

Punishment

Edward, a single father, complained to a therapist at a counseling center that he found it impossible to discipline Stephen, his 10-year-old son. Stephen frequently hit his younger sister, Dianne, making her cry. Stephen broke Dianne's toys during two recent incidents. On several occasions when Edward intervened to stop Stephen from hitting Dianne, Stephen cursed and kicked him. Verbal reprimands, threats, and lecturing failed to stop Stephen's undesired behaviors.

Objectives

After completing this chapter, you should be able to do the following:

- Give an example of the two types of punishment procedures, including the criterion for evaluating their effectiveness.
- Given a case example, identify the punishment procedure and label its relevant components.
- Give an example that compares extinction with negative punishment.
- Given a case example, describe how the effectiveness of punishment can be maximized.
- Give an example of punishment applied in a self-control contingency.

Punishment Defined

In the preceding chapters, we have discussed several procedures and techniques for increasing or maintaining the strength of behaviors. We have also presented three techniques for weakening or reducing the strength of a behavior—extinction,

differential reinforcement of other (DRO), and differential reinforcement of incompatible behaviors (DRI) behaviors. In this chapter, we address the concepts and procedures of **punishment**, a topic that attracts controversy but is often misunderstood (e.g., Hinline & Rosales-Ruiz, 2013).

In common usage, the term *punishment* is associated with vengeance or retribution. In behavioral terms, however, punishment refers to procedures applied to suppress behaviors or decrease their strength and not to acts intended to inflict harm or injury on an individual. The punished behavior is not necessarily eliminated because it could be performed again when the individual who administered the punishment is not present. Thus, the term *suppress* is used to indicate that the punished response is not performed in the situation in which punishment was administered. In this chapter, we discuss two punishment techniques: (a) **positive punishment**, which is response-contingent presentation of a punisher; and (b) **negative punishment**, which is response-contingent removal of a positive reinforcer. We refer to the techniques as positive and negative punishment because we identify a positive technique as one in which something is presented and a negative technique as one in which something is removed.

Aversive Stimuli and Punishers

An **aversive stimulus** is an event typically described by an individual as unpleasant, annoying, or painful. Intense noise or light, physical aggression (e.g., hitting, pinching, and kicking), traffic tickets, fines, and threats are common examples of aversive stimuli. Aversive stimuli often serve as punishers and negative reinforcers. (We discuss the use of aversive stimuli as negative reinforcers in Chapter 10.)

A **punisher**, or **punishing stimulus**, is a stimulus presented after a response that suppresses or weakens the response. Aversive stimuli have been used as intended punishers; however, they do not always act to suppress behaviors. By definition, a punisher acts to suppress a response or decrease its strength, whether or not the punisher is an aversive stimulus. For example, someone lights up a cigarette near you while you are eating a piece of apple pie. Although smoking is pleasant and not aversive to the individual who is smoking, it is unpleasant or aversive to you, and the smoke acts as a punisher to suppress your pie eating. Another person at your table says that the smoke is aversive but continues to eat; the smoke is not a punisher for that person's eating.

The distinction we are drawing between an aversive stimulus and a punisher is analogous to the comparison we made earlier between a reward and a positive reinforcer. Recall that a reward is a reinforcer only if it acts to increase the strength of a response. Similarly, an aversive stimulus is a punisher only if it decreases the strength of a behavior.

Punishers, like reinforcers, can be unconditioned (primary) or conditioned stimuli. An **unconditioned punisher**, or primary punisher, is intrinsically or naturally punishing; it does not require pairing or association with another punisher to

suppress behavior. Intense light or noise and physical attacks, such as punching and slapping, are common examples of unconditioned punishers. A **conditioned punisher**, or secondary punisher, must first be paired or associated with an established punisher before it can act to suppress a behavior. Threats, fines, reprimands, failing grades, disapproving looks, and removal of privileges are common examples of conditioned punishers.

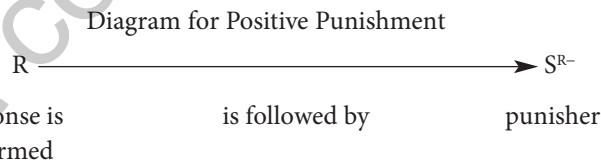
The symbol for an unconditioned punisher is S^R (note the uppercase R). The symbol for a conditioned punisher is S^r (note the lowercase r). In the discussion that follows, when the punisher is known, the appropriate notation will be used: uppercase for an unconditioned punisher and lowercase for a conditioned punisher. If the punisher is not known, the notation S^R will be used.

Positive Punishment

The procedure for positive punishment consists of presentation of a stimulus immediately after a response to decrease the strength of that response. The punishment effect is suppression of the response and a decreased likelihood that the response will be performed again under similar conditions.

Baseline measures of the target response are taken prior to the initiation of punishment. Measures of the target response are recorded again after the stimulus intended to serve as a punisher has been applied. If the stimulus acts as a punisher, response strength will decrease in relation to the baseline measures. A stimulus is not a punisher unless it suppresses or decreases the strength of a response. For example, loud rock music might serve as a punisher (punishing stimulus) for Maria's dancing but as a positive reinforcer for Jan's dancing.

Positive punishment can be depicted as follows: A response (R) is performed and followed by (\rightarrow) presentation of a stimulus (S) that decreases ($-$) the strength of the response.



Effect: Suppression of the response, R , and decreased likelihood of its performance.

Positive punishment occurs in a wide range of situations. For example, George tracked mud into the house and his mother shouted at him (S^{R-}); Terry chewed her fingernails and her father put hot pepper sauce on them (S^{R-}); Martha volunteered to present extra cases at staff meetings and was called an apple-polisher by her coworkers (S^r); Bridget, a child with autism, bit her arm and received a slight electric shock (S^{R-}). These examples appear in diagram form as follows:

Diagrams of Positive Punishment Examples



Effect: George stops tracking mud into the house; decreased likelihood that George will track mud under similar conditions.



Effect: Terry stops chewing her fingernails; decreased likelihood that Terry will chew her fingernails under similar conditions.



Effect: Martha stops volunteering to present extra cases; decreased likelihood that Martha will volunteer to present extra cases under similar conditions.



Effect: Bridget stops biting her arm; decreased likelihood that Bridget will bite her arm under similar conditions.

