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Positive Behavioral Interventions and Supports in High Schools: A Case Study From New Hampshire

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ABSTRACT

The quality of a school's social environment is critically related to student outcomes, including academic performance, attendance, student behavior, and high school completion rates. New Hampshire engaged in a dropout prevention initiative between 2006 and 2012 that focused on implementation of the multitiered Positive Behavioral Interventions and Supports (PBIS) framework combined with an intensive, student-driven school-to-adult life transition intervention for the highest-need youth. This article presents a case study of how one high school in New Hampshire implemented PBIS at all three tiers of support: schoolwide, targeted, and intensive. The case study includes a description of practices implemented by the school, school- and student-level outcomes pre- and postimplementation, the coaching and training support provided to school staff, and successes and challenges experienced by the school. The discussion ends with recommendations for practice and research of PBIS implementation in high schools.

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There is a critical link between social and emotional health and a child's readiness and ability to learn (Zins, Weissberg, Wang, & Walberg, 2004). While school reform has been a national priority for nearly three decades, concerns remain among policy makers and educators that our education system is not adequately meeting the social, emotional, and academic needs of all students (American Civil Liberties Union, 2008; Brownstein, 2009; Losen & Gillespie, 2012; Losen & Skiba, 2010). Students with emotional and behavioral disorders (EBD) and students from ethnically and racially diverse populations are particularly vulnerable. They are victims of an achievement gap, characterized by disproportionate rates of school failure and poor adult life outcomes (Losen, Hodson, Keith, Morrison, & Belway, 2015; Newman, Wagner, Cameto, & Knokey, 2009). To address this gap, there has recently been focus on personalizing the school environment and meeting the diverse social and emotional needs of all students by implementing policies, routines, and evidence-based instructional practices using a positive behavior supports framework (Duncan, 2010; Murphey et al., 2014;

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U.S. Department of Education, 2012). Specific to high schools, there has also been a movement toward teaching students "noncognitive" skills that will enable them to be successful in the 21st-century economy, such as the ability to work in teams, persistence when confronted with difficult tasks, and how to apply problem-solving strategies to successfully address complex situations (Farrington et al., 2012).

Positive Behavioral Interventions and Supports: Addressing the Needs Of Every Student

Students perform better academically and engage in fewer problem behaviors in school settings where there are clear expectations and where they feel connected and cared for (Flannery, Sugai, & Anderson, 2009; Way, Reddy, & Rhodes, 2007). An effective approach to creating predictable, safer, and caring school environments is the multitiered model of Positive Behavioral Interventions and Supports (PBIS) (Horner & Sugai, 2005; McIntosh, Filter, Bennett, Ryan, & Sugai, 2010). The PBIS framework includes a universal or schoolwide (tier 1) system of evidence-based behavioral practices for all students, a targeted (tier 2) system of practices for youth who need additional behavior support, and a tertiary (tier 3) system of intensive, individualized interventions for a relatively discreet percentage (1%–5%) of students with the greatest behavioral needs.

The key features of the PBIS framework (Kincaid et al., 2016) include (a) universal and commonly understood schoolwide behavior expectations to promote a positive school climate, (b) shared leadership reflected by organization in representative implementation teams, (c) data-based decision making, (d) implementation of research-based practices based on the science of human behavior change, (e) support for staff through job-embedded professional development, and (f) carefully planned implementation cycles with continuous monitoring and improvement of outcomes (Fixsen, Blasé, Timbers, & Wolf, 2007; McIntosh et al., 2010). This multitiered structure is developed within a culturally specific context and directed by diverse and representative implementation teams at each level. The PBIS implementation or systems team membership should reflect the values and cultural profile of the community and, when implemented as intended, the teams design and support implementation of practices and interventions that are relevant to members of that community (Vincent, Randall, Cartledge, Tobin, & Swain-Bradway, 2011).

The major practices that are implemented at tier 1 within the PBIS framework include universal screening, articulation of valued social and behavioral skills that are consistently taught and reinforced, use of data to monitor progress and outcomes, and differentiated academic instruction. Tier 2 practices are typically characterized by the implementation of small-group, research-based skill instruction for students who are experiencing difficulties

meeting the school's universal behavior expectations. Tier 3 practices are person centered and individualized, such as student-centered wraparound planning, student-centered teams, and individualized function-based behavior support (Skiba & Peterson, 2000). The National Technical Assistance Center on Positive Behavioral Interventions and Supports (PBIS TA Center) reports that over 21,000 schools are implementing PBIS in all 50 states; however, only 13% of those are high schools (Horner, 2014).

