Problem behaviors such as aggression, self-injury, and tantrums can serve as major obstacles to even the most sophisticated intervention programs. Fortunately, there have been recent advances in our understanding of the nature of these behaviors, and as a result, new treatments for these behaviors have been developed. This article describes one such innovation—functional communication training, which involves teaching alternative communication to replace problem behavior. A great deal of research exists on the efficacy of this approach. This article reviews the literature outlining the conditions under which this intervention is successful and provides a comparison with other behavioral approaches to intervention. Functional communication training is an empirically validated approach to positive behavioral support for challenging behavior.

Behaviors such as aggression, self-injury, and severe tantrums pose major obstacles to those charged with the education of persons with autism and other developmental disabilities. Additionally, families of children with autism find that these behaviors wreak havoc with efforts to carry on day to day activities. It is not surprising, then, that some of the earliest applications of applied behavior analysis as a field involved interventions for these problematic behaviors. For example, an article in the first issue of the *Journal of Applied Behavior Analysis*—the flagship behavior analysis journal—described the use of punishment to reduce the dangerous climbing of a 6-year-old girl with autism (Risley, 1968). Even prior to this study, applied behavior analytic researchers were focusing attention on these troubling behaviors (e.g., Lovaas, Freitag, Gold, & Kassorla, 1965; Wolf, Risley, & Mees, 1964).

This article provides a brief overview of behavioral interventions that have been used in the preceding four decades, followed by a description of recent advances in the behavioral treatment of problem behavior. More specifically, we describe functional communication training—an approach that has received widespread applied and theoretical interest over the past 15 years. Factors that seem to predict success are outlined, and a comparison between this intervention approach and other behavioral intervention techniques is offered.

**Previous Intervention Efforts**

Because behavior problems pose such a serious threat to efforts to help individuals with autism lead more independent lives, a great deal of research has focused on the treatment of these behaviors (Durand & Carr, 1989). Over the past 40 years, the primary psychological intervention strategy has relied on some form of behavioral intervention. Perhaps the most widely used intervention for problem behavior involves some form of differential reinforcement technique. Differential reinforcement of other behavior (DRO) involves reinforcing an individual for a period of time in which no instance of the problem behavior has occurred (Homer & Peterson, 1980). DRO procedures have been used extensively with people with disabilities and have effectively reduced aggression (e.g., Vukelich & Hake, 1971), tantrums (e.g., Bostow & Bailey, 1969), and self-injurious behavior (e.g., Ragain & Anson, 1976), although such procedures have not always been effective (e.g., Cortez, Wolfe, & Locke, 1971). For example, Sisson, Van Hasselt, and Hersen (1993) found that DRO procedures were not effective in reducing the challenging behaviors of two individuals with developmental disorders. Another version of this technique, differential reinforcement of incompatible behavior (DRI), involves the reinforcement of behaviors that are physically incompatible with the target behavior. Although numerous studies have demonstrated the initial effectiveness of DRI procedures with individuals displaying behaviors such as aggression (Repp & Deitz, 1974), DRI procedures also have not always been successful in reducing prob-
lematic behavior over extended time periods (e.g., Measel & Alfieri, 1976).

A wide range of consequences have been tried in efforts to reduce the behavior problems exhibited by persons with disabilities, including time-out from positive reinforcement (Wolf et al., 1964), contingent restraint (Azrin, Resalat, & Wisotzke, 1982), overcorrection (Johnson, Baumester, Penland, & Inwald, 1982), and contingent electric shock (Corre et al., 1971; Tate & Baroff, 1966). Although many of these interventions demonstrate effectiveness in the initial reduction of challenging behaviors, sustained and clinically relevant improvements are elusive (Durand & Carr, 1989).

The occasional lack of success reported with all of these intervention efforts is particularly disturbing in light of evidence that fewer than half of the research studies in this area report follow-up data (Scott, Evans, Meyer, & Walker, 1991). Coupled with the fact that poor treatment outcomes are less likely to be published in journals, this suggests that a significant number of treatment efforts may be unsuccessful with people displaying behavior problems. This inference is backed by research suggesting that approximately half of the persons surveyed who exhibited self-injurious behavior had significant relapses (Durand, Catapano, & Sidiropoulos, 1995). In other words, despite participating in a variety of intensive—and initially successful—behavioral programs, many individuals with autism were observed to display self-injury at high rates again after a few months.