The decision to use positive punishment, particularly with an unconditioned aversive stimulus such as electric shock, has been based on the following ethical considerations:

1. The necessity for immediate effect because of serious danger or injury to the individual or others if the behavior is not suppressed
2. The relative effectiveness of other techniques that are available, considering their advantages and disadvantages
3. The ineffectiveness of previously attempted nonaversive procedures
4. The immediate and long-term negative consequences for the individual or significant others if the behavior is not suppressed or weakened

Mild electric shock, lasting only 1 or 2 seconds, can be effective in suppressing self-injurious behaviors such as head-banging or self-mutilation (Bucher & Lovaas, 1968; Linscheid & Reichenbach, 2002; Salvy, Mulick, Butter, Bartlett, & Linscheid, 2004).

This kind of mild shock, usually applied to the hand, arm, or leg, produces a stinging sensation (similar to a rubber band snapped on the arm) that lasts a few minutes. It is painful, but there is no permanent tissue damage from such a stimulus. The shock can be administered by the therapist or the Self-Injurious Behavior Inhibiting System (SIBIS), which is a remote-control device worn at the individual's body site that is at risk of injury. The SIBIS senses and monitors the self-injurious target behaviors and delivers contingent electric shock in a precise and consistent manner (e.g., Linscheid, Iwata, Ricketts, Williams, & Griffin, 1990; Linscheid & Reichenbach, 2002; Salvy et al., 2004). An advantage of using SIBIS is that the therapist does not become associated with delivery of the punisher along with the client's associated negative reactions. (This type of mild shock is in no way related to electroconvulsive therapy, sometimes called *shock treatment*, which is a treatment for severe depression.)

For example, Bridget, a child with severe autism, bit and scratched herself until her body was covered with sores. Bridget's caregivers had to tie her hands and feet to her bed to prevent her self-mutilation. Application of a mild, nonharmful electric shock to Bridget's hand immediately after she bit or scratched herself suppressed the self-destructive behaviors. After Bridget stopped self-mutilating, she was no longer confined to her bed and could begin to learn appropriate behaviors that were positively reinforced. In similar cases, positive reinforcement of incompatible responses, social isolation, and extinction techniques have proved to be less successful than electric shocks used as punishers (e.g., Linscheid et al., 1990; Lovaas & Simmons, 1969).

In another study, contingent electric shock used with an adolescent produced an initial dramatic reduction in self-injurious behavior (SIB) and ongoing effectiveness of the treatment over a 5-year period (Linscheid & Reichenbach, 2002). The therapists administered very low rates of electric shock to lower the chances of the client's habituation to the shock.

Other unconditioned aversive stimuli that have been used in positive punishment procedures include an ice cube held to the jaw to decrease bruxism (e.g., Blount, Drabman, Wilson, & Stewart, 1982), the smell of ammonia to decrease aggressive behavior (e.g., Doke, Wolery, & Sumberg, 1983), and the sound of an alarm to reduce severe hair pulling and finger sucking (e.g., Rapp, Miltenberger, & Long, 1998; Stricker, Miltenberger, Garlinghouse, & Tulloch, 2003).

Behavioral treatments for self-injurious behaviors of persons with autism spectrum disorders (ASD) have mostly used a mix of reinforcement and punishment procedures, although more studies are attempting to decrease the use of punishment by developing positively oriented approaches, such as functional analysis (Matson & Lovullo, 2008; Rooker, DeLeon, Borrero, Frank-Crawford, & Roscoe, 2015). These studies tend to use single case designs; therefore, they do not allow the rigorous comparison of treatment efficacy provided by randomized clinical trials with control groups.

Physical Punishment and Spanking

Although positive punishment can be effective in some situations, its use must be weighed against any potential negative effects. Surveys show that two thirds of

Americans approve of parents spanking their children, although this figure has declined since the 1960s (Child Trends Databank, 2013; Smith, 2012). *Spanking* has been defined as hitting a child on the bottom with an open hand (Gershoff, 2013). A national survey found that 65% of 19- to 35-month-old children were spanked by their parents (Regalado, Sareen, Inkelas, Wissow, & Halfon, 2004). A striking 85% of teenagers reported being slapped or spanked by their mothers at some time (Bender et al., 2007).

A meta-analysis of 88 research studies with 36,209 participants found that spanking was associated with poor parent-child relationships and increased antisocial behavior, aggressiveness, and delinquency (Gershoff, 2002, 2008). In addition, many studies showed that in eliciting immediate compliance, spanking children was not more effective than giving children time-outs (Gershoff, 2013). Corporal punishment, as used in Gershoff's (2002) meta-analysis, was "the use of physical force with the intention of causing a child to experience pain but not injury for the purposes of correction or control of the child's behavior" (Straus, 1994, p. 4).

Some researchers, however, have reported that mild, occasional spanking is not harmful when used in appropriate situations within a nurturing parent-child relationship and accompanied by other forms of discipline (e.g., Baumrind, Larzelere, & Cowan, 2002; Larzelere & Kuhn, 2005; Paolucci & Violato, 2004).

A meta-analysis of 26 studies found the strongest causal evidence of benefits from mild physical punishment came from an approach described as "conditional spanking" (two open-handed swats to the buttocks) that was used to enforce or backup time-out with 2- to 6-year-olds (Larzelere & Kuhn, 2005). This approach led to greater reductions in child defiance or antisocial behavior than alternative discipline techniques, including reasoning, removal of privileges, and time-out. Also, because this approach leads to greater child compliance with time-out, it reduces the need to use spanking on future occasions.

Based on a review of decades of research, Gershoff (2008) wrote the *Report on Physical Punishment in the United States: What Research Tells Us About Its Effects on Children*. The report recommends the banning of physical discipline in all U.S. schools and urges parents and caregivers to avoid physical punishment. The report has been endorsed by dozens of organizations, including the American Academy of Pediatrics, American Medical Association, and Psychologists for Social Responsibility.

Durrant and Ensom (2012) found that physical punishment in childhood, including spanking, yelling, slapping, or shaking, was linked to numerous adverse effects, including increased aggression, mental health problems, impaired cognitive development, and drug and alcohol abuse. Their review of two decades of research on physical punishment showed that child physical abuse occurred predominantly in the context of punishment (Durrant & Ensom, 2012). A study of children across numerous cultures who were spanked found that they committed more crimes as adults than did children who were not spanked (Straus, Douglas, & Medeiros, 2014). The authors found that spanking, regardless of culture and regardless of its administration by loving and helpful parents, was linked to future child behavior problems (Straus et al., 2014).

A strong case has been made against the use of spanking and physical punishment in the studies reviewed, with the exception of “conditional spanking.” Future research will help to sort out some of the other important issues covered in the spanking literature.

