

Applying Positive Behavior Support and Functional Behavioral Assessment in Schools



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Abstract: Positive behavior support (PBS) and functional behavioral assessment (FBA) are two significant concepts of the 1997 amendments to the Individuals with Disabilities Education Act. These two concepts are not new, but they are important for improving the quality of efforts to educate children and youth with disabilities. The purposes of this article are to describe (a) the context in which PBS and FBA are needed and (b) definitions and features of PBS and FBA. An important message is that positive behavioral interventions and supports involve the whole school, and successful implementation emphasizes the identification, adoption, and sustained use of effective policies, systems, data-based decision making, and practices. Systems-level challenges are also discussed.

On June 4, 1997, amendments to the Individuals with Disabilities Education Act (IDEA) became law (P.L. 105-17). These amendments introduced several new concepts, two of which are particularly important to the education of children whose behaviors violate school codes of conduct or are outside personal or interpersonal norms of accept-

able social behavior: (a) positive behavior support (PBS) and (b) functional behavioral assessment (FBA). Section 614 (d)(3)(B)(i) of P.L. 105-17 states that "in the case of a child whose behavior impedes his or her learning or that of others, the child's IEP [Individualized Education Program] team must consider, when appropriate, strategies, including positive behavioral intervention strategies and supports, to address that behavior." Section 615 (k)(1)(B)(i) of the law states, "If the local educational agency did not conduct a functional behavioral assessment and implement a behavioral intervention plan for such child before the behavior that resulted in the suspension described in subparagraph (A), the agency shall convene an IEP meeting to

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develop an assessment plan to address that behavior.” In addition, “If the child already has a behavioral intervention plan, the IEP Team shall review the plan and modify it, as necessary, to address the behavior” (Section 615(k)(1)(B)(ii)).

PBS and FBA are not new. However, in the context of IDEA, they represent an important effort to improve the quality of behavioral interventions and behavior support planning. As schools organize to meet these requirements and to build their capacity to meet the behavioral needs of all students, especially students with disabilities, attention must be given to the definitions, features, and uses of PBS and FBA. The purpose of this article is to describe what is meant by *positive behavior support* and *functional behavioral assessment*.

Context

Schools are important environments in which children, families, educators, and community members have opportunities to learn, teach, and grow. For nearly 180 days each year and 6 hours each day, educators strive to provide students with learning environments that are stable, positive, and predictable. These environments have the potential to provide positive adult and peer role models, multiple and regular opportunities to experience academic and social success, and social exchanges that foster enduring peer and adult relationships.

Despite these positive attributes, teachers, students, families, and community members face significant contemporary challenges (see Figure 1). Every year schools are being asked to do more with fewer resources. New initiatives to improve literacy, enhance character, accommodate rapidly advancing technologies, and facilitate school-to-work transitions are added to the educator's workday. Schools are being asked to achieve new and more results, yet seldom are allowed to cease work on the growing list of initiatives.

Educators also are being asked to educate an increasingly heterogeneous population of students. A growing number of students in our schools have English as a second language; limited family supports; significant learning and/or behavioral problems; families who face financial barriers; and a great need for mental health, social welfare, medical, and vocational assistance (Knitzer, 1993; Knitzer, Steinberg, & Fleisch, 1990; Stevens & Price, 1992). Although most attention has focused on students with externalizing problem behavior (e.g., aggressive, antisocial, or destructive conduct), students with internalizing problem behavior (e.g., social withdrawal, depression) also represent an important concern of families, schools, and communities (Kauffman, 1997).

In addition, the challenges associated with educating students with severe problem behavior are increasing (Biglan, 1995; Kauffman, 1997; Sprague, Sugai, & Walker, 1998;

Sugai & Horner, 1994; Walker, Colvin, & Ramsey, 1995). Although these students represent only 1% to 5% of a school enrollment, they can often account for more than 50% of the behavioral incidents handled by office personnel and consume significant amounts of educator and administrator time (Sugai, Sprague, Horner, & Walker, 2000; Taylor-Greene et al., 1997). Many of these students require comprehensive behavioral supports that involve family, school, and community participation (Eber, 1996; Eber & Nelson, 1997; Epstein et al., 1993; Walker et al., 1995; Walker et al., 1996).

Many schools lack the capacity to identify, adopt, and sustain policies, practices, and systems that effectively and efficiently meet the needs of all students (Mayer, 1995;

- A suburban high school with 1,400 students reported more than 2,000 office referrals from September to February of one school year.
- An urban middle school with 600 students reported more than 2,000 discipline referrals to the office from September to May.
- A rural middle school with 530 students reported more than 2,600 office referrals. A total of 304 students had at least one referral, 136 students had at least 5 referrals, 34 students had more than 20 referrals, and 1 student had 87 office referrals (Taylor-Greene et al., 1997).
- In one state, expulsions increased from 426 to 2,088, and suspensions increased from 53,374 to 66,914 over a 4-year period (Juvenile Justice Fact Sheet).
- In another state, expulsions increased from 855 to 1,180 between the 1994–1995 and 1995–1996 school year (a 200% increase from 1991–1992 school year; Juvenile Justice Fact Sheet).
- Being suspended or expelled from school is reported by students as one of the top three school-related reasons for leaving school (National Association of Child Advocates, 1998).
- In one state, 11% of students who had been suspended or expelled also were found in the state's Department of Juvenile Justice Database; 5% of suspended students were arrested while on suspension; and 19% were arrested while on expulsion (National Association of Child Advocates, 1998).
- Thirty-six percent of general public school parents fear for the physical safety of their oldest child at school, and 31% fear for the physical safety of their oldest child while playing in their neighborhood (Rose & Gallup, 1998).
- The general public rated fighting/violence/gangs, lack of discipline, lack of funding, and use of drugs as the top four biggest problems facing local schools. These same four have been in the top four for over 15 years (Gallup, Elam, & Rose, 1998).

Figure 1. Examples of contemporary challenges for schools, families, and communities.

Sugai & Horner, 1994, 1999; Taylor-Greene et al., 1997; Walker et al., 1996). Schools often rely on outside behavioral expertise because local personnel lack specialized skills to educate students with significant problem behaviors. School morale is often low because ongoing staff support is limited. Although many students have significant social skills needs, social skills instruction is not a conspicuous and systemic component of the schoolwide curriculum. Behavioral interventions are not based on information obtained from assessments. In general, systems for the identification, adoption, and sustained use of research-validated practices are lacking.

In sum, the challenges facing educators are significant and persistent. If not addressed, their impact on students, school personnel, families, and community members can be dramatic. However, the problem is not that schools lack procedures and practices to address these challenges. Procedures and practices have been defined and have been growing over the past 30 years (Mayer, 1995; Peacock Hill Working Group, 1992; Sugai, 1998; Walker et al., 1995; Walker et al., 1998). The greater problem has been that we have been unable to create and sustain the "contextual fit" between our procedures and practices and the features of the environments (e.g., classroom, workplace, home, neighborhood, playground) in which the student displays problem behavior (Albin, Lucyshyn, Horner, & Flannery, 1996). The systemic solution is to create effective "host environments" that support the use of preferred and effective practices (Sugai & Horner, 1994, 1999; Zins & Ponti, 1990). Effective host environments have policies (e.g., proactive discipline handbooks, procedural handbooks), structures (e.g., behavioral support teams), and routines (e.g., opportunities for students to learn expected behavior, staff development, data-based decision making) that promote the identification, adoption, implementation, and monitoring of research-validated practices.

