Exceptional Children

Positive Behavior Supports: Can Schools Reshape Disciplinary Practices?

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ABSTRACT: *This literature review examines the use of school-based positive behavior support (PBS), an alternative to traditional disciplinary practices that includes databased decision making and team collaboration. First, the role of archival data in planning intervention priorities is examined. Next, efficacy research focusing on the three types of PBS is evaluated: schoolwide (universal), specific setting, and individual student levels. Overall, findings were positive across all types of PBS, validating implementation of these research-based practices. This review concludes with a discussion of directions for future research and implications for practice.*

The increase in aggressive and delinquent behaviors in schools throughout the country has reached critical proportions. Alarmed parents, students, and lawmakers expect educators to respond more effectively (Horner, 2000; Jackson & Panyan, 2002) by incorporating more "get tough" and "zero tolerance" policies (Lewis-Palmer, Sugai, & Larson, 1999). Ironically, these punitive and reactive disciplinary measures may actually heighten the incidence and severity of the behaviors they are designed to reduce (Lewis & Garrison-Harrell, 1999; Turnbull et al., 2002).

An increasingly popular alternative to these traditional disciplinary practices is the use of positive behavior supports (PBS), which recognizes the broad set of relevant variables that can affect a person's behavior (Kennedy et al., 2001). Like the ecological view of emotional/behavioral disorders (Hobbs, 1975), the etiology of behavior is not perceived as existing solely within the individual, but is viewed as an *interaction* between the environment and the child (Jackson & Panyan, 2002). Interventions within the PBS umbrella are built on the foundations of applied behavior analysis (ABA) and repackaged in a more positive, collaborative, and holistic framework. In this context, the specificity of focus, reliance on data, and expectation of observable change germane to ABA are adapted to become more acceptable to practitioners in educational settings. PBS interventions are designed to be proactive, to prevent problem behavior by altering a situation before problems escalate, and to concurrently teach appropriate alternatives (Carr et al., 1999).

School-based collaborative teams that include teachers, administrators, and/or special ser-

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vices personnel are an essential piece of PBS programs. As emphasized in the literature (Todd, Horner, Sugai, & Colvin, 1999; Todd, Horner, Sugai, & Sprague, 1999), these teams coordinate and facilitate collecting relevant data to plan, implement, and evaluate strategies that are central to PBS. Within this data-driven process, teams also determine whether interventions should focus on individuals with chronic problems (see Todd, Horner, Sugai, & Colvin, 1999), particular groups of students, specific school settings, or the entire school (see Lewis & Sugai, 1999; Todd, Horner, Sugai, & Colvin, 1999). In taking this more holistic collaborative and preventative approach, PBS represents a major departure from traditional reactive disciplinary practices.

There is a long history of experimental success in changing problem behaviors (Carr et al., 1999). Now, as we try to improve educational environments and encourage greater autonomy within schools, the challenge facing PBS advocates is whether teams can successfully implement research-validated best practices. Can we transfer what we have learned about successful intervention to large numbers of students outside of experimental settings? Can this theory-to-practice gap be overcome so school support teams can create safer, more positive learning environments?

This literature review addresses these important questions by identifying relevant studies and through searches using the ERIC, PsycINFO, and Exceptional Child Educational Resources databases, cross-referencing bibliographies, and through consulting with several researchers. Key words entered into these searches included "positive behavior supports" and "effective behavior supports" with all related abstracts appearing in the databases being reviewed. Because of the large number of descriptive papers and the applied nature of this topic, only primary sources that con-

tained substantive quantitative data were included. Further, we also limited our search to school-based investigations and included the essential element of collaborative team decision making (Todd, Horner, Sugai, & Colvin, 1999; Todd, Horner, Sugai, & Sprague, 1999).