Negative Punishment

The second type of punishment technique is called *negative punishment* or *response cost*. Response cost is a penalty or fine for performing an undesirable behavior, such as exceeding the speed limit in a school zone and getting a ticket, or refusing to go to bed when told and losing television privileges or part of an allowance. This procedure consists of removing or withdrawing a positive reinforcer contingent on performance of the target response. The punishment effect is suppression of the target response and decreased likelihood that the response will be performed again under similar conditions.

Diagram for Negative Punishment



Effect: Suppression of the response, R, and decreased likelihood of its performance.

The slash through the S^{R+} in the above diagram indicates a stimulus (S) whose removal (≠) decreases the strength of the target response (R). For example, when Sam was caught driving 30 mph over the speed limit, he got a ticket for \$200. In diagram form, Sam's situation appears as follows:

Diagram of Negative Punishment Example



Effect: Sam stopped driving 30 mph over the speed limit, and decreased likelihood that he will drive that fast under similar conditions.

In using negative punishment, the practitioner attempts to discover which items and events are reinforcers for the client. If the stimulus is a positive reinforcer, its removal will decrease the strength of the response. When punishing undesirable behaviors, the practitioner should also arrange for positive reinforcement to strengthen desired behaviors. For example, to enhance their efficacy, administrators of token economies can impose penalties involving loss of tokens

for performance of inappropriate behaviors, along with earning of tokens for appropriate behaviors. This combination was also used with middle school special education students with behavior disorders to increase the accuracy of their spelling performances (Truchlicka, McLaughlin, & Swain, 1998).

Extinction and Negative Punishment

Extinction is different from negative punishment. In the extinction procedure, the reinforcer maintaining the response is withheld each time the response occurs until the response decreases to zero or to a desired level. The response no longer produces the positive reinforcer. In negative punishment, the response is followed by removal of a reinforcer *other than* the one maintaining the response. The response is suppressed and typically decreases immediately. The reinforcer removed for performance of the response acts to suppress the response and reduce the effect of the reinforcer that has maintained the response.

For example, when Billy made farting noises in class, the other kids laughed at him. Billy continued to make farting noises in class; the children’s laughter was the positive reinforcer for his making the noises. Using an extinction procedure, the teacher told the other kids to ignore Billy’s noises. Billy’s noisemaking gradually decreased as the reinforcer of the children’s laughter was continuously withheld.

Using a negative punishment procedure, the teacher told Billy that if he continued to make farting noises he would have to stay in school instead of going on a field trip with the rest of his class. Billy stopped making farting noises in class. Removing the privilege of going on the field trip was negative punishment. The following diagrams compare the procedures for extinction and negative punishment.

<i>Extinction Diagram</i>			<i>Extinction Example</i>		
R	→ /	S ^{R+}	R	→ /	S ⁺
Response is performed	is not followed by	positive reinforcer	Billy makes farting noises	is not followed by	kids’ laughter
<i>Effect:</i> Response decreases in strength and likelihood of occurrence			<i>Effect:</i> Decrease in the rate of Billy’s making farting noises in class		
<i>Punishment Diagram</i>			<i>Punishment Example</i>		
R	→	S^{R+}	R	→	S⁺
Response is performed	is followed by	Removal of positive reinforcer	Billy makes farting noises	is followed by	Removal of field trip privileges
<i>Effect:</i> Suppression of the response and decreased likelihood of its occurrence			<i>Effect:</i> Billy stops making farting noises in class		

In extinction, the response tends to decrease in strength gradually; with punishment, suppression or decrease of the response is usually immediate. For punishment to be effective, the positive reinforcer removed must exert greater control in decreasing the response than that of the reinforcer in maintaining the response. The removal of field trip privileges from Billy must, therefore, exert greater control in decreasing his noisemaking in class than the social reinforcement of laughter he receives from his classmates for engaging in that behavior.

The punishment effect can be maximized through the introduction of an extinction procedure during punishment. Billy's noisemaking might be most effectively reduced if both the extinction (termination of classmates' laughter) and the punishment (removal of field trip privileges) procedures are implemented.

In another example, Fred criticizes Marge's cooking before dinner. She ignores Fred's criticism, using an extinction procedure to decrease his criticism. If extinction is effective, Fred's criticism decreases. To use a punishment procedure, Marge cooks dinner only for herself that evening. In diagram form, this example appears as follows:

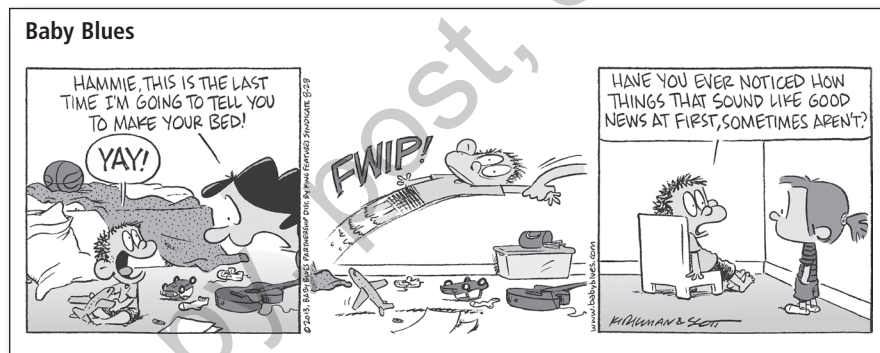
<i>Extinction Diagram</i>			<i>Extinction Example</i>		
R	—————/—————>	S ^{R+}	R	—————/—————>	S ⁺
Response is performed	is not followed by	positive reinforcer	Fred criticizes Marge's cooking	is not followed by	Marge's attention
<i>Effect:</i> Response decreases in strength and likelihood of occurrence			<i>Effect:</i> Decrease in the rate of Fred's criticizing Marge's cooking		
<i>Punishment Diagram</i>			<i>Punishment Example</i>		
R	—————>	S^{R+}	R	—————>	S^{R+}
Response is performed	is followed by	Removal of positive reinforcer	Fred criticizes Marge's cooking	is followed by	Fred loses dinner by Marge
<i>Effect:</i> Suppression of the response and decreased likelihood of its occurrence			<i>Effect:</i> Fred stops criticizing Marge's cooking		

Time-Out

Time-out is a form of negative punishment. In time-out, the individual is removed from the problematic situation immediately after the target behavior is performed and placed for a brief period in an environment with no or minimal availability of reinforcement. Time-out is used with behaviors such as temper tantrums, noncompliance, hitting, defiance, and destructiveness.