As a society, we are looking to schools to be or become settings where our children learn the skills for successful adulthood (e.g., IDEA, Goals 2000, Improving America's Schools Act) in the context of an increasingly heterogeneous general student body, some of whom exhibit intense patterns of chronic problem behavior. The growing expectation is that schools will deliver socially acceptable, effective, and efficient interventions to ensure safe, productive environments where norm-violating behavior is minimized and prosocial behavior is promoted. PBS and FBA represent important efforts toward achieving these goals.

Increasingly, efforts to establish school-linked service arrangements for children and families are appearing around the country (Sailor, 1996). These models have been tested and described in numerous schools (Adelman & Taylor, 1997; Dryfoos, 1997; Kagan, Goffin, Golub, & Pritchard, 1995; Schorr, 1997). In Kentucky, for example, efforts have been made to establish school-linked services in the context of statewide school reform (Illback, Nelson,

& Sanders, 1998). More recently, these school, family, and community partnerships have been described under the "community schools" rubric (Benson & Harkavy, 1997; Lawson & Briar-Lawson, 1997).

These comprehensive systems-change initiatives are designed (a) to create a seamless web of supports and services that "wrap around" children and families and (b) to bring an end to the current fragmentation and categorical separation of school agency-directed programs. These systems-change efforts create opportunities to integrate PBS methods into the culture of the school and to extend effective and coordinated participation in the behavior support plan to family members and community agency personnel (Sailor, 1996, in press).

What Is PBS?

Optimizing the capacity of schools to address schoolwide, classroom, and individual problem behavior is possible in the face of current challenges but only if working policies, structures, and routines emphasize the identification, adoption, and sustained use of research-validated practices. In recent years, PBS has been emerging as an approach to enable schools to define and operationalize these structures and procedures. New journals (e.g., this journal), technical assistance centers (e.g., Beach Center, Center on Positive Behavioral Interventions and Supports), and personnel preparation programs have established PBS as the focus of their purpose and activities.

DEFINITION

Positive behavior support is a general term that refers to the application of positive behavioral interventions and systems to achieve socially important behavior change. PBS was developed initially as an alternative to aversive interventions used with students with significant disabilities who engaged in extreme forms of self-injury and aggression (Durand & Carr, 1985; Meyer & Evans, 1989). More recently, the technology has been applied successfully with a wide range of students, in a wide range of contexts (Carr et al., 1999; Horner, Albin, Sprague, & Todd, 1999), and extended from an intervention approach for individual students to an intervention approach for entire schools (Colvin, Kame'enui, & Sugai, 1993; Colvin, Sugai, Good, & Lee, 1997; Lewis, Colvin, & Sugai, in press; Lewis, Sugai, & Colvin, 1998; Taylor-Greene et al., 1997; Todd, Horner, Sugai, & Sprague, 1999).

PBS is not a new intervention package or a new theory of behavior, but an application of a behaviorally based systems approach to enhance the capacity of schools, families, and communities to design effective environments that improve the fit or link between research-validated practices and the environments in which teaching and learning

occur. Attention is focused on creating and sustaining school environments that improve lifestyle results (personal, health, social, family, work, recreation, etc.) for all children and youth by making problem behavior less effective, efficient, and relevant and making desired behavior more functional.

The use of culturally appropriate interventions also is emphasized in the PBS approach. *Culturally appropriate* describes interventions that consider the unique and individualized learning histories (social, community, historical, familial, racial, gender, etc.) of all individuals (children with problem behaviors, families, teachers, community agents, etc.) who participate in the PBS process and approach. Data-based problem solving and individualized planning processes can help to establish culturally appropriate interventions; however, individual learning histories ultimately can affect how data are summarized, analyzed, and used.

Haring and De Vault (1996) have indicated that PBS is composed of (a) "interventions that consider the contexts within which the behavior occurs," (b) "interventions that address the functionality of the problem behavior," (c) "interventions that can be justified by the outcomes," and (d) "outcomes that are acceptable to the individual, the family, and the supportive community" (p. 116).

FEATURES

At the core, PBS is the integration of (a) behavioral science, (b) practical interventions, (c) social values, and (d) a systems perspective (see Table 1).

Behavioral Science

An existing science of human behavior links the behavioral, cognitive, biophysical, developmental, and physical/environmental factors that influence how a person behaves (Baer, Wolf, & Risley, 1968; Bijou & Baer, 1978; Schwartz, 1989; Wolery, Bailey, & Sugai, 1988). Of particular interest are factors that affect the development and durability of disruptive and dangerous behaviors (Biglan, 1995; Kauffman, 1997; Mayer, 1995; Patterson, Reid, & Dishion, 1992; Walker et al., 1995). To a great extent, when these behaviors are observed in our schools, they can be traced to unintentional behavioral student, peer, and/or teacher exchanges (Gunter, Denny, Jack, Shores, & Nelson, 1993; Sasso, Peck, Garrison-Harrell, 1998; Shores, Gunter, & Jack, 1993; Shores, Jack, et al., 1993).

Although learning and teaching processes are complex and continuous and some behavior initially is not learned (e.g., biobehavioral), key messages from this science are that much of human behavior is learned, comes under the

Table 1. Foundations and Features of Positive Behavior Support

Behavioral science	Practical interventions	Lifestyle outcomes	Systems perspective
<ul style="list-style-type: none"> Human behavior is affected by behavioral, biobehavioral, social, and physical/environment factors. Much of human behavior is associated with unintentional learning opportunities. Human behavior is learned and can be changed. 	<ul style="list-style-type: none"> Functional behavioral assessments are used to develop behavior support plans. Interventions emphasize environmental redesign, curriculum redesign, and removing rewards that inadvertently maintain problem behavior. Teaching is a central behavior change tool. Research-validated practices are emphasized. Intervention decisions are data based. 	<ul style="list-style-type: none"> Behavior change must be socially significant, comprehensive, durable, and relevant. The goal of PBS is enhancement of living and learning options. PBS procedures are socially and culturally appropriate. Applications occur in least restrictive natural settings. The fit between procedures and values of students, families, and educators must be contextually appropriate. Nonaversive interventions (no pain, tissue damage, or humiliation) are used. 	<ul style="list-style-type: none"> The quality and durability of supports are related directly to the level of support provided by the host environment. The implementation of practices and decisions is policy driven. Emphasis is placed on prevention and the sustained use of effective practices. A team-based approach to problem solving is used. Active administrative involvement is emphasized. Multisystems (district, school-wide, nonclassroom, classroom, individual student, family, community) are considered. A continuum of behavior supports is emphasized.

Note. PBS = positive behavior support.

control of environmental factors, and can be changed. The strength of the science is that problem behaviors become more understandable, and as our understanding grows, so does our ability to teach more socially appropriate and functional behavior. The PBS approach is founded on this science of human behavior. Different procedures and strategies are applied at different levels, but the fundamental principles of behavior are the same.

