

Skinner's contributions and influence on modern psychology



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This paper reviews and analyzes B. F. Skinner's contributions to psychology. It is my intention to discuss the important influences of his methodological inventions and his interpretation of human and animal behaviors. Skinner's roots in classical and/or early behaviorism guided him to develop and achieve greater results on his theories and studies related to external stimuli. Skinner's contributions, inventions, and writings have made him perhaps one of the most popular, renowned and yet controversial psychologists of the twentieth century.

Skinner was interested in emphasizing the importance of psychology as science. He understood that behavior was triggered by environmental stimuli and/or reinforcers. One of the first contributions of Skinner to the field is the development of a theory called Operant Conditioning, which is built into the idea that our behaviors are based on specific reactions to events or circumstances in our environment. When a specific Stimulus-Response (S-R) is rewarded, it is more likely the person will respond to it every time.

Skinner also made the distinction of calling reinforcement the reward obtained, making it an essential element of his S-R theory. Reinforcement (positive or negative) is anything that will strengthen the most wanted response. Van Wagner (2010) indicates that, "Operant Conditioning (sometimes referred to as instrumental conditioning) is a method of learning that occurs through rewards and punishments for behaviors. Through an operant conditioning, an association is made between a behavior and a consequence for that behavior" (para. 1). Skinner believed that behaviors are not based on internal feelings or thoughts but on external and observable causes (Van Wagner, 2010).

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Skinner operant conditioning theory and the use of rewards to modify the behavior also has been applied with enough effectiveness in many situations; for example, as part of behavior modification in clinical or behavioral centers and as part of classroom management in school or educational settings. Hothersall (2004) also indicates that “ Today, Skinner’s behavior system is widely taught to teachers. Teaching is viewed as a “ reinforcement contingency management”; teachers and students are encouraged to set “ behavioral goals”... (p. 526). “ In the hospital I work for, our Autism program utilized behavior system and uses positive and negative reinforcements in order to shape behavior or to replace or convert a negative behavior into a positive behavior” (Rivera, J., 2010).

B. F. Skinner was well known about his innovative resources and way to conduct his experiments. He started working with animals to study operant conditioning; his most famous invention was his Skinner’s box which was similar to the puzzle box used by Thorndike, see figure below (BF Skinner: Operant Conditioning, 2010).

Skinner Box illustration operant conditioning

(BF Skinner: Operant Conditioning, 2010).

According to Bernstein and Nash (2008), “ operant conditioning is a learning process through which rewards and punishments shape, maintain and change behavior” (p. 13).

In order to obtain a preliminary view of the application of the procedures of reinforcement from Skinner, we need to compare its approach with two

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others, “ the loving” approach and “ the punitive” approach in the treatment to slow down children. First it is by means of suggestions supported with demonstrations of respect and interest. Nevertheless, the workers in this field inform that the method of the love and tenderness not always help the type of behavior that is wished. A negative boy does not only become cooperative because he is treated kindly. Under the punitive approach, the children are threatened to be punish if they do not behave according to desires of the scholastic authorities. This method is something as well as “ if you wish to remain in this place, it will be better that you follow the rules.”

In contrast with these two approaches Skinner utilize rewards (positives reinforces) to strengthen the ordered behavior, when the approved behavior is rewarded with cards that can be exchanged by a variety of goods, privileges and extensions, the degree of control of the behavior that can be obtained is surprising, to obtain cards, the children will execute many tasks that simply did not do under loving or punitive conditions.

All we know that to obtain certain results it is needed to make certain steps, that is to say, to carry out involved acts. Skinner calls “ operating” to the involved acts because we must operate in a standard to obtain a result. The involved acts are the average ones to reach an objective. The conditioning produces changes in means that can as well change the behavior.

The contingency term can be defined as “ dependency of”. To say that the reinforcement is contingent to an operant conditioning means that it depends on the occurrence of this behavior. An individual is not reinforced unless he/she behaves appropriately.

