

CHAPTER 9

FUNCTIONAL BEHAVIOR ANALYSIS

Trinity of Behavior Management



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

- Explain the purposes of a functional behavior analysis.
- Define and explain the relationship between behavior and the function of behavior.
- Explain how a behavioral hypothesis is developed.
- Describe the possible functions of behavior.
- Explain how culture can influence the functions of behavior.
- Describe the attributes of the two functional categories of behavior.
- Write a behavioral hypothesis.
- Explain the differences among the various kinds of functional-based interventions.

Many teachers use reactive strategies to manage inappropriate student behaviors in the classroom. These default strategies are easy to implement and often result in the reduction of the inappropriate behaviors in the short term, but they result in the removal of students from the classroom and the cessation of the learning process (Clunies-Ross, Little, & Kienhuis, 2008). Unfortunately, unless they address the causes, or functions, of students' inappropriate behaviors, teachers are unable to make effective behavior modifications that could result in long-term alterations of these behaviors. A functional behavior analysis is the only method that allows identification of the function of an inappropriate behavior (Pence, Roscoe, Bourret, & Ahearn, 2009). Once the function of the behavior has been identified, a function-based intervention can be implemented to reduce the behavior. The purposes of a functional behavior analysis are to determine the function of the inappropriate behavior and to determine the causal factors for the behavior (LaRue et al., 2011).

The functional behavior analysis completes the process started by the functional behavioral assessment through the development of a behavioral hypothesis that serves as the basis for a strategy to modify the behavior by altering the antecedent or the consequences (see Table 9.1). A functional behavior analysis consists of five basic steps:

1. Clearly define the target behavior.
2. Collect observable data related to the target behavior.
3. Identify the function of the behavior.
4. Develop a behavioral hypothesis.
5. Develop an alternative behavior.

If a functional behavioral assessment has been conducted, the first two steps of the functional behavior analysis have already been completed. The functional behavioral assessment uses behavioral observation to gain information about the student's behavior (Ducharme & Shecter, 2011). In the third step, the function of the inappropriate behavior is identified. The fourth step of the functional behavior analysis is the development of a behavioral hypothesis. The behavioral hypothesis is generated based on the function of the behavior and the information obtained from the data collected during the functional behavioral assessment (Allday, Nelson, & Russel, 2011). Once a behavioral hypothesis has been formulated, an appropriate alternative behavior that serves the same function as the inappropriate behavior is developed and introduced to the student (Scott, Anderson, & Spaulding, 2008). The functional behavior analysis

Table 9.1 Trinity of Behavior Management: Functional Behavior Analysis

1. Define the target behavior.	
2. Conduct behavioral observation.	
3. Chart the behavior.	
4. Use single-subject design.	
5. Identify the function of the behavior.	← Functional Behavior Analysis
6. Develop a behavior hypothesis.	
7. Develop alternative behavior.	
8. Develop functional-based interventions.	
9. Write the behavior intervention plan.	
10. Evaluate the effectiveness of the plan.	

concludes with “the development of an alternative behavior based on the identified functional reinforcement to replace aberrant responding” (LaRue et al., 2011, p. 2450). Once the functional behavior analysis is completed and alternative behaviors have been determined, a behavior intervention plan can be developed and implemented.

The Individuals with Disabilities Education Improvement Act (IDEA, 2004) mandates that students with disabilities receive functional behavioral assessments under specific circumstances, and most functional behavior analyses are conducted with students with identified disabilities. In the limited research that has examined the use of functional behavior analysis with students without disabilities who display aberrant behaviors, functional behavior analyses have been found to be successful in identifying the functions of these behaviors, which resulted in appropriate interventions that reduced the behaviors (Shumate & Wills, 2010).

Identifying the function of a student’s inappropriate behavior can help the teacher to develop alternative behaviors and interventions designed to reduce the inappropriate behavior and provide the student with the opportunity to be successful in school. Incorporating a functional behavior analysis in a universal

design for classroom management increases the effectiveness of a behavior and classroom management program and provides students the interventions they need to be successful in school.

IDENTIFYING THE FUNCTION OF A BEHAVIOR

Every behavior has a function, or a dependent variable for the behavior. Identifying the purpose that a behavior serves is the first step in understanding the behavior. Behavior is an individual's observable and measurable interaction with the environment, which is constantly changing and determined by a functional relationship to events (Cooper, Heron, & Heward, 2007). The function of a behavior is the purpose it serves for the individual; the functions of our behaviors are "why we do the things we do." A person behaves in a particular way in order to obtain something (positive reinforcement) or avoid something (negative reinforcement). For example, Mayra goes to school every day (behavior) because she likes being with her friends (obtaining attention). Or Mayra goes to school every day (behavior) because the law requires her to attend school (avoiding truant officers). Or Mayra goes to school every day because her stepfather, who is home during the day, emotionally abuses her (avoiding abusive situation). Notice that the same behavior (going to school every day) has three possible functions. This is why it is important for teachers to determine the function of a behavior before trying to modify the behavior. An intervention based on the wrong function will not be effective in changing the behavior.