Practical Interventions

The science of human behavior has led to the development of practical strategies for preventing and reducing problem behavior (e.g., Alberto & Troutman, 1999; Cooper, Heron, & Heward, 1987; Kerr & Nelson, 1998; Koegel, Koegel, & Dunlap, 1996; Reichle & Wacker, 1993; Wolery, Bailey, & Sugai, 1988). *Practical* describes strategies that emphasize the contextual fit among problem behaviors, environments in which problem behaviors are occurring, and interventions that are developed and implemented (Albin, Lucyshyn, Horner, & Flannery, 1996). Priority is given to interventions that improve implementation efficiency, intervention effectiveness, and relevance of outcomes by (a) involving recipients of PBS in the design of behavior support plans, (b) considering the values of recipients and implementers of PBS, (c) considering the skills of implementers of PBS, (d) securing the approvals and endorsements of recipients and implementers of PBS, (e) considering the resources and administrative supports needed to implement strategies, and (f) providing the supports needed to sustain the use of effective strategies over time.

Although implementation details vary across age groups, contexts, and behavior, PBS interventions have common features. Foremost among these features is the application of FBA, but equally important are emphases on environmental redesign (changing aspects of the setting), curriculum redesign (teaching new skills), modification of behavior (teaching and changing student and adult behavior), and removing rewards that maintain problem behaviors (Carr, Levin, et al., 1994; Luiselli & Cameron, 1998; O'Neill et al., 1997).

PBS procedures emphasize assessment prior to intervention, manipulation of antecedent conditions to reduce or prevent the likelihood that a problem behavior will occur, development of new social and communication skills that make problem behaviors irrelevant, and careful redesign of consequences to eliminate factors that maintain problem behaviors and to encourage more acceptable replacement social skills and behaviors. PBS is an approach that emphasizes teaching as a central behavior change tool and focuses on replacing coercion with environmental redesign to achieve durable and meaningful change in the behavior of students. As such, attention is focused on adjusting adult behavior (e.g., routines, responses, instruc-

tional routines) and improving learning environments (e.g., curricular accommodations, social networks).

Educators, parents, and community agents must "work smarter" (Kame'enui & Carnine, 1998) by using time more efficiently and strategically selecting instructional and behavioral strategies for which clear evidence of their effectiveness exists. Working smarter means using what works for all students, not just those with learning and behavioral difficulties (Delpit, 1995). The PBS approach emphasizes the identification, adoption, and sustained use of practices that have been research validated. For students with serious antisocial behaviors, several recent meta-analyses and descriptive literature reviews support the use of strategies that can be applied by educators in school environments, especially (a) contextually targeted social skills instruction, (b) academic and curricular restructuring, and (c) behaviorally based interventions (Gottfredson & Gottfredson, 1996; Lipsey, 1991, 1992; Lipsey & Wilson, 1993; Tolan & Guerra, 1994). Other, more specific research-validated practices include FBAs, direct instruction, and other applied behavior analytic strategies (Carr et al., 1999).

Finally, the PBS approach emphasizes the use of data collection and analysis (e.g., direct behavioral observations, curriculum-based measurement) to inform decision making. A variety of data sources (e.g., office discipline referrals, attendance and tardy reports, and academic progress) are collected through a range of methods (e.g., archival review, interviews, direct observations) and from multiple sources (e.g., students, family members, educators, community members). In addition to behavioral factors, assessments consider cognitive, biophysical, developmental, and physical/environmental factors to assist in understanding problem behavior and in guiding the development of comprehensive behavior support plans. Collectively, these data can be used to determine the student's current level of functioning, the impact of the intervention on problem behavior, and improvements in other lifestyle elements (e.g., family, work, recreation). With ongoing data collection, intervention and instructional modifications can be made in a timely manner.

Social Values

PBS emphasizes consideration of social values in both the results expected from behavioral interventions and the strategies employed in delivering the interventions. A central PBS tenet is that behavior change needs to be socially significant. Behavior change should be (a) *comprehensive*, in that all relevant parts of a student's day (before, during, and after school) and important social contexts (home, school, neighborhood, and community) are affected, (b) *durable*, in that the change lasts for long time periods, and (c) *relevant*, in that the reduction of problem behaviors and increases in prosocial behaviors affect living and learning opportunities (academic, family, social, work).

The goal of PBS is more than the control of problem behavior; it also includes the enhancement of the living and learning options available to the student and to his or her peers and family (Risley, 1996; Turnbull & Turnbull, 1996).

Social values are also important in defining acceptable types of intervention procedures. PBS emphasizes the importance of procedures that are socially and culturally appropriate. The contextual fit between intervention strategies and the values of families, teachers, schools, support personnel, and community agency personnel may affect the quality and durability of support efforts (Albin & Sandler, 1998; Sailor, 1996). No intervention should cause pain, tissue damage, or humiliation to children and their families. Finally, careful consideration is given to lifestyle outcomes that go beyond simple behavior reduction and enhancement. The development of behavior support plans and the evaluation of their effects consider the student's current and future quality of life in all settings and circumstances. Koegel et al. (1996, p. xiv) added that "interventions should strive to enhance a person's competencies and access to desirable environments, social circumstances, and activities" and "all people should be treated with respect and dignity and that interventions must therefore refrain from interactions that are degrading, humiliating, or pain inducing."

Systems Perspective

PBS is of particular importance for schools, given the emphasis on behavioral "systems" in addition to the emphasis on individual children. A systems perspective provides support for the adoption and sustained use of effective school practices (Sugai & Horner, 1994, 1999). Without a systems approach, identification of practices is limited, adoptions are incomplete, and attention to school initiatives to address discipline is episodic and short term (e.g., 18–24 months; Sugai & Horner, 1999; Zins & Ponti, 1990).

PBS implementations consider multiple contexts: community, family, district, school, classroom, nonclassroom (e.g., cafeteria, hallways, bus, playground, parking lot), and individual. Efforts are policy driven to ensure accountability, maximum positive results, participation in and progress through the general curriculum, and effective and efficient communications. In addition, a proactive perspective (positive and preventative) perspective is maintained along three levels:

1. *Primary*—reduces the number of new cases of problem behavior,
2. *Secondary*—reduces the number of current cases of problem behavior, and
3. *Tertiary*—reduces the intensity and complexity of current cases (Walker et al., 1996).

A team-based approach is applied to program assessment, development, and problem solving (Adelman & Taylor,

1997; Lawson & Briar-Lawson, 1997). This approach enables input from multiple sources, a broader expert knowledge base, and improved sustainability over time.

At all levels in the system, active administrator support and participation are required. Without strong leadership from school administrators, program efforts often are inefficient, incomplete, and ineffective (Colvin & Sprick, 1999). Similarly, when problem behavior is chronic and intense, comprehensive linkages with other human service agencies (e.g., juvenile justice and corrections, mental/public health, child and family services) are considered (Eber, 1996; Eber & Nelson, 1997; Epstein et al., 1993; Walker et al., 1995; Walker et al., 1996).

Taken as a whole, a systems perspective to PBS provides a continuum of behavior support (see Figure 2) in which prevention is emphasized and intensity of problem behavior and context are considered. As a continuum, the following four change elements characterize PBS: (a) change of systems (policies, structures, routines), (b) change of environments, (c) change of student and adult (parent, teacher, staff) behavior, and (d) change in appreciation of appropriate behavior in all involved individuals (student, staff, family, etc.).