Schedules of Reinforcement

Skinner found throughout the studies that intermittent reinforcement was able to keep the frequency of the respond. Schedules have conventional and reliable effects on response rate even more that when there was reinforcement after every response Hothersall (2004). The schedules of reinforcement are “ rules”, that determine when it will upon a delivery of reinforcement at the time of a presentation due to a specific behavior. There are different types of schedules reinforcements the following are just a few of them.

Continuous reinforcement

It is called to this type of program, when the reinforcement is showed at every moment for being produced at any respond. Example: When in a class, a student raises the hand to give his opinion; the professor pronounces his name giving him the opportunity to speak up.

Partial reinforcement

This reinforcing occurs when some of the behaviors emitted by the organism are reinforced but not all. In the daily life, in the school, university, etc., these types of programs occur. Example: - When we called to a person by telephone, and that person is not available, the behavior has not been reinforced; not meaning that it will not happen the next time.

According to the experiments made by Skinner, the programs of partial reinforcement, are quite stable and maintain the behavior per periods longer than the schedules of continuous reinforcement. The schedules of partial
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reinforcement can also be programmed considering the number of responses.

Therefore it is necessary to take in consideration:

- Ratio schedules
- Interval schedules

Ratio reinforcement

These schedules consider the number of responses before presenting reinforcement; the reinforcement depends on the behavior of the organism based on the number of responses.

This schedule is subdivided in two:

Fixed ratio: It is when the reinforcement occurs whenever the subject fulfills a certain number of responses that have been established beforehand.

Example: If it is said to a salesman, that by each ten ice creams that he sell, one will be his, the fixed ratio will be 10.

Variable ratio: The reinforcing happens after a variable amount of answers, not after a fixed number. This amount differs from reinforcement in reinforcement. **Example:** If it now is said to the same salesman, on the basis of a previous established variable amount, that the reinforcement will occur (the ice cream) when he sells the first ice cream, the second reinforcement will be given to him when he sells the third ice cream, third when he sells the fourth and fourth when he sells the eight. Thus the value of the variable ratio is designated by this ratio (1-3-4-8) which in this case the total amount is 16, being four the average.

Interval reinforcement

This is when certain amount of time passes before providing the reinforcement. The interval schedules are defined based on the time, but they are reinforced on the basis of the first response obtained after passed the predicted time; the reinforcement, whatever the program (ratio or interval) the must always be a consequence due to a response. Two are types of interval schedules:

Fixed interval: Are those in where an interval is established, in which the first response is reinforced or rewarded after a specific amount of time has passed.

Variable interval: It is when a response is reinforced or awarded after a non-established amount of time has passed.

Other schedules of reinforcement

Multiple schedule of reinforcement

It consists of two or more independent schedules, which appear in successive form, each one of them in the presence of a characteristic stimulus. The multiple schedules are combined programs, in which a typical discriminative stimulus is added.

Concurrent schedule

They are also formed by two or more schedules. Unlike the multiple schedules, the programs are not successive, but simultaneous; the person

can emit two different responses that are reinforced simultaneously by independent schedules, but parallel in the time. The reinforcement anticipated in each schedule is independent to each other. This type of schedule is used when it is desired to reinforce more than one response simultaneously, as it happens in the programs of social behavior.

Proportional schedule

In these schedules, a proportion between certain measurement of the behavior and certain measurement of the reinforcement has been established. Generally, these measures are given by the frequency of the reinforcement, but they also can follow properties such as the magnitude of the response and the magnitude of the reinforcement. In this schedule, the more the subject responds the more reinforcement it receives; there is a direct proportion between behavior and reinforcement. The relation can also be opposite; depending on the intentions of the program. It is okay to allow the subject to establish the criterion of reinforcement through the own emission of its behavior. For example: if a boy makes two exercises of mathematics, receives one caramel; if it makes four, it receives two caramels, etc.

