CHAPTER 6

Strengthening Behavior: Part 1

✔ Chapter Objectives

Upon successful completion of this chapter, the learner should be able to:

1. Define chapter terms, including *strengthening behavior*; *contingency*, *contingent* and *noncontingent reinforcement*; *latency*, *deprivation*, *satiation*, *generalization*, *maintenance*; *continuous*, *fixed*, *variable schedules of reinforcement*; *shaping*, *fading*, and *chaining*.

2. Formulate a persuasive argument for using positive reinforcement to strengthen desirable behaviors in students.

3. State and explain the rules of reinforcement.

4. Identify types of reinforcers.

5. Generate a list of school-based reinforcers and group them from most to least natural.

6. Identify schedules of reinforcement.

7. Design schedules of reinforcement and explain their application in a given intervention.

8. Generate at least five successive approximations for each of a number of behaviors.

9. Design a shaping program and explain its application in a given intervention.

10. Generate at least five successive approximations for each of a number of environmental conditions.

11. Design a fading program and explain its application in a given intervention.

12. Generate at least four links for each of a number of behavioral chains.

13. Design a chaining program and explain its application in a given intervention.

Introduction

This chapter and the two chapters that follow are about using *extrinsic motivation* to strengthen desirable behavior and weaken undesirable behavior. Remember: Extrinsic motivation is when someone or something in the environment (i.e., outside of ourselves) compels us to behave a certain way. Contrary to what others might believe, there is nothing wrong with using extrinsic motivation to manage behavior in the classroom, as long as students need it. Students who will benefit the most from interventions based on extrinsic motivation are a) those who are extrinsically motivated to engage in undesirable behavior and/or b) those who are not extrinsically motivated to engage in desirable behavior.

On the other hand, students who do not know how to engage in desirable behavior will benefit more from an intervention based on instruction in social skills (see Chapter 10) than one based on extrinsic motivation. Likewise, students who are unable to control their behavior will benefit more from an intervention based on medication and stress management (see Chapter 14), or one of the cognitive-behavior modification practices (see Chapters 12 and 13) than one based on extrinsic motivation. Further, as discussed in Chapters 1 and 11, motivation does not always have to come from the environment; students can be taught how to motivate themselves. Just remember: *Not all behavior problems are extrinsic motivation problems.* If you are not sure whether a student has an extrinsic motivation problem, go back and review the material in Chapter 5.

Strengthening Behavior

When we use the term *strengthening behavior,* we are referring to any of the following situations:

- When a student learns a new behavior (e.g., a student who never looks at anyone learns to make eye contact)
- When a student engages in an existing behavior more than the student did before (e.g., a student who goes from 50% on task to 90% on task)
- When a student continues to use an existing behavior that is already strong (e.g., helping a student who is 90% on task to maintain at that level)

According to the behavioral or operant approach described earlier in Chapter 3, there are two ways to strengthen behavior: positive reinforcement and negative reinforcement. With *positive reinforcement*, behavior is strengthened by presenting a pleasing stimulus (a reward*)* after the desired behavior occurs; with *negative reinforcement*, behavior is strengthened by removing an aversive stimulus after the desired behavior occurs. Empirically speaking, there does not appear to be a significant difference between the efficacy of positive and negative reinforcement; they both serve to motivate students effectively (e.g., Iwata & Bailey, 1974; Kaufman & O'Leary, 1972; Lee & Axel-

rod, 2005; Long, Fescser, Morse, Newman, & Long, 2014; Zionts, Banks & Killu, 2014). However, from a philosophical standpoint, there is a significant difference between the two. According to Lee and Axelrod (2005, p. 16), "Although both positive and negative reinforcement operations result in increases in behavior, it is usually better to use positive reinforcement whenever possible." Consider the following example:

Two teachers, Ms. Positive and Ms. Negative, have students who seldom complete assigned work without constant supervision (e.g., repeated directives to *get busy*). Ms. Positive knows that free time is rewarding to her students, so she tells them they can *earn* time to do what they want as soon as their work is finished. The result is that her students finish their work with very little supervision and receive free time. We may say that Ms. Positive uses positive reinforcement to strengthen her students' working behavior because getting a reward (free time) for finishing work causes her students to work harder.

Technically, the students' working behavior gets stronger as a result of the students' *expectation* (i.e., belief) that they will receive a reward when they finish their assignments. This is an example of the influence of cognitions on behavior. If Ms. Positive's students do not believe they can finish the work on time or they do not trust her to reward them, they will probably not complete their work.