Behavior Support Planning Based on FBA

Among the most important changes in applied behavioral analysis in the past 20 years has been the development of FBA (special issue, *Journal of Applied Behavior Analysis*, 1994). The development of positive behavioral interven-

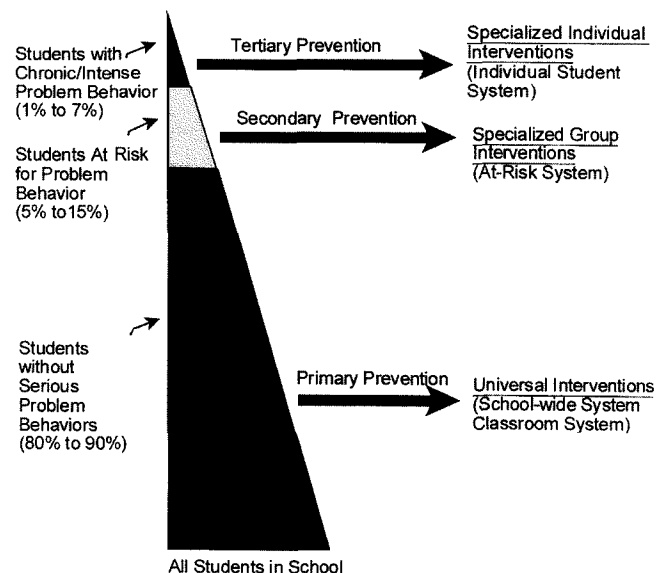


Figure 2. Continuum of positive behavior support that emphasizes a systems approach, preventive perspective, and specialized interventions.

tions and plans that are guided by FBA is the foundation of the PBS approach. A central message from this advancement is that the design of successful behavior change interventions requires identification of the events that reliably predict and maintain problem behaviors (Carr, 1994; Horner, 1994; O'Neill et al., 1997; Repp, 1994; Sugai, Lewis-Palmer, & Hagan, 1998). Historically, problem behaviors have been viewed as residing within a child, and the diagnostic emphasis has been on the type of problem behavior or the link with disability type (i.e., within the individual). Although all types of information may be useful in the design of effective support, the current emphasis is on careful documentation of the predicting and maintaining events associated with problem behaviors.

Although useful in guiding decision making at all levels, the FBA approach is the cornerstone of systems that address the educational programming of students who display the most significant and challenging problem behavior. These students require behavior support plans that are specialized, individualized, and highly intense. Such plans must be based on information about the nature of the problem behavior and the environmental context in which the problem behavior is observed. The FBA approach provides a systematic and informed means by which targeted interventions can be developed and monitored.

Functional assessment is not new; it can be found in a variety of disciplines (e.g., vocational education, physical therapy, chemistry, physics). In education, however, particularly special education, functional assessment had its beginning in the 1960s in applied behavior analysis (Bijou & Baer, 1961; 1978; Bijou, Peterson, & Ault, 1968; Bijou, Peterson, Harris, Allen, & Johnston, 1969). Initially, research studies and applied applications of the functional assessment technology demonstrated the value of defining variables that maintain a problem behavior prior to constructing an intervention (Carr, 1977; Carr & Durand, 1985; Iwata et al., 1982; Repp & Horner, 1999; Touchette, MacDonand, & Langer, 1985). Although most of this work has been conducted with individuals with severe developmental and intellectual disabilities (Blakeslee, Sugai, & Gruba, 1994; Lohrman-O'Rourke, Knoster, & Llewellyn, 1999), a growing body of research and applications focuses on individuals with mild, high-incidence disabilities (e.g., emotional and behavioral disorders, learning disabilities; e.g., Broussard & Northup, 1995; Dunlap, Kern-Dunlap, Clarke, & Robbins, 1991; Dunlap et al., 1993; Dunlap, White, Vera, Wilson, & Panacek, 1996; Kern, Childs, Dunlap, Clarke, & Falk, 1994; Lewis & Sugai, 1993, 1996a, 1996b; Umbreit, 1995; Volmer & Northup, 1996).

In this section, we provide an overview of FBA, including definition and outcomes, defining features, and major steps, especially in relation to behavior support development and planning.

DEFINITION AND RESULTS

We define *functional behavior assessment* as a systematic process of identifying problem behaviors and the events that (a) reliably predict occurrence and nonoccurrence of those behaviors and (b) maintain the behaviors across time. The purpose of gathering this information is to improve the effectiveness, relevance, and efficiency of behavior support plans (Carr et al., 1999; Foster-Johnson & Dunlap, 1993; Horner, 1994; O'Neill et al., 1997; Sugai, Horner, & Sprague, 1999; Sugai, Lewis-Palmer, & Hagan, 1998; Tilly et al., 1998). Specifically, if we can identify the conditions under which problem behavior is likely to occur (triggering antecedents and maintaining consequences), we can arrange environments in ways that reduce occurrences of problem behavior and teach and encourage positive behaviors that can replace problem behaviors.

Several procedures exist for conducting an FBA (Center for Effective Collaboration and Practice, 1998), but we maintain that any professionally appropriate assessment should conclude with, at minimum, three main results. The first is hypothesis statements that include three key features: (a) operational definitions of the problem behavior(s), (b) descriptions of the antecedent events that reliably predict occurrence and nonoccurrence of the problem behavior, and (c) descriptions of the consequence events that maintain the problem behavior(s). The second is direct observation data supporting these hypotheses. The third FBA result is a behavior support plan. The importance of the link between hypotheses that are derived from FBAs and the development of comprehensive behavior support plans must be emphasized. Behavior support plans provide a summary of intervention manipulations in four areas: (a) setting event strategies, (b) antecedent strategies, (c) behavior-teaching strategies, and (d) consequence strategies. In addition, a comprehensive behavior support plan provides implementation scripts that detail (a) who does what strategies when, where, how often, and why, (b) how emergency or crisis situations will be handled, and (c) how implementation and effectiveness will be monitored.

In sum, FBA is not a set of forms or static products. It is a process of understanding behavior in the context in which it is observed and guiding the development of positive behavioral interventions that are relevant, effective, and efficient. FBA is a best and preferred practice for all challenging behavior, not just for behavioral events that result in suspensions or other disciplinary actions.

PROCESS STEPS

In this section, an overview of the six main steps involved in conducting an FBA and developing behavior support

Table 2. Overview of Functional Behavioral Assessment and Behavior Support Planning

Step	Tools/Procedures	Outcome
1. Collect information regarding conditions under which problem behavior is and is not observed and more appropriate behavior is required.	Archival review, analysis of routines, interviews, direct observation	Descriptions of possible setting events, triggering antecedents, problem behavior response classes, maintaining consequences
2. Develop testable (manipulable) hypotheses.	Team analysis of information from Step 1	Testable hypotheses
3. Collect direct observation information.	Direct observations	Verified summary statements
4. Design behavior support plans.	Team development	Specification of (a) desired and acceptable alternative behavior, (b) antecedent strategies and manipulations, (c) consequence strategies and manipulations, (d) strategies for teaching desired and acceptable alternative behavior, and (e) setting event/establishing operation strategies and manipulations
5. Develop implementation scripts.	Team development	Scripts that specify how, when, where, and by whom the behavior support plan is to be implemented
6. Collect information on effectiveness and efficiency of behavior support plan and redesign based on evaluation information.	Team development	Data on student progress and plan implementation; redesign/updated plan

plans is provided (see Table 2). Additional guidelines for implementing the process are available in O'Neill et al. (1997); Sugai, Lewis-Palmer, and Hagan (1998); and Tilly et al. (1998).