Behavior is also constantly changing. For example, Mayra is now missing school (alternative behavior) because she broke up with her boyfriend (avoiding boyfriend at school). The function of the behavior is different, and the behavior is different; however, a change in function does not always necessitate a change in behavior. For example, Mayra's mother and stepfather are divorced, and the stepfather, who was emotionally abusive toward Mayra, is no longer a variable in Mayra's behavior. Yet Mayra still goes to school every day (behavior) to please her mother (obtaining attention from mother).

The function, or purpose, of a behavior is generally not inappropriate; it is the behavior that is appropriate or inappropriate. For example, one student may work very hard to complete her assignments in a timely manner; another student may refuse to do his assignments. Both students are seeking the teacher's attention. One behavior is deemed appropriate while the other is deemed inappropriate; however, gaining the teacher's attention is not considered inappropriate. It is the behavior that needs to be modified, not the

function of the behavior. School personnel need to replace the inappropriate behavior with an alternative behavior that has the same function.

There are numerous reasons for students' behaviors, but compiling lists of these reasons would be difficult and impractical, and the results would be incomplete. However, the reasons for behaviors can be simplified into two functional categories: *attainment* and *avoidance/escape of a situation*. Each category includes functional motivations (see Table 9.2).

Attainment

Many individuals behave in certain ways in order to obtain things they desire. People go to work to earn money; in turn, they use their pay to purchase things they need or want. Students study for tests so they can earn good grades. Children behave appropriately because they desire their parents' attention. Attainment is a functionally motivated behavior in which an individual acquires something he or she wants. The functional motivations of attainment include attention, rewards and privileges, and power or control.

Table 9.2 Functional Motivations

Function of behavior	Functional motivation	Brief description
Attainment	Attention	Gain recognition from peers or adults
	Rewards and privileges	Gain tangible and nontangible reinforcements
	Power or control	Gain control over a situation or event
Avoidance/escape of a situation	Social isolation	Avoid recognition from peers or adults
	Nonpreferred activities	Avoid unpleasant activities such as difficult assignments
	Adverse interactions	Avoid unpleasant interactions with peers or adults in certain settings

Attention

Attention is a common functional motivation for students (Mueller, Nkosi, & Hine, 2011; Shumate & Wills, 2010). Attention can include verbal and non-verbal praise from peers and adults (see Chapter 6). Most students want to be liked and accepted by their peers and by adults. They are not likely to seek negative attention. These students are likely to comply with expected classroom rules and work hard on academic assignments. They often respond positively to attention from teachers, which may take the form of verbal and nonverbal praise (e.g., “I like the way that Tim is working on his assignment,” a pat on the back, a smile). As a positive reinforcement, praise is often an effective method of providing students with attention. For teacher praise to be effective in managing behavior, it needs to be sincere and must be given to the student immediately after the student displays the appropriate behavior. Students can differentiate between sincere praise and praise that is forced or insincere, and the latter type of praise is ineffective in modifying students’ behaviors.

Attention can also reinforce and maintain inappropriate behaviors. Inappropriate behaviors include talking without permission, refusing to complete assignments, and noncompliance with directions. Again, it is important to understand that it is not the function of the behavior that is inappropriate, but the actual behavior. The key to modifying behavior is to find an alternative behavior for the same function served by the inappropriate behavior. For example, Roberto constantly talked in class. No matter what consequences he received from Mr. Martin, his third-grade teacher, Roberto’s behavior did not improve. When a functional behavior analysis was finally conducted, it was determined that the function of Roberto’s behavior was attainment and the functional motivation was attention. Roberto, who did not have a father at home, wanted attention from Mr. Martin, who had become a surrogate father figure. Roberto was taught appropriate ways of gaining attention from Mr. Martin, and his inappropriate behaviors decreased.

WHAT WOULD YOU DO? Mayra

Mayra is a fourth-grade student in Mrs. Peeples’s science class. She comes from a single-parent home. Her father is a Mexican immigrant who works as a truck driver for the city’s sanitation facility. Mayra’s mother passed away 5 years ago in an automobile accident.