Functional Communication Training

An alternative to the traditional treatments for challenging behaviors was developed in the mid-1980s and has been referred to as functional communication training (FCT; Carr & Durand, 1985a). This behavioral approach to intervention initially involves assessing the function of the behavior problem using one or more functional assessments and then teaching an alternate behavior in the form of a communicative response to serve as a replacement. FCT relies on the deceptively simple notion that behavior problems can be viewed as a form of communication (Durand, 1990). Looking at problem behavior as communication is not an entirely new concept—writers as early as Plato observed that the crying seen in infants may be an attempt to get parents to fulfill their desires (Plato, circa 348 B.C./1960). The French philosopher Rousseau also observed that crying may have communicative properties (Rousseau, 1762/1979). Family systems theorists have long relied on the idea that nonverbal behavior has communicative properties (e.g., Haley, 1963); and developmental psychologists have systematically studied the communicative nature of nonverbal behavior in young children (e.g., Bates, Camaioni, & Volterra, 1975; Bruner, 1973; Wolff, 1969).

The fact that nonverbal behavior resembles communication is of particular interest to people who work with individuals having autism and related developmental disabilities. Workers in this field have proposed that behaviors such as aggression and self-injury observed among persons with severe disabilities are similar to nonverbal forms of communication (e.g., Carr & Durand, 1985b). Personal experience often supports this view of behavior problems. Observing a student who has severe disabilities engaging in an outburst often brings with it a sense of frustration, an inability to comfort or respond in a satisfactory way. Parents, teachers, and other caregivers frequently report that they wish the students could just "tell us what they want."

We have used the concept of communication as a metaphor in our work (Durand, 1990). What are the implications for adopting a communicative metaphor as a model of problem behavior? One effect of this view of behavior problems is, it suggests that these behaviors are not just responses that need to be reduced or eliminated. Instead, looking at behavior problems in this way reminds us that we need to find out what these individuals are trying to tell us through their behaviors. Such a view respects the person's right to communicate, while suggesting alternatives that may serve the same purpose. This perspective also reminds us that attempting to eliminate these behaviors through some reductive technique would leave these individuals with no way of expressing their needs and desires. You could anticipate that other maladaptive behaviors would take their place (also called "symptom substitution" or "response covariation") as an effort to get the things that they want. This metaphor has its limits, however, and readers should be cautioned to familiarize themselves with the growing research base on this technique (outlined in the following sections) and the boundaries of its use.

FCT specifically uses communication to reduce challenging behavior (Durand, 1990). This strategy includes assessing the variables maintaining the behavior to be reduced and providing the same consequences for a different behavior. It is assumed that if individuals can gain access to desired consequences more effectively by using the new response, they will reduce their use of the undesirable response. Applying this logic to challenging behavior, one is able to teach individuals more acceptable behaviors that serve the same function as their problem behavior. So, for example, we could teach people to ask for attention by saying, "Am I doing good work?" This would allow them to gain teacher attention in this appropriate way rather than in an inappropriate way, such as through slapping their own heads. What follows is an example of an intervention for one young boy that illustrates the procedures involved in functional communication training (Durand, 1999).

Case Study: David

David was an 11½-year-old boy who had been diagnosed with autism and severe mental retardation. His parents and teachers were concerned when he became frustrated, he would slap his face repeatedly, and hard enough to cause red welts. He would also occasionally bump his head on a table or desk, which they feared would cause irreparable brain damage. David could repeat a few words
(e.g., “no” and “more”) but had no reliable way to communicate with others. A number of behavioral interventions (DRI, time-out from positive reinforcement, restraint) and medical interventions (e.g., Mellari) had been used to help reduce his problem behaviors, but with no long-term success.

The first step in designing an intervention plan for David involved assessing the function of self-injurious behaviors (face slapping and head banging). A preliminary assessment using the Motivation Assessment Scale (MAS, Durand & Crimmins, 1988, 1992; see Note)—a rating scale, completed by his teachers, that points to the function of challenging behaviors—suggested that his behaviors were being maintained by escape from task demands. This was supported by observations of his behavior under a variety of different academic situations—a functional analysis—which showed that his self-injury increased when he was given difficult tasks.