Step 1

Using archival review, analysis of routines, interviews, and/or direct observations, information is gathered regarding the conditions under which (a) the problem behavior is and is not observed and (b) more appropriate behavior is required. Attention is focused on four primary factors: (a) setting events/establishing operations that make the problem behavior worse (e.g., diet, medical conditions/illness, sleep, fatigue, social conflicts), (b) antecedent events that predictably precede and trigger or occasion problem behavior (e.g., task demands, instruction, peer/adult requests), (c) problem behaviors that as a response class or set are maintained by a common function or outcome (e.g., attention, escape/avoidance), and (d) consequence events that predictably follow and maintain problem behavior (positive or negative reinforcement).

For example, when Linda's teacher requested assistance because of problem behaviors in his classroom, members of the school's behavior support team interviewed the teacher, reviewed Linda's behavioral incident records, examined her typical class and activity schedule, and consulted with other adults (e.g., parent, music teacher) who had firsthand knowledge about Linda's strengths and problem behaviors. (The details of this example have been simplified to illustrate the general features of each step.)

Step 2

The information collected in the first step is used to develop testable hypotheses that best describe the conditions under which the problem behavior is most likely to occur. A complete testable hypothesis indicates (a) problem behavior, (b) triggering antecedent events, (c) maintaining consequence events, and (d) influential setting events/establishing operations (O'Neill et al., 1997).

For example, from a review of interview and archival information, the behavior support team determined that when Linda's teacher asked her to redo spelling and grammar errors in her essay (antecedent), Linda verbally protested, failed to follow directions, and used profane language (problem behavior). Her teacher typically removed the essay task and turned his attention to other students (maintaining consequence). Problem behaviors also were more likely to occur and be worse in intensity when she had failed to complete her work during the prior math class or had had an argument with an adult (setting event).

Step 3

After testable hypotheses are developed, direct observation information is collected to verify the accuracy or predictability of these statements. Usually, multiple observations are conducted across multiple settings and situations to determine whether problem behavior patterns occur under hypothesized conditions and contexts. These observations involve the careful documentation of antecedent and consequence variables that are present or absent when problem behaviors are and are not observed.

In cases where hypotheses are difficult to establish or where problem behavior is particularly resistant to intervention, functional "analysis" may be recommended. A functional analysis involves a systematic manipulation (i.e., removal and addition) of factors that are hypothesized as triggering or occasioning problem behavior. These manipulations are designed to trigger problem behavior under one set of conditions and not under others. However, in educational and clinical applications, we do not recommend functional analysis without the direct involvement of an experienced behavior analyst, consent and collaboration by families and caregivers, and existence of structures for maintaining appropriate accountability (e.g., data collection, monitoring of implementation fidelity).

In Linda's situation, the school counselor, Linda's classroom teacher, and the special education teacher conducted direct observations during music, math, and language arts periods. They noted those antecedent and consequence events that were associated with each problem behavior displayed by Linda. They also looked for times when or situations where the problem behavior did not occur. For Linda, direct observation data confirmed the hypothesis statement generated in the previous step.

Step 4

Based on information from verified hypotheses, behavior support plans are developed that specify possible teaching strategies or manipulations for (a) desired and acceptable alternative behaviors, (b) antecedent events, (c) consequence events, and (d) setting events/establishing operations. This plan serves as the basis for defining the actual implementation of the behavioral intervention. Unlike more typical single-dimension interventions that focus on reactive, consequence manipulations (e.g., time-out, behavioral contracts), behavior support plans that are based on FBAs consider intervention components that are (a) instructionally focused (i.e., teaching acceptable and desired replacement behaviors), (b) prevention focused (e.g., neutralizing or eliminating the conditions that trigger problem behaviors or make them worse or more likely), and (c) environmentally based (e.g., rearrangement of the problem context).

For Linda, the behavior team, which included Linda's teacher and father, developed a behavior plan that had the following general elements:

1. Teach Linda to ask for help and/or indicate that the task is too difficult and teach her to self-record at the end of the period whether she "kept her cool" (behavior teaching);
2. Review correction strategies, provide an answer key, and point out what is correct about her work before asking Linda to make corrections (antecedent manipulations);
3. Provide verbal praise for asking for help or indicating that work is too hard, do first two to three corrections with Linda, check her self-recording, and give her a break from the task if she appropriately begins her work (consequence manipulations); and
4. If she has had a prior conflict with an adult, provide Linda with an opportunity to problem solve the prior conflict and present her with a neutral and simple task before requesting making corrections (setting event manipulation).

Step 5

Implementation scripts are developed to specify how, when, where, and by whom the behavior support plan will be implemented. Contingency plans for responding to emergencies, training staff, and collecting data also are indicated. If necessary, resources and assistance from other support individuals or agencies (e.g., mental health, medical, vocational) are indicated.

For example, Linda's teacher agreed to implement the plan the next day and to keep track of Linda's language arts errors and corrections as a way of determining if the intervention was working. The counselor and special education teacher developed simple checklist scripts to guide Linda's teacher through the implementation of the behavior support plan. Linda's father agreed to provide positive acknowledgments at home if Linda met her goal for each day. If Linda's problem behavior escalated in intensity, the counselor would come immediately to assist the teacher.

Step 6

Information on the effectiveness and efficiency of the behavior support plan is collected regularly, and the plan is redesigned based on an evaluation of this information. A formative (direct, frequent, regular) approach is emphasized. In Linda's example, one or more members of the behavior support team met with Linda's teacher every other day during the 2-week implementation of the behavior support plan. This frequent support was provided to ensure that the plan was working and to provide Linda's teacher with assistance in implementing the plan.

Conclusion

Schools can be great places for students, teachers, related-services personnel, families, human-service practitioners, and community members to work collaboratively to achieve meaningful results for all children and youth. However, limited resources; diverse students, families, and neighborhoods; increases in school violence; and increased social responsibilities have decreased the efficiency and effectiveness of many schools. Although the solution is multifaceted, schools can make a significant contribution by

“working smarter.” This approach requires the establishment of proactive school environments (i.e., “host environments”) that have the capacity to identify, adopt, and sustain the use of effective policies, systems, and practices.

PBS is an important approach to identifying and organizing effective school practices, especially for students who present significant problem behavior. However, many systems-level challenges remain to be addressed. First, schools need guidelines for making the adoption and sustained use of PBS practices efficient and relevant. Attention must be focused on the policies, environments, structures, and practices of PBS. For example, addressing the needs of students who present significant problem behavior requires personnel with time, highly specialized skills, access to resources, and administrative supports.

Second, balancing efforts and attention between schoolwide and individual student systems is a challenge for many schools. For example, a schoolwide discipline system that operates efficiently and effectively for the majority of students in a school can ease the high costs associated with addressing the intense needs of the relatively small proportion of students who present the most significant problem behavior (Sugai et al., 2000). However, many schools lack the capacity to maintain the efficient and ongoing operation of both schoolwide and individual student systems. Increasingly, partnerships that include schools, community agencies, businesses, and family members offer new pathways for using PBS to change systems (Illback et al., 1998; Sailor, 1996, in press).

Third, as the specialized nature of interventions increases with the increasing intensity of problem behavior, so does the complexity of implementation. Schools need user-friendly ways to use PBS and FBA. Consideration must be given to the unique features (e.g., cultural, geographical, demographic, physical) of a school and its students, families, teachers, and community members.

Finally, Carr et al. (1999) noted that lifestyle results were measured in less than 3% of PBS studies. Schools must develop mechanisms for determining if their efforts at the schoolwide, classroom, nonclassroom, and individual student levels actually are associated with meaningful outcome improvements for students, their families, and the school. Attention to the reduction of problem behavior is understandable; however, the impact of PBS efforts on larger lifestyle results (e.g., peer relations, family functioning, community mobility) also must be considered.

