major force within psychology. The ideas of John B. Watson dominated this school of thought early on. Watson focused on the principles of classical conditioning, once famously suggesting that he could take any person regardless of their background and train them to be anything he chose.

Where the early behaviorists had focused their interests on associative learning, Skinner was more interested in how the *consequences* of people's actions influenced their behavior.

Skinner used the term *operant* to refer to any "active behavior that operates upon the environment to generate consequences." In other words, Skinner's theory explained how we acquire the range of learned behaviors we exhibit each and every day.

His theory was heavily influenced by the work of psychologist Edward Thorndike, who had proposed what he called the law of effect. According to this principle, actions that are followed by desirable outcomes are more likely to be repeated while those followed by undesirable outcomes are less likely to be repeated.

Operant conditioning relies on a fairly simple premise - actions that are followed by reinforcement will be strengthened and more likely to occur again in the future. If you tell a funny story in class and everybody laughs, you will probably be more likely to tell that story again in the future. If you raise your hand to ask a question and your teacher praises your polite behavior, you will be more likely to raise your hand the next time you have a question or comment.

Because the behavior was followed by reinforcement, or a desirable outcome, the preceding actions are strengthened.

Conversely, actions that result in punishment or undesirable consequences will be weakened and less likely to occur again in the future. If you tell the same story again in another class but nobody laughs this time, you will be less likely to repeat the story again in the future. If you shout out an answer in class and your teacher scolds you, then you might be less likely to interrupt the class again.

## Types of Behaviors

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Skinner distinguished between two different types of behaviors

- **Respondent behaviors** are those that occur automatically and reflexively, such as pulling your hand back from a hot stove or jerking your leg when the doctor taps on your knee. You don't have to learn these behaviors, they simply occur automatically and involuntarily.
- **Operant behaviors**, on the other hand, are those under our conscious control. Some may occur spontaneously and others purposely, but it is the consequences of these actions that then influence whether or not they occur again in the future. Our actions on the environment and the consequences of that action make up an important part of the learning process.

While classical conditioning could account for respondent behaviors, Skinner realized that it could not account for a great deal of learning. Instead, Skinner suggested that operant conditioning held far greater importance.

Skinner invented different devices during his boyhood and he put these skills to work during

his studies on operant conditioning.

He created a device known as an operant conditioning chamber, most often referred to today as a Skinner box. The chamber was essentially a box that could hold a small animal such as a rat or pigeon. The box also contained a bar or key that the animal could press in order to receive a reward.

In order to track responses, Skinner also developed a device known as a cumulative recorder. The device recorded responses as an upward movement of a line so that response rates could be read by looking at the slope of the line.

## Components of Operant Conditioning

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There are several key concepts in operant conditioning.

### ***Reinforcement in Operant Conditioning***

Reinforcement is any event that strengthens or increases the behavior it follows. There are two kinds of reinforcers:

1. **Positive reinforcers** are favorable events or outcomes that are presented after the behavior. In situations that reflect positive reinforcement, a response or behavior is strengthened by the addition of something, such as praise or a direct reward. For example, if you do a good job at work and your manager gives you a bonus.
2. **Negative reinforcers** involve the removal of an unfavorable events or outcomes after the display of a behavior. In these situations, a response is strengthened by the removal of something considered unpleasant. For example, if your child starts to scream in the middle of the grocery store, but stops once you hand him a treat, you will be more likely to hand him a treat the next time he starts to scream. Your action led to the removal of the unpleasant condition (the child screaming), negatively reinforcing your behavior.

In both of these cases of reinforcement, the behavior increases.

### ***Punishment in Operant Conditioning***

Punishment is the presentation of an adverse event or outcome that causes a decrease in the behavior it follows. There are two kinds of punishment:

1. **Positive punishment**, sometimes referred to as punishment by application, presents an unfavorable event or outcome in order to weaken the response it follows. Spanking for misbehavior is an example of punishment by application.
2. **Negative punishment**, also known as punishment by removal, occurs when a favorable event or outcome is removed after a behavior occurs. Taking away a child's video game following misbehavior is an example of negative punishment.

In both of these cases of punishment, the behavior decreases.

### ***Reinforcement Schedules***

Reinforcement is not necessarily a straightforward process and there are a number of factors that can influence how quickly and how well new things are learned. Skinner found that *when* and *how often* behaviors were reinforced played a role in the speed and strength of acquisition. In other words, the timing and frequency of reinforcement influenced how new behaviors were learned and how old behaviors were modified.

Skinner identified several different schedules of reinforcement that impact the operant conditioning process:

1. **Continuous reinforcement** involves delivery a reinforcement every time a response occurs. Learning tends to occur relatively quickly, yet the response rate is quite low. Extinction also occurs very quickly once reinforcement is halted.
2. **Fixed-ratio schedules** are a type of partial reinforcement. Responses are reinforced only after a specific number of responses have occurred. This typically leads to a fairly steady response rate.
3. **Fixed-interval schedules** are another form of partial reinforcement. Reinforcement occurs only after a certain interval of time has elapsed. Response rates remain fairly steady and start to increase as the reinforcement time draws near, but slow immediately after the reinforcement has been delivered.
4. **Variable-ratio schedules** are also a type of partial reinforcement that involve reinforcing behavior after a varied number of responses. This leads to both a high response rate and slow extinction rates.
5. **Variable-interval schedules** are the final form of partial reinforcement Skinner described. This schedule involves delivering reinforcement after a variable amount of time has elapsed. This also tends to lead to a fast response rate and slow extinction rate.

## Examples of Operant Conditioning

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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.

Some more examples of operant conditioning in action:

- If your child acts out during a shopping trip, you might give him a treat to get him to be quiet. Because you have positively reinforced the misbehavior, he will probably be more likely to act out again in the future in order to receive another treat.
- After performing in a community theater play, you receive applause from the audience. This acts as a positive reinforcer inspiring you to try out for more performance roles.
- You train your dog to fetch by offering him praise and a pat on the head whenever he performs the behavior correctly.
- A professor tells students that if they have perfect attendance all semester, then they do not have to take the final comprehensive exam. By removing an unpleasant stimulus (the final test) students are negatively reinforced to attend class regularly.
- If you fail to hand in a project on time, your boss becomes angry and berates your

performance in front of your co-workers. This acts as a positive punisher making it less likely that you will finish projects late in the future.

- A teen girl does not clean up her room as she was asked, so her parents take away her phone for the rest of the day. This is an example of a negative punishment in which a positive stimulus is taken away.

In some of 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 a desirable outcome or negative outcome application 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.

## A Word From Verywell

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While behaviorism may have lost much of the dominance it held during the early part of the 20th-century, operant conditioning remains an important and often utilized tool in the learning and behavior modification process. Sometimes natural consequences lead to changes in our behavior. In other instances, rewards and punishments may be consciously doled out in order to create a change.

Operant conditioning is something you may immediately recognize in your own life, whether it is in your approach to teaching your children good behavior or in training the family dog to stop chewing on your favorite slippers. The important thing to remember is that with any type of learning, it can sometimes take time. Consider the type of reinforcement or punishment that may work best for your unique situation and assess which type of reinforcement schedule might lead to the best results.

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