David’s behaviors seemed to be serving an escape function (i.e., they often led to the termination of tasks), so we decided to implement FCT by teaching him an alternative response. Because requesting help on difficult tasks was the most appropriate reaction to these situations and the resulting assistance provided by teachers should make the tasks easier for him to complete, we taught him to use the phrase “I need help” when he could not complete his work. David’s expressive language skills were extremely limited, so we decided to teach him to use an assistive communicative device (an Introtalker) that he could use to express himself. We began the intervention by introducing a task that we knew would be difficult for him, and then prompted him to use the Introtalker to request help. For example, one of David’s tasks involved assisting with meal preparation. The teacher would prompt him in this task for several minutes, introduce a step in the task that she knew would be difficult for him (e.g., spreading peanut butter), and then verbally and physically prompt him to press the pad on the device. After he pressed the pad and it played the phrase pro-

grammed into it (“I need help”), his teacher used graduated guidance to help him. Following the assistance, he was prompted to continue working until the task was complete. Once David was successful with prompts, this assistance was faded until only the work itself prompted David to use his device. Other situations throughout his day which seemed to elicit self-injury were also identified, and his teacher made his device available so he could ask for help in a variety of situations (e.g., opening doors, putting on his coat, putting away task materials). Within a month, David’s self-injury was reduced dramatically within the classroom, and he was using the Introtalker appropriately to ask for help.

David’s case illustrates a number of important features of FCT, including the need for a functional assessment as well as specific communication training techniques. We next turn to a more complete discussion of the necessary components of FCT.

**Functional Behavioral Assessment**

It is now widely agreed that treatment efforts for behavior problems should be based on the reasons why the student is misbehaving. In fact, the Individuals with Disabilities Education Act (IDEA) now requires such assessments for all students with significant behavior problems (called “functional behavioral assessments”; IDEA, 1997). Unfortunately, despite this widespread agreement to look at why our students misbehave as the basis for any program, many professionals continue to make such assessments on an informal basis, for example, through conversations with teachers and parents and brief informal observations of the student. We always begin with informal observations and interviews of significant others, but we continue the process using multiple forms of assessment, including the MAS and structured observations in the students’ classroom. The MAS is a questionnaire that we can give to teachers, paraprofessionals, family members, or anyone else who has a great deal of contact with the student. The MAS asks questions to determine where, when, and under what conditions problem behaviors occur, and it determines their motivations. Information from the MAS, along with other forms of functional behavioral assessment, is used to design plans for reducing the behavior problems. David’s assessments suggested that his face slapping and head banging were occurring more often when demands were placed on him. This told us that he might be acting this way because it sometimes got him out of addressing tasks in his class. His teacher might end work earlier than usual if he got upset, which taught him to get upset when he did not like the work. Clearly, this information was very important to us in designing a plan for reducing his behavior problems.

The functional analysis we conducted on David’s behaviors is frequently cited as the best method of determining the function of a behavior problem (Mace, 1994). However, there are a number of issues to consider prior to conducting this type of assessment (Durand, 1997), one of which is accessibility to manipulation. There are certain influences that you cannot or would not manipulate or change in order to perform a functional analysis. Factors such as illnesses, disrupted family life, and chromosomal aberrations can certainly affect behavior problems but cannot be turned on and off in order to assess their influence. Under such circumstances, a functional analysis would not be warranted, but other functional assessment techniques might be useful.

Another concern involves the ethics of conducting a functional analysis. There are other influences one could manipulate but might not want to if it would result in an increase in challenging behaviors. Deliberately increasing a severe behavior problem in order to assess it (e.g., by reinforcing challenging behavior) can be questioned on ethical grounds. In such cases, assessment that does not involve manipulation (and subsequent increases in challenging behavior) would be recommended (for a more detailed discussion of these issues, see Durand, 1993a).
Instructional Techniques

Teaching individuals to communicate as a replacement for their challenging behavior requires a range of sophisticated language-training techniques (Durand, Mapstone, & Youngblade, 1999). Depending on the ability of the person involved, we sometimes begin teaching using discrete trial techniques. Via massed practice, students are given repeated presentations of some situation (e.g., David’s difficult task) and are prompted to communicate appropriately (e.g., to say “Help me”). Quickly, however, we always attempt to bring the teaching into the settings where we want the student to communicate. In David’s case, we were able to do this from the start, teaching him to ask for help while involved in meal preparation. This use of incidental teaching (McGee, Morrier, & Daly, 1999)—arranging the environment to establish situations that elicit interest in students and that are used as teaching opportunities—is an important part of successful communication training. Readers may recognize the similarity between incidental teaching and techniques used by Greenspan in his “Floor Time” intervention approach (Greenspan, 1992). Greenspan described teaching communication skills through “opening and closing circles of communication,” an approach that shares many aspects of incidental teaching. Regardless of the language used to describe these techniques, using the child’s interest in some interaction, whether it be a desire to stop working on a difficult task or to elicit the attention of an adult, is a very powerful tool in teaching generalized communication.