The PBS approach offers students, teachers, and family and community members a process that begins to address these systems-level challenges. The process is based on an established science of human behavior, pays attention to important lifestyle results, works from a systems perspective, and gives priority to research-validated practices. The goal of PBS is to use information from FBAs to guide the design of learning and teaching environments

that support and encourage adaptive behavior and lessen the usefulness of problem behavior.

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AUTHORS' NOTES

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2. The purpose of the Center is to give schools capacity-building information and technical assistance for identifying, adapting, and sustaining effective schoolwide disciplinary practices. The Center has two main activities: (a) broad dissemination to schools, families, and communities about a technology of schoolwide positive behavioral interventions and support and (b) demonstrations at the level of individual students, schools, districts, and states of feasible and effective schoolwide positive behavioral interventions and supports.
3. FBA and PBS are not required in all cases of discipline but, instead, are required only in some clearly specified circumstances.

REFERENCES

Adelman, H., & Taylor, L. (1997). Addressing barriers to learning: Beyond school-linked services and full service schools. *American Journal of Orthopsychiatry*, 67(3), 408-421.

Alberto, P. A., & Troutman, A. C. (1999). *Applied behavior analysis for teachers* (5th ed.). Columbus, OH: Merrill.

Albin, R. W., Lucyshyn, L. M., Horner, R. H., & Flannery, K. B. (1996). Contextual fit for behavioral support plans: A model for a goodness-of-fit. In L. K. Koegel, R. L. Koegel, & G. Dunlap (Eds.), *Positive behavior support:*

Including people with difficult behavior in the community (pp. 81-89). Baltimore: Brookes.

Albin, R. W., & Sandler, L. (1998, May). Contextual fit as a variable affecting the fidelity with which behavior interventions are implemented. Paper presented at the annual meeting of the Association for Behavior Analysis Annual Convention, Orlando, FL.

Baer, D. M., Wolf, M. M., & Risley, T. R. (1968). Some current dimensions of applied behavior analysis. *Journal of Applied Behavior Analysis*, 1, 91-97.

Benson, L., & Harkavy, I. (1997). School and community in the global society: A Neo-Deweyian theory of community problem-solving schools and cosmopolitan neighborly communities in a Neo-Deweyian "manifesto" to dynamically connect school and community. *Universities and Community Schools*, 5(1/2), 11-69.

Biglan, A. (1995). Translating what we know about the context of antisocial behavior into a lower prevalence of such behavior. *Journal of Applied Behavior Analysis*, 28, 479-492.

Bijou, S. W., & Baer, D. M. (1961). *Child development I: A systematic and empirical theory*. Englewood Cliffs, NJ: Prentice Hall.

Bijou, S. W., & Baer, D. M. (1978). *Behavior analysis of child development*. Englewood Cliffs, NJ: Prentice Hall.

Bijou, S. W., Peterson, R. F., & Ault, M. H. (1968). A method to integrate descriptive and experimental field studies at the level of data and empirical concepts. *Journal of Applied Behavior Analysis*, 1, 175-191.

Bijou, S. W., Peterson, R. F., Harris, F. R., Allen, E., & Johnston, M. S. (1969). Methodology for experimental studies of young children in natural settings. *Psychological Record*, 19, 177-210.

Blakeslee, T., Sugai, G., & Gruba, J. (1994). A review of functional assessment use in data-based intervention studies. *Journal of Behavioral Education*, 4, 397-414.

Broussard, C. D., & Northup, J. (1995). An approach to functional assessment and analysis of disruptive behavior in regular education classrooms. *School Psychology Quarterly*, 10, 151-164.

Carr, E. G. (1977). The motivation of self-injurious behavior: A review of some hypotheses. *Psychological Bulletin*, 84, 800-816.

Carr, E. G. (1994). Emerging themes in the functional analysis of problem behavior. *Journal of Applied Behavior Analysis*, 27, 393-400.

Carr, E. G., & Durand, V. M. (1985). Reducing behavior problems through functional communication training. *Journal of Applied Behavior Analysis*, 18, 111-126.

Carr, E. G., Horner, R. H., Turnbull, A. P., Marquis, J. G., Magito McLaughlin, D., McAtee, M. L., Smith, C. E., Anderson Ryan, K., Ruef, M. B., & Doolabh, A. (1999). *Positive behavior support for people with developmental disabilities: A research synthesis* (American Association on Mental Retardation Monograph Series). Washington, DC: American Association on Mental Retardation.

Carr, E. G., Levin, L., McConnachie, G., Carlson, J. I., Kemp, D. C., & Smith, C. E. (1994). *Communication-based intervention for problem behavior: A user's guide for producing positive change*. Baltimore: Brookes.

Center for Effective Collaboration and Practice. (1998). *Addressing student problem behavior: An IEP team's introduction to functional behavioral assessment and behavior intervention plans*. Washington, DC: American Institutes for Research.

Colvin, G., Kame'enui, E. J., & Sugai, G. (1993). School-wide and classroom management: Reconceptualizing the integration and management of students with behavior problems in general education. *Education and Treatment of Children*, 16, 361-381.

Colvin, G., & Sprick, R. (1999). Providing administrative leadership for effective behavior support: Ten strategies for principals. *Effective School Practices*, 17(4), 65-71.

Colvin, G., Sugai, G., Good, R. H., III, & Lee, Y. (1997). Using active supervision and precorrection to improve transition behaviors in an elementary school. *School Psychology Quarterly*, 12, 344-363.

Cooper, J. O., Heron, T. E., & Heward, W. L. (1987). *Applied behavior analysis*. Columbus, OH: Merrill.

