

Operant conditioning

General

Operant conditioning, sometimes also known as *Skinnerian conditioning* or *radical behaviorism* is a **behaviorist** learning approach similar to **classical conditioning**, mostly influenced by early theoretical and experimental works of American psychologist **Burrhus Frederic Skinner** from the 1950s. Main difference between those two theories is that **classical** conditioning **modifies only reflex reactions** and **operant** conditioning **shapes new behavior**.

What is operant conditioning?



The most famous experiment considering operant learning is **Skinner box**, also known as *operant conditioning chamber*. In one such experiment Skinner demonstrated the principles of operant conditioning and behavior shaping on a rat using reinforcement in terms of food. A starved rat was put in a box, in which pressing a small lever would release some food. The rat soon learned that pressing the lever would get him some food.

In another experiment, two lights (red and green) were introduced into the box and the rat would only get the food if one of them was on. The rat soon learned to discriminate between the lights, and stopped or reduced pressing the lever when the “wrong” light was on.

Unlike Pavlovian conditioning, where an existing behavior (salivating for food) is shaped by associating it with a new stimulus (sound of a bell), operant conditioning is the **rewarding of an act that approaches a new desired behavior**, but can also be the opposite: **punishing undesirable behavior**.

Skinner also observed effects of different **schedules of reinforcement** (**continuous** - every day at the same time, **fixed ratio** - the reinforcement occurs every X trials, or **fixed interval** schedules - reinforcement occurs if desired behavior is showed within the time interval). One interesting observation he also made is **resistance to extinction when variable schedules is used**. Gambling presents a model of the same: reinforcement comes rarely, yet one can never be sure if it will or won't come the next time so he gives it another try.

Operant conditioning can also be used to **shape more complex behaviors** by starting from an idea similar to the intended behavior and after it is learned **slowly shaping it until it becomes exactly what was desired**. An example of this is how Skinner and his students managed to teach pigeons to bowl.

Some of his ideas Skinner were incorporated in his book "Walden II", about a behavior control based utopian society. He is also remembered for claiming that if his house was on fire, he would rather save his books than his children, since his writings could make greater contributions than his genes.

What is the practical meaning of operant conditioning?

There are many examples of operant conditioning in everyday use. The act of completing homework in order to get a reward from a teacher, or **finishing projects to receive praise or promotions from the employer** is a form of operant conditioning¹. In these examples, the increased probability of certain behavior is the result of possibility of **rewards**.

Oppositely, operant conditioning can also be used to **decrease** probability of certain **behavior by use of punishment** (*averse stimulus*). For example, children in classroom may be told they will have to sit in the back of the classroom if they talk out of turn². The possibility of punishment may decrease the probability of unwanted behaviors.

Criticisms

Criticisms of operant conditioning are similar to criticisms in general. Operant conditioning

- **ignores cognitive processes**,
- assumes **learning** occurs **only through reinforcement** which is not true,
- and **overlooks genetic predispositions** and species-specific behavior patterns which can interfere with it.

Keywords and most important names

- **Operant conditioning, Skinnerian conditioning, radical behaviorism, Skinner box, operant conditioning chamber, schedules of reinforcement**
- [Burrhus Skinner](#)

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