

POSITIVE BEHAVIORAL INTERVENTIONS AND SUPPORTS: APPLICATION OF A BEHAVIOR ANALYTIC THEORY OF ACTION

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In 1996, the Office of Special Education Programs (OSEP), U.S. Department of Education, funded the National Technical Assistance Center on Positive Behavioral Interventions and Supports (PBIS) to assist schools apply “positive behavioral interventions and systems to achieve socially important behavior change” (Sugai et al., 2000, p. 133). More specifically, the PBIS Center was established to develop and implement a framework for improving system-level decision making as well as the capacity of schools, families, and communities to implement evidence-based practices and strategies with the highest degree of fidelity and impact on student learning. The focus is on the creation of durable teaching and learning 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 desired behavior more functional” (Sugai et al., 2000, p. 134).

In 2013, the PBIS Center enhanced the application of the framework logic in the following manner:

...to define, develop, implement, and evaluate a multi-tiered approach to Technical Assistance that improves the capacity of states, districts and schools to establish, scale-up and sustain the PBIS framework. Emphasis is given to the impact of implementing PBIS on the social, emotional and academic outcomes for students with disabilities. (OSEP, PBIS Center, www.pbis.org, November 12, 2014)

In addition, the use of culturally appropriate interventions has become an important characteristic of current PBIS implementation efforts:

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. (Sugai et al., 2000, p. 134)

Over the past 16 years, evidence of the value of the PBIS framework has been documented in two important ways. First, researchers internal and external to the PBIS Center have reported the impact of the PBIS tiered intervention framework and its empirically based practices. Results suggest that when the framework is implemented with fidelity, schools can experience (a) reductions in rates of major disciplinary infractions and aggressive behavior; (b) improvements in concentration, prosocial behavior, and emotional regulation; (c) improvements in academic achievement; (d) enhancements in perceptions of organizational

health and safety; (e) reductions in teacher-reported bullying behavior and peer rejection; and (f) improvements in perceptions of school climate (Figure 1).

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FIGURE 1: SAMPLE OF PBIS EVIDENCE BASE.

Second, in the past 16 years more than 21,000 schools in the United States received training on PBIS practices and systems by first-, second-, or third-generation trainers associated with the PBIS Center (Figure 2). More important, implementation has focused on increasing leadership team capacity to establish the PBIS framework at the school, district, and state levels, so that

evidence-based practices are sustained and scaled up at the district and state levels (Fixsen, Naoom, Blase, Friedman, & Wallace, 2005; Horner et al., 2014; McIntosh, Filter, Bennett, Ryan, & Sugai, 2010; Sugai & Horner, 2002; Sugai & Horner, 2006; Sugai, Horner, Fixsen, & Blase, 2010).

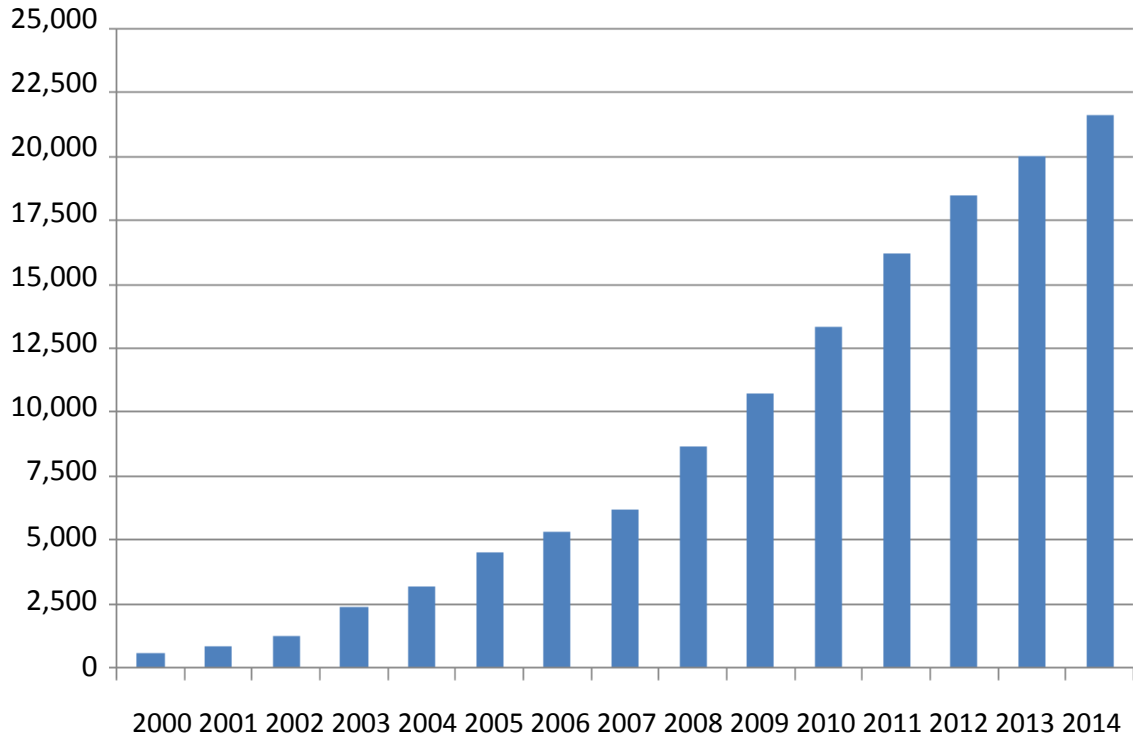


FIGURE 2: NUMBER OF PBIS SCHOOLS BY YEAR AS OF AUGUST 19, 2014.

PURPOSE

To achieve this level of sustained and scaled implementation, the PBIS Center adopted an applied behavior analytic (ABA) perspective as a unifying, empirically supported, and conceptually grounded theory of action (Sugai et al., 2000). The purpose of this paper is to describe how an ABA theory of action has served as the foundation for the core features, organization, and implementation of the PBIS framework. Three general questions are considered:

1. How has applied behavior analysis as a theory of action contributed to defining PBIS and its core features?

2. How has applied behavior analysis assisted PBIS in addressing complex educational challenges?
3. How has applied behavior analysis shaped PBIS implementation systems?