Mayra has always been a quiet student and has done well in science class. However, recently, Mayra has not been completing classroom assignments. Mrs. Peeples has discussed

this with Mayra's father, but he assures her that Mayra completes all her homework. It is only her classroom assignments in science that Mayra does not complete. When Mrs. Peeples hands out a science assignment, Mayra initially begins to work on the assignment but then starts looking around the classroom. Mrs. Peeples has been keeping Mayra in the classroom during the lunch period to complete the assignments, but this has not helped. In fact, her behavior has gotten worse; Mayra no longer tries to complete the science assignments.

What would you do to determine the reason for Mayra's behavior? What are the possible functions of her behavior? What intervention would be effective in helping Mayra complete her science assignments?

Rewards and Privileges

Rewards and privileges constitute another functional motivation of attainment. A common and effective reward in elementary schools, especially with younger students, is giving students gold or silver stars on exemplary work. A token system in which students receive points toward purchasing items (candy bars, inexpensive toys, and the like) from the classroom store is another example of rewards. Older students may prefer earning computer time for appropriate behaviors. Not only do activities reward students for appropriate behaviors, but they can also be used as part of a behavior modification strategy. For example, students with emotional and behavioral disorders may earn time to play a board game when they display appropriate behaviors. The teacher could also use this activity to develop social skills (e.g., getting along, taking turns, being a good loser).

Conversely, rewards and privileges can serve to increase inappropriate behavior. For example, a mother and her 3-year-old daughter go to a retail store to buy some clothes. The daughter sees a small toy she wants and begins to throw a tantrum when her mother refuses to buy it for her. Even though the mother tells the daughter several times that she cannot have the toy, the mother finally relents and gives the toy to the daughter so she will stop her tantrum. Thus, the daughter learns that she can get certain rewards by exhibiting inappropriate behaviors.

Power or Control

The final functional motivation of attention is power or control over a situation or event. One of the most common examples is the "power struggle" between the teacher and a student. Gaining power is a basic human need, and when that need is not met, the result can be conflict. In the teacher–student relationship, the

student is often trying to maintain some type of control in his life, especially if he feels that he has little control or power in other areas of his life.

Although preservice teachers are often advised to avoid power struggles with students, the dominant culture encourages a win-at-all-costs mind-set that contradicts this lesson. Winners are respected and idolized; losers are insignificant. Teachers need to fight the inclination to try to “win” in power struggles with students. If a teacher wins such a power struggle, the result is likely to be damage to the relationship between the teacher and the student, and teacher-student rapport is a crucial element of effective behavior and classroom management. Additionally, the student will probably view the classroom as a threatening place, and this contradicts the teacher’s duty to provide a safe and secure environment in which learning can take place—another integral component of an effective behavior and classroom management plan. When a teacher wins a power struggle, forcing the student to comply with the teacher’s demands, the student may be left feeling insignificant and powerless.

Avoidance/Escape of a Situation

Sometimes individuals behave in certain ways to avoid or escape nonpreferred activities. For example, a person may avoid going to a social gathering with colleagues because he has had negative interactions with the individual hosting the event. Instead, the person informs the host that he has already made other plans and cannot attend. Avoidance/escape of a situation is a functionally motivated behavior. Self-injury, aggression, disruption, and inappropriate vocalizations are common behaviors associated with avoidance/escape of a situation (Ingyarsson, Hanley, & Welter, 2009). The functional motivations of avoidance and escape include social isolation, nonpreferred activities, adverse interactions, and changes.

Social Isolation

Sometimes a student will behave in a certain manner in order to avoid attention from others. For example, a student may try to make himself invisible by taking a seat distant from the teacher’s desk, sitting low in his chair, and keeping his eyes lowered to avoid being noticed by the teacher. Students who behave this way often do so because they lack confidence in their ability to answer questions posed by the teacher. A low sense of self-efficacy can affect students’ beliefs in their abilities and their behavior (Bandura, 1986, 1997; Briones, Tabernero, & Arenas, 2007).

Students who have been abused will also often avoid attention from others. They may feel detached from others and feel like they do not belong at school. Even though they may not want the teacher to call on them, and they may disengage from social interaction, abused children are likely to perceive that others are distancing themselves from them (Elliott, Cunningham, Linder, Colangelo, & Gross, 2005).

Nonpreferred Activities

Students often behave in certain ways when they want to avoid unpleasant activities. Some students display inappropriate behaviors when avoiding boring and difficult academic tasks that are especially frustrating and do not meet their academic needs. Again, the behaviors displayed by such students vary, even though the function of the behaviors remains the same. For example, Michael may defiantly refuse to complete an assignment on double-digit multiplication by failing to comply with the teacher's redirection to work on the assignment or by tearing up the assignment worksheet. Conversely, Marta may covertly refuse to complete the same assignment by sitting quietly at her desk and not drawing attention to herself. While the two behaviors are completely different, the function of the behaviors is the same.