We begin this article with an overview of PBS. Then, steps in the PBS process as well as potential areas of intervention are considered. Because teams first collect and review school records and other relevant information (e.g., discipline reports, absence rates, suspensions, etc.) to plan interventions, we begin by analyzing the use of archival data. Next, because behavior support teams usually target interventions in one area, efficacy research is divided into three primary levels of support: (a) schoolwide or universal supports for all students, (b) specific setting supports within schools, and (c) supports for individual students with chronic behavior difficulties. The review concludes with a discussion of implications for practice and directions for future research.

AN OVERVIEW OF POSITIVE BEHAVIOR SUPPORTS

PBS is not a new approach, but is based upon the principles of ABA. The goal of PBS is to "apply behavioral principles in the community in order to reduce problem behaviors and build appropriate behaviors that result in durable change and a rich lifestyle" (Carr et al., 1999, p. 3). The preponderance of early research was conducted with individuals with severe cognitive and developmental disabilities and targeted such behaviors as aggression, self-injury, and property destruction. In two related meta-analyses of single-subject studies examining intervention efficacy, Marquis et al. (2000) and Carr et al. found PBS to be highly successful in reducing problem behaviors. As a result, researchers began to examine applying these principles with larger groups of people in inclusive settings.

With the broad goal of creating safer, more positive school environments, the use of PBS expanded to include greater numbers of students in general education settings as mandated in the Individuals with Disabilities Education Act of 1997

(IDEA; see Turnbull et al., 2002). IDEA requires that local education agencies use PBS not only for students identified for special education, but also for those whose problem behavior puts them at risk for special education placement (Kennedy et al., 2001). Typically, school-based PBS can be directed at four different levels of support. First, schoolwide or universal supports (e.g., a violence prevention program) are developed for all students across settings. Next, supports for nonclassroom or specific school settings are carried out in particular common areas like hallways or cafeterias. Classroom or group supports focus on specific groups of students; for example, a fourth-grade class or basketball team. Finally, individual student supports are geared toward those with chronic problems requiring intensive individualized interventions (Lewis & Sugai, 1999; Turnbull et al.). Horner (2000) emphasized that when PBS supports are universally designed for all students, positive effects can also be achieved for individuals with severe difficulties.

USING ARCHIVAL DATA TO PLAN AND EVALUATE POSITIVE BEHAVIOR SUPPORTS

The first step of the PBS process is typically for collaborative teams to identify intervention priorities. The literature suggests that in the initial step, teams analyze archival data such as disciplinary office referrals or suspensions to obtain a picture of a building's behavioral landscape. For example, Skiba, Peterson, and Williams (1997) gathered information from disciplinary referrals that included types of offenses, disciplinary consequences, administrative measures, and other actions taken prior to referral to special education. Sugai, Sprague, Horner, and Walker's (2000) study included descriptions of referrals that were

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reported by grade levels, the total referrals per school year, and the number of students with more than 1, 5, or 10 office referrals. Wright and Dusek (1998) noted that office referrals are an unobtrusive measure of student behaviors and may help minimize the extensive time commitment connected with direct observation and the subjectivity of behavior rating scales. They therefore compared disciplinary referrals in two elementary schools and contrasted the annual number of referrals, the number of general and special education students receiving referrals, and gender differences.

These studies model how school-based teams can apply information obtained from archival records to help design interventions, including the place and the type of intervention to implementation and/or to establishment of a pre-intervention baseline. For example, if a small number of pupils receive the vast majority of office referrals, then the team may choose to develop intensive individualized interventions. Data can help identify schools that are unsafe or disorderly and that could benefit from changes in overall behavior management practices (Skiba et al., 1997). Research also illustrates how office referral information can serve as a baseline to evaluate intervention effectiveness, as when Lewis-Palmer et al. (1999) found that improved information access in an elementary school helped address schoolwide discipline and safety issues.