Outcome research of PBIS implementation

Schoolwide PBIS (SWPBIS) implementation is related to improved academic achievement and reductions in problem behaviors (Bradshaw, Mitchell, & Leaf, 2010; Bradshaw, Reinke, Brown, Bevans, & Leaf, 2008; Childs, Kincaid, George, & Gage, 2016; Freeman et al., 2016; Horner, Sugai, Todd, & Lewis-Palmer, 2005; Lassen, Steele, & Sailor, 2006; McIntosh, Chard, Boland, & Horner, 2006; Sadler & Sugai, 2009). Similarly, studies specific to high schools have demonstrated an association between SWPBIS implementation and both increased student attendance and reductions in problem behavior (Flannery, Fenning, Kato, & McIntosh, 2014; Freeman et al., 2016). The majority of SWPBIS implementation and research has been at the elementary level, however (Horner, Sugai, & Anderson, 2010; Horner et al., 2009). While the primary features of PBIS implementation are the same regardless of instructional level and setting, implementation in high schools is complicated by contextual factors such as the focus on graduation requirements, supporting the transition from high school to postschool education and employment, and the unique social and emotional needs of adolescents (Flannery, Frank, Kato, Doren, & Fenning, 2013). Further, few studies have focused on the effects of PBIS implementation at all three tiers in schools at any instructional level (Stewart, Benner, Martella, & Marchand-Martella, 2007). Understanding that the primary student variables that are associated with high school completion include attendance, behavior, and academic performance (Balfanz, Herzog, & Mac Iver, 2007; Hammond, Linton, Smink, & Drew, 2007), there is a need for in-depth research about how PBIS implementation and evidence-based social/emotional skills development can be implemented in high schools and improve student outcomes as they move into adulthood.

Training and consultation that supports PBIS implementation

One of the primary features of PBIS implementation is that decisions about implementation of research-based practices are made by representative school-based teams. PBIS teams focus on installing the systems that enable the implementation of evidence-informed practices. Typically, each school develops a PBIS leadership team focused on SWPBIS implementation for all

students and a separate team focused on implementation of practices for students who need additional behavior or social support. All PBIS teams use data to identify the extent of and specific student behavior needs, identify evidence-informed practices that are most likely to meet the specified needs, identify the needs of the staff to implement the practices, obtain training as required by staff, and use data to monitor progress as interventions are delivered. PBIS team members typically require intensive training and consultation from an experienced PBIS consultant to learn how to function well as a PBIS team, including the foundational elements of PBIS implementation, how to use data to make decisions, and how to install new practices.

Foundational training and external consultation, defined as "a process that facilitates problem solving for individuals, groups, and organizations," are critical features for the successful implementation of any new framework or practice (Fixsen, Naoom, Blase, Friedman, & Wallace, 2005; Journal of Educational and Psychological Consultation, 2017). Within a PBIS framework, external consultants, often referred to as PBIS coaches, guide the school teams through the stages and elements of the multitiered model and help school leaders and staff to address implementation issues such as (a) the complexity of the implementation process, (b) using data for decision making, (c) the role of interdisciplinary leadership and collaboration, and (d) providing technical assistance (Forman & Crystal, 2015). PBIS coaches also address implementation barriers such as a lack of staff buy-in (Bohanon & Wu, 2014; Lohrmann, Martin, & Patil, 2013) and resistance to implementing PBIS practices, which may result from misunderstandings about the approach, existing problems with school climate, and opposing philosophical ideology (Tyre & Feuerborn, 2016). External PBIS coaches provide support to teams and administrators so they can see the relevance of and appropriately apply the PBIS strategies within their school's context and culture. This type of external coaching is a critical element to achieve fidelity of PBIS implementation (OSEP, 2015).

External PBIS coaches also collaborate with school administrators and specialists, such as school psychologists, to develop the capacity to support implementation within the school. Administrators and school specialists contribute unique skills and have access to resources that can be critical to the school's implementation effort (Eagle, Dowd-Eagle, Snyder, & Holtzman, 2015). The PBIS coach and leaders within the school are often required to address cultural barriers such as how to work across professional silos and roles to collaborate as a multidisciplinary team (e.g., special education teachers, general education teachers, school administrators, school counselors, mental health specialists). To address this problem, the PBIS coach may work with the school implementation teams to identify goals that are relevant to each staff members' responsibilities and identify outcomes and data points that are important to everyone (Bohanon, Gilman, Parker, Amell, & Sortino, 2016).