Meanwhile, in the classroom next door, Ms. Negative, knowing that her students hate detention, tells them they will have to stay after school to finish their work if it is not done by dismissal. The result is that Ms. Negative's students finish their work without supervision to avoid detention. We may say that Ms. Negative uses negative reinforcement to strengthen her students' working behavior because removing an aversive (i.e., avoiding detention) for finishing work causes them to work harder.

Again, Ms. Negative's students' working behavior is influenced to a large extent by their expectation that they can avoid detention by finishing their work. If Ms. Negative's students do not believe they can finish the work on time or if they do not believe Ms. Negative will actually keep them after school (or that she will keep them after school whether they finish their work or not), they probably will not finish their work.

In the following discussion, the focus is shifted away from technology (the *how* of reinforcement) to philosophy (the *why* of reinforcement). Both teachers in the examples got their students to do what they wanted them to. Which really is the better approach? To tell students they may have free time to select what they want to do because they did a good job completing their work? Or to tell students they must stay after school to complete their work because they did not work hard enough? Which situation would produce more stress for the teacher? Which situation would provide the teacher with more satisfaction? Which situation would provide more opportunity for student-teacher conflict and student behavior problems with the potential for escalation and power struggles? More importantly, which behavior would be preferable for teachers to model for their students: a) focusing on the desirable behavior of others and rewarding the occurrence of that desirable behavior, or b) focusing on the undesirable behavior and punishing that undesirable behavior? Do teachers want to be a positive model or a negative model for their students?

> ### *Tip from Dr. Kaplan:*
>
> "If both strategies work, does it really matter whether one uses positive or negative reinforcement? We believe it does. Which teacher would you rather be: Ms. Positive or Ms. Negative?"

In a perfect world, all teachers would rather be like Ms. Positive than like Ms. Negative. Unfortunately, we are all, to a large extent, products of our environments. As children and young adults, many of us have routinely experienced negative reinforcement either in the home, in school, or in the world at large. We have learned to obey society's laws, not necessarily because they are good and just or because we will be rewarded if we obey them, but because we want to avoid the undesirable consequences that might happen to us if we disobey. Why do we pay our taxes on time? Is it because the government rewards us if we do or because we get punished if we do not? Why do we obey traffic laws? Is it because the police reward us if we do or because we get fined, lose our license, or get in an accident if we do not?

Traditionally, the situation has been no different in our schools, in which many of our students have learned to obey the rules to avoid aversive consequences (e.g., detention, failing grades, negative attention, suspension), rather than to receive rewards. Further, those students who choose not to obey the rules have been negatively reinforced for lying, sneaking, and cheating to avoid these aversive consequences. With so much exposure to negative reinforcement throughout our lives, is it any wonder why there are so many Ms. Negatives out there?

We are not suggesting that teachers should never use negative reinforcement. It is difficult to reinforce positively desirable behavior when it seldom or never occurs. If a teacher has a student who is off task 80% to 100% of the time, it can be extremely difficult to catch that student on task and reward the student, given that the teacher has other things to do instead of watching the target student all day. In this situation, the teacher may have to resort to negative reinforcement to motivate the student. The teacher may also find that some students respond better to the threat of an aversive than the promise of a reward.

What we are saying is that positive reinforcement is more humane, more emotionally healthful, and much less stressful for teachers and students than is negative reinforcement. Although we may never be able to reverse all the widespread use of negative reinforcement in our society, as teachers we can surely do something about its use in our schools.

> ### *Tip from Dr. Kaplan:*
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> "Toward this end, follow the sage advice of this old Hoagie Carmichael song: 'You gotta accentuate the positive, eliminate the negative, and don't mess with Mr. In Between.'"

✅ **Take Checkpoint 6.1**

Using Positive Reinforcement

Rules Regarding Reinforcement

Before examining the essential components of using positive reinforcement, here are some general rules for teachers to follow when designing and applying an intervention that includes positive reinforcement.

Rule 1: *Always tell students exactly what they must do to receive the reinforcer.* Behavior cannot be reinforced that does not occur. Teachers must not assume that students know what behavior is expected of them or that they know they will be reinforced for it. Students who know exactly what behavior is expected of them, as well as the consequences of that behavior, are more likely to engage in the behavior than those students who do not know the rules or what the consequences are for violating the rules (e.g., Lee & Axelrod, 2005; Long et al., 2014; Tollison, Synatschk, & Logan, 2011; Zionts, Banks, & Killu, 2014). Teachers should tell targeted students up front: "This is what I want you to do, and this is what happens if you do it (and if you do not)."