Adverse Interactions

Students sometimes display inappropriate behaviors when trying to avoid certain interactions with peers or adults in certain settings. For example, because Frank is a student with emotional and behavioral disorders, his teacher, Mr. Poteet, is less tolerant of Frank than he is of other students. As a result of the poor rapport between Frank and Mr. Poteet, Frank displays inappropriate behaviors in order to be sent back to the resource room. Students may also avoid interactions with peers in certain settings because they are likely to be teased or bullied. For example, peers constantly tease Mary at recess. In Mrs. Clarke's history class, which meets prior to recess, Mary always refuses to finish her assignment. As a result of her behavior, Mrs. Clarke keeps her in at recess to complete her assignment, and Mary avoids an unpleasant interaction with her peers.

Sometimes, adverse interactions in school can lead to school refusal, or the student's attempt to miss school. School refusal is generally the result of cultural factors, family factors, peer factors, and/or neuropsychiatric factors (Casoli-Reardon, Rappaport, Kulick, & Reinfield, 2012; Wimmer, 2008). Diverse students may have difficulty "fitting in" at school because of language

and cultural differences. Students with language differences may have problems communicating with peers and making friends, leading to social isolation. Students with cultural differences may have difficulty connecting with a European American curriculum. If lessons have little meaning to students' lives, they are more likely to demonstrate off-task behaviors. As a result, language and cultural differences could lead to a sense of isolation, which in turn could lead to school refusal.

Family factors can also lead to school refusal. Families from socioeconomically disadvantaged backgrounds may put education second to family financial needs. Some adolescents remain at home to help take care of younger siblings. Abusive families may keep children home from school when the children show evidence of abuse (Casoli-Reardon et al., 2012). Children from low socioeconomic backgrounds may not feel welcome in school because teachers perceive their families as dysfunctional and often blame them for the children's behaviors (Hyland & Heuschkel, 2010). Teachers often do not know enough about these families to help these students, which is why it is important for teachers to establish relationships with their students' families (see Chapter 3).

Relationships with peers are often a crucial factor influencing the academic and behavioral performance of students. Students who are belittled, teased, or bullied often do not do well in school, and these students will avoid such interactions through their behaviors (Pina, Zerr, Gonzales, & Ortiz, 2009). Students who are harassed by their peers seldom seek help from adults, which is why it is so important for teachers to determine the functions of the students' behaviors in order to provide effective interventions for peer factors.

Neuropsychiatric factors that may lead to school refusal include generalized anxiety disorders, separation anxiety disorders, and depression (Casoli-Reardon et al., 2012; Wimmer, 2008). For example, Jimmy is a second grader who is afraid that something will happen to his mother while he is at school. Because of this fear, he goes to the nurse's office nearly every day complaining of feeling ill in an attempt to be sent home. School refusal may also be triggered by fear of the school environment because of test taking (an increasing problem due to the proliferation of standardized testing mandated by states and the federal government) or the possibility of violence in the school (such as the school shootings at Columbine High School and Sandy Hook Elementary School). It may also result from students' desire to escape aversive social situations such as negative interactions with peers (bullying, gang activities) and teachers (lack of support, poor student-teacher relationships).

Cultural Impact on Behavioral Functions

Societal and cultural norms often influence the functional motivations of behaviors. Individual accomplishment is stressed in European American cultures, which is why many students are motivated to do well in school (attention, rewards), but this is not always true for other cultures. Teachers need to understand that cultural influences affect the functions of behaviors. Many Native Americans, Asian Americans, and Hispanics value group identity and the needs of the group. For example, Soon-Tek is a first-generation Korean American. Korean family values dictate that the actions of one family member reflect on the entire family. As a result, Soon-Tek is doing well in school to avoid bringing shame to his family, not to gain attention for his accomplishments.

African American students sometimes engage in power struggles with teachers; however, this behavior may not be malicious or have anything to do with a student's relationship with the teacher. African American culture may dictate that males not show indications of weakness in front of friends or family (Milner & Tenore, 2010). It is important that teachers understand the cultural and linguistic backgrounds of their students when trying to identify the functions of students' behaviors. Once the function of a student's inappropriate behavior has been identified, a behavioral hypothesis can be developed to modify the student's behavior.

DEVELOPING A BEHAVIORAL HYPOTHESIS

The **behavioral hypothesis** proposes an explanation of the factors that elicit the inappropriate behavior. It is based on data obtained from behavioral observations and determines the function of the behavior. The identified function of the behavior is used to develop a behavioral hypothesis, an important step toward the development of a behavior intervention plan.