The unique needs of adolescents

Adolescence is characterized by physical, emotional, cognitive, and social developmental changes, including significant development in areas of the brain that control problem solving and self-regulation. For adolescents with emotional and behavioral challenges, successfully navigating these developmental changes may be especially difficult. Adolescents with emotional and behavioral challenges often experience difficulty forming positive relationships with peers and adults, experience education disruptions, and have cognitive impairments related to stress and anxiety (Stolbach, 2007). These difficulties experienced by youth with emotional and behavioral challenges are reflected in their poor school outcomes, including the highest dropout rates of any subgroup, greater likelihood to be disengaged from school, disproportionally high rates of school discipline referrals, and high placement rates in alternative classrooms and schools (Newman et al., 2011; Wagner & Cameto, 2004; Wagner, Kutash, Duchnowski, Epstein, & Sumi, 2005). There is a strong correlation between poor attendance, class failure rates, behavior problems in school and risk of high school dropout (Balfanz et al., 2007). The basic features of PBIS, including a focus on positive social/emotional skill development and reinforcement for demonstrating prosocial behaviors, are aligned with recommended approaches to meet the educational and social/emotional needs of all developing adolescents, including those with emotional and behavioral challenges (Carter, Lane, Pierson, & Glaeser, 2006; U. S. Department of Education, 2016; Wagner & Davis, 2006).

While a majority of the schools that have implemented PBIS nationally are at the elementary level, there is promising evidence that PBIS implementation can also improve student outcomes at the high school level (Bohanon, 2015; Bohanon & Wu, 2014; Bradshaw, Pas, Debnam, & Johnson, 2015; Flannery et al., 2014; Flannery, Guest, & Horner, 2010; Freeman et al., 2016; Lane, Wehby, Robertson, & Rogers, 2007). Despite this emerging work, there is a need for examples of how to implement the PBIS multitiered framework in the high school context, including how to promote social values that are contextually and developmentally relevant to the unique needs of adolescents, how to incorporate the developmental tasks of the transition from school to career, and how to address the challenges of implementation in the secondary school environment.

Current study

The purpose of this case study was to describe the implementation and outcomes experienced by one high school that fully implemented the multitiered PBIS framework and practices at all three tiers: tier 1, tier 2, and tier 3. The study includes a description of practices implemented by the school and school- and student-level outcomes pre- and postimplementation, including changes in rates of problem behavior, attendance, dropout rates, and academic performance. This

study took place between 2006 and 2012 during implementation of a series of federally and state-funded dropout prevention initiatives led by the New Hampshire Department of Education called Achievement in Dropout Prevention and Excellence (APEX). The high schools in the APEX projects were chosen because they had higher-than-state-average dropout rates. The APEX project combined the multitiered PBIS framework with RENEW (Rehabilitation for Empowerment, Natural Supports, Education and Work), an evidence-informed tertiary-level intervention designed to address the needs of transition age youth with emotional and behavioral challenges (Malloy, Drake, Cloutier, & Couture, 2012). The logic for the APEX approach was that overall student engagement will improve and dropout rates will fall when the high school creates a consistent, predictable, and positive school culture and when there is a continuum of developmentally appropriate interventions matched to the needs of students with significant challenges (Bradshaw, Waasdorp, Debnam, & Johnson, 2014; Debnam, Pas, & Bradshaw, 2012; Pellerin, 2005; Stewart, 2003).

Using a case study format (Scott, 2001), this study profiles implementation and outcomes for one high school that participated in the APEX initiative. The Institute on Disability (IOD) at the University of New Hampshire (UNH) was contracted to administer the APEX initiative, providing training and consultation to the 15 high schools that implemented the APEX framework. The IOD staff had over 15 years of experience working with youth with emotional and behavioral challenges and are the developers of the RENEW model. Figure 1 illustrates the continuum of supports included in the APEX initiative.