1. HOW HAS BEHAVIOR ANALYSIS AS A THEORY OF ACTION CONTRIBUTED TO DEFINING PBIS AND ITS CORE FEATURES?

A number of theoretical or conceptual approaches are commonly considered (i.e., biological, psychoanalytic, behavioral, cognitive, sociological) in studying and explaining educational phenomena. These conventional theories vary in their assumptions, explanatory mechanisms, and perspective on change. In education, for example, theoretical orientation influences (a) how a phenomenon is described, (b) how its existence or occurrence is hypothesized, (c) how its existence or occurrence could be changed or affected, and (d) how change is explained. More specifically and for the purpose of the PBIS Center, a theory of action is described as a “roadmap” for (a) describing the conditions under which a given phenomenon is observed (i.e., “X is likely to occur when Y.”), (b) using this information to select a teaching or change strategy that logically leads toward a desired outcome (i.e., “To address X, we must do Y to achieve Z.”), and (c) describing how the desired outcome was achieved (i.e., “addressing X with Y resulted in Z.”).

As background, the PBIS terminology was introduced with the Reauthorization of the Individuals with Disabilities Education Act of 1996 and was described as follows:

The term “positive behavioral interventions and supports” (PBIS) was first used in a priority published by the Department [of Education] in 1997, and it is currently used in the Individuals with Disabilities Education Act (IDEA) (e.g., sections 601(c)(5)(F), 611(e)(2)(C)(iii), 614(d)(3)(B)(i), 662(b)(2)(A)(v), and 665). We do not use “PBIS” to mean any specific program or curriculum. Rather, we use the term generically to reference a multi-tiered behavioral framework used to improve the integration and implementation of behavioral practices, data-driven decision-making systems, professional development opportunities, school leadership, supportive state and local education agency policies, and evidence-based instructional strategies. A PBIS framework helps to improve behavioral and academic outcomes by improving school climate, preventing problem behavior, increasing learning time, promoting positive social skills, and delivering effective behavioral interventions and supports.

...In 1997, OSEP funded the first national technical assistance center to explore how to incorporate a variety of behavioral practices into a school-wide framework that would (1) address the social, emotional, and behavioral needs of students with challenging behaviors in a comprehensive and deliberate manner, similar to how academic instruction is provided; and (2) provide a structure for

the delivery of a continuum of evidence-based practices designed to benefit all students and supported by data-driven decision-making.

(<https://federalregister.gov/a/2013-16191>, November 12, 2014)

Since a theoretical perspective or theory of action was not specifically indicated, the leadership team for the PBIS Center adopted a behavioral theory of action, specifically, applied behavior analysis (ABA). This perspective was selected because of its explanatory parsimony, comprehensiveness, replicability, defendability, utility, and empirical support (Alberto & Troutman, 2012; Cooper, Heron, & Heward, 2007; Kazdin, 2013; Wolery, Bailey, & Sugai, 1988).

In general, ABA has five essential principles. First, biology and learning history are acknowledged as what an individual brings to a given setting, situation, or interaction. Second, while some behavior is involuntary (i.e., antecedent elicited and no prior learning history), most behavior displayed by an individual is learned (i.e., prior learning history, antecedent emitted, and consequence maintained). Third, the probability of a given behavior occurrence is influenced by an individual's behavior fluency (i.e., learning history) and features of the immediate setting or environment (i.e., antecedent and consequence stimuli). Fourth, behavior is lawful and predictable (i.e., individual is likely to emit behavior under specific conditions and not under others). Fifth, the probability of a given behavior occurrence is affected by manipulating environmental factors (i.e., manipulating conditions affects probability of behavior occurrences).

These principles constitute the basic ABA toolbox, and guide the development, understanding, and evaluation of the features and implementation of the PBIS framework (Sugai, et al., 2000). In general, a functional assessment is conducted to generate hypothesis statements that describe behavior occurrences. Based on these statements, an intervention plan or strategy is developed to affect the probability of behavior occurrences. Finally, a functional assessment is conducted to describe the association between the use of the intervention and the change in behavior occurrence probability.

This basic process is related to the behavior of an individual or the behaviors of individuals who are part of a group or organization (e.g., classroom, school, district, or state). For example, behavior increase or acceleration is related to positive or negative reinforcement. Teaching social skills is grounded in the establishment of stimulus control. Maintenance and generalized use of a social skill is associated with transfer of stimulus control. Replacing one behavior for another is approached as a situation requiring understanding and manipulation of competing stimulus control.

To enhance the application to behaviors of groups of individuals, the PBIS Center adopted two organizational principles (Daniels & Bailey, 2014, Gilbert, 1978; Gilbert & Gilbert, 1992).

First, as an alternative to treating all behavior, practices, and systems in a general manner, a tiered prevention logic was adapted from the public health literature and prevention science (Colvin, Kame'enui, & Sugai, 1993; Lewis & Sugai, 1999; Sugai & Horner, 1999; Walker et al., 1996) (Figure 3). At the universal or primary tier (T1), the behavior of all members of an organization is explained and supported by a set of common behavioral practices. At the targeted or secondary tier (T2), the behavior of some individuals requires additional behavioral supports. At the intensive or tertiary tier (T3), the behavior of a few individuals is supported with individualized and person-centered interventions and supports. Rather than assign students to tiers, the behavior analytic theory and tiered logic align intensity of behavior change or need and associated intensity of intervention to tiers. For example, an individual might receive a T3 intervention designed to reduce “verbally abusive language,” T2 intervention for “requesting assistance,” and T1 support for “task engagement.” In general, moving between tiers is associated with increases in precision, intensity, specificity, and individualization of interventions and supports.

