

A Study of Using Reward and Punishment in The Education of School-Aged Children— Based on Behaviorism Theory Operant Conditioning

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Abstract. Reward and punishment can change children's behaviors, so the two strategies are widely used in education, especially with young learners. Researchers found that the two strategies have positive and negative effects on children, but they put little emphasis on how to use them more effectively. Through literature analysis and case analysis, this paper aims to discuss the advantages and disadvantages of using reward and punishment on school-aged children based on B.F. Skinner's Operant conditioning and his experiment skinner box. The research found that using reward and punishment on school-aged children is necessary. The strategies have an immediate effect, and they can increase prosocial behaviors. They are more useful than reasoning when the educated are young. However, some researchers argue that reward and punishment only focus on short-term success. They become a representation of power and decrease the autonomy of children when they are overused. Three strategies are suggested in this paper for effective use of reward and punishment, including using them immediately after behaviors, selecting the proper reinforcement and concentrating on behaviors rather than children themselves.

Keywords: Behaviorism; Operant conditioning; reward; punishment; school-aged children.

1. Introduction

Behaviorism emphasizes that all human behaviors are acquired through a learning process. Many essential factors in this process have a direct influence on human behaviors. B.F. Skinner proposed Operant Conditioning, which emphasizes that results can change behaviors.

1.1. Skinner: Operant Conditioning & Skinner box

Skinner is one of the representatives of behaviorism. He systematically classified human behaviors into respondent behaviors and operant behaviors. Respondent behavior is an unconditioned response caused by the unconditional stimulus. For example, when a dog is hungry and has food in or around its mouth, it will secrete saliva. However, when neutral stimuli become conditioned stimuli, they can also trigger behaviors. This process is called Classical Conditioning. For instance, in Pavlov's experiment, the dog secretes saliva as well when it hears the bell. Different from respondent behavior, operant behavior is not triggered by an unconditional stimulus. Skinner found that behavior was strengthened if followed by reinforcement or diminished if followed by punishment. The process that using pleasant results or unpleasant results to change behaviors is called Operant Conditioning. Skinner put his emphasis on operant conditioning and his experiment skinner box was used to support this theory. The theoretical basis of this paper focuses on Skinner's Operant Conditioning.

Skinner box was designed to use pleasant and unpleasant results to influence the behaviors of rats. The experiment put a rat in a box where it could not see or hear anything from outsides. In the box, a lever was set for the rat. Initially, when the rat pressed the lever, it would get food. After repeatedly pressing the lever, the rat could continuously get food. The frequency of this behavior increased. Different from getting food, when the rat repeatedly pressed the lever and it got slight electric shots each time, its pressing behavior would be decreased. Food could be seen as a reward and electric shots could be seen as punishments in this experiment. When the rat got a reward or a punishment,

its behavior changed. This experiment inspired the idea that using reward and punishment in the education of school-aged children to change their behaviors.

1.2. The Types of Reward and Punishment

In the experiment Skinner box, reward and punishment are seen as two important factors which can change the behaviors of the rat. The idea of using rewards as punishment to change behaviors has been widely used in the education of school-aged children.

According to Skinner's Operant Conditioning, reinforcement refers to the consequences which can increase the reaction rate. It is the most important independent variable in Operant Conditioning as it causes changes in behaviors. There are two types of reinforcement, reinforcer including positive reinforcement and negative reinforcement, and punishment including type I punishment and type II punishment [1] (see Table 1). Positive reinforcements provide pleasant stimuli, such as giving high scores while negative reinforcements eliminate unpleasant stimuli, such as no need to do homework. Positive reinforcements and negative reinforcements are often achieved through using tangible rewards which include praise, symbolic rewards, token rewards, etc. [2]. Type I punishment provides unpleasant stimuli, such as receiving unpleasant words while type II punishment eliminates pleasant stimuli, such as shortening the time of playing games.

Table. 1 The types of reinforcers and punishment [1]

	Reinforcer (behavior is reinforced)	Punishment (behavior is weakened)
Providing stimulus	Positive reinforcement	Type I punishment
Eliminating stimulus	Negative reinforcement	Type II punishment

This paper aims to figure out what are the advantages and disadvantages of using reward and punishment in the education of school-aged children and how to use them appropriately and effectively in education.