Rule 2: *Reward only the behavior that is acceptable to the teacher.* Remember Ms. Positive? She told her class they could have free time if they finished their work. Students who finished their work got free time; those who did not finish their work did not get free time. If Ms. Positive rewarded all her students with free time whether or not they finished their work, she would be teaching her students that it does not matter whether they finish their work; in either case, students get a reward. If it does not make any difference whether students finish their work, why bother working at all?

The technical term for what one has to do to get a reward is referred to as the *contingency*. When teachers reward students even though the students have not done what they are supposed to, it is *noncontingent reinforcement*. Many teachers have engaged in noncontingent reinforcement when they feel sorry for a student, are intimidated by a student, or just happen to be in a good mood. At times like these, they must ask themselves whether they are acting in the best interest of the student or themselves. Noncontingent reinforcement teaches students that teachers do not mean what they say, should not be taken seriously, and are not worthy of students' respect. Worst of all, noncontingent reinforcement teaches students that teachers do not respect them—that we they do not really care whether they learn and improve or not.

Rule 3: *Keep the latency (time elapsed) between the student's behavior and the reinforcement as short as possible.* Older and more developmentally able students can usually make the association between what they do and what happens, even when the consequence of their actions is delayed. University students make the connection between their studying behavior (the contingency) and the passing grade they receive on a test (the reward), even if a week might intervene (the latency) between the two. On the

other hand, very young students or students with moderate to severe disabilities need to receive reinforcement *immediately* following a response to understand that they are being rewarded for it.

Rule 4: *Reinforce behavior according to a schedule.* This is one of the reasons why behavior modification is referred to as the *systematic* application of rewards and punishers. New (i.e., unlearned) behavior cannot be randomly reinforced, or else it may never be learned. Instead, new behavior must be reinforced on a *continuous schedule.* Conversely, behavior that has been learned and is fairly well established should no longer be reinforced continuously, or else the student may become satiated or so dependent upon the extrinsic reward that the student never internalizes the behavior. Instead, learned behaviors should be randomly reinforced on a *variable schedule.* Because the change from the continuous to the variable schedule often must be gradual, a *fixed schedule* of reinforcement should be used as a bridge (i.e., transition) between the two. (Schedules of reinforcement will be examined more closely later in this chapter.)

Rule 5: *Reinforce behavior that is a step in the right direction.* If teachers wait until students emit the exact and desired response before reinforcing them, teachers may be waiting a long, long time. For example, if a teacher wants a student who never turns in assignments to complete all the assigned work, the teacher should begin the reinforcement program by rewarding the student for turning in parts of assignments. Reinforcing behavior that is a step in the right direction, which is called *shaping,* should be used whenever there is a wide gap between the student's present level of functioning and the terminal (i.e., target) behavior. (Read more about shaping later in this chapter.)

Rule 6: *Try to maintain enough of a state of deprivation in the student so that the reinforcer will retain its reinforcing properties.* For a reinforcer to be effective in strengthening a student's behavior, the student has to want the reinforcer enough to engage in the contingency for it. There is an inverse relationship between the student's desire for the reinforcer and how much of the reinforcer he currently has. The less reinforcer the student currently has, the more of the reinforcer he wants, and the harder he will work to get it. From a practical standpoint, this requires that teachers try to avoid situations in which the student feels no deprivation. For example, a student who earns more than enough tokens by midday to buy a favored activity at the end of the day has no reason to continue trying to earn tokens. Take some or all these tokens away when the student misbehaves, and a situation is created in which the student feels deprivation; now he is ready to engage in the desirable behavior to earn more tokens.

Rule 7: *Use rewards because they are reinforcing to the students, not because they are reinforcing to the teacher.* Teachers should engage in conversation with students to find out what they like to do and how they like to spend their time. Teachers can create a reinforcer survey that reflects interests that might be possibilities for the students or adapt an existing one to match the students in the classroom and the school. Teachers can also talk with the student's parents and friends about the likes and dislikes of the targeted student. There is much to be learned about what might be reinforcing to a student with behavior or social challenges.

> ### *Tip from Dr. Kaplan:*
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> "Looking at old copies of *National Geographic* or *Boy's Life* or *Teen* magazine may have been fun for you when you were younger, but your students may not enjoy this activity. Working with computers? That's a different story."

