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Strategies for Maintaining Positive Behavior Change Stemming from Functional Behavioral Assessment in Schools

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Abstract

Nationwide, schools are struggling to prepare IEP teams and other school personnel to conduct functional behavioral assessment and develop positive behavioral intervention plans and supports. While there is a growing evidence that functional behavioral assessment is effective in identifying the reason(s) behind student misbehavior, less is known about producing positive, long-term changes that are both functionally and socially relevant. Drawing upon the available research, we explore an emerging technology for promoting maintenance and generalization of behavior change. We discuss various strategies and procedures and offer recommendations to IEP teams regarding maintaining positive changes in student behavior that stem from functional behavioral assessment in schools.



The 1997 Amendments to the Individuals with Disabilities Education Act (IDEA) contains a number of provisions that relate to both the academic performance and classroom conduct of students with disabilities. These provisions represent a significant shift in emphasis from assuring classroom accessibility to demanding educational accountability for students with disabilities (Gable & Hendrickson, 2000). Accordingly, both general and special educators now are responsible for instructing a burgeoning number of youngsters who evidence significant academic and/ or behavior problems. The 1997 IDEA further stipulates that schools must address any problem behavior that impedes the learning of a student with a disability (or his or her peers), may require disciplinary action, or results in a change in placement (e.g., Yell & Shiner, 1997). That same legislation specifies that school-based teams gain knowledge of major factors that impinge on student behavior that negatively influences classroom learning by means of a functional behavioral assessment (FBA) (Gable, Hendrickson, & Smith, 1999).

A growing body of literature testifies to the fact that success in dealing

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with classroom misconduct depends on identifying the social, academic, and/or other environmental conditions under which problem behavior is most versus least likely to occur (e.g., Dunlap et al., 1993). With that knowledge, IEP teams can develop hypotheses and intervention plans designed to promote replacement behavior-behavior that serves the same function for the student as the problem behavior but which is more socially acceptable or appropriate. Research and experience have shown that students are likely to cease misbehaving when a different response more effectively and efficiently satisfies the same need. For that reason, identifying the motivation for a behavior--what a student gets, avoids, or communicates through the behavior, is essential to effectively address behavior that disrupts the learning environment and interferes with academic instruction (Gable, Ouinn, Rutherford, Howell, & Hoffman, 2000). Authorities assert that the FBA process is not complete until school personnel produce positive changes in student behavior (Dunlap & Hieneman, 1999), changes that maintain across time in the absence of external control (Gable et al., 2000). Accordingly, the measure of an IEP team's success rests on the extent to which positive changes in student behavior improve his or her life chances in school and beyond.

According to the literature, the major focus of functional behavioral assessment is on variables that are highly situation-specific--variables that lend themselves to micro-analysis. Ordinarily, that analysis focuses on relevant antecedent and consequent stimuli that can be identified and manipulated within a particular social/environmental context. This assessment approach has proven useful in identifying the likely motivation behind a targeted student behavior, but less so in predicting long-term changes that are both functionally and socially relevant. To increase the usefulness of FBA, we must enlarge the scope of the functional assessment process so that we not only are able to improve specific student skills, but also facilitate long-term benefit for the student. In the following discussion, we argue that some current perspectives on FBA may be shortsighted and that IEP teams and other school personnel must look for ways to both deal immediately with impeding behavior and promote long-term positive changes in student performance. We draw upon the accumulated literature to examine emerging technology for facilitating maintenance and generalization of positive behavior change. The strategies we discuss include: self-management training; cognitive mediation training; self-advocacy training; peer- mediated supports; environmental modifications; periodic booster training; and attributional remediation. Finally, we offer school personnel recommendations on ways to maintain positive behavior changes that stem from FBA in the schools.

An Emergent Technology of Behavioral Maintenance

The issue of maintenance of behavior change is not new. Stokes and Baer (1977) and Stokes and Osnes (1989) have offered comprehensive

and insightful discussions of a technology of behavioral maintenance. Since then, researchers have investigated various aspects of the complex issue of maintenance and generalization of behavior change (e.g., Clark & MacKenzie, 1989; Rhode, Morgan, & Young, 1983; Young, Smith, West, & Morgan, 1987). There is general agreement that maintenance is defined as the occurrence of a behavior over time, even after an intervention has been withdrawn; whereas, generalization refers to the occurrence of a behavior under different conditions from those under which the behavior was originally taught. Generalization is further categorized as either stimulus generalization--responding to stimuli that differ from those present at time of the intervention; or response generalizationresponding in ways that were not specifically taught during intervention (see Alberto & Troutman, 1998; Kerr & Nelson, 1998; Maag, 1999; Rutherford & Nelson, 1988). Knowledge of the distinguishing characteristics of these concepts is fundamental to developing a sound behavioral intervention plan.