2. Positive Reasons for Using Reward and Punishment

Reward and punishment are strategies that are widely used in the education of school-aged children. Parents and teachers usually use them to foster children's good behaviors or remove bad behaviors. Reward and punishment have several advantages which attract parents and teachers to use them. Firstly, reward and punishment are effective and they have an immediate influence on changing children's behaviors. Secondly, reward and punishment are more effective than reasoning when the educated are young. Finally, reward and punishment can increase prosocial behaviors.

2.1. The Necessity of Using Reward and Punishment

According to E.H. Erickson's Theory of Psychosocial Development, school-aged children at the age of 12 to 16 are in the fourth developing stage. In this stage, children ought to be educated in school, learning knowledge and skills and preparing for future development. In order to lead them on the right track, reward and punishment which allow children to understand the relationship between their own behaviors and results are necessary [3]. School-aged children learn the appropriateness of their behaviors through getting rewards and punishments. For instance, if a boy beats others and he receives the same beat, he then realizes his behavior is inappropriate because he feels pain. Besides, rewards and punishments are usually given by parents and teachers. They use the two strategies to establish their authority so that children will obey their instructions.

2.2. Immediacy

Rewards and punishments have an immediate influence on school-aged children's behaviors. As the Skinner box shows, when the rat pressed the lever, it got food or electric shocks immediately. The

more it got, the more reinforcement in its behaviors. The same as children. For instance, children can raise their hands to answer the teacher's questions and get a point for themselves. The one who gets the highest points can get a present from the teacher. In order to get more points and the present, children become more active and they continue raising their hands. When a teacher offers rewards, students feel more pleasure and they are more likely to act in positive ways [4]. Typically, students are going to do something that constantly activates rewards. When a school-aged child does something wrong and gets a punishment, the child will immediately stop doing that behavior. For example, a child tries to cheat in an exam and gets punishment from a teacher. Even a stare from the teacher can stop the child from cheating. Therefore, reward and punishment have an immediate effect on changing children's behaviors.

2.3. Reward, Punishment and Reasoning

The reasoning is another strategy that is often used in the education of school-aged children. Parents or teachers try to explain the advantages and disadvantages of doing something to persuade children to foster or remove behaviors. This strategy works only when children reach a certain age and accumulate enough experience [5]. When children are of school age, reward and punishment are more effective than reasoning. The story "The boy who cried wolf" in Aesop's Fables vividly shows an example that punishment is more effective than reasoning. In the story, the boy tells lies, and he says the wolf is coming to catch the sheep twice. Each time he tells lies, his parents and neighbor just criticize the boy with words and tell him not to do that because no one will believe and help him in the future. But the boy does not listen until the wolf truly comes and eats all the sheep [6]. Criticism from parents and neighbors is not effective for the boy because he does not truly experience the result of telling lies. Until all the sheep are eaten, the boy realizes how terrible it is. Therefore, for school-aged children who are still young, reward and punishment are more effective.

2.4. Increase Prosocial Behaviors

Using reward and punishment can increase school-aged children's prosocial behaviors. Prosocial behaviors refer to a range of actions that are typically advantageous to others but come at a personal cost to the actor, such as assisting, volunteering, donating and cooperating [7]. Cultivating prosocial behavior is conducive to shaping good quality in children. For instance, school-aged children are required to clean their classroom together and they can leave until all their classmates finish cleaning. If the teacher praises the children who finish the task first and encourages them to help other classmates, they are more willing to help or cooperate with others. When reward and punishment are used in tandem, children may perform better in fostering prosocial behaviors [8].

3. Negative Reasons for Using Reward and Punishment

However, not all the researchers agree with using reward and punishment. They refute this idea for the following three reasons. Firstly, reward and punishment only focus on short-term success. Secondly, parents and teachers may use reward and punishment as a representation of power. Finally, using reward and punishment can decrease children's autonomy.

3.1. Focus on Short-term Success

Reward and punishment are the "quick-fix" of external motivators [9]. Using these two strategies does change children's behaviors in a short period of time. For instance, using punishment to stop children from talking in class or using reward to encourage children to raise their hands and answer questions. As children are attracted by reward or they want to get rid of punishment, they will perform proper behaviors. However, kids hardly ever become aware of their own needs when extrinsic motivation is employed. They are instructed to place more emphasis on rewards and punishments than on their actions and issues [10]. Therefore, using reward and punishment is not appropriate for long-term development.