The time-out procedure involves removal of S^Ds for the target response and removal of reinforcers. Case Example 7 (below) provides an example of this procedure. Edward took Stephen to the laundry room when he hit his sister. Taking Stephen to the laundry room prevented Stephen from responding to S^Ds in the problematic situation (Dianne's teasing and making faces) and removed the positive reinforcement (Dianne's crying and father's attention) for his inappropriate behaviors. The time-out room was arranged so that positive reinforcers were not available for Stephen during time-out.

When the time-out procedure is used, specific behavioral contingencies are established. For example, time-out is set for a specified, brief time, usually from 5 to 20 minutes. For young children, approximately 1 minute of time-out is used for each year of age. If the individual resists time-out by kicking, screaming, or cursing, a punishment contingency can be established in which such behaviors extend the time-out period—for example, by 2 to 5 minutes per incident. Release from time-out is made contingent on passage of the designated time and performance of appropriate behaviors in the time-out space. This time-out procedure, therefore, is markedly different from procedures used in which an individual is isolated for extended periods, such as in some prisons and other correctional facilities.



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CASE EXAMPLE 7

The Parent as a Behavior Modifier

Edward, a single father, complained to a therapist at a counseling center that he found it impossible to discipline Stephen, his 10-year-old son. Stephen frequently hit his younger sister, Dianne, making her cry and inflicting bruises. He sometimes broke her toys during these incidents. When Edward intervened to stop Stephen from hitting Dianne, Stephen cursed and kicked him. Verbal reprimands, threats, and lectures failed to stop Stephen's undesired behaviors.

The therapist instructed Edward to obtain a baseline of Stephen's hitting and to identify situations in which the hitting occurred. Edward observed his children's behavior for a week and reported to the therapist that Stephen's hitting occurred 12 times during the week and that Dianne teased or made faces at Stephen on 9 of those occasions prior to his hitting her. Edward also indicated that he spent much of his time in the evenings trying to discipline Stephen.

The therapist instructed Edward to tell Dianne to stop teasing and making faces at Stephen, with the contingency that if she teased or made faces she would lose privileges, such as watching television or having a bedtime snack. On two subsequent occasions, Dianne lost television privileges and a bedtime snack. After these two experiences, Dianne stopped teasing and making faces at Stephen.

The therapist also instructed Edward to tell Stephen to go to the laundry room whenever he hit Dianne. If he refused to obey, Edward would physically carry or move Stephen to the laundry room, where he was required to remain by himself for 10 minutes. If he kicked or cursed Edward, the time-out was increased for 5 minutes. If he screamed or made loud noises while in the room, the time-out was increased for another 5 minutes.

The first time Edward took Stephen to the laundry room, he kicked and cursed. He also screamed while in the room. Stephen remained in the laundry room for a total of 20 minutes—the 10-minute time-out period plus two 5-minute extensions. This also happened the second time. The third time Edward instituted the treatment procedure, Stephen walked with Edward to the laundry room without cursing or kicking. The fourth time the procedure was applied, Stephen went to the laundry room by himself and quietly remained there until his time was up. After the fifth time the procedure was employed, Stephen stopped hitting his sister. If Stephen had continued to scream and curse during time-out, his father could have removed privileges such as watching television, playing outside with friends, or playing video games.

The therapist also instructed Edward to spend leisure time with Stephen in the evenings. Because Stephen liked to play cards with his father, the therapist told Edward to play cards with Stephen each evening after he finished his homework.

Maximizing the Effectiveness of Punishment

Researchers have investigated a number of variables influencing the effectiveness of punishment (e.g., Azrin & Holz, 1966; Dinsmoor, 1998; Himeline & Rosales-Ruiz, 2013). The following conditions have been observed to maximize the effectiveness of the punishment procedure:

1. The punisher immediately follows the target response.
2. The punisher is administered each time the response is performed.
3. The punisher is of sufficient intensity to suppress the target response.
4. The punishment contingency is arranged so that the individual cannot escape the punisher.
5. Reinforcement for inappropriate behaviors is removed or reduced.
6. Alternate appropriate behaviors are specified.
7. Appropriate behaviors are positively reinforced.

In both positive and negative punishment, the punisher is most effective when presented *immediately after* the response. If punishment of the target response is delayed, appropriate behaviors could be inadvertently suppressed. For example, a child disobeys his babysitter, who says, “Wait until your father gets home; then you’ll get it!” Six hours later, the child is reprimanded by his father. Although the father’s punishment might be associated verbally with the undesired behavior, any appropriate behaviors performed by the child are also punished, such as greeting his father at the door and talking about school.

Other factors influencing the effectiveness of punishment are the *intensity* and *frequency* of the punisher. The punishing stimulus must be sufficiently intense to suppress the target response. Similarly, when negative punishment is used, the reinforcer that is removed should exert more control over the individual’s behavior than the reinforcer maintaining it. For optimal effect, the punisher is delivered on a continuous schedule—that is, each time the response is performed.

Four-year-old Julia climbed trees after her mother told her to play on the ground. Her mother found her climbing a large tree, with other children urging her to climb higher. To maximize the effects of punishment, Julia’s mother sent the other children away (removal of positive reinforcement); yelled, “Julia, stop! Get down from there!” (presentation of an intense punishing stimulus); specified another activity that Julia could engage in (“Julia, ride your tricycle”); and reinforced Julia for playing at the appropriate activity (“You ride your tricycle so nicely”).

Overcorrection

Overcorrection is a punishment procedure used to decrease an individual’s inappropriate behaviors while at the same time providing S^D s and reinforcers for the performance of appropriate behaviors (Azrin & Wesolowski, 1974; MacKenzie-Keating & McDonald, 1990). Overcorrection has been used to reduce disruptive, annoying, and self-injurious behaviors and to replace them with appropriate behaviors (Foxy & Azrin, 1972; Foxy & Meindl, 2007; MacKenzie-Keating & McDonald, 1990). There are two types of overcorrection: **restitutional overcorrection** and **positive practice overcorrection** (Azrin & Bezael-Azrin, 1999; Ollendick & Matson, 1978). The procedures can be combined or used separately, depending on the situation and the behaviors to be suppressed.

Restitutional overcorrection involves restoring the environment to the condition it was in before the inappropriate act was committed and then improving it even further. In one reported case, the restitutional overcorrection procedure for stealing food required the individual to return the stolen item to the victim (restitution) and, in addition, buy an identical item and give it to her (overcorrection; Azrin & Wesolowski, 1974). In another example, when Stan threw his candy wrapper on the gym floor, a coach told him to pick up the wrapper and throw it in the trash (restitution). The coach also instructed Stan to pick up all the litter from the entire gymnasium and throw it in the trash (overcorrection).