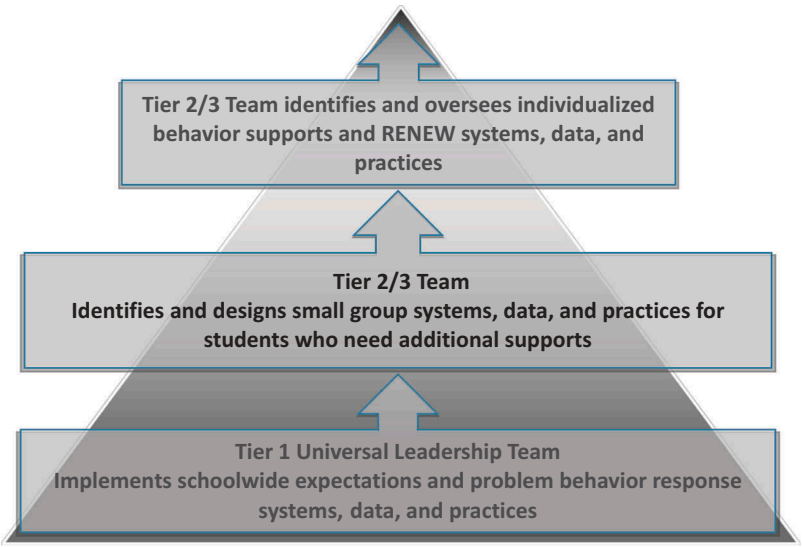

Figure 1. Organization of the NH APEX multitiered model of supports.
Note. APEX = Achievement in Dropout Prevention and Excellence; RENEW = Rehabilitation for Empowerment, Natural Supports, Education, and Work.

The research questions for this case study included the following: (RQ1) What was the fidelity of implementation of PBIS at tier 1, tier 2, and tier 3? (RQ2) What were the pre- and postimplementation outcomes at tier 1 as measured by student office discipline referrals (ODRs), annual event dropout rate, out-of-school suspension rates, and in-school suspension rates? (RQ3) What were the student outcomes pre- and postintervention for students who received tier 2 interventions as measured by ODRs, suspensions, and unexcused absences? (RQ4) What were the student outcomes pre- and postintervention for students who received tier 3 interventions as measured by ODRs, suspensions, unexcused absences, credit hours earned, grade point average (GPA), and dropout?

Method

Participants and setting

Fifteen high schools participated in the three APEX projects, impacting over 11,000 students. This case study took place in one of the project's high schools in a small city in eastern New Hampshire. The high school was chosen for the project in 2006 because of its higher-than-state-average drop-out rate and interest in participating. The high school and community were experiencing an increasing trend in the number of students from lower socioeconomic (SES) families and students from ethnically and racially diverse backgrounds. The school, a large brick structure built in the early 1900s, was being publicly criticized because it had the highest annual event dropout rate of any school in the state (8.2%), and public support for the school was waning. Teacher salaries were some of the lowest in the state, and the school's staff turnover rates were as high as 30% annually.

This high school has maintained an enrollment of between 570 and 610 students per year since the 2006–2007 project baseline year. In 2006, the student population was 2.8% African American, 2.9% Hispanic, 2.6% Asian American, 0% American Indian/Alaskan, and 91% White (New Hampshire Department of Education, 2013). Median income in the city was 20% lower than the New Hampshire average, and the school's special education rate was nearly 20%, far higher than the average across all New Hampshire school districts. The high school was failing the state's benchmarks for adequate yearly progress (AYP) for dropout rates during the baseline year (New Hampshire Department of Education, 2006).

The study included two cohorts of students who received tier 2 services. The first cohort included 18 students who received brief functional behavioral assessment (FBA) and individualized behavioral support plans (BSP). Of the 18 students receiving the brief BSP, 7 (39%) were eligible for special education services, 11 (56%) were females, and 8 (44%) were males. The second cohort included 13 students who received Check In/Check Out

(CICO) in small groups. Of these students, seven (53%) were eligible for special education services, and seven (53%) were male. Family members were given written notification and gave passive permission for the school to provide behavior supports to their children. The school did not have the capacity to serve every student who needed tier 2 FBA/BSP or CICO supports. A decision-making process was used to identify students who were already receiving less formal interventions to exclude them from the study.

The study also includes data from students who received the RENEW intervention over a period of 6 years, for a total of 25 students. Written consents were obtained from their parents or legal guardians. Of the 25 students, 12 (48%) were eligible for special education services, 22 (88%) were White, 1 was mixed race Hispanic/African American (4%), 1 was Hispanic (4%), 1 was African American (4%), and 18 (72%) were male.