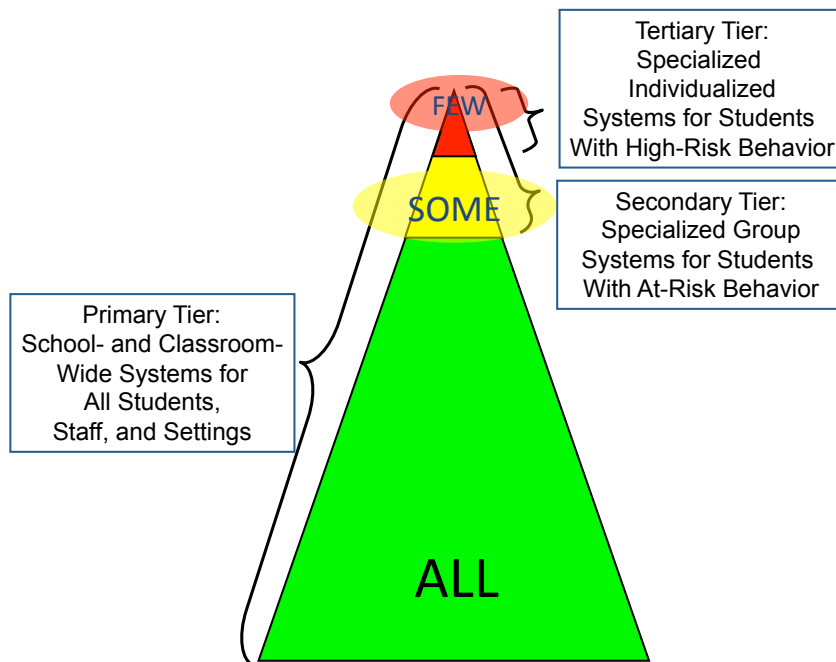


FIGURE 3. TIERED CONTINUUM OF BEHAVIOR SUPPORT.

Second, to enhance the overall cohesiveness, completeness, and decision making within a multi-tiered logic, a special education planning process is used across the PBIS framework (Figure 4). Initially, information is collected to determine the current level of behavior functioning (data). Based on this information, expected or desired short- and long-term objectives are specified (outcomes). Based on outcome criteria, interventions (practices) with documentation of effective and efficient achievement of desired outcomes are selected. After

data, outcomes, and practices are aligned, supports are put in place to maximize the likelihood that implementers are knowledgeable, fluent, and data-driven (systems). When the practice is implemented, all elements are revisited in an integrated and continuous manner. For example, current behavior progress data are collected and evaluated against expected outcomes; implementation fidelity is related to student progress data and practice features, and effectiveness and relevance of a practice are assessed against rate of behavior change toward desired outcome. The learning history or culture of all individuals who are experiencing and participating in the implementation are considered across all four elements (Sugai, O’Keeffe, & Fallon, 2012; Fallon, O’Keeffe, & Sugai, 2012), and are reflected in 4 corresponding questions (Vincent, Randall, Cartledge, Tobin, & Swain-Bradway, 2011): (a) Are the data culturally valid? (b) Are the outcomes culturally equitable? (c) Are the practices culturally relevant? and (d) Are the systems culturally knowledgeable?

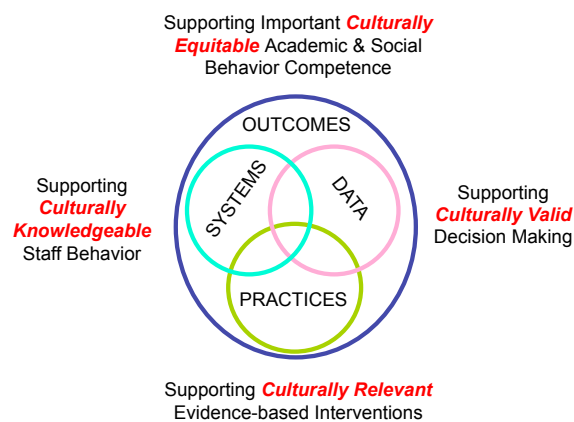


FIGURE 4. INTERACTION OF OUTCOMES, DATA, PRACTICES, AND SYSTEMS.

2. HOW HAS APPLIED BEHAVIOR ANALYSIS ASSISTED PBIS IN ADDRESSING COMPLEX EDUCATIONAL CHALLENGES?

The ABA theory of action has been useful in establishing defensible, parsimonious, replicable, and unified operational and organizational features of the PBIS Center framework. Two examples are provided: (a) multiple education challenges and (b) school climate.

MULTIPLE EDUCATION CHALLENGES.

In recent years, the PBIS Center has been asked to address educational challenges characterized as critical and chronic (Figure 5), for example, bullying, truancy, out-of-school suspension, expulsion, disproportionality, achievement gap, dropping out, insubordination, restraint and seclusion, mental illness, school failure, school-to-prison pipeline, substance abuse, school violence, delinquency, self-mutilation, youth gangs, sexual harassment, poverty, family dysfunction, and unemployment. Without a theory of action, each challenge is perceived as needing a unique intervention response with unique policy, practice, data, and organizational

implications. In addition, all these challenges are considered of equal and high priority and importance.