Research on Functional Communication Training

Empirical support for the success of functional communication training in reducing challenging behavior is growing (see reviews by Doss & Reichle, 1989; Durand, 1990). This work has focused on severe challenging behaviors, such as aggression and self-injurious behavior (e.g., Bird, Dores, Moniz, & Robinson, 1989; Durand & Kishi, 1987), stereotyped behavior (e.g., Durand & Carr, 1987; Wacker et al., 1990), and a variety of communication disorders (e.g., Carr & Kemp, 1989; Durand & Crimmins, 1987). Intervention has been conducted in group homes (e.g., Durand & Kishi, 1987), schools (e.g., Hunt, Alwell, Gonet, & Sailor, 1990), and vocational settings (e.g., Bird et al., 1989).

Researchers are just beginning to explore the boundaries of this intervention approach through the study of maintenance (e.g., Bird et al., 1989; Durand, 1999; Durand & Carr, 1991, 1992) and the role of response efficiency (Horner, Sprague, O’Brien, & Heathfield, 1990). We have identified several important clinical issues that should guide work in this area (Durand, Berotti, & Weiner, 1993), and a few of the more important considerations for implementing functional communication training are outlined below.

Predicting Successful Outcomes

We have identified four factors that seem to influence the success or failure of functional communication training: response match, response mastery, response milieu, and the consequences for challenging behavior. These elements of training seem to be necessary for initial reductions in behavior, generalization across people and stimulus conditions, and/or maintenance across time.

Response Match. An important consideration for the initial success of functional communication training seems to be matching the communicative behavior to the function of the challenging behavior. In other words, the new trained response should evoke the same consequences as the targeted challenging behavior (Carr, 1988; Meyer & Evans, 1989). Our first study of functional communication training directly addressed the issue of response match (Carr & Durand, 1985a). After conducting a functional analysis of the challenging behaviors of four students, we taught them responses that matched the assessed function of their behaviors (relevant responses) as well as responses that did not match the function of their challenging behavior (irrelevant responses). In each case, the students’ challenging behavior was reduced only when they used the communicative response that matched the function of their behavior. The students’ behavior problems were not reduced when they were taught responses that did not match the function of their challenging behavior.

To further assess this issue, a second study was conducted, which focused on the unusual speech of a young boy with autism (Durand & Crimmins, 1987). We conducted two separate analyses of the function of this boy’s unusual speech and found that it tended to increase when he was faced with difficult tasks. Our interpretation was that his unusual speech served to allow him to escape from situations he found aversive (i.e., difficult tasks).

The intervention phase of this study involved teaching him to say “Help me” when presented with difficult tasks. In one condition, the phrase was followed by assistance from an experimenter. Under that condition, unusual speech decreased as expected. It was assumed that the assistance provided to the student in effect made the task easier. In a second condition, the phrase was instead followed by praise from the experimenter (e.g., “That’s good talking!”) but not with assistance. Under these conditions, unusual speech increased when compared with the previous condition and baseline. Therefore, although the student was taught the same communicative phrase in each condition, his unusual speech decreased only when the phrase served the same function. In both studies, reductions in challenging behavior occurred only when alternative behaviors were taught that matched the function of the problem behaviors. Alternative explanations, such as stimulus control or physical incompatibility, could be ruled out.

As previous research suggests, response match appears to be an essential component for initial reductions in challenging behavior. Teaching a commu-
nicate response that does not match the function of the challenging behavior should not result in significant reductions in behavior. Although response match may be necessary to the success of functional communication training, it does not appear to be a sufficient condition for success. What follows are additional components that are necessary for initial reductions as well as generalization and maintenance.

**Response Mastery.** Response mastery refers to the ability of the trained communicative response or responses to successfully and efficiently produce the desired outcomes. It is almost too obvious to say that in order for this approach to be effective, the trained communicative response must successfully evoke the desired outcome. Therefore, if the individual is making a request appropriately (e.g., saying “Help me”), but no one responds in the preferred manner (e.g., providing assistance), then you should not expect to see a reduction in challenging behavior. We have identified several aspects of response mastery that seem to affect initial success, generalization, and maintenance.