Overcorrection requires the individual to perform and repeat desired behaviors beyond correction of the original undesired behavior.

In *positive practice overcorrection*, the individual performs desired behaviors that are incompatible with the previous inappropriate behaviors and practices the desired behaviors repeatedly. Positive reinforcement is given for the positive practice to strengthen alternatives to the inappropriate behaviors. For example, when students spoke out of turn or left their seats in class without permission, they were required to state the rule they had broken, state the correct procedure, raise their hands and wait to be called on by the teacher, and ask the teacher for permission to speak (Azrin & Powers, 1975). The teacher reinforced correct practice with verbal praise. This procedure was repeated for 5 to 10 minutes during recess. Another example of positive practice overcorrection is a court program in which individuals convicted of driving under the influence of alcohol are ordered to attend 6 weeks of a psychoeducational program in order to regain their driving privileges. Participants in the program practice appropriate responses to situations that provide S^Ds to alcohol-drinking behaviors.

Stan's coach also used the positive practice overcorrection procedure when he saw Stan throwing a candy wrapper on the floor of the gym. The coach instructed Stan to throw 10 candy wrappers on the gym floor and pick them all up. This procedure was repeated every time Stan threw a candy wrapper on the gym floor. Stan received praise from the coach after he picked up each candy wrapper and threw it in the trash during the positive practice procedure. Positive practice can be used alone or in conjunction with restitutive overcorrection.

Overcorrection involves the following principles:

1. Reinforcement for the inappropriate behavior is removed (e.g., a stolen food item is returned).
2. Time-out is implemented for the inappropriate behavior. When the individual is engaged in overcorrection, he or she is removed from the reinforcing environment.
3. The individual practices appropriate behaviors in the presence of appropriate S^Ds.
4. Positive reinforcement is given for correct practice.

Punishment and Self-Control

Punishment can be self-administered to control behavior. An individual can establish a punishment contingency to decrease undesired behavior. For example, a social worker who is a Democrat might establish the following contingency: "If I complete fewer than two case reports each day this week, I will send \$10 for each incomplete report to the Republican National Committee." An individual who wants to lose weight might establish this contingency: "Every time I eat between meals, I will give away one ticket to the basketball game."

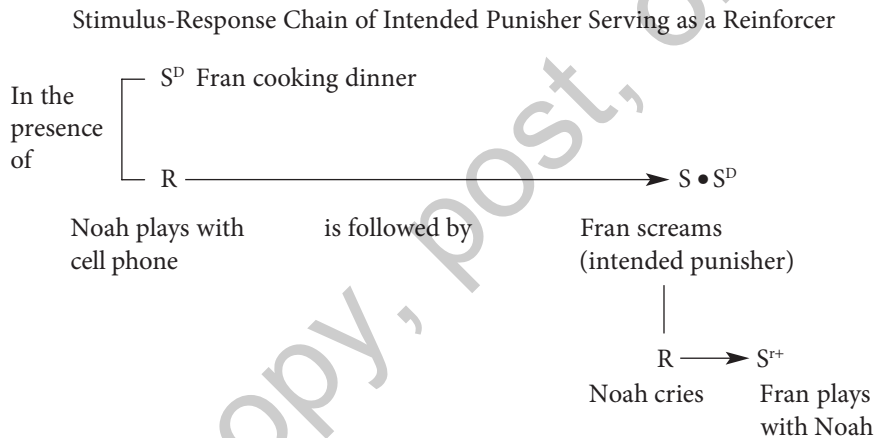
To maximize the effectiveness of punishment, self-administered positive reinforcement contingencies can be added: “For every report I complete this week, I will spend 10 minutes at the beach on the weekend” or “For each day I eat only during meal times, I will put \$1 away to buy a new DVD.” Although self-contingency management programs lack the control provided by external behavior modifiers, these self-control or self-directed procedures have been used successfully to modify undesired behaviors and thoughts (e.g., Ivanoff & Stern, 1992; Watson & Tharp, 2014).

Disadvantages of Punishment

Several side effects or disadvantages of punishment limit the effectiveness of punishment as a behavioral control technique (Azrin & Holz, 1966; Himeline & Rosales-Ruiz, 2013), including the following:

1. The punished response could reappear when the person administering the punisher is not present. For example, when Julia’s mother yelled at her for climbing a tree, she stopped climbing the tree, but Julia might climb trees at a friend’s house or at school when her mother is not present.
2. Aggression may occur in the form of physical or verbal attacks against the individual administering the punishment. For example, when the teacher gave Tanya a detention for passing notes in class, she cursed at him.
3. Aggression could be directed toward someone or something that was not responsible for delivery of the punisher. For example, the boss criticized Harry for handing his report in late. When Harry arrived home, he criticized his son for the way he wore his hair.
4. Through association with the punisher, the person who administers the punisher can become a conditioned punisher; the punished individual might then avoid that person. For example, Stan now avoids the teacher who punished him. Grandparents often reward their grandchildren and refrain from punishing them to help ensure that they will be associated only with positive reinforcement.
5. A punisher could suppress appropriate behaviors performed just before the punisher is delivered. This is especially likely if the punisher is not delivered immediately after the inappropriate response, as shown in the example of the babysitter who delayed the child’s punishment until the father came home. In another example, a supervisor criticized a social worker for turning in an incomplete case report. At the time she was criticized, the social worker was reviewing case records to determine client progress. The supervisor’s delayed criticism could act as a punisher to decrease the social worker’s appropriate behavior of reviewing case records.