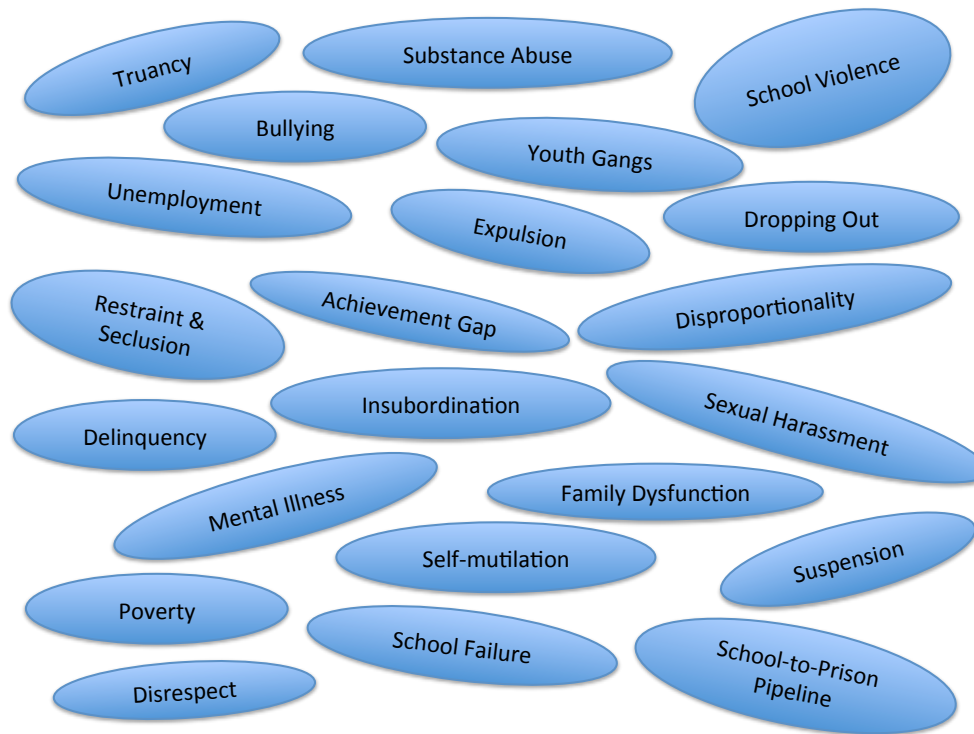


FIGURE 5. EDUCATION CHALLENGES.

A more efficient response is possible if a behavior analytic theory of action is applied to this collection of varied and unequal challenges. First, regardless of the level (individual, classroom, school, district, state, nation), attention is focused on the behavior of the individual (student, teacher, administrator, policy maker, etc.). The result is a *school risk perspective*, in which challenges are distributed into a three-term contingency (antecedent-behavior-consequence) with behavior shifting between student and educator (Figure 6).

STUDENT FOCUS	Setting Conditions	Antecedent (Educator Behavior)	Behavior (Student)	Consequence (Educator Behavior)	Outcome
EDUCATOR FOCUS		Setting Conditions	Antecedent (Student Behavior)	Behavior (Educator)	Consequence (Societal Outcomes)
SCHOOL RISK PERSPECTIVE	<ul style="list-style-type: none"> • Hunger • Chronic illness • Disability • Race • Gender • Trauma • Unemployment • Neighborhood gangs • Substance access • Mental illness 	<ul style="list-style-type: none"> • Reactive management • Undifferentiated instruction • Ineffective instruction and interventions • Unhealthy classroom and school environments • Non-data-based decision making • Lack of screening • Universal interventions • Competing initiatives • Limited funding 	<ul style="list-style-type: none"> • Aggression • Bullying • Non-compliance • Insubordination, social withdrawal • Nonattendance, tardiness • Harassment • Self-injury • Weapon possession • Substance use • Disrespect • Coercion 	<ul style="list-style-type: none"> • Office referral • In-school detention • Out-of-school suspension • Expulsion • Probation, parole • Arrests • Incarceration • Rehabilitation • Restraint and seclusion • Day and residential placement • Community service • Parent meeting 	<ul style="list-style-type: none"> • Disproportionality • School dropout • School failure • Achievement gap • School-to-prison pipeline • Unemployment • Delinquency • Unsafe neighborhoods • School takeover
SCHOOL PROTECTIVE PERSPECTIVE	<ul style="list-style-type: none"> • Employment • Physical health • Recreation • Healthy diet • Preschool • Literacy exposure • Safe neighborhoods • Positive role models 	<ul style="list-style-type: none"> • Differentiated instruction • Active supervision • Effective instruction and curriculum • Precorrection and prompting • Social skills instruction • Universal screening • Continuous progress monitoring • Response-to-intervention 	<ul style="list-style-type: none"> • Problem solving • Conflict and anger management • Asking for assistance • Communicating feelings • Literacy • Self-management skills • Managing bullying behavior 	<ul style="list-style-type: none"> • Teach, supervise, and reinforce • Reteaching • Check in, check out • Function-based support • Positive reinforcement • Precorrection • Opportunity to respond • Generalization training • Data-based decision making 	<ul style="list-style-type: none"> • Postsecondary education • Employment • Family • Recreation and leisure activities • Physical and mental health • Positive peer group • Safe neighborhood

FIGURE 6. STUDENT VS. EDUCATOR FOCUS—ANTECEDENT BEHAVIOR CONSEQUENCE.

If a *student focus* is adopted, (a) “behavior” - what the student does (e.g., aggression, bullying, non-compliance), (b) “antecedents” - what the educator does (e.g., reactive management, difficult task, lack of supervision), (c) “consequences” - how the educator responds (e.g., office

referral, in school detention, seclusion), (d) “setting conditions” - what the student brings to the classroom (e.g., disability, poverty, race), and (e) “outcome” - what social/education consequence or concern results (e.g., dropping out, school-to-prison pipeline, school takeover).