**Response success.** This refers to whether significant others respond to the trained communicative responses. Durand and Kishi (1987) examined this issue as it relates to service delivery systems. In addition to assessing the behavior of the five adults who were participants in the study, the behavior of the staff was also assessed. It was found that success or failure of functional communication training was attributable to specific efforts on the part of staff. In other words, despite the fact that all participants were taught to successfully use a new communicative response that matched the function of their challenging behavior, their problem behavior was reduced only when staff changed their interaction patterns as a result. Whether people respond to communicative attempts will depend on factors such as response recognizability and acceptability, and the responsiveness of these environments. At this point it is clear, however, that simply engaging in these communicative acts (i.e., making responses that match the function of challenging behavior) without a subsequent response by others will not result in reductions in challenging behavior.

**Response efficiency.** The form of communication being taught must not only match the function of the students’ challenging behavior but also be more effective and efficient in getting them the reinforcers they obtained with the problem behavior. In an elegant series of studies, Horner and his colleagues examined this aspect of functional communication training (Horner & Day, 1991; Horner et al., 1990). This group has found that three components of efficiency seem to be involved in the success of functional communication training.

The first component of response efficiency, physical effort, refers to the energy being expended for both the challenging behavior and the communication. If it is physically easier to get what you want with the new communicative response, then that behavior will replace the challenging behavior. For example, Horner and Day (1991) described how a 12-year-old boy’s aggression was not reduced significantly when he was required to sign a full sentence to leave work (“I want to go, please”). However, when he was required to make the simple sign for “break,” his aggressive behavior decreased. The short sign was viewed as more efficient than the sentence (or his aggression) and thus was more successful in reducing his challenging behavior.

The second component, schedule of reinforcement, refers to how effective each response is in obtaining the reinforcers. If the communicative response is successful each time it occurs but the challenging behavior is reinforced only occasionally, then the communication will replace it. Finally, the delay in receiving the reinforcers will also affect whether functional communication training will be effective. If individuals delay too long in responding to the communication, it will not successfully compete with the challenging behavior. Even if you teach a student a response that matches the function of the challenging behavior, and others respond appropriately to the person when the response is made, unless the person can get what he or she wants more easily with the new response, the response will not be used, and the challenging behavior will not be reduced.

**Response acceptability.** One aspect of response mastery involves its acceptability to significant others: If the new communicative response is seen as unacceptable in community settings, then others will not respond appropriately and the desired consequences will not be obtained. To date, little empirical evidence exists for this aspect of functional communication training, although one study addressed it indirectly. Durand and Kishi (1987) used functional communication training to reduce the severe challenging behavior exhibited by five individuals with severe/profound mental retardation and dual sensory impairments (deaf/blind). We observed that one participant would scream and remove her clothes to obtain staff attention. Our first attempt at intervention involved teaching her to raise her hand, which was to signal the staff to attend to her. Despite the fact that she learned to raise her hand, over time some staff refused to participate consistently. They argued that they were very busy and did not have time to respond each time she raised her hand.

Instead of trying to coerce staff into responding, we decided to change the meaning of the raised hand. Thus, instead of meaning “Come spend some time with me,” we now taught the staff that her raised hand meant “Can I help you?” Each time she raised her hand, it meant they were to take her along on the chores with which they were so busy. The staff accepted this form of attention as appropriate (she received their attention as well as learned new skills) and would respond. This experience suggested that unless the response we teach is acceptable to others in the prevailing environment, it will not be consistently responded to by some people (no generalization), and may not be effective over time (no maintenance).

**Response recognizability.** An important consideration for persons with significant communication needs is teaching them a response that can be recognized,
especially by individuals who may not be highly trained. If the trained response is not easily recognizable by significant others in the environment, then these other people will not respond, and challenging behavior will not be reduced.

To date, much of the research on functional communication training has used verbal and signed speech as the means of communication. Unfortunately, spoken speech can often be misunderstood, and signed speech can be so idiosyncratic that few can understand the message being relayed. Several studies have addressed the issue of the recognizability of the communicative response as it relates to functional communication training. In a study of maintenance, we found that after initial success with functional communication training, one boy had resumed engaging in his serious self-injury (Durand & Carr, 1991). Examining the situation further using sequential observation analyses, we found that his new teacher could not understand what he was saying when he was trying to get her assistance. Because she did not provide assistance when he asked for it, he began to hit himself again, which tended to result in fewer demands being placed on him. In this study we found that by improving his articulation skills, the teacher responded appropriately. Following the improvement in the student-teacher interaction, the boy’s challenging behavior was again reduced, the reduction generalized to a new teacher, and it was maintained 1 year later (Durand & Carr, 1991).