However, Sugai et al. (2000) cautioned that office referral monitoring systems must be accurate or it can undermine the entire process. They advised the use of a variety of data including attendance, tardies, arrests, or direct observation similar to the model reported by Turnbull et al. (2002). Software packages such as the School Wide Information System (SWIS; 2002) can assist schools in these efforts. This Web-based computer system can not only help school administration and staff keep an accurate account of office discipline referrals, but also requires an effective schoolwide management plan. It can also enable school personnel to monitor behaviors of individuals or groups of students and help determine when and where behaviors most frequently occur. The convenient and efficient manner in which computer applications such as SWIS operate can aid schools in making decisions regarding

the implementation or evaluation of PBS. Consistent with ABA principles, these studies reflect how quantifiable data can assist the team decision-making process for large numbers of students.

SCHOOLWIDE BEHAVIORAL SUPPORTS

As emphasized in the literature, one intervention focus teams can choose is universal schoolwide supports for all students. Accessible, reliable, and multiple data sources are essential if these supports are to be successfully implemented. For example, Gottfredson, Gottfredson, and Hybl (1993) implemented several schoolwide changes in "treatment" middle schools that began with revisions of their school discipline policies and the use of a computerized system that recorded discipline referrals made by teachers. Additionally, teachers were trained to handle disruptive behavior by reorganizing classroom environments and using more effective management behavior techniques. Measurements of the interventions used consisted of classroom surveys, teacher ratings, and the examination of school discipline records. Although the activities and the support for behavior improvement teams varied among middle schools, overall improvements were seen in treatment schools compared with control schools in classroom organization and rule clarity.

Warren et al. (in press) implemented schoolwide supports in an urban middle school. After establishing a PBS team and identifying behavioral expectations, a schoolwide token system, referred to as "Gotcha" coupons, was implemented to reinforce appropriate behavior. A number of outcome measures in addition to office discipline referrals were used in pre- and postintervention years, including in-school conferences with students, time-outs, in-school suspensions,

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short-term suspensions, and out-of-school placements. Overall, there was a decrease in all aversive methods used, except out-of-school placements that remained the same. Further, 72% of the "Gotcha" coupons were given by only 25% of the teachers, suggesting that results may have been greater if the entire staff consistently rewarded appropriate behavior using coupons. Consistent with suggestions of Sugai et al. (2000), a variety of archival and direct observation measurements provided important information regarding the effectiveness of specific aspects of the program. Nevertheless, the absence of a comparison control school suggests limitations in results.

Sprague et al. (2001) evaluated the effectiveness of the Second Step program. This violence-prevention curriculum for ages preschool to ninth-grade provides structured, scripted lessons that can be taught by counselors or teachers. Lessons focus on the areas of anger management, problem-solving, and empathy. Students are encouraged to role-play and participate in discussions regarding authentic problems or situations that occur in the classroom (see Frey, Hirschstein, & Guzzo, 2000). Multiple measurements were used to assess the effectiveness of the program including: (a) pre- and postmeasures of office discipline referrals; (b) administrator, teacher, and parent school safety surveys; (c) Second Step knowledge tests (administered to students at treatment schools); and (d) a needs assessment completed by the school discipline teams. Office discipline reports showed an average decline of 51% for four out of six treatment schools, whereas little change was seen in control schools. These findings were consistent with changes in perceptions of treatment fidelity as measured in the school safety survey. Results though are qualified due to small sample size, the lack of office referral baseline measurements, and the absence of direct observation. An overall improvement was seen in the Second Step knowledge test scores across all grade levels, although this test was only administered in the treatment schools.

A series of studies assessed the effectiveness of the University of Oregon's Project PREPARE (Proactive, Responsive, Empirical, and Proactive Alternatives in Regular Education) model (Colvin, Kameenui, & Sugai, 1993; Nelson, Colvin, & Smith, 1996; Taylor-Greene et al.,

1997). The purpose of this schoolwide behavior management model was to increase teacher ability to respond proactively to managing student behaviors. Using a carefully developed staff development program, *Teacher of Teacher* (TOT) teams were established to devise plans to identify and teach expected behaviors to students. Interventions included the specification and explanation of behavioral expectations to students, the provision of structured opportunities to practice behavioral expectations, teachers providing precorrection to students before entry into problem settings, reinforcement for the demonstration of expected behaviors, and correction of unacceptable behaviors (Colvin, Sugai, & Kameenui, 1994).