6. The person administering the punisher might be imitated by observers. For example, Adam's father screamed at him to clean up his room. Later, Adam's sister screamed at him to clean up his room in the same tone of voice her father used.
7. The intended punisher might be ineffective. It could serve instead as an S^D for an inappropriate response that is reinforced. The intended punisher could also act as a conditioned positive reinforcer that increases, rather than decreases, the strength of the target behavior. For example, when Fran was busy cooking dinner, her 3-year-old son, Noah, started playing with her cell phone. Although she told Noah several times to leave it alone, he persisted until she finally screamed at him. He began to cry, and she immediately ran over to him, talked to him soothingly, and played with him until he stopped crying. Noah might have learned from this experience that one way to get his mother's attention is to play with her cell phone. Mother will yell, but if he cries, she will talk to him and play with him. In diagram form, this example appears as follows:



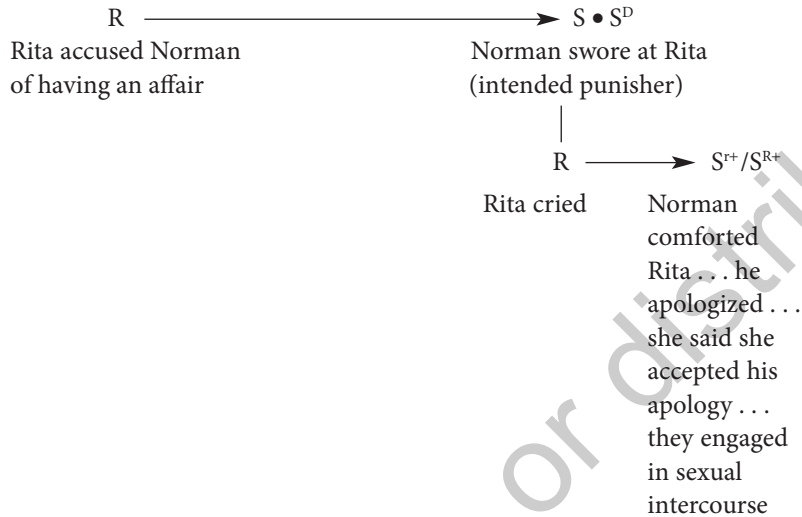
Effect: Noah's playing with the cell phone when his mother is cooking dinner increases in strength and likelihood of occurrence.

The effect of this stimulus-response chain was that Fran's screams (S) became a conditioned positive reinforcer (S^+) through association with the reinforcers of playing with and talking to Noah. Fran's screaming, therefore, unintentionally increased the likelihood of Noah's playing with the cell phone; her screaming also served as an S^D for Noah's crying. Furthermore, Fran's screaming can reinforce Noah's other inappropriate behaviors, such as watching TV at bedtime or running away from her at the shopping center.

Another example of an intended punisher serving as a conditioned positive reinforcer is a marital argument. Norman came home 2 hours later than usual and missed dinner. When Rita accused Norman of having an affair, he swore at her until she began to cry. After Norman apologized and comforted her, she accepted the

apology, and they had sexual intercourse. An abbreviated stimulus-response chain in diagram form for this example appears as follows:

Stimulus-Response Chain of an Argument Serving as a Conditioned Reinforcer



Effect: Rita's accusations increase in strength and likelihood of occurrence.

Norman swore (S) at Rita, hoping to punish or decrease her accusations. Instead, his swearing served as the S^D for her crying (R), which was followed by Norman apologizing, their making up, and their having sex (S^{R+}). The swearing thus became a conditioned positive reinforcer (S⁺) for Rita's accusations.

Argumentative behaviors can become conditioned reinforcers if they have served as S^Ds for responses that led to reinforcers. In this case, the marriage counselor's assessment revealed the following pattern: When Rita cried, Norman comforted her and apologized and they usually had sexual intercourse. Although the S^Ds for Rita's crying varied (Norman swore at her or spoke harshly to her), the reinforcers remained the same (he comforted her, apologized to her, and they had sex). In this way, Rita's crying came under the stimulus control of many S^Ds, most of which were related to Norman's swearing or speaking to her in a loud voice. Thus, any behavior of Rita's that resulted in Norman's swearing or shouting could set off the stimulus-response chain. Because of their association with positive reinforcers, Rita's accusations and Norman's swearing acquired the ability to function as conditioned positive reinforcers and could therefore strengthen other argumentative behaviors.

Alternatives to Punishment

A changing philosophy about positive punishment has emerged that emphasizes the use of reinforcement techniques to reduce undesired behaviors through the development of appropriate behaviors rather than the use of aversive procedures to

suppress undesired behaviors (e.g., Beare, Severson, & Brandt, 2004). Commonly used reinforcement techniques have included differential reinforcement of other (DRO) and differential reinforcement of alternative behaviors (DRA). As an alternative to aversive techniques, functional analysis has also been used to identify positive reinforcers (e.g., attention) or negative reinforcers (e.g., escape from a demand or avoidance of an aversive situation) that maintain self-injurious or other dangerous behaviors. Reinforcement contingencies are then modified to develop alternative adaptive behaviors without the use of aversive stimuli (e.g., Kurtz et al., 2003; Rooker et al., 2015).

In some cases, however, positive reinforcement, extinction, and response cost techniques may be ineffective in developing desirable behaviors, and the individual's undesirable behavior is dangerous to the individual or others. Legal, ethical, and professional guidelines address the appropriate use of positive punishment (e.g., Bailey & Burch, 2011; Kazdin, 2013). For example, the least-restrictive-alternative guideline was applied when placing previously hospitalized psychiatric patients in community-based services, such as mental health centers and group homes. Similarly, an intervention-based criterion would suggest that reinforcement procedures are preferable to the use of punishment using painful or aversive stimuli (e.g., Behavior Analyst Certification Board, 2014). The Behavior Analyst Certification Board's (BACB's) *Professional and Ethical Compliance Code for Behavior Analysts* (the "Code"; 2014) includes 10 sections addressing ethical and professional behavior of behavior analysts. Substantial guidance in development of the Code was provided by the ethics codes of the following national professional organizations: American Anthropological Association, American Educational Research Association, American Psychological Association, American Sociological Association, National Association of Social Workers, and the National Association of School Psychologists.

As a general rule, positive punishment should be used only after alternative methods have been unsuccessful or in extreme instances in which a behavior has such damaging consequences that it must be stopped immediately. One alternative way to decrease inappropriate behaviors and increase appropriate behaviors is to specify and positively reinforce desired behaviors that are incompatible with the undesired behaviors (DRI). For example, instead of screaming at Stephen when he hits Dianne, Edward could reinforce Stephen with some fruit or praise when he plays cooperatively with her.

When accompanied by positive reinforcement for appropriate behavior, a punisher does not have to be intense to be effective in suppressing inappropriate behavior. Even a mild reprimand or disapproving look can suppress undesired behavior. For example, a form of mild punishment was used to focus the speech of a client on discussion of his problem. The client frequently spoke about topics unrelated to his problem situation. Each time the client began to speak about a different topic when asked a question, the practitioner immediately said, "Can we please get back to the subject?" or made the hand signal for "time-out." The client stopped speaking about the irrelevant topic and answered the practitioner's question. After the client answered the question, the practitioner said, "That's getting at the problem; please continue," thus reinforcing the client for staying on the topic. This procedure

decreased the frequency of the client's speaking about irrelevant topics and increased the frequency of his talking about relevant topics.