We believe that maintenance of positive changes in pupil behavior is a complex, multi-faceted process, one that demands careful selection of one or more maintenance strategies that represent a "goodness-of-fit" between the behavior of the student of concern and his or her social environment. No two students likely will benefit from the exact same maintenance plan. Furthermore, as Stokes and Baer (1977) asserted, ultimately we must find ways to access the "natural community of reinforcers" in the student's environment. Especially important are those social relationships that are likely to help sustain behavioral change. Therefore the issue of maintenance cannot be planned as an add-on or an afterthought, but should be addressed during the initial phase of the functional behavioral assessment process—not postponed until positive changes are occurring in the targeted student behavior. In succeeding sections we examine various strategies that hold promise for improving intervention results for students with a wide range of behavior problems.

Use of Self-Management to Maintain Positive Behavior

Authorities have long advocated the use of various self-management procedures to promote enduring changes in the performance of students who engage in challenging behavior (e.g., Rhode et al., 1983). According to Young et al. (1987), elements of effective self-management programs are: (a) assessment of social/environmental expectations for student behavior; (b) operational definition of the targeted behavior(s); (c) establishment of student-specific performance standards; (d) a determination of the nature of student behavioral discrepancies—excesses or deficits, or both; (e) establishment of behavioral objectives for the student; (f) development of the intervention program itself; (g) program implementation; and finally, (h) outcome evaluation and related program modifications. Additional qualities of effective self-management programs include the

gradual shift from external to self-control, the combining of general case (process) instruction that affords students opportunity to learn problem-solving skills, and target behavior (performance) training that addresses specific skill deficits. Further, to facilitate maintenance and generalization, it is useful to blur the distinction between treatment and natural environments to teach students specific behavioral exceptions; to systematically instruct students by means of modeling and behavioral rehearsal; and to incorporate multiple "self-cuing" or "self-talk" strategies, as appropriate.

Programming self-management can serve as a transitional strategy in attempts to (a) promote the maintenance and generalization of positive changes in student behavior, (b) to move away from artificial external control to control by natural consequences and, at the same time, (c) promote student responsibility and self-control. Authorities suggest that self-management may actually be more effective if the student is exposed to an externally controlled treatment program before introducing the self-control program (Hughes & Ruhl, 1989). However, there are circumstances that may limit the usefulness of self-control as a maintenance strategy. For example, students must possess the ability to attend to and accurately interpret social/environmental cues. Student deficits in these areas will either require further specialized instruction and/or an alternative approach. Second, students must be able to generate multiple solutions and determine the worth of each solution. Third, students must be able to perform a selected response and to evaluate the outcome; for that reason, self-evaluation and self-reporting are important parts of the overall self-management process (Hughes & Ruhl, 1989). Fourth, students must recognize the effectiveness, efficiency, and relevance of the replacement behavior for it to be maintained as an active part of his or her behavioral repertoire. Fifth, students must practice the alternative response(s) in the social/environmental context(s) in which the original problem occurred (Hayes & Wilson, 1993). Finally, the student must be given frequent opportunity to obtain reinforcement for a newly learned response.

In summary, when employing self-management skills as a positive behavioral support to maintain behavior changes, teacher-directed instruction is essential. Effective teachers must provide instruction in the step-by-step process, model each of the steps for the student, and train across multiple stimuli. Such teachers create realistic role-play experiences, give the student feedback on both the quantitative and qualitative aspects of his or her performance, and engineer the social environment so that the student has multiple problem-solving opportunities, for which there is timely and sufficient reinforcement (Hendrickson & Gable, 2000).

Cognitive Mediation to Maintain Positive Behavior

Cognitive mediation strategies enable students to take responsibility for their behavior and, through identification and analysis of problem situations, self-instruction, and self-evaluation, increase the likelihood of maintenance of positive changes in their behavior. A unique feature of these strategies is a self-talk component which students first employ overtly and later covertly to moderate their own behavior. Cognitive mediation has been successful in helping students to become effective problem solvers as well as strategic information processors (Olsen & Platt, 2000). An attractive outcome of cognitive mediation strategies is that they can empower students by enabling them increased independence and increased control over their environment, factors associated with the function(s) of some student misconduct (Maag, 1999; Wong, 1986).