In one study, Nelson et al. (1996) used data-driven decision making to evaluate the effectiveness of the Project PREPARE model. This project was unique because it focused on universal strategies and organizational structures in both classroom and schoolwide levels. Implementing a pre- and postcomparison group design, a decrease in disciplinary action and more positive teacher self-ratings following program implementation were found. Teachers were more likely to agree that staff consensus was achieved, an important component of collaborative problem-solving. In addition, students targeted through the universal interventions showed behavioral improvements.

Colvin et al. (1993) also evaluated the effectiveness of Project PREPARE in a middle school by using a database system to track the number of office referrals. This school received TOT training for 1 academic school year, while the control middle school received no specialized assistance. Preliminary findings showed a 50% decrease in office referrals in the experimental middle school, plus a decrease in the use of suspensions and other negative consequences. In contrast, the control middle school demonstrated a 12% increase in punitive actions. In spite of this, because findings were limited primarily to archival data, program effectiveness results should be interpreted cautiously.

In a related study, Taylor-Greene et al. (1997) used a 2-year pre- and postcomparison of office referral data to examine the effectiveness of a rural, schoolwide PBS program. Using the Project PREPARE model, interventions were de-

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signed to identify, teach, and reward appropriate student behaviors. During the first year, office referral data were used to identify patterns of problem behavior while the faculty was designing a schoolwide behavioral support system. Rates of daily office discipline referrals per month over the 2-year period that included the student's name, date, reason for referral, and administrative decision were examined. Findings showed a decrease in the average number of daily office referrals in the school year following program implementation. Further, 26 of 40 teachers were very satisfied with their training.

On the whole, the use of packaged programs and/or curricula such as Project PREPARE (Colvin et al., 1993; Nelson et al., 1996; Taylor-Greene et al., 1997) and Second Step (Sprague et al., 2001) has demonstrated positive outcomes. These programs offer administrators and staff prescribed interventions that can be easily implemented with minimal expense. Interventions include teacher training in effective management procedures such as precorrection and cueing, positive reinforcement, and rehearsal of expected behaviors. Other successful interventions include the use of extrinsic rewards throughout the school day (Warren et al., in press) and the presentations of awards at schoolwide assemblies (Sprague et al.).

Evaluations of universal schoolwide PBS interventions offer very promising results. Studies that utilize multiple measures such as behavioral assessment, teacher ratings, and consumer satisfaction inventories in addition to archival data, facilitate more comprehensive evaluations of PBS programs (Gottfredson et al., 1993; Nelson et al., 1996; Sprague et al., 2001; Warren et al., in press). In addition, the systematic use of behavior tracking systems and applications of computer technology can help schools use data to plan and

evaluate PBS interventions (Colvin et al., 1993; Gottfredson et al.). However, in both the Colvin et al. (1993) and Taylor-Greene et al. (1997) studies, results were limited primarily to office referrals. Absent direct observations or related measures, these positive findings are qualified.

POSITIVE BEHAVIOR SUPPORTS IN SPECIFIC SETTINGS

School-based teams for interventions can also identify nonclassroom, specific settings such as hallways, playgrounds, and cafeterias for intervention. Accounting for about 50% of all problem behaviors (Colvin, Sugai, Good, & Lee, 1997), these locations frequently lack established routines and often lack clear behavioral expectations (Lewis & Garrison-Harrell, 1999). Four types of interventions were found in this extensive literature: active supervision, precorrection, group contingencies, and social skills training. The following investigations highlight the use of these strategies.