Behaviorism and applied behavior analysis

Skinner was one of the main contributors in the development of modern behaviorism and considered the father and one of the originators of applied behavior analysis (ABA). Skinner actually considered himself to be a behavioral analyst than a psychologist (Hothersall, 2004). ABA is a subdivision of psychology which intends to develop a combined structure for <https://assignbuster.com/skinners-contributions-and-influence-on-modern-psychology/>

human and animal behavior build on principles of learning. His foundation of behavioral analysis was the starting point for his experimental researches. Although he was influenced by the stimulus response conditioning of Ivan Pavlov, he wanted to be different and was more interested in the levels or progress of the behaviors. This led him to the development of the Skinner's box, operant conditioning and schedules of reinforcement. Skinner's most fundamental contribution to applied behavior analysis was the style and content of his science. By his style, I mean his methodology, which ranges from his empirical epistemology to his experimental practices. By the content of his science, I mean what he discovered with this methodology the basic principles of operant behavior.

Behavior Modification

This consists of shifting or changing the consequences of a specific behavior. Example of this - instead of using negative reinforcement by punishing a child when misbehaves, the adult provides positive reinforcement when the child is involved in a good behavior. Boeree (2006) points out another utilization of this method " There is an offshoot of behavior modification called the token economy. This is used primarily in institutions such as psychiatric hospitals, juvenile halls, and prisons. Certain rules are made explicit in the institution, and behaving yourself appropriately is rewarded with tokens, poker chips, tickets, funny money, recorded notes, etc. Certain poor behavior is also often followed by a withdrawal of these tokens. The tokens can be traded in for desirable things such as candy, cigarettes, games, movies, time out of the institution, and so on. This has been found to

be very effective in maintaining order in these often difficult institutions” (para. 20).

Behavior modification is one of the most used techniques I have used in places like developmental delay and behavioral centers. Hothersall (2004) also stated that “ most residential programs for the mentally retarded employ operant principles as a standard part of their treatment” (p. 528).

Baby tender

Not all Skinner’s ideas were accepted well by many people. His contributions also brought a few controversies. In 1943 Skinner’s wife was pregnant for the second time and asked him to design a crib that will be safer for the baby. Skinner developed the air cig also known as baby tender. It is basically a “ self-cleaning” device with humidity and temperature controlled box with a Plexiglass window. Due to skinner has invented what is known the “ Skinner’s box”, people started to speculate and created rumors categorizing it as experimental and cruel. There were also speculations that her daughter Deborah committed suicide because she has spent too much time there (Vargas, 2005). Because of these reasons, I believe this invention has been one of the most controversial ones of his life. Thanks to all Skinner’s creations (literary and mechanical) I could say he has also become one of the most controversial psychologists of this time.

Project pigeon

During World War II, Skinner started working on a project which goal was to attempt to develop a missile guided by a pigeon. He statrted to train pigeons

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to recognized and peck certain targets therefore would hold the missile into a specific location. Although he had some success the pigeon project was canceled because the military had another top secret project in process, perhaps the radar. Nevertheless Skinner discovered that pigeons develop and condition closer than rats allowing the process of research and contingencies to be quicker (Vargas, 2005).

Walden two

Other than psychology, Skinner also had a major in English and it has been said that he wanted to be a novelist and due to a challenge he wrote Walden two. Hothersall (2004) refers to this as Skinner's utopia; "Skinner spent the summer of 1945 writing a utopian novel, Walden Two. In it he described an imaginary community in which operant principles of behavioral control are used to produce a harmonious and happy society" (p. 522).

What calls my attention in this "psychological novel" is Skinner's idea of a perfect society where everyone is happy. Is there such a thing as everyone is happy? Based on Skinner's point of view it is hard to disprove that as if there is something you don't like, change it. If you live in that town or society is because you want to and not people have been enforced to stay. This explains that people are staying because they are receiving positive reinforcement and have not been punished.

Behavioral Pharmacology

After Skinner moved to the University of Minnesota (1936-1945), he and W. T. Heron (1937) published what has been regarded as the first paper in

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behavioral pharmacology-“ Effects of Caffeine and Benzedrine upon Conditioning and Extinction” (Laties, 2003; Poling, 2000, pp. 16-20). They applied the style and content of Skinner’s science to analyze the effects of drugs on behavior and vice versa. Although the study had no discernible influence on pharmacology at the time (Dews, 1987), Skinner was afterward a strong advocate of such applications (Morse, 2005).