The appeal of cognitive mediation strategies as part of a positive support plan is that students can self-regulate their behavior across time and across environments, thereby promoting retention and generalization. We anticipate that the ability to teach cognitive mediation strategies will prove to be a critical teacher competency in the 21st century. Fortunately, these strategies appear to be ideally suited for (a) maintenance of appropriate social-emotional responses and school survival skills, (b) intervention related to negative and undesired covert acts and thoughts, and (c) support of replacement behaviors.

Cognitive strategy instruction incorporates direct, explicit instruction (e.g., teacher/video modeling, "thinking aloud" [Olsen & Platt, 2000]), guided and independent practice (e.g., role play, verbal rehearsal, and individual or group discussion [Kerr & Nelson, 1998]) as key aspects of the teaching-learning process. When teaching a cognitive strategy, the teacher must carefully set the stage so that it is clear to the students what a given strategy is intended to accomplish and why the strategy is pertinent to these particular students.

Teachers of cognitive mediation strategies first ensure that students master the "how to" of the strategy. Teaching the "how to" of cognitive strategies is often referred to as cognitive modeling (Bos & Vaughn, 1998). During cognitive modeling, the teacher models his or her thoughts aloud as he or she attempts to solve a problem or find a resolution to a challenging situation. Eventually, overt teacher modeling of the thinking process and external supports are faded, and student utilization of the strategy is covert (see Meichenbaum & Goodman, 1971).

In addition to mastering different cognitive strategies, students must be taught to discern when it is appropriate and useful to use cognitive mediation and which strategy is best suited for the problem at hand. All cognitive mediation strategies should include an evaluation component. Ideally, students would collect data on their own behavior and assess the environmental consequences of different actions. This self-evaluation in turn should have a self-regulatory effect and lead to improved efficiency and enhanced self-efficacy.

Cognitive mediation in the natural environment begins with the student recognizing that there is a task to perform or a problem to solve and covertly employing a set of previously learned steps to navigate the problem situation. A common form of cognitive mediation that can promote maintenance and generalization of positive replacement behaviors is the use of self-questioning by the student (e.g., What did I do wrong? Why shouldn't I do this? What should I do? What will happen if I...? [Maag, 1999]). Another strategy is the use of a mnemonic device to enable the student to handle a problem in a positive manner (e.g., when given a verbal reprimand or negative feedback the student would use SLAM [Stop whatever you're doing; Look the person in the eye; Ask the person a question to clarify what he or she means, Make an appropriate response to the person [McIntosh, Vaughn, & Bennerson, 1995]). Practitioners may discover that various factors can mitigate against the use of cognitive mediation strategies (e.g., chronological age, significant cognitive deficits).

In discussing programming for generalization, Kerr and Nelson (1998) argue that self-mediated stimuli-that is, students carrying or delivering stimuli that are discriminative of appropriate responses-are one of several important strategies teachers should use to promote generalization. They accurately point out that the training classroom environment/role play scenarios should include the physical and social stimuli common to the generalization environments. Training that occurs in the environment in which the student will make use of the response has the best chance of being retained and applied. In addition, we recommend that teachers planning to use cognitive mediation strategies as part of a positive behavioral support plan evaluate and modify classroom environments that support maladaptive behaviors (e.g., inconsistent consequences for inappropriate behavior). Teachers must be alert for opportunities to reinforce unprompted generalizations. Finally, the spontaneous modeling and prompting of any given cognitive strategy is essential for students to maintain strategy application.

Self-Advocacy Training to Maintain Positive Behavior

In that both adult-student and peer-peer interactions are bidirectional and reciprocal in nature (Shores, Gunter, & Jacks, 1993) various so-called self-advocacy strategies hold promise for promoting the maintenance of positive behavior change. For example, Graubard, Rosenberg, and Miller (1974) taught students ways to redefine the culture of the classroom by systematically instructing them in the following behaviors: showing up early for class; making eye contact with the teacher; requesting assistance; making positive comments; and engaging in positive classroom behavior--sitting up and leaning forward, nodding in agreement; and

giving "Ah-Hah" responses. Students were taught to break eye contact when being reprimanded and to ignore teacher provocations. Not surprisingly, the students' stock (i.e., approval rating) rose dramatically in their teacher's eyes. Gable, McConnell, and Nelson (1985) reported that positive behavior changes in several elementary school students went unnoticed until the students were taught (through role play) specific verbal strategies that allowed them to highlight their improved classroom deportment and performance and to obtain attention from the teacher.