Colvin et al. (1997) studied the effects of precorrection and active supervision on elementary school students in major transition settings (e.g., entering the school building, moving to the cafeteria for lunch, exiting the building). Supervisory staff members were trained to implement precorrection strategies and to increase their use of active supervision. Before each transition period, the principal would remind teachers to verbally prompt students about appropriate behavior. Data measured the number of supervisory staff present during each 5-min observation interval in each transition setting. A multiple baseline design across the three transition settings was used to evaluate the effectiveness of precorrection and active supervision. Findings indicated that the more times a supervisor interacted with a student, the fewer times problem behaviors were displayed. Interestingly, the number of staff present during any one transition period was unrelated to the frequency of problem behaviors. Management of active supervision strategies had the greatest effect on problem behaviors. Unfortunately, precorrections made by staff members could not be assessed reliably because systematic observations were not possible.

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In 1999, Lewis and Garrison-Harrell examined the effectiveness of a PBS program on cafeteria, playground, and hallway transitions in a small, suburban elementary school. Initially, the school-based team created a list of school rules, provided rule instruction to all students, established a token system to encourage compliance, and developed social skill lessons for each school rule. Once the social skill lessons were implemented, setting-specific interventions and incentives were introduced to encourage students to use these skills. In addition to precorrection, active supervision and group contingencies were also used. For example, entire groups of students were rewarded with ice cream parties when school rules were followed during lunch in the cafeteria. Using a multiple baseline design across settings, findings showed that this combination of interventions (precorrection, active supervision, and group contingencies) were effective in reducing problem behaviors. In contrast, data on social skill instruction showed no significant differences in all three settings. Interventions data collected 1 month later indicated that reduction in problem behavior was maintained across all three settings.

In a similar study, Lewis, Sugai, and Colvin (1998) assessed the effects of social skill instruction combined with direct intervention on problem behavior in a cafeteria, plus during recess and hall transitions. A PBS team was responsible for creating school rules and a token reinforcement system, plus developing social skill lessons related to specific settings. Following 4 weeks of these interventions, group contingency plans were put into place to encourage generalization of the social skills across settings. Data on social skill instruction revealed no differences between baseline and implementation data across all three nonclassroom settings. In contrast, data on direct intervention strategies that followed social skill instruction showed moderate success in decreasing problem behaviors exhibited in all three settings. Further, data indicated maintenance effects

in the cafeteria and during transition periods and moderate maintenance effects on the playground. These findings again reflect the limited generalization effects of social skills training across settings.

Lewis, Colvin, and Sugai (2000), in a follow-up investigation, examined the influence of reviewing key social skills, the use of precorrection for prompting these skills, and active supervision during recess. A PBS team implemented this program in three phases. First, teachers reviewed school rules and social skills related to the playground. Next, educational assistants were trained to be playground monitors. Last, precorrection and active supervision strategies were introduced to three different recess periods. To assess playground monitor behavior, the degree of active versus nonactive supervision was observed and recorded. Evaluation of student behavior during structured activities at recess indicated relatively low levels of problem behavior. Findings supported the effectiveness of precorrection and active supervision, plus the need to structure playground activity.

In a Project PREPARE study previously discussed, Nelson et al. (1996) examined the effects of a schoolwide training program on target behaviors and office referrals in school-breakfast and before-school settings. School staff developed a set of behavioral expectations for each common area that were then translated into instructional plans. Two dependent variables were used to evaluate program effectiveness: six categories of social interactions and the number of disciplinary office referrals. During the intervention phase, teachers adopted an instructional procedure that consisted of an explanation of the goals and a corresponding rationale to the students, a description and demonstration of the expected appropriate behaviors, guided practice with feedback, plus cues and reminders to demonstrate appropriate behaviors. Data indicated an increase in positive and a decrease in negative social behaviors across both settings. After implementation of the schoolwide training program, the number of discipline referrals substantially declined for both the school-breakfast and before-school settings.

Attempting to reduce hallway noise during lunch transition in a rural middle school, Kartub, Taylor-Greene, March, and Horner (2000) imple-

mented a training exercise to help students discriminate "loud" from "quiet." A small blinking light was used as a visual reminder to help students remember the motto, "When you see the light, lips tight." Previous activities such as adult supervision, verbal reprimands, and assigned detention for excessive noise continued. Overall, a reduction in noise level was measured across all three grade levels. Staff also reported a significant noise level reduction that was maintained into the following school year. Due to the absence of a control group and the use of staff perceptions of noise level for the second year, maintenance and generalization effects can only be assumed.