3.2. The Decrease in Children's Autonomy

Reward and punishment can provide children with a sense of whether they behave appropriately or not. But the two strategies may lead children in the wrong direction. They are taught to evaluate their actions based on the opinions of others rather than their own assessments and knowledge [9]. This phenomenon can decrease children's autonomy. For example, a primary 3 student has optional schoolwork for writing diaries. If the student's parents can make comments at the end of the diaries, the student can get extra points. Therefore, in order to get more points, although the student does not like writing diaries, he keeps on writing and continuously asks his parents to write some comments at the end. The boy's behavior is not voluntary, but the reward drives him to do things he does not like.

3.3. The Representation of Power

Children are easier to obey instructions from their elder when they get rewards or punishments. But if the elder overuse reward and punishment, the strategies become a representation of power. A common scene of this is that children are forced to do something in order to get what they want [11]. This power is used to manipulate and control children's behaviors. For example, a 7-year-old girl is taught by her parents how to clean a bedroom. But her parents only tell her to do that so she can get her favorite doll rather than show her how to clean the bedroom in person. At first, the girl will obey her parents because she wants the reward and only her parents can afford the doll. However, the girl may not obey this command without reward in the future. Therefore, reward and punishment can be power to change children's behaviors. But when they disappear, children may perform in their original way.

4. Effective Use of Reward and Punishment

Reward and punishment are strategies that are widely used in the education of school-aged children. The defects of the two strategies can be overcome.

4.1. Immediacy and Maintenance

Firstly, reward and punishment should be given in time. One of the most important principles of behavioral learning theory is that the results that appear immediately after the behavior are far more influential than those that appear after a period of delay [5]. In the experiment skinner box, the rat would learn the behavior of pressing much slower if it received the rewards or punishments with a delay. If school-aged children receive a reward or a punishment immediately after they did some behaviors, they can naturally connect the results with their behaviors, which is beneficial for them to judge whether their behaviors are appropriate or not. Besides, in order to extend the influence of reward and punishment, maintenance is a good choice. Maintenance means keeping good behaviors for a long period of time. Actually, there are many natural reinforcements that can maintain school-aged children's behaviors and skills [1]. For example, teachers provide some meticulous comments to the careless students' homework and encourage them to work hard. After a period of time, when these students do well in their exams, receive higher scores and get praise from their parents, these results can be seen as natural reinforcement in changing students' behaviors. Through maintenance, the influence of reward and punishment can be extended.

4.2. Focus on Behavior

In order to prevent being used as a representation of power, reward and punishment should be focused on children's behaviors rather than children themselves. For example, if some children did not submit their homework on time, the teacher should punish them for their delay rather than criticize them with the insulting words 'useless, stupid or lazy'. Reward and punishment should be used as judgement rather than tools that hurt children.

4.3. The Choices of Reinforcer and Punishment

There are different types of reinforcers and punishments. In reality, each child may have different reactions toward different types. Reward and punishment can be used effectively if reinforcer and punishment are appropriately chosen. The Premack principle can be a good method to choose reinforcers [1]. This principle recommends using high-frequency activities as an effective reinforcer of low-frequency activities, which means that children can do what they like after they finish the activities they do not like. In order to do what they like, children will quickly finish other requirements. Choosing an effective punishment also needs consideration. If a child does not want to listen in class and the teacher asked him to stand outside of the classroom as a punishment, this punishment does not effective because it satisfies the desire of children. Hence, reinforcers and punishments should be chosen considerably.

5. Conclusion

Operant conditioning proposed by B.F. Skinner focuses on the relationship between behaviors and results. The experiment skinner box argues that reward and punishment can change behaviors. This idea has been widely used in the education of students who are between the age of 12 to 16. However, researchers have different opinions about using reward and punishment. Supporters argue that reward and punishment have an immediate effect on changing children's behaviors and they can increase the prosocial behaviors of children. Compared with reasoning, reward and punishment are more effective. However, some protectors argue that reward and punishment only focus on short-term success. They become a representation of power and can decrease children's autonomy. To effectively use the two strategies, three recommendations are listed. Firstly, giving rewards and punishments in time and using maintenance for extending short-term influence. Secondly, the strategies should focus on behaviors rather than children themselves. Finally, choose appropriate reinforcers and punishments based on different situations. Only when reward and punishment are implemented properly, they can become useful strategies in education.

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