A multidisciplinary/multicultural team should determine the most plausible and testable explanation for the occurrence of the behavior. The team should ask the following questions regarding the behavior:

1. Why is the student displaying the target behavior?
2. What is the function of the target behavior?

For example, Jane continually talks in class without permission. From behavioral observations and analysis of the data, team members can see

that there are several plausible explanations for Jane's behavior. Since Jane's behavior generally occurs during class discussion, however, they decide that seeking the teacher's attention is the most obvious function of the behavior.

The behavioral hypothesis can be written in a format similar to the ABC analysis, using the components of antecedent, behavior, and consequence. For example, a behavioral hypothesis for Jane's behavior could be stated in the following format:

During class discussions / Jane talks without permission / to gain the teacher's attention
 (antecedent) (behavior) (consequence)

However, the most obvious possible reason for a behavior is sometimes not the actual reason, and other explanations need to be examined. LeVar has displayed aggressive tendencies toward male peers who have offended him in some manner. He has punched Mario for taking his pen. His aggressive behavior generally occurs during unstructured time at the beginning of class. It would appear that the function of LeVar's behavior is attainment; however, the functional motivation is not that obvious. Is the functional motivation of LeVar's behavior attention from peers or adults? Is LeVar's behavior reinforced by his reclaiming his pen from Mario (tangible reward)? Or is LeVar trying to gain control over a situation? Since LeVar is African American, the multidisciplinary team needs to consider any cultural factors that might affect the determination of the function of the behavior. Is LeVar trying to display strength in front of his peers (recognition)? LeVar's behavioral hypothesis could be as follows:

During unstructured class time, / LeVar is aggressive toward peers / to gain positive peer attention.
 (antecedent) (behavior) (consequence)

It is important to remember that the function of a behavior is generally not inappropriate; it is the behavior that is appropriate or inappropriate. For example, one student may work very hard to complete her assignments in a timely manner; another student may refuse to do his assignments. Both students are seeking the teacher's attention.

CASE STUDY Timothy and Mrs. Miller (Part 2)

Timothy continued to take items from other students, and his relationships with peers deteriorated even more. Other students were now threatening to hit him if he took their things again.

Mrs. Miller had to determine why Timothy takes items from other students. She had developed an intervention strategy that provided Timothy with an item of his choice if he did not take any items from other students without permission, but that proved to be ineffective. Considering the two types of behavioral functions, she was fairly confident that Timothy was not trying to avoid or escape a situation.

Function of behavior	Functional motivation	Timothy's behavior
Avoidance/escape of a situation	Social isolation	Timothy did not seem to be trying to avoid recognition from peers or adults. If anything, he was receiving more recognition due to his inappropriate behavior.
	Nonpreferred activities	Timothy was not trying to avoid any nonpreferred activities. He was doing well academically, so it did not seem that he was trying to avoid academic activities.
	Adverse interactions	Timothy did not seem to be trying to avoid interaction with peers, although his peers were trying to avoid interacting with him.

Mrs. Miller considered whether the function of Timothy's behavior might be attainment.

Function of behavior	Functional motivation	Timothy's behavior
Attainment	Attention	Timothy was getting attention from peers and Mrs. Miller.
	Rewards and privileges	Since the first intervention strategy was not effective, it did not seem that Timothy wanted to receive items for appropriate behavior.
	Power or control	There did not seem to be any evidence that Timothy wanted power or control over other students.

(Continued)

(Continued)

Mrs. Miller concluded that the function of Timothy's behavior was attainment, with a functional motivation of peer attention. Based on her analysis of Timothy's behavior, Timothy's behavioral hypothesis could be as follows:

When the teacher is not looking,	/ Timothy takes items from peers /	to gain peers' attention.
(antecedent)	(behavior)	(consequence)

Mrs. Miller needed to develop an alternative behavior for Timothy that would serve the same function as his inappropriate behavior. She felt the best option would be to use differential reinforcement of alternative behavior. Timothy needed to be reinforced when he displayed the alternative behavior. Once Mrs. Miller had developed the alternative behavior, an intervention strategy could be implemented to modify Timothy's behavior. Mrs. Miller felt that a behavior intervention plan needed to be implemented to help Timothy modify his behavior.

DEVELOPING ALTERNATIVE BEHAVIORS

One of the most difficult aspects of developing a behavior intervention plan is creating an alternative behavior that serves the same function as the target behavior. Unfortunately, many classroom interventions are ineffective because they are not based on the functions of the students' inappropriate behaviors (Shumate & Wills, 2010). An intervention that is selected without consideration of the function of the behavior can actually increase the frequency of inappropriate behavior through incorrect reinforcements. When the function of the behavior has been determined, effective alternative behaviors can be selected.