Hoping to reduce aggressive behavior on an elementary school playground, Todd, Haugen, Anderson, and Spriggs (2002) evaluated a recess workshop designed to teach students expected behaviors. After receiving direct instruction, practice, and skill reinforcement, a dramatic decrease in office referrals resulted and a satisfaction survey indicated that the workshops were seen as effective and a valuable use of teaching time. Unfortunately, the absence of direct observation measures is a significant qualification of these findings.

Overall, the use of PBS in specific settings (e.g., hallways, transition times, cafeterias, playgrounds, arrival times, and/or dismissal times) has consistently demonstrated positive results (Colvin et al., 1997; Kartub et al., 2000, Lewis et al., 1998; Lewis & Garrison-Harrell, 1999; Lewis et al., 2000; Nelson et al., 1996). Effective interventions such as active supervision, group contingencies, and precorrection were developed by teams formed during training, required the involvement of school staff, and were specifically designed for each school. Varying combinations of these strategies not only improved behavior but also resulted in generalization across setting. What is particularly heartening, as Lewis and Sugai (1999) have emphasized, is that schools can influence behavior with minimal training and technical assistance from outside sources.

In addition to these successful outcomes, several limitations do exist in this literature. First, there appears to be a lack of behavioral generalization beyond settings where students were provided direct instruction. In one particular study (Colvin et al., 1997), there was a concern by researchers that both student and staff behavior did

not transfer across transition. Second, multiple intervention interference may have occurred, most commonly when social skill training was combined with a second intervention (Lewis et al., 1998; Lewis & Garrison-Harrell 1999). These findings, however, are not surprising given the frequent failure of social skills to generalize after instruction (Gresham, Sugai, & Horner, 2001).

When evaluating intervention effectiveness, although direct observation is the preferred method for collecting data in specific settings, practical considerations must also be considered. If time and resources are limited, educators can utilize anecdotal reports or random observations on a small number of students in a targeted area if appropriate. Further, schools should individually decide the type of data collection best suited for their situation (Lewis et al., 2000). Regardless of approach, there is a strong support for teams to use databased decision making for PBS programs in specific settings.

POSITIVE BEHAVIOR SUPPORTS AND INDIVIDUAL STUDENTS

Of the estimated 1% to 7% of students with chronic behavior problems (Sugai et al., 2000), school-based teams should first attempt to meet their individual needs within the larger, universal schoolwide context. Lewis and Sugai (1999) explained that if all students are taught key behavioral expectations and routines, and open student and staff communication is established, then students with chronic difficulties would likely demonstrate improved behavior. Is this an effective strategy to consider?

Within the literature, we were able to identify only one study that specifically addressed whether universal supports also improve behavior of students with chronic difficulties. Nelson's (1996) universal approach included establishing behavioral expectations for common areas, tasking routines into discrete behaviors, and then instructing appropriate routines. Results from the Devereaux Behavior Rating Scale-School Form (Naglieri, LeBuffe, & Pfeiffer, 1993) indicated improvements in targeted students' behavioral adjustment, plus enhanced academic performance and school survival skills. With the effective use

of universal strategies, it can be anticipated that the need for time-consuming and expensive Functional Behavior Assessments (FBA) would decrease.

The other three studies identified focused on establishing individual support plans. For example, Todd, Horner, Vanater, and Schneider (1997) analyzed the effects of a self-management strategy for a seventh-grade male with a traumatic brain injury. "Felix" exhibited problematic, attention-seeking classroom behaviors due to frustration. When he was unhappy, he would whine, then pound on objects, refuse to comply, throw things or hit people, and finally leave the room or cause property damage. Even when his whining was ignored, his behavior would escalate. The "action team" introduced a self-manager card, and he was taught a simple routine for requesting teacher assistance. After implementing this strategy and a crisis intervention plan, the action team consistently met to review the student's progress. Felix's problem behaviors greatly improved throughout the study, although occasional flare-ups did occur. Todd et al. emphasized the need for team members to assume long-term ownership of the individual student PBS process.