If positive changes in student behavior are to maintain and generalize, structured and spontaneous support of strategies which promote student self-understanding, student self-advocacy, and self-empowerment should be part of the teaching repertoire of all educators. Strategies that allow students to observe the positive effect they can have on their environment are especially appealing when student behavior is motivated by a desire to obtain attention or to of control a given the situation.

Use of Peers to Maintain Positive Behavior Change

In exploring other ways to maintain positive behavior change, knowledge that attention is the motivation for student misconduct is especially relevant to the roles of peers. Peers engage in both more contiguous and more continuous interactions with age mates than adults and, once a behavior change program has been put into place, research has shown that peers can effectively model, prompt, and reinforce appropriate responses. Peers also can serve as "discriminative stimuli," cuing target students to engage in previously trained replacement behavior (Gable, Arllen, & Hendrickson, 1994). Peer training can be accomplished through a series of instructional sessions that utilize direct modeling, role play, and/or videotape scenarios followed by occasional booster sessions (e.g., a 15 min. reinstatement of original training procedures). To further strengthen the impact of peer-mediated support, school personnel should periodically and publicly acknowledge/reinforce the appropriate behavior of non-targeted students as well as targeted students.

Studies conducted with students with emotional and behavioral disorders have shown that some students prefer treatment delivered by peers (e.g., Gable et al., 1994). Peer feedback on one's behavior not only represents a relatively natural consequence of friendships, but can serve as a model for resolving future peer and adult difficulties. School personnel should seek ways to facilitate social entrapment (McConnell, 1987) of peer-mediated strategies and promote mutually reinforcing peer interactions. In all, many empirically validated, peer-mediated strategies are available to the teacher and IEP team. Such strategies not only are powerful first interventions, but they can be arranged to naturally sustain targeted replacement behaviors across time and location.

Booster Training to Maintain Positive Behavior

In many instances, it will be necessary for IEP teams to periodically reintroduce the original intervention procedures that produced changes in student behavior. A major purpose is to strengthen resistance to extinction. Ninness, Ellis, Miller, Baker, and Rutherford (1995) discussed the concept of behavioral probes/observations (as part of a self-management training package). The use of periodic probes is one way to assess the durability of the effects of the original treatment. Introducing events that mirror the original problem (e.g., being put down by another student) allows both adults and the target student to assess the student's responses. It some cases, it may be necessary to redesign one or more aspects of the treatment program or to make adjustments in the original reinforcement plan, or both. When providing booster training sessions, school personnel should be sure to reinstate student responses across important social and learning contexts so those contexts are able to both evoke and reinforce appropriate behavior. Further, school personnel should vary the intensity or "strength" of the reinstated intervention, and then, systematically fade the entire intervention procedure to facilitate long-term maintenance of behavior (e.g., Stokes & Baer, 1977; Ninness et al., 1995). Practitioners should always be vigilant for the occurrence of the spontaneous generalization of desired behavior and reinforce the student accordingly (Maag, 1999).

Environmental Modifications

With knowledge of the motivation for student misbehavior, it can be useful to modify one or more aspects of the physical or social environment to facilitate maintenance and generalization of behavior changes which followed the FBA and initial behavior support plan. Students need frequent opportunities to engage in and be reinforced for replacement behavior-to recognize that the replacement behavior is more effective, more efficient, and more relevant than the problem behavior. Generally, the student should have twice as many opportunities to be reinforced for the replacement behavior as he or she had for the original response (Gable et al., 2000). Furthermore, adults and/or peer confederates may use specific praise or other reinforcement occasionally to facilitate maintenance. Telling the student intermittently that he or she has made a good choice in problem-solving is recommended. To do so may necessitate contriving opportunities- manipulating either the antecedent stimuli or reinforcement properties of the natural environment, to ensure enough occurrences of the desired behavior.