Rule 8: *Program for generalization and maintenance of newly learned behavior.* Teachers should not assume that newly learned behavior will last (maintain) or transfer (generalize) to other settings and situations simply because the student engages in the behavior in the classroom; the student is currently being reinforced for that behavior in the classroom. What happens if the student stops getting reinforced in the classroom setting for that behavior or if the student does not get reinforced for the same behavior in another setting? The research on generalization and maintenance of behavior suggests that newly learned behaviors do not maintain or generalize on their own; they require the use of procedures specifically designed to enhance generalization and maintenance (Idol, 1987a, 1987b, 1997; Idol & Croll, 1987; Marholin & Steinman, 1977; O'Leary, Becker, Evans, & Sandargas, 1969; Walker & Buckley, 1972). Further discussion of generalization and maintenance is offered later in this chapter.

Rule 9: *Combine social reinforcement with other forms of reinforcement.* Social reinforcement and approval in the form of a compliment or smile can be a very powerful reinforcer. It is also inexpensive compared to most tangible reinforcers, and is quick and easy to give. Combining social praise with other forms of reinforcement enhances the latter and can make it easier to remove later on as the teacher moves to developing intrinsic motivation in students.

Rule 10: *Use the least-artificial, least-intrusive type of reinforcer or system of reinforcement possible.* Teachers prefer using reinforcers for their students that are easy to deliver and do not detract from the ongoing instruction. Students benefit most from reinforcers that lead to eventual intrinsic reinforcement. After all, the main point is to reinforce students to obtain desirable behaviors. The more intensive, intrusive, and artificial the reinforcement system, the longer it will take to lead the student to the life-serving place where they reinforce themselves intrinsically to accomplish achievements in life.

> ### *Tip from Dr. Kaplan:*
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> "An elaborate token economy is not necessary when a simple 'Good job!' will do. You do not need to use food when a pat on the back can achieve the same effect. Keep it simple."

Rule 11: *Model the desired behavior for students.* Behavior does not always have to be positively reinforced for learning to occur; much of our behavior is learned simply by watching and imitating significant others in our environment. Children learn by

imitating their parents, siblings, relatives, peers, and teachers. It has also been said that we teach more by our deeds than by our words. Therefore, if a teacher wants a student to persevere at a difficult task, that teacher should not just tell the student to "Hang in there." Teachers should demonstrate perseverance by their own actions or point out examples of perseverance in others. The worst thing teachers can do when they want to reinforce a behavior in a student is to model the opposite of that behavior. Taking time to think about the best way to intervene will be more likely to result in modeling desired behaviors for students.

> ### Tip from Dr. Kaplan:
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> "You do not help a screaming student learn self-control by yelling at him to be quiet."

✅ **Take Checkpoint 6.2**

Reinforcers

There are two classes of reinforcers: primary (unlearned reinforcers) and secondary (learned reinforcers). *Primary reinforcers* do not have to be paired with other reinforcers for learning to take place. Examples are food, the air we breathe, sunshine, sex, warmth, and the like. Because primary reinforcers are *pleasurable by themselves,* they do not have to be paired with other reinforcers to have the power to reinforce.

Secondary reinforcers, in contrast, must be paired with a primary reinforcer to develop reinforcing properties. For example, a smile (a secondary reinforcer) must be paired with the food (a primary reinforcer) a mother gives her child when the child is hungry in order for the smile to be reinforcing by itself (see Figure 6.1). Even though smiles eventually reinforce behavior by themselves, they are still considered secondary (learned) reinforcers.

Primary Reinforcers

The most commonly used primary reinforcer is food. Unfortunately, the type of food most often used as a primary reinforcer is junk food! We have a strong objection to the use of such reinforcers as candy, cookies, cupcakes, doughnuts, potato chips, and Kool-Aid as primary reinforcers—kids do not need all the sugar, salt, and artificial ingredients in these foods, especially because their bodies and brains are still developing and growing. There are plenty of natural and nutritious foods available, such as fresh fruits and vegetables, unsalted nuts (dry roasted in the oven), granola, yogurt with fruit, popcorn, raisins, applesauce, milk or fruit juice, sweetened herbal tea, and carob (a healthy substitute for chocolate). Using junk foods with high sugar content as reinforcers can have negative side effects. First, it reinforces students' poor eating habits. Many of them get enough of this junk food outside of school. Second, teachers are setting their students up (and subsequently themselves) for the maladaptive behavior that often accompanies the drop in blood sugar after the quick high from the junk food.