STUDENT FOCUS	Setting Conditions	Antecedent (Educator Behavior)	Behavior (Student)	Consequence (Educator Behavior)	Outcome
EDUCATOR FOCUS		Setting Conditions	Antecedent (Student Behavior)	Behavior (Educator)	Consequence (Societal Outcomes)
SCHOOL RISK PERSPECTIVE	<ul style="list-style-type: none"> • Hunger • Chronic illness • Disability • Race • Gender • Trauma • Unemployment • Neighborhood gangs • Substance access • Mental illness 	<ul style="list-style-type: none"> • Reactive management • Undifferentiated instruction • Ineffective instruction and interventions • Unhealthy classroom and school environments • Non-data-based decision making • Lack of screening • Universal interventions • Competing initiatives • Limited funding 	<ul style="list-style-type: none"> • Aggression • Bullying • Non-compliance • Insubordination, social withdrawal • Nonattendance, tardiness • Harassment • Self-injury • Weapon possession • Substance use • Disrespect • Coercion 	<ul style="list-style-type: none"> • Office referral • In-school detention • Out-of-school suspension • Expulsion • Probation, parole • Arrests • Incarceration • Rehabilitation • Restraint and seclusion • Day and residential placement • Community service • Parent meeting 	<ul style="list-style-type: none"> • Disproportionality • School dropout • School failure • Achievement gap • School-to-prison pipeline • Unemployment • Delinquency • Unsafe neighborhoods • School takeover
SCHOOL PROTECTIVE PERSPECTIVE	<ul style="list-style-type: none"> • Employment • Physical health • Recreation • Healthy diet • Preschool • Literacy exposure • Safe neighborhoods • Positive role models 	<ul style="list-style-type: none"> • Differentiated instruction • Active supervision • Effective instruction and curriculum • Precorrection and prompting • Social skills instruction • Universal screening • Continuous progress monitoring • Response-to-intervention 	<ul style="list-style-type: none"> • Problem solving • Conflict and anger management • Asking for assistance • Communicating feelings • Literacy • Self-management skills • Managing bullying behavior 	<ul style="list-style-type: none"> • Teach, supervise, and reinforce • Reteaching • Check in, check out • Function-based support • Positive reinforcement • Precorrection • Opportunity to respond • Generalization training • Data-based decision making 	<ul style="list-style-type: none"> • Postsecondary education • Employment • Family • Recreation and leisure activities • Physical and mental health • Positive peer group • Safe neighborhood

FIGURE 6. STUDENT VS. EDUCATOR FOCUS—ANTECEDENT BEHAVIOR CONSEQUENCE.

If an *educator perspective* is taken, the antecedent-behavior-consequence contingency is shifted so that educator behavior is the focus. “Student behavior” functions as antecedents, and educator “outcomes” as consequences. If a *student versus educator perspective* is taken, the assessment of discriminative stimuli and maintaining reinforcers can specifically inform behavior intervention planning for students or technical assistance and professional development supports for educators. Factors that are more difficult to directly access and/or manipulate (setting conditions such as poverty, disability, race) and societal outcomes are established as prevention targets (e.g., achievement gap, school-to-prison pipeline, delinquency).

Second, since prevention is emphasized within the PBIS framework, the behavior analytic logic is extended to a *school protective perspective* by emphasizing the establishment of appropriate behavior expectations and effective behavior management practices for students and educators, respectively. For example, effective differentiated instruction, explicit social skills instruction, and precorrections function as antecedents to occasion appropriate student behavior (e.g., asking for assistance, self-management). Positive reinforcement, redirection, and data-based decision making function as consequences for appropriate student behavior. Similarly, when educator behavior is targeted, student behavior functions as antecedents, and desired student outcomes (e.g., graduation, employment, community integration) are consequences experienced by educators.

SCHOOL CLIMATE.

When the U.S. Department of Education increased attention on school discipline and school climate in 2014 (School Climate and Discipline, Now is the Time), the PBIS Center was asked to provide technical assistance to states and school districts. The school climate construct is viewed as including four general components: teaching and learning, relationships, safety, and institutional environment and structure (La Salle & Freeman, 2014). The interaction of these four components is said to affect what students, school personnel, and family members report as representing and being characterized as positive and negative school climate (Sugai, G., La Salle & Freeman, 214). To enable identification and application of useful technical assistance, the PBIS Center applied the same behavior analytic theory and logic as applied to the above multiple educational challenges.

From a behavior analytic perspective, school climate is described as an environment in which the behaviors of students and educators are maintained by positive¹ and negative reinforcement contingencies. In a negative school climate (Figure 7), inappropriate student

1 When used as descriptors for reinforcement, “positive” and “negative” refer to actions, that is, give and take away/avoid, respectively. When used as descriptors for school climate or behavior, they refer to appropriate and inappropriate, or desirable and undesirable, respectively.

behavior (e.g., disruption, verbal abuse, teasing harassment, crying, running away, noncompliance, aggression) is associated with reactive adult behavior (e.g., removal from instruction, school detention, suspension, restitution, verbal reprimands, threats of punishment). Student behavior is maintained by escape from or avoidance of aversives (e.g., easy/difficult work, peer/adult teasing, challenging activity) (negative reinforcement) and/or access to reinforcers (e.g., peer/adult attention, desirable activities) (positive reinforcement). Similarly, adult behavior is maintained by escape from or avoidance of aversives (e.g., disruptive behavior, noncompliance, confrontations) and/or access to reinforcers (e.g., peer/adult attention, uninterrupted teaching, quiet classroom).