Although punishment suppresses a behavior, it does not ensure performance of an appropriate response in place of that behavior. Providing S^Ds for performance of appropriate behaviors can increase the likelihood that they will be performed. For example, 7-year-old Mark tracked mud into the house. His mother spanked him and he cried. She also sent him to his room and did not give him dessert after dinner. Her punishment procedure did not specify the desired behaviors for Mark to perform to avoid tracking mud into the house. An alternate preventive intervention would be to provide an S^D to signal an appropriate behavior that could be reinforced, such as placing a mat at the front door so Mark could clean his shoes before entering the house.

Four-year-old Sam asked his father to play with him when his father was watching the football game on television. Dad said, "No, don't bother me now," and Sam immediately stopped speaking. Five minutes later, Sam asked his father again, and Dad said, "Shut up, and don't bother me again." A few minutes later, Sam asked his father, "Please, Dad, play with me now," and his father shouted, "Now you are going to get it," and spanked Sam hard on the buttocks until Sam cried loudly. Instead of punishing Sam, the father could have told Sam when he first asked his dad to play, "Sure, Sam, we can play a video game during the intermissions and after the game is over." This way father and son could spend some enjoyable time together instead of Sam experiencing the negative feelings of the father's punishment and the father growing angry about Sam's requests.

We do not recommend physical punishment such as spanking or shaking children. Preferable to physical punishment are behavior change procedures providing antecedents that serve as cues or prompts for desired behaviors to be followed by positive reinforcers. Physical punishment by a parent, for example, provides a model of behavior that the child may imitate in the future. It can also limit the parent's selection of alternative techniques that could be more effective and less detrimental to the parent-child relationship. When punishment is selected as the desired procedure, negative punishment, or removal of positive reinforcers, is preferable to positive punishment, or presentation of a punisher, except in extreme circumstances, as indicated in this chapter.

Parents can consider alternatives to punishment by first identifying the behaviors they want their children to perform (e.g., doing their homework, putting their dirty clothes in the hamper, sharing a toy with a sibling). The parents then praise the children whenever those behaviors occur to strengthen them and increase their frequency.

Teaching parents new skills in lieu of yelling and hitting their children is the focus of The Parent Management Training program at Yale University (Kazdin, 2009; Kazdin & Rotella, 2008). The program is based on applied behavior analysis and evidence-based research. Parents are taught to use mild punishment quickly when the inappropriate behavior first occurs, using a reprimand (e.g., "no," "stop," or "don't do that") or nonverbal response (disapproving look or glance) to suppress the behavior before it escalates. This allows the parents to avoid administering

more severe and frequent punishment after the child's behavior worsens and prevents the parents from acting out of anger.

The program shows parents how to use positive reinforcement and praise to reward children for good behavior. They are told to provide many opportunities for a child to perform desirable behaviors and experience pleasant consequences, and to minimize the use of nagging and reminders. A three-part sequence is established: the parent uses prompts to establish good behavior; the child performs the desired behavior; and the child receives the pleasant consequences (such as rewards, tokens or points on a point chart, praise). As the child continues to perform the desired behavior with reinforcement, punishment can be used less as the parent becomes more effective.

Kazdin (2009) stressed the importance of effective praise and identified six components. The praise should be specific, frequent, given with enthusiasm, include both verbal and nonverbal aspects, and immediately follow the desired behavior. The parent is taught to set up opportunities for the desired behavior to occur and to praise the child for this behavior whenever it is performed. Kazdin emphasizes the importance of using rewards and praise as part of a systematic program that connects behavior to antecedents and consequences.

The Future of Punishment

Despite the disadvantages of punishment and the stringent requirements for ensuring its effectiveness, punishment is still commonly used as a behavioral control technique. One reason for this is that punishment usually works immediately to suppress undesired behaviors. Therefore, the short-term consequences are reinforcing for the individual who administers the punishment. For example, Mel spanked his daughter Terri when she hit her brother. Terri stopped hitting her brother; thus, Mel was reinforced for spanking Terri. Because an individual's behavior is frequently governed by short-term consequences, punishment will probably continue to be commonly used for decreasing undesired behaviors. Only a radical shift toward the design of more preventive environments that focus on positive reinforcement might alter the use of punishment.

One encouraging indicator is that 30 countries have banned physical punishment of children in all settings, including the home (Smith, 2012). The United Nations Committee on the Rights of the Child issued a directive in 2006 calling physical punishment "legalized violence against children" that should be eliminated in all settings through "legislative, administrative, social and educational measures" (Smith, 2012, p. 60).

The 24/7 Sobriety Project

Another significant development is the 24/7 Sobriety Project, an innovative program for repeat DUI (Driving Under the Influence) offenders started in South Dakota in 2005 and replicated in other states. The program was later expanded to

target first-time DUI offenders and individuals arrested or convicted for other offenses, such as assault, domestic violence, or child abuse and neglect.

The approach is based on the concept that certainty and rapidity, rather than severity of the punishment, are more effective as tools to prevent problem drinking. DUI offenders are placed in the 24/7 Sobriety Project as a condition of bail, sentencing, probation, or parole. The program monitors abstinence from alcohol and drug use through a variety of tests, including twice-a-day breathalyzer tests, alcohol monitoring ankle bracelets, ignition interlock, and drug patch and urine testing. Breathalyzer tests are done at a cost of \$2 per day to participants for an average of five months.

Participants in 24/7 Sobriety can drive all they want to, but they are under a court order not to drink. Unlike most consequences imposed by the criminal justice system, the penalties for noncompliance are swift, certain, and modest. Participants who fail the breathalyzer test are immediately jailed: 12 hours typically for the first offense, 24 hours for the second. Missing a scheduled test can result in an arrest warrant for the participant. Furthermore, bond, parole, or probation can be revoked if offenders fail or skip tests.

An evaluation of the program found that over 99% of the breathalyzer tests taken between 2005 and 2010 were negative, which suggests that the risk of the punishment markedly reduced the offenders' drinking behaviors (Dupont, Long, & Talpins, 2010; Kilmer & Humphreys, 2013; Kilmer, Nicosia, Heaton, & Midgette, 2013). The program significantly impacted repeat DUI arrests and also significantly impacted arrests for domestic violence.