Another study involved the use of wraparound services through interagency teaming to help students with emotional and behavioral disorders (Duckworth et al., 2001). The team implemented a suspension program where teachers called parents on cell phones immediately when problems occurred. Other innovations included databased behavioral instruction, the availability of on-site counseling services, a mentoring program with university education majors, the use of the Second Step program, and monthly evening parent meetings. Findings demonstrated a decrease in office referrals as well as in partial and full-day absences and suspensions. Further, there

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was a substantial increase in parents attending conferences and participating throughout the program. Unfortunately, the use of multiple interventions makes it difficult to ascertain the effectiveness of individual treatments. Overall, expanding a PBS team to include interagency membership is a promising practice.

Kennedy et al. (2001) investigated the effectiveness of PBS combined with person-centered planning. This latter process focuses on identifying a range of personal characteristics, abilities, and supports that are necessary for an individual to succeed in typical settings. Three students were identified for this study. Eight-year-old Charles was diagnosed with Tourette's syndrome, attention deficit/hyperactivity disorder (ADHD), and a severe emotional disorder. Six-year-old Mickey was identified with ADHD, and 6-year-old Jolanda had no diagnosed conditions, but was half a grade behind in all academic areas. Targeted problem behaviors were identified for each student. A four-step PBS/FBA process was developed. First, a group meeting was conducted that focused on the students' strengths, interests, and dislikes. Second, interviews with each of the child's primary support providers (general or special education teachers) were undertaken to obtain additional information about behavioral antecedents and consequences. Third, direct observation data were collected, and fourth, the team reviewed information and data collected and developed student support plans. In general, results from a multiple baseline design were positive. With pupils either increasing or maintaining the amount of time spent in general education settings, the treatment phase showed an overall decline in targeted behavior, except for spikes in some problem behaviors before winter holiday break. The integration of person-centered planning and PBS can help students remain in the general education classroom.

Overall, in three of the four studies, interventions geared toward individual students rather than schoolwide supports were successfully implemented (Duckworth et al., 2001; Kennedy et al., 2001; Todd et al., 1997). Only Nelson (1996) attempted to take a more universal approach that actually improved the behavior of individual students with severe problems. Although touted in the literature (e.g., Lewis & Sugai, 1999), the use

of universal schoolwide supports to improve individual chronic behavior remains largely unsubstantiated.

DISCUSSION

For many years, PBS interventions have resulted in substantial and meaningful behavioral improvement for many individuals with developmental disabilities (Carr et al., 1999; Marquis et al., 2000). But with the ongoing crisis in discipline and the recent expansion of PBS into schools (Horner, 2000; Jackson & Panyan, 2002), can behavior support teams successfully implement research-validated best practices into more complex environments? Can teams bridge the research-to-practice gap to effectively reshape schools into safer, more positive environments?

Although research is in its early stages, the investigations reviewed strongly support the implementation of school-based PBS for numerous reasons. First, collaborative teams can use data such as office referrals, tardies, attendance, and direct observations to establish schoolwide priorities and preintervention baselines, as well as to evaluate intervention effectiveness (Lewis-Palmer et al., 1999; Skiba et al., 1997; Sprague et al., 2001; Sugai et al., 2000; Turnbull et al., 2002). Research has also demonstrated that computer technology can help this planning process and facilitate immediate data access (Colvin et al., 1993; Gottfredson et al., 1993; Wright & Dusek, 1998). Second, universal schoolwide PBS that utilize multiple measures including archival data, direct observations, teacher ratings, and consumer satisfaction inventories, have resulted in extremely positive outcomes for many students across grade level (Gottfredson et al.; Nelson et al., 1996; Sprague et al.; Warren et al., in press). Third, PBS designed for specific settings (e.g., hallways, cafeterias, playgrounds, transitions) has demonstrated positive change using such strategies as active supervision, precorrection, and group contingencies (Colvin et al., 1997; Kartub et al., 2000; Lewis et al., 1998; Lewis et al., 2000; Lewis & Garrison-Harrell, 1999; Nelson et al., 1996). Unfortunately, social skill instruction continues to have limited utility and generalization (Lewis et al., 1998; Lewis et al., 2000). Fourth, the literature