Evaluation of maintenance effects. Another aspect of the maintenance process for IEP teams is the use of outcome measures of student behavior. Outcome measures serve to validate the appropriateness of the original intervention plan. Data collection itself can take advantage of the

potential for student reactivity to measurement, especially if selfmonitoring and self-evaluation plans are designed. The evaluation method selected should be the least-complicated option that is appropriate to the targeted behavior and one that is practical for use by the student (Maag, 1999). Students are more likely to make use of an inconspicuous than conspicuous evaluation system (Hughes & Ruhl, 1989). However, students will need special instruction in the use of the evaluation system (e.g., self-rating scale). To ensure accurate and consistent use, teachers should establish student performance standards and reward achievement with student reinforcement preference(s). Finally, some but not all students can be taught basic reinforcement schedules (e.g., continuous vs. intermittent) and ways to vary the delivery of reinforcers to avoid satiation (e.g., Alberto & Troutman, 1998; Hughes & Lloyd, 1993; Hughes & Ruhl, 1989). For those students capable of applying the skills, self-observation and evaluation of their performance has been shown to contribute to the long-term durability in prosocial responses of students whose self-awareness and perceptions of the social intent of others is flawed.

Attributional Remediation

Many students with behavior problems evidence significant deficits in problem-solving skills associated with their inaccurate thoughts and/or unhelpful feelings. These deficits pose major problems for students seeking to negotiate various social situations (Van Acker, 1996). Nichols (2000) described the rationale and a model for FBA and student affect/ cognition. In addressing this issue, practitioners need to distinguish between students'cognitive distortions and behavior deficits. For example, students often fail to accurately evaluate a situation and, triggered by "perceptual errors," rely on flawed coping strategies intended to escape or control a given situation. For these students, it may be necessary to introduce instruction that addresses longstanding cognitive distortions that confound the original problem situation (Nichols, 2000). Or, a student may misread the benign actions of a classmate, for instance, and strike out physically to preempt a nonexistent act of provocation. Retaliation on the part of the peer often serves to strengthen the original misperception. In other instances, a student may misperceive repeated attempts by the teacher to offer academic assistance as intended to belittle or embarrass the student. In contrast, a student may accurately read the social situation but possess a diminished capacity to respond appropriately to it. In that case, a separate intervention plan will need to be devised to remediate the skill deficit(s). As noted, a functional assessment approach allows practitioners to look beyond the behavior itself to identify the thoughts and feelings that evoke the behavior. In many instances, it is possible that the motivation for student misbehavior stems from a misperception of or a mistaken belief regarding a social interaction.

The effective teacher must be prepared to assess student perceptions and beliefs and observe their impact on student behavior in the natural environment. Students can be taught to shape, extinguish, reinforce, and modify their thoughts and feelings. The advantage of focusing on antecedent and consequent thoughts and feelings is that students can develop their own motivations and internal controls.

Conclusion

Some years ago, Hops and Greenwood (1988) compared social interactions to a tennis match-one person serves another returns the ball, followed by a series of exchanges or volleys. In order to maintain positive changes in student behavior, we must take down the nets and expand the playing court so that it encompasses the natural environment. Further, we must select replacement behaviors that will be taught according to their ideographic propensity for being maintained after the game is over (when adult-mediated or peer confederate intervention is withdrawn). The behaviors we select to replace the targeted behavior should be seen as relevant to the student and peermates and likely to covary with the behavior of significant others--naturally follow specific initiations or precede positive responses so that they become "embedded" in ongoing social interactions. Recently, Hayes and Wilson (1993) discussed the concept of rule following behavior-behavior that is maintained by virtue of a history of coming into contact with naturally occurring predictable consequences. We would argue that by carefully crafting a pupil-specific positive behavioral intervention (and maintenance) plan, we may be able to reshape the social learning experiences of students with challenging behavior-change the rules of the game. As functional behavioral assessment moves from clinic to classroom, researchers and practitioners must work together to develop measurement systems and intervention procedures that are responsive to the complex demands of treatment in applied settings (Gable, 1999). To produce long-term changes in pupil behavior, practitioners must be able to pair positive behavior change and maintenance/generalization strategies to the likely function(s) of the targeted behavior. Knowledge that student misbehavior can have multiple forms and functions that may change over time magnifies both the challenge and importance of finding ways to promote maintenance and generalization of behavior changes that stem from functional behavioral assessment (Gable et al., 2000). Unfortunately, there is little research on linking maintenance/ generalization strategies with either the ideographic characteristics of the student or the function (s) of his or her misbehavior. IEP teams will need to make use of existing strategies for which there is some empirical support and assess their long-term effects, to establish a pool of proven strategies to maintain positive behavior changes in student behavior.

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