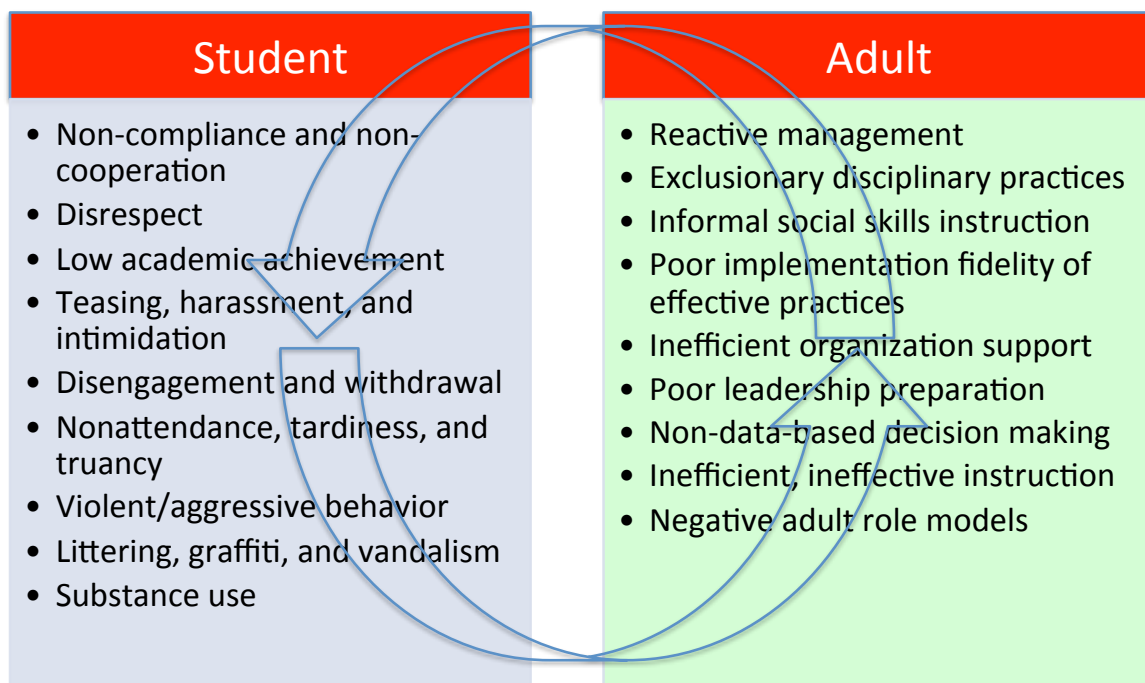


FIGURE 7. NEGATIVE SCHOOL CLIMATE CYCLE.

In positive school climates (Figure 8), appropriate student behavior (e.g., compliance, asking for assistance, problem solving, following directions, task engagement) is associated with positive adult behavior (e.g., praise, encouragement, feedback, smiles). Student behavior is maintained by escape from or avoidance of aversive events (e.g., reprimands, disciplinary consequences) and/or access to reinforcers (e.g., academic success, praise, choice). Similarly, adult behavior is maintained by escape from or avoidance of aversive events (e.g., classroom disruptions, inappropriate student behavior) and/or access to reinforcers (e.g., student achievement, peer praise, pleasant teaching environment).

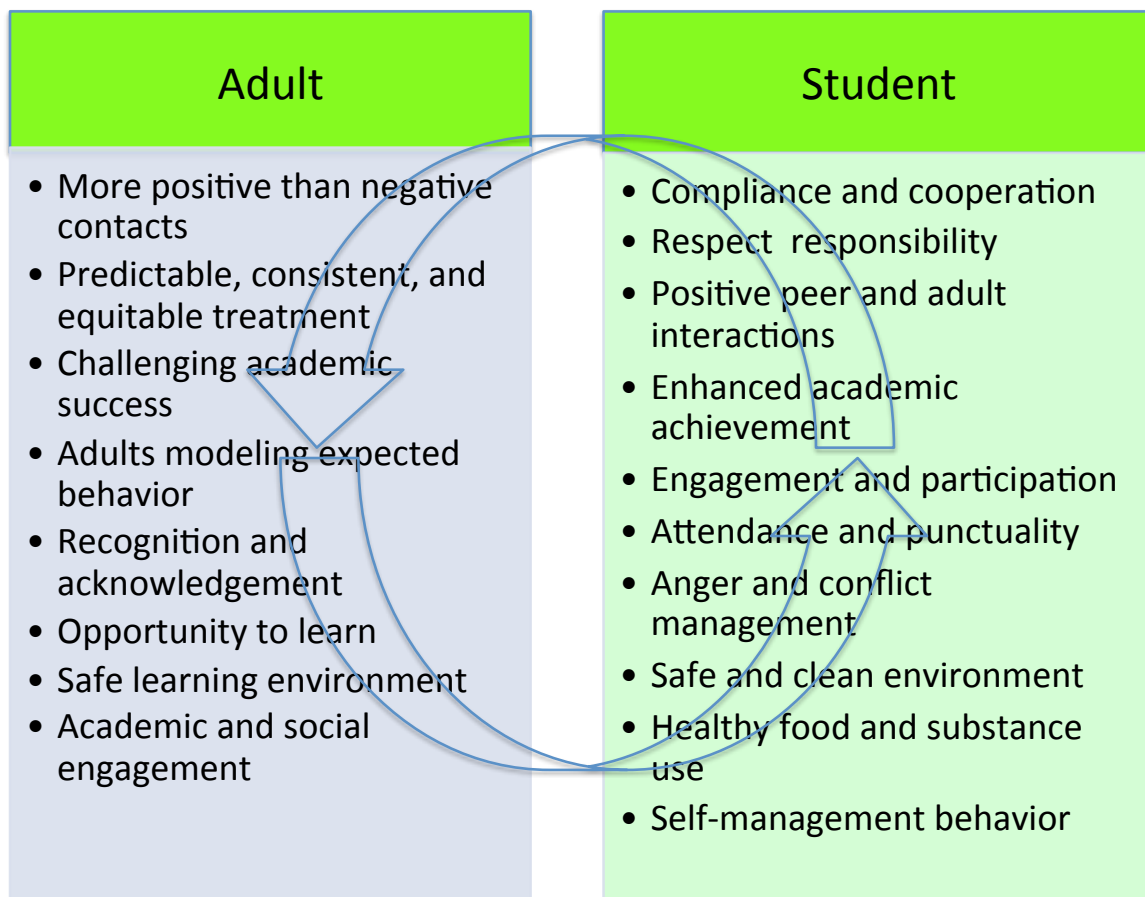


FIGURE 8. POSITIVE SCHOOL CLIMATE CYCLE.

The challenge or task, of course, is to shift from a coercively maintained negative school climate to a positive reinforcement–maintained positive social culture. Having adopted a behavior analytic perspective, the organization’s task is to arrange classroom and school environments so that specific antecedent and consequence events are occasioned (Figure 9).