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clearly indicates that no one "model" fits all settings. While research offers several guiding principles, individual schools must collaboratively shape PBS to fit their own unique needs. The critical factors to be addressed by all schools include using collaborative team problem-solving, research-based interventions, multiple data sources for planning and evaluation, and positive strategies to reduce punitive disciplinary practices.

Despite these noteworthy accomplishments, there remain numerous unanswered questions in the emerging literature. While PBS proponents often maintain that universal, schoolwide interventions result in improved behavior for students with chronic behavioral problems (Lewis & Sugai, 1999; Nelson, 1996), there is a paucity of research in support of this premise. Future investigations must demonstrate that pupils requiring extensive individualized supports can also benefit from schoolwide interventions. Further, while collaborative behavior support teams are cited as a critical element in the PBS process (Todd, Horner, Sugai, & Colvin, 1999; Todd, Horner, Sugai, & Sprague, 1999), they do not function in a contextual vacuum. In researchers' zest to evaluate intervention effectiveness, they have yet to examine process and leadership factors, including team decision-making practices, how staff consensus for intervention priorities are developed, and the role of school leadership. As in all large organizations, efforts at meaningful change can hit many institutional roadblocks. Without strong leadership, staff ownership, and commitment to the PBS process, these research-validated practices may go by the wayside. Additionally, the issue of social validity and treatment acceptability, or how open staff members, parents, and students are to PBS interventions (see Gresham & Lopez, 1996) remains a largely unexplored issue. Another critical consideration is whether schools can effectively implement PBS

lacking university and outside agency technical assistance. Similar research into prereferral and intervention assistance programs identified a substantial gap between those receiving and not receiving external expertise (Safran & Safran, 1996). Answers to these questions clearly go beyond the scope of the current literature.

IMPLICATIONS FOR PRACTICE

PBS offers positive, effective, data driven, and collaborative alternatives to traditional punitive discipline. All schools clearly should follow their own unique path when incorporating these practices. Aside from examining such data as office referrals and suspensions, some schools have conducted a needs assessment survey developed by Lewis and Sugai (1999) to help identify how, where, or with whom PBS is most needed. Although most studies reported have not incorporated this step, adding this component could significantly enhance the planning process. Further, when implementing Project PREPARE, Colvin et al. (1993) discussed organizational commitment, which should involve clear descriptions of behavioral goals, opportunities for staff input, plus regular feedback about activities that actively involve professionals. When a staff has ownership of the PBS process and students observe teacher and administrative commitment, youngsters should be more motivated to participate and change behavior patterns.

Some schools have already found success in using computerized records of office discipline referrals. After teachers complete a referral report, the information can immediately be entered into a schoolwide database including demographic information, student name, gender, category of behavioral infraction, site of incident, and so forth (Skiba et al., 1997; Wright & Dusek, 1998).

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Computerized systems such as the SWIS (2002) are designed to help school personnel use office referral data to design, evaluate, and modify PBS programs. Technology facilitates an inexpensive means to collect, analyze, and report discipline-related information.

In closing, PBS offers schools a promising alternative not only to identify problems and implement interventions, but also to assess program effectiveness. These important research findings can assist all special and general educators in making informed decisions about how to develop PBS in their schools. In most cases when people are made aware of severe weather such as tornadoes or hurricanes, they take precautionary measures to keep themselves, family, or friends safe. If teachers and administrators are prepared for behavioral challenges, students, faculty, and staff can weather behavioral storms in a healthier and more productive manner. PBS can indeed help schools reshape disciplinary practices.

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