The purpose of an alternative behavior is to replace the target behavior with an appropriate behavior that has the same function (Ducharme & Shecter, 2011). A teacher can choose, teach, and reinforce an alternative behavior once the function of a student's inappropriate behavior has been accurately identified (Blood & Neel, 2007; Crone, Hawkens, & Bergstrom, 2007).

For example, when Kale is given an assignment during math class, she sometimes tears up the assignment and begins pounding on her desk. After completing a functional behavior analysis, the multidisciplinary team determined that the function of Kale's behavior was avoidance/escape of a situation, and the functional motivation was nonpreferred activities:

When working on math assignments, / Kale sometimes bangs on her desk / to avoid completing the assignments.
 (antecedent) (behavior) (consequence)

Simply stated, Kale’s inappropriate behavior was caused by the frustration she sometimes felt when trying to complete a math assignment.

Functional-Based Interventions

Once the function of the student’s behavior has been identified, an alternative behavior needs to be developed. Functional-based interventions, which take the function of the behavior into account, can be used to implement alternative behaviors. Five different kinds of interventions can be used to develop alternative behaviors: functional communication training, antecedent-based interventions, instructional accommodations, extinction, and differential reinforcement.

Functional Communication Training

Functional communication training is a systematic technique for replacing an inappropriate behavior with an appropriate communication response as a means

Table 9.3 Functional-Based Interventions

Intervention	Description
Functional communication training	A systematic strategy designed to replace inappropriate behaviors with appropriate behaviors through effective communication
Antecedent-based interventions	Environmental modifications that prevent or reduce the occurrence of inappropriate behaviors and increase the probability of appropriate behaviors
Instructional accommodations	Strategies that change the method and manner in which academic materials are presented
Extinction	A strategy that reduces or eliminates inappropriate behaviors by removing the reinforcements that maintain the behaviors
Differential reinforcement	A strategy used to increase the frequency of an appropriate behavior while simultaneously reducing the inappropriate behavior

to obtain reinforcement (Schieltz et al., 2010). The basic premise of functional communication training is the association between communication difficulties and the inappropriate behavior (Ducharme & Shecter, 2011; Neitzel, 2010). Once the function of a student's inappropriate behavior is identified, the student is taught a functionally relevant response to replace the inappropriate behavior (Winborn-Kemmerer et al., 2010). For example, Kale tears up her assignment and bangs on the desk when trying to complete math problems that are difficult for her. Using functional communication training, the teacher would teach Kale to ask for assistance when she becomes frustrated with a math assignment. However, it is important that the response the student is taught matches the function of the behavior. For Kale, "I don't understand this problem" is a functionally relevant response. Kale is asking for assistance from the teacher because she is frustrated with her math assignment. In contrast, asking the teacher, "Is this okay?" is not a relevant response for Kale because it does not match the function of her target behavior. With such a response Kale would be gaining the teacher's attention, but not assistance with the math assignment (Dwyer, Rozewski, & Simonsen, 2012). Teaching students to request assistance as an alternative behavior to escaping instructional tasks that are frustrating has been found to result in decreased inappropriate behaviors (Kamps, Wendland, & Culpepper, 2006).

Antecedent-Based Interventions

Antecedent-based interventions are modifications of the environment that prevent or decrease the occurrence of the inappropriate behavior and increase the probability of appropriate behavior. Environmental modifications may include rearranging the physical layout of the classroom, managing transition times, and altering the routes students take to and from the bathroom, playground, or cafeteria (Maag & Katsiyannis, 2006). Such modifications have been found to decrease or prevent behavior problems and provide a learning environment without disruptions (Guardino & Fullerton, 2010). For example, Emily is a student with attention deficit disorder. Thinking that the front of the classroom would have the least number of distractions, the teacher seated Emily at the front of the room. However, the door to the hallway was at the front of the room, and because the classroom was near the principal's office, there was a lot of activity in the hallway. As a result, Emily was constantly distracted and had difficulty maintaining focus on academic activities. The teacher's environmental modification for Emily was not effective. The teacher could either close the door when Emily was in the classroom or find Emily another spot in the classroom with fewer distractions.

The arrangement of the classroom can be an effective element in a proactive approach to classroom and behavior management (see Chapter 5). If the teacher is aware that a student has had a history of behavior difficulties, she

may place the student near the teacher's desk. This allows the teacher to monitor the student's behavior and respond with strategies designed to reduce inappropriate behaviors but also provide positive feedback when the student displays appropriate behaviors.