Adult Antecedent Manipulations	Student Response Class	Adult Consequence Manipulations
<ul style="list-style-type: none"> Remove discriminative stimuli that occasion negative school climate student behavior Add discriminative stimuli that occasion positive school climate student behavior 	<ul style="list-style-type: none"> Negative school climate student behavior Positive school climate student behavior 	<ul style="list-style-type: none"> Remove consequences that maintain negative school climate student behavior (negative reinforcement) Add consequences that maintain positive school climate student behaviors

FIGURE 9. ANTECEDENT AND CONSEQUENCE MANIPULATIONS.

SUMMARY.

Whether attempting to organize and understand multiple complex educational issues or to define and improve school climate, the application of a behavior analytic theory of action eases efforts to describe, understand, and affect a behavioral phenomenon. Similarly, this approach enables efficient and defensible explanations for intervention effectiveness and behavior change. As a result, implementation of the PBIS framework over time is characterized by a common vision, common language, and common experience or routine (Horner, 2007), which in turn facilitates implementation sustainability and scaling up across settings and organizations.

3. HOW HAS BEHAVIOR ANALYSIS SHAPED PBIS IMPLEMENTATION SYSTEMS?

While PBIS “practices” refer to strategies, interventions, and treatments that students experience to enhance their success, PBIS “systems” focus on what adults or implementers do with those practices, including how they organize and operate teaching and learning environments to maximize student learning success. ABA application to systems implementation is represented by the two PBIS Center examples: (a) implementation blueprint and (b) coaching-supported team implementation.

IMPLEMENTATION BLUEPRINT.

Rather than focusing on traditional professional development outcomes (i.e., knowledge and skills), the PBIS implementation framework focuses on sustainable and generalizable capacity building at the school, district, and state levels (Figure 10). Leadership teams develop and acquire implementation capacity expertise with an emphasis on common operating behaviors and contingencies that are (a) institutional (i.e., policy and systems alignment, visibility and dissemination, political support, funding, personnel selection); and (b) operational (i.e., professional development, coaching and technical assistance, evaluation and performance feedback, localized content expertise). Leadership teams have coordination, readiness, and priority responsibilities, and strive to establish durable exemplars of successful and representative implementation (i.e., implementation fidelity, student outcomes, institutionalized routines and contingencies). Implementation action planning reflects the same general operational manipulations described in Figure 10.

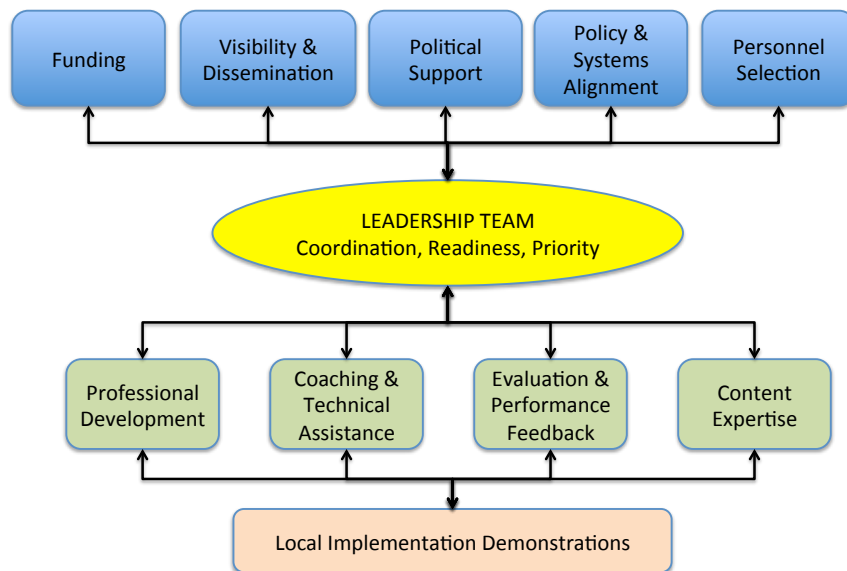


FIGURE 10. PBIS IMPLEMENTATION BLUEPRINT.

COACHING-SUPPORTED TEAM IMPLEMENTATION.

Central to the PBIS implementation blueprint is leadership teaming at multiple levels, that is, classroom, school, district, and state (Figure 11). Each team comprises individuals whose behaviors are occasioned by the behaviors of individuals who are members of other teams, and these behaviors are structured around action plans. Coaching supports (prompting and reinforcement) are installed to maximize generalized implementation of action plan elements.