- Delpit, L. (1995). *Other people's children: Cultural conflict in the classroom*. New York: New Press.
- Dryfoos, J. G. (1997). The prevalence of problem behaviors: Implications for programs. In R. P. Weissberg, T. P. Gullotta, R. L. Hampton, B. A. Ryan, & G. R. Adams (Eds.), *Healthy children 2010: Enhancing children's wellness. Issues in children's and families' lives* (Vol. 8, pp. 17–46). Thousand Oaks, CA: Sage.
- Dunlap, G., Kern, L., DePerczel, M., Clarke, S., Wilson, D., Childs, K. E., White, R., & Falk, G. D. (1993). Functional analysis of classroom variables for students with emotional and behavioral disorders. *Behavioral Disorders*, 18, 275–291.
- Dunlap, G., Kern-Dunlap, L., Clarke, S., & Robbins, F. R. (1991). Functional assessment, curricular revision, and severe behavior problems. *Journal of Applied Behavior Analysis*, 24, 387–397.
- Dunlap, G., White, R., Vera, A., Wilson, D., & Panacek, L. (1996). The effects of multi-component, assessment-based curricular modifications on the classroom behavior of children with emotional and behavioral disorders. *Journal of Behavioral Education*, 6, 481–500.
- Durand, M. V., & Carr, E. G. (1985). Self-injurious behavior: Motivating conditions and guidelines for treatment. *School Psychology Review*, 14, 171–176.
- Eber, L. (1996). Restructuring schools through wraparound planning: The LADSE experience. In R. J. Illback & C. M. Nelson (Eds.), *School-based services for students with emotional and behavioral disorders* (pp. 139–154). Binghamton, NY: Haworth Press.
- Eber, L., & Nelson, C. M. (1997). School-based wraparound planning: Integrating services for students with emotional and behavioral needs. *American Journal of Orthopsychiatry*, 67, 385–395.
- Epstein, M. H., Nelson, C. M., Polsgrove, L., Coutinho, M., Cumblad, C., & Quinn, K. P. (1993). A comprehensive community-based approach to serving students with emotional and behavioral disorders. *Journal of Emotional and Behavioral Disorders*, 1, 127–133.
- Foster-Johnson, L., & Dunlap, G. (1993). Using functional assessment to develop effective, individualized interventions for challenging behaviors. *Teaching Exceptional Children*, 25, 44–50.
- Gottfredson, G. D., & Gottfredson, D. C. (1996). *A national study of delinquency prevention in schools: Rationale for a study to describe the extensiveness and implementation of programs to prevent adolescent problem behavior in schools*. Ellicott City, MD: Gottfredson Associates.
- Gunter, P. L., Denny, R. K., Jack, S. L., Shores, R. E., & Nelson, C. M. (1993). Aversive stimuli in academic interactions between students with serious emotional disturbance and their teachers. *Behavioral Disorders*, 18, 265–274.
- Haring, N. G., & De Vault, G. (1996). Family issues and family support: Discussion. In L. K. Koegel, R. L. Koegel, & G. Dunlap (Eds.), *Positive behavioral support: Including people with difficult behavior in the community* (pp. 116–120). Baltimore: Brookes.
- Horner, R. H. (1994). Functional assessment: Contributions and future directions. *Journal of Applied Behavior Analysis*, 27, 401–404.
- Horner, R. H., Albin, R. W., Sprague, J. R., & Todd, A. W. (1999). Positive behavior support. In M. E. Snell & F. Brown (Eds.), *Instruction of students with severe disabilities* (5th ed., pp. 207–243). Upper Saddle River, NJ: Merrill/Prentice Hall.
- Illback, R. J., Nelson, C. M., & Sanders, D. (1998). Community-based services in Kentucky: Description and 5-year evaluation of Kentucky IMPACT. In M. H. Epstein, K. Kutash, & A. Duchnowski (Eds.), *Outcomes for children and youth with emotional and behavioral disorders and their families* (pp. 141–172). Austin, TX: PRO-ED.
- Individuals with Disabilities Education Act of 1990, 20 U.S.C. § 1400 et seq.
- Iwata, B. A., Dorsey, M., Slifer, K. J., Bauman, K. E., & Richman, G. S. (1982). Toward a functional analysis of self-injury. *Analysis and Intervention in Developmental Disabilities*, 2, 1–20.
- Kagan, S. L., Goffin, S. G., Golub, S. A., & Pritchard, E. (1995). *Toward systemic reform: Service integration for young children and their families*. Falls Church, VA: National Center for Service Integration.
- Kame'enui, E. J., & Carnine, D. W. (1998). *Effective teaching strategies that accommodate diverse learners*. Upper Saddle River, NJ: Prentice Hall.
- Kauffman, J. (1997). *Characteristics of emotional and behavior disorders of children and youth* (6th ed.). Columbus, OH: Merrill.
- Kavale, K. A., & Forness, S. R. (1999). Efficacy of special education and related services. Monograph of the American Association on Mental Retardation. Washington, DC.
- Kern, L., Childs, K. E., Dunlap, G., Clarke, S., & Falk, G. D. (1994). Using assessment-based curricular intervention to improve the classroom behavior of a student with emotional and behavioral challenges. *Journal of Applied Behavior Analysis*, 27, 7–19.
- Kerr, M. M., & Nelson, C. M. (1998). *Strategies for managing problem behaviors in the classroom* (2nd ed.). Columbus, OH: Merrill.
- Knitzer, J. (1993). Children's mental health policy: Challenging the future. *Journal of Emotional and Behavioral Disorders*, 1(1), 8–16.
- Knitzer, J., Steinberg, Z., & Fleisch, B. (1990). *At the schoolhouse door: An examination of programs and policies for children with behavioral and emotional problems*. New York: Bank Street College of Education.
- Koegel, L. K., Koegel, R. L., & Dunlap, G. (Eds.). (1996). *Positive behavior support: Including people with difficult behavior in the community*. Baltimore: Brookes.
- Lawson, H. A., & Briar-Lawson, K. (1997). *Connecting the dots: Progress toward the integration of school reform, school-linked services, parent involvement and community schools*. Oxford, OH: Institutes for Educational Renewal.
- Lewis, T. J., Colvin, G., & Sugai, G. (in press). The effects of pre-correction and active supervision on the recess behavior of elementary school students. *School Psychology Quarterly*.
- Lewis, T. J., & Sugai, G. (1993). Teaching communicative alternatives to socially withdrawn behavior: An investigation in maintaining treatment effects. *Journal of Behavioral Education*, 3, 61–75.
- Lewis, T., & Sugai, G. (1996a). Descriptive and experimental analysis of teacher and peer attention and the use of assessment-based intervention to improve the pro-social behavior of a student in general education settings. *Journal of Behavioral Education*, 6, 7–24.
- Lewis, T. J., & Sugai, G. (1996b). Functional assessment of problem behavior: A pilot investigation of the comparative and interactive effects of teacher and peer social attention on students in general education settings. *School Psychology Quarterly*, 11, 1–19.
- Lewis, T. J., Sugai, G., & Colvin, G. (1998). Reducing problem behavior through a school-wide system of effective behavioral support: Investigation of a school-wide social skills training program and contextual interventions. *School Psychology Review*, 27, 446–459.
- Lipsey, M. W. (1991). The effect of treatment on juvenile delinquents: Results from meta-analysis. In F. Losel, D. Bender, & T. Bliesener (Eds.), *Psychology and law* (pp. 131–143). New York: Walter de Gruyter.
- Lipsey, M. W. (1992). Juvenile delinquency treatment: A meta-analytic inquiry into the variability of effects. In T. D. Cook, H. Cooper, D. S. Cordray, H. Hartman, L. V. Hedges, R. V. Light, T. A. Louis, & F. Mostellar (Eds.), *Meta-analysis for explanation* (pp. 83–127). Beverly Hills, CA: Sage.
- Lipsey, M. W., & Wilson, D. B. (1993). The efficacy of psychological, educational, and behavioral treatment: Confirmation from meta-analysis. *American Psychologist*, 48, 1181–1209.
- Lohrman-O'Rourke, S., Knoster, T., & Llewellyn, G. (1999). Screening for understanding: An initial line of inquiry for school-based settings. *Journal of Positive Behavioral Interventions*, 1(1), 35–42.
- Luiselli, J. K., & Cameron, M. J. (Eds.). (1998). *Antecedent control: Innovative approaches to behavioral support*. Baltimore: Brookes.
- Mayer, G. (1995). Preventing antisocial behavior in the schools. *Journal of Applied Behavior Analysis*, 28, 467–478.
- Meyer, L. H., & Evans, I. M. (1989). *Nonaversive intervention for behavior problems: A manual for home and community*. Baltimore: Brookes.
- O'Neill, R. E., Horner, R. H., Albin, R. W., Sprague, J. R., Storey, K., & Newton, J. S. (1997). *Functional assessment and program development for problem behavior: A practical handbook*. Pacific Grove, CA: Brooks/Cole.