This issue is of particular importance for students with the most severe disabilities. If these students cannot communicate with others in a way that can be recognized, important people in their environment will not respond appropriately, and the students will go back to what did work—their challenging behavior. In our research with students having severe communicative disabilities, we have begun to use vocal-output assistive devices as the means of communication (Durand, 1993b, 1999; Durand & Berotti, 1991). Similarly, Wacker et al. (1990) used a tape recorder for one of their participants so that she could communicate “I’m tired of rocking; somebody give me something to do.” They observed a dramatic reduction in her rocking with this intervention.

We have found that not only can students with the most severe disabilities use these devices to communicate (Durand, 1993b), but untrained individuals in the community can understand the requests being made and can respond appropriately (Durand, 1999; Durand & Berotti, 1991). In addition, the devices have at times been programmed to speak in both English and Spanish when a student’s parents speak only Spanish at home and the teacher speaks only English at school. We have, in essence, taught students having severe and multiple disabilities to be bilingual. These devices have permitted us to teach students to make relatively simple responses (pressing a pad on the machine) that can result in sophisticated output (full sentences) in clear, spoken English. Again, because the output can be recognized by anyone, the success of the communication training has been extended into the community.

Response Milieu. What are the characteristics of the optimal environment in which such training should take place? Can we describe, and therefore design, settings that will facilitate the success, generalization, and maintenance of reductions in challenging behavior using functional communication training? Unfortunately, research has not specifically focused on environmental/contextual influences as they relate to this intervention approach. To our knowledge, no research has, as yet, systematically explored the types of environmental variables that would positively or negatively affect these outcomes. Therefore, it is not yet possible to provide a data-based answer to these questions.

Though there is a lack of data on the role of particular intervention settings, we do have extensive experience using functional communication training in a wide variety of environments. Over the past two decades, we have intervened with hundreds of individuals experiencing severe challenging behavior using functional communication training (Durand, 1990, 1999). This work has been conducted in a broad range of residential, educational, vocational, and community settings. This experience has led us to collect a number of hypotheses regarding this issue. What follows are some of our observations on the role of the environment in the success of functional communication training.

The role of control. One factor that seems to influence the outcome of efforts to implement functional communication training is the degree of control, or choice, that is generally available to the individuals involved. The availability of choice-making opportunities has received considerable attention and has been implicated in the success of various educational endeavors (e.g., Sussman & Siegel-Causey, 1985; Parsons & Reid, 1990). The type of communication training described here relies heavily on allowing individuals to make choices in their day-to-day activities (e.g., choosing when to take a break, choosing when to have a drink, choosing when to get social attention). If these types of opportunities are routinely discouraged in their present environment, significant others may not respond appropriately to their requests.

One study may support this hypothesis regarding the role of choice availability in the success of functional communication training. Kearney, Durand, and Mindell (1995) examined the effects of relocating 57 former residents of a large developmental center to various smaller residential settings. A variety of measures were used to assess both the new settings and their effects on the residents. These new settings differed significantly in the extent to which they provided residents with choice-making opportunities (e.g., choices about morning waking time, clothes, roommate, bath/shower time, etc.). It was also found that the opportunity to make choices was correlated with scores on the Adaptive Behavior Scale of the American Association on Mental Retardation (Nihira, Foster, Shellhaus, & Leland, 1974). In other words, people improved in their adaptive behavior in those settings where choice-making opportunities were readily available.
The previous study is just one in a long line of studies suggesting that the expectations of significant others will affect the outcomes observed in persons with severe disabilities. In the present context, we have observed that in those settings where choice-making is encouraged, functional communication training is more likely to succeed. Conversely, where choice-making is discouraged, functional communication training has often had limited success. Functional communication training in these settings has sometimes been described as “giving in” and has been received with some reticence. Again, this observation will require further empirical attention; however, this aspect of the intervention environment appears to be a fruitful avenue for study.