In addition to physical aspects, environmental variables can include personnel and the school setting. Teachers may need to consider the effects of environmental variables in school settings when conducting functional behavior analyses. Academic demands (academic instruction, assignments) may compete with other potential reinforcers (teacher attention, peer attention, preferred activities) (Sarno et al., 2011). For example, Kale's behavior to escape from academic demands (tearing up her math assignment and banging on the table) could have received reinforcement (teacher attention).

Instructional Accommodations

Instructional accommodations are alterations to the delivery of instruction, method of student performance, or method of assessment. Such accommodations do not significantly change the content or the difficulty level of the curriculum. Some students do not respond to traditional teaching methods, and so they find academic tasks to be aversive. Among such students, inappropriate behaviors and poor academic performance are often attempts to avoid completing academic assignments.

Extinction

Extinction is the reduction or elimination of inappropriate behavior through the withdrawal of the positive reinforcement that maintains the behavior (see Chapter 6). The most common example of extinction is that of ignoring a small child who is throwing a tantrum because she has been denied something she wants. Ignoring the behavior, or not reinforcing the behavior, results in the reduction and eventual elimination of the behavior. The child learns that she does not get what she wants if she throws a tantrum. Extinction is sometimes impossible to implement. For example, if a student is banging his head on his desk, the teacher cannot ignore it. Also, if two students are starting to fight each other, an immediate intervention is necessary to protect the students.

Differential Reinforcement

Differential reinforcement is an operant procedure that is used to increase the frequency of an appropriate behavior while decreasing the inappropriate behavior (Vladescu & Kodak, 2010). It includes differential reinforcement of other

behavior, differential reinforcement of alternative behavior, differential reinforcement of incompatible behavior, and differential reinforcement of lower rates.

With **differential reinforcement of other behavior (DRO)**, the teacher reinforces any appropriate behavior when the problem behavior has not been displayed for a period of time. For example, Kale is working well with peers on an assignment in a cooperative learning activity. Since Kale has not torn up any assignments or banged on her desk for several hours, the teacher reinforces Kale's work with the group by commenting positively on her contributions to the group. The teacher is actually reinforcing the absence of the target behavior.

Differential reinforcement of alternative behavior (DRA) is one of the most frequently used of the differential reinforcements. Differential reinforcement of alternative behavior involves providing reinforcements when the student displays a specific alternative behavior in lieu of the inappropriate behavior. In other words, the teacher and the student come up with an appropriate alternative behavior to replace the inappropriate behavior. When the student exhibits the alternative behavior, the behavior is reinforced. For example, if Kale were trying to escape from an academic task (nonpreferred activities), asking for a 1-minute break would be a functionally appropriate behavior to replace the inappropriate behavior (tearing up the assignment/banging on the desk). The reduction and elimination of the target behavior is more likely if the student is allowed to choose among alternative responses (Dwyer et al., 2012).

DRA and extinction are often implemented together (Athens & Vollmer, 2010; Ingvarsson et al., 2009). This is especially true when the modeling and physical prompting of extinction are ineffective. However, studies have also shown that DRA is not as effective at modifying inappropriate behaviors when implemented without extinction (Volkert, Lerman, Call, & Trosclair-Lasserre, 2009).

Differential reinforcement of incompatible behavior (DRI) involves reinforcing an appropriate behavior that is incompatible with the problem behavior and therefore cannot occur at the same time (Wheatley et al., 2009). For example, Emily is looking out the classroom window and not paying attention to the lesson. If Emily is watching the teacher, she cannot also be looking out the window—these two behaviors cannot physically occur at the same time. When Emily watches the teacher, the teacher touches her finger to the side of her nose. This signal acknowledges Emily's alternative behavior and provides her with teacher attention.

Differential reinforcement of lower rates (DRL) reduces an inappropriate behavior when reinforcement is provided after the frequency of the behavior in a specific period of time is less than a set limit. For example, Ricardo talks seven times without permission during the 45-minute social studies class. The set limit is established at five times during the 45 minutes. If Ricardo keeps the target behavior to five or fewer times, he will earn 5 minutes on the computer

at the end of class. As Ricardo makes progress, the teacher can reduce the frequency criteria to three occurrences of the behavior or reduce the length of time to 30 minutes. It is important to remember that DRL can reduce inappropriate behaviors, but it cannot eliminate them.