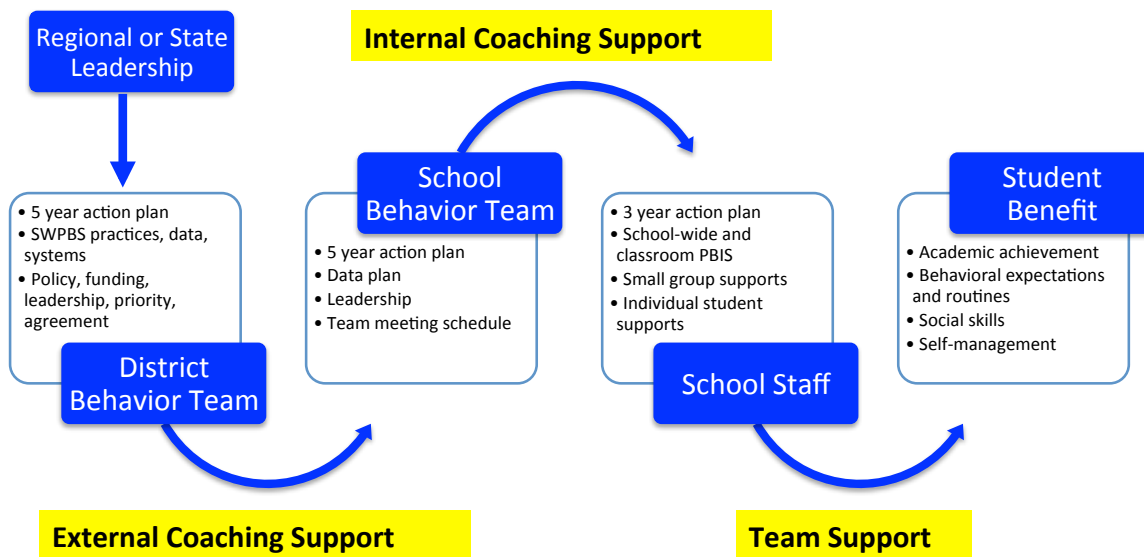


FIGURE 11. COACHING-SUPPORTED PBIS TEAM IMPLEMENTATION

Coaching-supported team implementation is guided by priorities. First, all decisions must show a pathway to maximizing student benefit. Second, all decisions must be linked to measurable actions and activities that enable evaluation of implementation fidelity. Third, all implementation actions and activities must be grounded in evidence-based practices and culturally contextualized to be relevant and accessible to local implementers and participants. Fourth, coaching supports must be actions that continuously prompt and reinforce implementation of activities represented within action plans. Finally, coaching behaviors must be integrated into the structures and routines of the implementing organizations to enable sustainable implementation capacity.

CONCLUDING COMMENTS

Maximizing student academic and behavioral success in U.S. schools is a major issue at local, state, and national levels, in large part because teaching and learning environments and conditions are complicated by (a) students who present diverse learning histories, (b)

performance environments that present competing stimulus control conditions, and (c) educational systems that lack the behavioral capacity to teach in the context of diverse and competing stimulus control conditions. Part of the solution requires that teaching become more precise and explicit, especially if implementation capacity is to become sustainable, accurate, and scalable.

A defensible, parsimonious, and comprehensive theory of action is necessary for teaching to become more precise and explicit. The PBIS Center's approach is an illustration of a systemic implementation grounded in sound theory, that is, applied behavior analysis. Thus, the purpose of this paper is to describe how an ABA theory of action has served as the foundation for the core features, organization, and implementation of the PBIS framework. In addition, answers to three general questions are considered in this paper.

HOW HAS BEHAVIOR ANALYSIS CONTRIBUTED AS A THEORY OF ACTION TO DEFINING PBIS AND ITS CORE FEATURES?

The PBIS Center was proposed more than 15 years ago in response to a national need to enhance student access to the most effective social and behavioral interventions. To guide implementation, the Center adopted a behavior analytic theory of action to guide development of its implementation and technical assistance logic model. The behavior analytic perspective gave priority to the (a) behavior and actions the individual does and/or should do, (b) conditions under which the individual's behaviors are occurring and/or need to occur, (c) individual learning histories that the individual brings to the setting or situation, and (d) environmental manipulations that may be necessary to enhance individual performance.

With this grounding, the Center developed key operating features, for example, multi-tiered behavior support continuum and prevention-based implementation that have guided technical assistance priorities, products, and activities. More important, a behavior analytic perspective reinforced the importance of data-based measurement, especially student progress and implementation fidelity.

HOW HAS APPLIED BEHAVIOR ANALYSIS ASSISTED PBIS IN ADDRESSING COMPLEX EDUCATIONAL CHALLENGES?

With a sound theory of action and logic model, addressing complex educational challenges can be conducted in a manner that results in improved understanding of the mechanisms that account for the challenge, manipulations and changes that are based on hypothesized mechanisms, and evaluation of implementation integrity and obtained outcomes. One of the most important aspects of the Center's work is the specification of whose behaviors are being addressed, how those behaviors relate to the behaviors of others, and what behaviors need to be adjusted to affect the behaviors of others. When the concern is student behavior (e.g., verbal aggression, cooperative play, punctuality, vandalism), educator antecedent (e.g., public reprimand, greeting, request, task difficulty) and consequence (e.g., restraint, exclusion, verbal

praise, greeting, verbal reprimand) behaviors are considered. When the concern is educator behavior (e.g., restraint, exclusion, verbal praise, greeting, verbal reprimand), student antecedent (e.g., verbal aggression, cooperative play, punctuality, vandalism) and consequence (e.g., on task, disengagement, problem solving, arguing) are considered. The antecedent-behavior-consequence contingency is applied to student and/or adult behavior.

A behavior analytic perspective has resulted in a description of positive and negative school climates that hypothesizes those climates as being maintained by positive and negative reinforcement cycles. Thus, the challenge of the PBIS framework is in arranging classroom and school settings so that stimulus control is shifted from more coercive to more positively reinforcing contingencies. Specific antecedent and consequence manipulations (give and take) are emphasized in efforts to shift stimulus control.

HOW HAS APPLIED BEHAVIOR ANALYSIS SHAPED PBIS IMPLEMENTATION SYSTEMS?

If educationally important levels of change and improvement are to be achieved, sustained, and generalized, expert implementation capacity must be shifted from technical assistance providers to local implementers. A fundamental principle is to understand that organizations or systems do not behave or change; only members of the organization behave. The goal is to enhance the extent to which individuals of the organization have similar or common behaviors maintained by similar contingencies that collectively would define the organization.

The PBIS Center extended the behavior analytic logic to systems by establishing an implementation blueprint that addressed antecedent and consequence conditions to enhance organizational efficiency, effectiveness, and relevance. Driven by leadership teams, blueprint elements include policy, funding, visibility, political support, personnel selection, and systems alignment, and blueprint activities include professional development, coaching, evaluation, and expertise capacity building. To support sustainability and scaling, documented exemplars that model best practice are supported.

Within organizations, leadership teaming coordinates implementation, and internal and external coaching capacity is developed to increase and maintain generalized implementation of planned action plan tasks, activities, and products. Leadership team decision making is always made in consideration of implementation fidelity and student benefit.

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