**Homogeneous versus heterogeneous grouping.** A second environmental factor that seems to be implicated in the success or failure of functional communication training involves the type of grouping of the participants. Despite initiatives to include all students in general education classrooms and in community settings, there still exist settings where students are grouped because they are engaging in challenging behavior. Historically, the logic behind such groupings has been that if placed together, these students would have access to staff who are specially trained to deal with challenging behavior. Additionally, these students should benefit from group-wide programs and contingencies and, finally, would not disrupt other students.

Space does not permit a full discussion of the anticipated as opposed to the actual results of such homogeneous groupings. However, we have had the opportunity to directly compare and contrast the ability of these different settings to support efforts at functional communication training. Our observation has been that staff who work in such “behavior classes” are at particular risk of being overtaxed by the demands of the classroom and may find it especially difficult to be responsive to all of their students. Staff in settings that are more heterogeneous seem to have more flexibility; they are able to shift priorities toward activities that require more intensive effort (e.g., functional communication training). This flexibility may be attributable to the other students in these classrooms. The children who benefit from functional communication training are in classrooms with students who benefit from working independently in between lessons. In such a setting, the teacher is more available to be responsive to the children receiving communication training than is a teacher in a “behavior class.”

This can be illustrated by comparing the recent application of functional communication training in two classrooms. Students in the first class were grouped because of their high rates of challenging behavior, and students in the second class were grouped according to age. Several critical differences were observed in these two classes. From the beginning, staff in the first class appeared to be more overwhelmed by their jobs. Finding time for on site training was difficult because a great deal of staff time was spent attending to their students’ severe behavior problems. This history of crisis management seemed to make staff more reluctant to try an alternative educational approach to treatment. Furthermore, much effort was necessary to emphasize the importance of a responsive environment.

Alternatively, because staff in the second class worked with children who had a diversity of educational needs, and because fewer students displayed severe behavior problems, they were more experienced with, and better able to concentrate on, a skill-building approach to learning. Thus, staff found functional communication training to fit in naturally with the educational goals of their classroom, and a minimal amount of time was required to enhance their motivation.

**Level of support.** One of the elements contributing to the success of functional communication training involves the systems in place to support such efforts. For any intervention for severe challenging behavior to be successful, the addition of resources, staff training, consultant services, and organizational restructuring must be addressed (Helmstetter & Durand, 1990). Only a handful of studies have addressed systems change as an important component of intervention success (e.g., Durand & Kishi, 1987; Janney & Meyer, 1990).

We have attempted to address this issue through the type of training we conduct. Critical to the success of this approach is *home-school collaboration.* Without a cooperative relationship between the school and home, any improvements observed following an intervention are likely to be short-lived and restricted to certain people, places, and/or times. *Home-school collaboration,* as used here, means more than just consultation by a teacher with a parent (Meyer & Evans, 1989). Rather, it involves the ongoing relationship between the family and the school as they work together as a team.

Specifically, we have targeted students with severe challenging behavior throughout New York State. Our training efforts began with the development of a team of individuals who work and live with the student. These teams have included parents, other family members, teachers, school psychologists, speech therapists, and administrators. The initial training was focused on the team. In addition to providing training to the team on how to assess the function of challenging behavior and how to design effective interventions, we specifically focused on promoting the team process. Teams are encouraged to accept and adopt input from each member. No one approach is seen as correct; rather, the process of collaboration is seen as the most important first outcome. The “expert role” is downplayed, and trainees are encouraged to see trainers as resources rather than “givers of truth.” Through this approach to training, it is hoped that the team members will provide mutual support for the often difficult job of intervening on severe challenging behavior.

**Consequences for Challenging Behavior.** A final, and somewhat controversial, concern involves the issue of how to respond to the challenging behavior itself. In our work with functional communication training, we have used *response-independent consequences* as the primary reactive strategy (Durand, 1990). In other words, we try (as much as pos-
It is difficult to interpret why individuals in previous research and the third participant in the Wacker et al. (1990) study did not require negative consequences to reduce their challenging behavior. One interpretation mentioned by the authors is that introducing these negative consequences from the beginning of the treatment may have affected later behavior. It is possible that these negative consequences were never introduced concurrently with functional communication training, these consequences may not have been required to reduce the challenging behavior. These data suggest that "behavioral contrast" may have been at work in this study—with the effectiveness of functional communication training alone influenced by the removal of the contingencies for challenging behavior (i.e., time-out and graduated guidance).