These results support the project's approach of using swift, certain, and modest penalties along with frequent monitoring to deter problem drinking and improve public well-being. A major benefit is allowing offenders to continue employment, remain with their families, and avoid the social and economic costs that come with a prison sentence. It could also reduce overcrowding in jails and save the states a considerable amount of money. Further research will need to confirm the effectiveness of this approach in South Dakota and other jurisdictions, as well as in evaluations of its use when combined with various positive incentives and treatment services.

Although the 24/7 Sobriety Project was not designed or operated by behavior change practitioners, the Project seemed to effectively use the principles of reinforcement and punishment. The short-term reinforcing consequences for participants—continuing to drive without drinking and remaining in the community—outweigh the risky long-term consequences of receiving a prison sentence for drunken driving. The punishment meets the conditions to be effective because it is immediate, consistent, and delivered after every instance of the targeted behavior (e.g., Hineline & Rosales-Ruiz, 2013).

Bold and imaginative programs like the 24/7 Sobriety Project are also being implemented to improve other offender programs. For example, Hawaii's Project HOPE (Hawaii's Opportunity Probation with Enforcement) program in Honolulu has demonstrated that close monitoring of probation conditions, coupled with swift and certain responses to violations, increased compliance with the terms of

probation and decreased drug use (Hawken, 2010; Hawken & Kleiman, 2009; Kleiman, Kilmer, & Fisher, 2014). Critics have cautioned, however, that although promising, Project Hope is applicable only to substance abuse and not as a general model for probation supervision; also, the long-term effects have not been determined because offenders in Project HOPE were not followed after release from probation (Duriez, Cullen, & Manchak, 2014).

As we move further into the 21st century, the public can become better educated in the effective use of reinforcement techniques to replace common positive punishment practices, especially the use of physical violence. Punishment with intense aversive stimuli should be used rarely, if at all, and only when (a) alternative, non-aversive techniques have not been effective and (b) the undesired behavior is so detrimental or dangerous that its immediate cessation is necessary. It is important to recognize, however, that many of our behaviors are influenced by punishment contingencies. By analyzing problematic situations, practitioners can identify punishment contingencies used by individuals to control the behavior of others or that prevent an individual from performing desired behaviors. Wherever possible, the emphasis should be on developing and increasing desired behaviors that are incompatible with the undesired behavior.

Summary

1. Punishment is a behavior change technique that suppresses a response or decreases its strength. A response weakened by punishment is less likely to be performed again under similar conditions.
2. There are two types of punishment techniques: positive punishment, which is response-contingent presentation of a punisher, and negative punishment, which is response-contingent removal of a positive reinforcer (also called *response cost*).
3. A punisher is a stimulus that suppresses a response or decreases its strength. Although a punisher suppresses a response, the punisher might not eliminate it because the response could be performed again when the punisher is not present.
4. An aversive stimulus is an unpleasant, annoying, or painful event. An aversive stimulus acts as a punisher, however, only if it suppresses a response or decreases its strength.
5. Unconditioned (or primary) punishers include electric shock, intense light or noise, and physical attacks, such as hitting and kicking. Examples of conditioned punishers are fines, failing grades, frowns, and removal of privileges.
6. Positive punishment consists of presenting a punishing stimulus immediately after the target response. The punishment effect is to suppress the response and decrease the likelihood that the response will be performed again.

7. Practitioners should take the following factors into account when deciding to use positive punishment: (a) the necessity for immediate effect, (b) the relative effectiveness of other techniques available, (c) the ineffectiveness of previously attempted nonaversive procedures, and (d) the negative consequences for the individual or significant others if the behavior is not decreased.
8. Negative punishment, or response cost, involves removing or withdrawing a positive reinforcer contingent on performance of the target response. The punishment effect is to suppress the target response and decrease its likelihood of occurrence.
9. Extinction and negative punishment are not the same. Extinction involves withholding the positive reinforcer that maintains the response. The response is weakened and tends to decrease gradually. In negative punishment, the response is followed by removal of a reinforcer other than the one maintaining the response. The response is suppressed and typically decreases immediately.
10. Time-out involves removing the individual from the problematic situation to a place with no or minimal availability of reinforcement contingent on performance of the undesired response. The time-out period is brief.
11. Seven conditions maximize the effectiveness of punishment: (1) The punisher is presented immediately after the target response, (2) the punisher follows the response each time it is performed (i.e., on a continuous schedule), (3) the punisher is of sufficient intensity to suppress the undesired response, (4) arrangements are made to prevent the individual's escape from the punisher, (5) reinforcement for inappropriate behaviors is removed, (6) alternate appropriate behaviors are specified, and (7) appropriate behaviors are positively reinforced.
12. Seven disadvantages of punishment are (1) the punished response could reappear in the absence of the punisher or the individual who administered it, (2) aggression in the form of physical or verbal attacks could be directed against the individual administering punishment, (3) aggression might be directed toward someone or something that is not responsible for delivery of the punisher, (4) the person who administers a punisher can become a conditioned punisher through association with the punisher administered, (5) a punisher could suppress appropriate behaviors performed just before the punisher is delivered, (6) the person administering the punishment could be imitated by observers, and (7) an intended punisher can serve as an S^D for an undesired response that is reinforced.
13. Punishers can be used in self-control contingencies to decrease the strength of undesired behaviors in conjunction with the use of positive reinforcers to increase desired behaviors.
14. The public can become better educated in the use of positive reinforcement to replace punishment practices, especially the use of physical violence.

Suggested Activities

1. Give an example of a behavior of your own or someone else that you would like to decrease. How often does it occur? What are the situations (e.g., S^Ds) in which the behavior occurs? What are the reinforcers that maintain it?
2. Design a punishment procedure you could use to decrease the target behavior you identified in activity 1. Identify the procedure, the punisher, and the alternate behavior to be reinforced. Implement the punishment procedure and record the results, beginning with the baseline. Was the procedure effective? What is the basis for your conclusion?
3. Bring your results from activity 2 to class and discuss the procedure and its effects.
4. Describe a procedure for decreasing a target behavior using an alternative to punishment.

Chapter Posttest Questions

- (3) 1. Give an example of the two types of punishment procedures and indicate how you would evaluate their effectiveness.
- (2) 2. Give an example that compares extinction with negative punishment.
- (5) 3. Give an example of how you could maximize the effectiveness of punishment with a child who exhibits self-injurious behavior.
- (2) 4. Using the information from Case Example 7 (p. 338), name the punishment procedure administered to Stephen by his father. Give an example of an incident that would lead him to use this procedure.
- (1) 5. Give an example of punishment applied in a self-control contingency.

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