Implementing Alternative Behaviors

The implementation of alternative behaviors generally involves the following steps, which are similar to the procedures for implementing the functional behavior analysis:

1. Define the target behavior.
2. Gather observable and measurable data on the behavior.
3. Determine the function of the behavior.
4. Develop an alternative behavior that has the same function as the target behavior.
5. Teach the student a functional response to replace the target behavior.
6. Provide the student with opportunities to engage in the alternative behavior.
7. Provide the student with reinforcement for the alternative behavior.

After accurately identifying the function of the inappropriate behavior and developing an alternative behavior to replace that behavior, the teacher can teach and reinforce the alternative behavior, which will effectively reduce or eliminate the inappropriate behavior.

ASSUMPTIONS OF FUNCTIONAL BEHAVIOR ANALYSIS

Teachers need to be aware of several assumptions of functional behavior analysis and how these affect the development of alternative behaviors. First, it is possible for multiple behaviors to have the same function. When that is the case, one or two alternative behaviors could have the potential for modifying multiple behavior difficulties (Ducharme & Shecter, 2011).

Further, functional behavior analysis conducted in one setting is often used to develop interventions in other settings. Teachers often erroneously assume that the variables that affect the behavior in one setting are the same as the variables in another setting. Teachers need to consider the possibility that the results of a functional behavior analysis may not generalize to

another setting where the function of the behavior is different. For example, Benjamin talks without permission in both his math and science classes. In math class, the function of the behavior may be seeking attention from the teacher. In science class, Benjamin may be frustrated with the assignments, and the function of his talking without permission may be to escape nonpreferred activities. In this case, the behavior is the same for both classes, but the function is different. When an alternative behavior is successful in one setting but not in another, the teacher needs to consider the possibility that the functions are not the same and develop different functional-based interventions for the two settings.

GENERATING A BEHAVIOR INTERVENTION PLAN

Once the functional behavior analysis has been completed and the multidisciplinary team has developed alternative behaviors to replace the target behavior, the team needs to generate a behavior intervention plan. The BIP should include information obtained from the functional behavioral assessment, the functional behavior analysis, behavioral hypotheses, specific behavioral goals, intervention strategies, and a method to assess the effectiveness of the plan. Unfortunately, many behavior intervention plans are not based on functional behavioral assessments or functional behavior analysis, and many do not include hypothesis statements or alternative behaviors (Blood & Neel, 2007). Without conducting a functional behavior analysis, a teacher will find it difficult to identify the function of a student's inappropriate behavior or to develop a behavioral hypothesis, both of which are essential to the generation of an effective behavior intervention plan.

SUMMARY

Teachers need to identify the functions of students' inappropriate behaviors in order to make effective behavior modifications that can reduce or eliminate those behaviors. A functional behavior analysis will help a teacher determine the function of a student's behavior and develop alternative behaviors to replace the aberrant behavior.

The functions of behaviors are the purposes they serve, or "why we do the things we do." It is important to remember that the function of a behavior is not likely to be inappropriate; rather, it is the behavior itself that is either appropriate or inappropriate. As a result, it is the behavior that needs to be modified, not the function of the behavior.

The two functional categories of behavior are *attainment* and *avoidance/escape of a situation*. Each functional category includes functional motivations. For attainment, the functional motivations are attention, rewards and privileges, and power or control. The functional motivations for avoidance/escape of a situation are social isolation, nonpreferred activities, and adverse interactions.

Societal and cultural norms also influence the functional motivations of behaviors. Teachers need to understand the cultural and linguistic backgrounds of their students when trying to identify the functions of students' behavior.

Once the function of an inappropriate behavior has been identified, a behavioral hypothesis can be developed. The behavioral hypothesis proposes an explanation of the factors that cause the behavior. A multidisciplinary/multicultural team should determine the function of the behavior. When a behavioral hypothesis has been established, an effective alternative behavior can be developed to reduce or eliminate the target behavior. Five kinds of functional-based interventions are used to implement alternative behaviors: functional communication training, antecedent-based interventions, instructional accommodations, extinction, and differential reinforcement.

It is important that teachers accurately identify the functions of students' inappropriate behaviors. This is an important step in generating and implementing effective behavior intervention plans.

REVIEW ACTIVITIES

1. What is the purpose of a functional behavior analysis?
2. What is a behavioral hypothesis?
3. Michael is constantly asking Mr. Thompson for help on his English assignment. List at least two possible functional motivations for Michael's behavior.
4. During class discussions, Patricia puts her head on her desk and does not participate. Write a behavioral hypothesis for Patricia's behavior.
5. Describe the differences among the various kinds of functional-based interventions and give one example for each.

Visit the Student Study Site at www.sagepub.com/shepherd to access additional study tools including mobile-friendly eFlashcards and web quizzes as well as links to SAGE journal articles and web resources.