At the very least, the previously described study points out the need to be cautious in implementing and interpreting such intervention packages. One goal in functional communication training is to make the new communicative response more efficient at receiving reinforcers than the challenging behavior. As we discussed previously, one way to accomplish this is to teach a response that is, from the start, more efficient than the challenging behavior. However, as this last section suggests, another avenue to pursue is to make the challenging behavior less efficient than the communicative response. Our work has been aimed at removing the contingency between the challenging behavior and our behavior by using response-independent consequences (Durand, 1990). This should help us in making the challenging behavior less efficient than the communicative response.

Comparison with Traditional Behavioral Interventions. With growing evidence of the value of this intervention approach in reducing a variety of problem behaviors, it is important to evaluate how FCT compares with other interventions. Hanley and colleagues, for example, recently compared the effectiveness of FCT with noncontingent reinforcement on the multiple behavior problems of two children (Hanley, Piazza, Fisher, Contriuci, & Maglieri, 1997). They found that both interventions initially reduced problem behaviors, but that the participants demonstrated a preference for FCT. This advantage—preference by consumers—should not be underestimated. Too often we design interventions that are in some way not acceptable, either to the persons implementing the procedure or to the person who is the target of the intervention. Often this leads to problems with implementation and in turn can contribute to difficulties with generalization and maintenance.

An important aspect of FCT—its usefulness outside of specially designed settings—has also been investigated. Durand and Carr (1992) compared the effectiveness of FCT with time-out from positive reinforcement for the attention-maintained behavior problems in two groups of children. An initial finding was that both interventions were successful in reducing these problem behaviors; however, further analysis showed that when the students were in the presence of a teacher who was unaware of the different interventions that had been used, only students who had received FCT continued to display low levels of problem behavior. These students continued to request (and receive) attention, which appeared to account for the effectiveness of this intervention with untrained individuals.

One study more directly addressed what might be the real value of FCT—its ability to be successful in typical community settings. Durand (1999) evaluated the effectiveness of FCT as an intervention for the problem behavior exhibited by five students with severe disabilities both in school and in the community. Following an assessment of the function of their problem behavior, the students were taught to use assistive communication devices in school to request the objects and activities that presumably were maintaining their behavior. The results indicated that not only did the students use their devices successfully, but the intervention reduced their problem behavior outside of school and with untrained community members.
These findings take on added importance when you consider that an increasing number of individuals who engage in severe behavior problems are living and working in community settings. It is obvious that, for example, bus drivers, fast food restaurant workers, and store clerks will not be trained to implement sophisticated behavioral programs such as timeout from positive reinforcement as a consequence for problem behavior or noncontingent reinforcement to decrease these behaviors. Yet, these same individuals may be able to understand simple requests for attention or assistance and therefore be able to respond in a limited way to the communication of people with intellectual disabilities. The challenge becomes one of teaching people with behavior problems ways of communicating that will be understood even by people who do not have training in the area of communication difficulties or intellectual disabilities.

Conclusions

The true test of an intervention strategy lies not only in its ability to reduce behavior problems in controlled situations, but also in its potential to be integrated into everyday environments—that is, with people who are not trained, and in unpredictable settings. This means that all interventions should be placed in the context of a broad assessment of potential influences on behavior and a comprehensive approach to intervention design. We chose in this article to focus on one important behavioral approach to reducing challenging behavior: FCT. The results of a significant body of research suggest that at least in some cases, students with disabilities will be able to recruit their reinforcers from untrained individuals, which can result in reduced levels of problem behavior (Durand, 1990, 1999). We have identified factors that seem to account for the success of FCT in reducing challenging behavior and have observed these results to generalize and maintain over time. To date, the research has focused on only a few of these factors. We will need to further explore the variables outlined in this article in order to provide people in the field with a more comprehensive plan for implementing functional communication training. Simply replacing challenging behavior with communication will involve a closer attention to the types of responses taught, the consequences for the challenging behavior, and the context in which this training takes place.

The results to date have been encouraging, and it is expected that with further refinement, many more cases of severe challenging behavior will be positively affected by this approach to intervention.

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NOTE

Information about the Motivation Assessment Scale is available from the publisher, Monaco and Associates, Inc., 4125 Gage Center Dr., Suite 304, Topeka, KS 66604; 800/798-1300, 785/272-5501, 785/272-5152 (fax); http://www.monacoassociates.com/products/products.html

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