- Patterson, G. R., Reid, J. B., & Dishion, T. J. (1992). *Antisocial boys*. Eugene, OR: Castalia Press.
- Peacock Hill Working Group. (1992). Problems and promises in special education and related services for children and youth with emotional or behavioral disorders. *Behavioral Disorders*, 16, 299–313.
- Reichle, J., & Wacker, D. P. (Eds.). (1993). *Communicative alternatives to challenging behavior: Integrating functional assessment and intervention strategies* (Vol. 3). Baltimore: Brookes.
- Repp, A. (1994). Comments on functional analysis procedures for school-based behavior problems. *Journal of Applied Behavior Analysis*, 27, 208–412.
- Repp, A., & Horner, R. H. (Eds.). (1999). *Functional analysis of problem behavior: From effective assessment to effective support*. Belmont, CA: Wadsworth.
- Risley, T. (1996). Get a life: Positive behavioral intervention for challenging behavior through life arrangement and life coaching. In L. K. Koegel, R. L. Koegel, & G. Dunlap (Eds.), *Positive behavioral support: Including people with difficult behavior in the community* (pp. 403–424). Baltimore: Brookes.
- Rose, L. C., & Gallup, A. M. (1998). The 30th annual Phi Delta Kappa/Gallup Poll of the public's attitudes toward the public school. *Phi Delta Kappan*, 80(1), 41–56.
- Sailor, W. (1996). New structures and systems change for comprehensive positive behavioral support. In L. K. Koegel, R. L. Koegel, & G. Dunlap (Eds.), *Positive behavioral support: Including people with difficult behavior in the community* (pp. 163–206). Baltimore: Brookes.
- Sailor, W. (in press). *Inclusive education and school/community partnerships*. New York: Teachers College Press.
- Sasso, G. M., Peck, J., & Garrison-Harrell, L. (1998). Social interaction setting events: Experimental analysis of contextual variables. *Behavioral Disorders*, 24, 34–43.
- Schorr, L. B. (1997). *Common purpose: Strengthening families and neighborhoods to rebuild America*. New York: Anchor Books.
- Schwartz, B. (1989). *Psychology of learning and behavior* (3rd ed.). New York: W. W. Norton.
- Shores, R. E., Gunter, P. L., & Jack, S. L. (1993). Classroom management strategies: Are they setting events for coercion? *Behavioral Disorders*, 18, 92–102.
- Shores, R. E., Jack, S. L., Gunter, P. L., Ellis, D. N., DeBriere, T. J., & Wehby, J. H. (1993). Classroom interactions of children with behavior disorders. *Journal of Emotional and Behavioral Disorders*, 1, 27–39.
- Special issue on functional analysis approaches to behavioral assessment and treatment. (1994). *Journal of Applied Behavior Analysis*, 27(4).
- Sprague, J., Sugai, G., & Walker, H. (1998). Antisocial behavior in schools. In S. Watson & F. Gresham (Eds.), *Child behavior therapy: Ecological considerations in assessment, treatment, and evaluation* (pp. 451–474). New York: Plenum Press.
- Stevens, L. J., & Price, M. (1992). Meeting the challenge of educating children at risk. *Kappan*, 74(1), 18–23.
- Sugai, G. (1998). Postmodernism and emotional and behavioral disorders: Distraction or advancement. *Behavioral Disorders*, 23, 171–177.
- Sugai, G., & Horner, R. (1994). Including students with severe behavior problems in general education settings: Assumptions, challenges, and solutions. In J. Marr, G. Sugai, & G. Tindal (Eds.), *The Oregon Conference monograph* (Vol. 6, pp. 102–120). Eugene: University of Oregon.
- Sugai, G., & Horner, R. H. (1999). Discipline and behavioral support: Practices, pitfalls, & promises. *Effective School Practices*, 17(4), 10–22.
- Sugai, G., Horner, R. H., & Sprague, J. (1999). Functional assessment-based behavior support planning: Research-to-practice-to-research. *Behavioral Disorders*, 24, 223–227.
- Sugai, G., Lewis-Palmer, T., & Hagan, S. (1998). Using functional assessments to develop behavior support plans. *Preventing School Failure*, 43(1), 6–13.
- Sugai, G., Sprague, J. R., Horner, R. H., & Walker, H. M. (2000). Preventing school violence: The use of office discipline referrals to assess and monitor school-wide discipline interventions. *Journal of Emotional and Behavioral Disorders*, 8, 94–101.
- Taylor-Greene, S., Brown, D., Nelson, L., Longton, J., Gassman, T., Cohen, J., Swartz, J., Horner, R. H., Sugai, G., & Hall, S. (1997). School-wide behavioral support: Starting the year off right. *Journal of Behavioral Education*, 7, 99–112.
- Tilly, W. D., III, Knoster, T. P., Kovalski, J., Bambara, L., Dunlap, G., & Kincaid, D. (1998). *Functional behavioral assessment: Policy development in light of emerging research and practice*. Alexandria, VA: National Association of the State Directors of Special Education.
- Todd, A. W., Horner, R. H., Sugai, G., & Sprague, J. R. (1999). Effective behavior support: Strengthening school-wide systems through a team-based approach. *Effective School Practices*, 17(4), 23–37.
- Tolan, P., & Guerra, N. (1994). What works in reducing adolescent violence: An empirical review of the field. Boulder: University of Colorado, Center for the Study and Prevention of Violence.
- Touchette, P. E., MacDonald, R. F., & Langer, S. N. (1985). A scatter plot for identifying stimulus control of problem behavior. *Journal of Applied Behavior Analysis*, 18, 343–351.
- Turnbull, A. P., & Turnbull, H. R. (1996). Group action planning as a strategy for providing comprehensive family support. In L. K. Koegel, R. L. Koegel, & G. Dunlap (Eds.), *Positive behavioral support: Including people with difficult behavior in the community* (pp. 99–114). Baltimore: Brookes.
- Umbreit, J. (1995). Functional assessment and intervention in a regular classroom setting for the disruptive behavior of a student with attention deficit hyperactivity disorder. *Behavioral Disorders*, 20, 267–278.
- Vollmer, T. R., & Northup, J. (1996). Some implications of functional analysis for school psychology. *School Psychology Quarterly*, 11, 76–92.
- Walker, H. M., Colvin, G., & Ramsey, E. (1995). *Antisocial behavior in school: Strategies and best practices*. Pacific Grove, CA: Brooks/Cole.
- Walker, H. M., Forness, S. R., Kaufman, J., Epstein, M. H., Gresham, F. M., Nelson, C. M., & Strain, P. S. (1998). Macro-social validation: Referencing outcomes in behavioral disorders to societal issues and problems. *Behavioral Disorders*, 24, 1–18.
- Walker, H. M., Horner, R. H., Sugai, G., Bullis, M., Sprague, J. R., Bricker, D., & Kaufman, M. J. (1996). Integrated approaches to preventing antisocial behavior patterns among school-age children and youth. *Journal of Emotional and Behavioral Disorders*, 4, 193–256.
- Wolery, M. R., Bailey, D. B., Jr., & Sugai, G. M. (1988). *Effective teaching: Principles and procedures of applied behavior analysis with exceptional students*. Boston: Allyn & Bacon.
- Zins, J. E., & Ponti, C. R. (1990). Best practices in school-based consultation. In A. Thomas and J. Grimes (Eds.), *Best practices in school psychology—II* (pp. 673–694). Washington, DC: National Association of School Psychologists.

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