Training

Staff from the IOD provided approximately 1 day per week of training and consultation support to school staff and administrators. Large group training in PBIS universal and targeted systems and practices was provided by the New Hampshire Center for Effective Behavioral Interventions and Supports (NH-CEBIS) to members of the school's leadership and targeted intervention teams during the 2007–2008 school year. RENEW training and consultation were provided by IOD staff according to the RENEW training protocols (Malloy et al., 2012), including two full-day trainings off site, and twice-monthly modeling and coaching sessions for each facilitator.

Tier 1 implementation

Implementation of the APEX initiative in the case study high school was consistent with the multitiered PBIS framework at all three tiers (OSEP Technical Assistance Center on Positive Behavioral Interventions and Supports, 2015). During the fall of 2006, 96% of the faculty voted to adopt PBIS after a half-day orientation to the project and the PBIS model. Initial buy-in from the faculty was required before implementation of PBIS could continue. Shortly after the vote, the school formed a tier 1 (universal leadership) team that included general education teachers, a school counselor, a special educator, a student, and the assistant principal. A math teacher volunteered to take the lead as the in-school PBIS coach and received PBIS universal team training and coaching from the IOD staff. During the spring of 2007, the tier 1 team proceeded to put the foundations for schoolwide PBIS in place, including (a) the development of a diverse and representative tier 1 leadership team that received training in PBIS implementation; (b) the designation of clearly stated roles and responsibilities for team members,

including the team leader or "coach" and external training; (c) the development of clearly stated and consistent behavioral expectations; (d) training for all school staff in positive approaches to intervention rather than relying on punishment alone; (e) the development of guidelines and tools for all school staff to use in response to problem behavior; and (f) installation of the School-wide Information System (SWIS) and (May, et al., 2006) training in a data-based decision-making system to enhance early identification and effective problem solving (Sugai et al., 2010).

With coaching from the university staff, the leadership team became increasingly proficient in data-based decision making. For example, the data showed that the primary student behavior problems were "disrespect" and "late to class" during the fall of 2007. Prior to the intervention, the high school had over twice as many office referrals per day compared to a national data set (ECS, 2010). In February 2008, given the extent of the discipline problems (an average of three ODRs per day for disrespect), the team decided to implement an intervention on disrespect. The leadership team designed skits that were enacted by students and teachers in each class. The team also developed an acknowledgment process using a ticket system as a tangible reinforcement. Students elected a "respect student of the week" from each class. All the names of students of the week were put into a drawing for a weekly "secret prize." Throughout the project period, the tier 1 leadership team identified areas where behavior problems were of particular concern and designed similar interventions.

Tier 2 implementation

After 6 months of tier 1 team development, the IOD staff assisted the school to convert a preexisting student assistance team into a tier 2/3 team responsible for identifying students who needed additional behavior support, social/emotional skill development, and designing and implementing tier 2 small group interventions. The tier 2/3 team was also responsible for identifying students who had the most significant emotional and behavioral challenges and who needed individualized tier 3 supports. The tier 2/3 team identified a school staff member to be the building-level coach, received ongoing technical support and training from the IOD, created tier 2 entry/exit criteria based on screening data, used data-based decision making to monitor student progress, and designed and supported the implementation of two evidence-based practices: brief BSPs (Crone, Hawken, & Horner, 2010) and CICO (Everett, Sugai, Fallon, Simonsen, & O'Keeffe, 2011). It is a common PBIS practice to conduct a brief FBA to build basic or simple BSPs at the tier 2 level as a systematic and evidence-based technology for assessing the behavior in relation to the context in which it occurs (Crone & Horner, 2003). In the case study school, brief FBA/BSP development and

implementation involved tier 2 team-driven assessments and strategies aimed at students who had mild to moderate behavior problems and whose behaviors did not occur in multiple settings. Students who had more complex problems were referred on for tier 3 supports and more complex behavioral support plans.

CICO was chosen by the Tier 2 team because it represented an efficient, evidence-based tier 2 intervention designed to help students to learn and demonstrate positive behaviors using positive adult attention and increased performance feedback (Simonsen, Myers, & Briere, 2011). CICO was considered an appropriate intervention for youth who were starting to engage in problem behaviors and were unresponsive to both schoolwide expectations and good preventive classroom management practices. However, it was not designed for students with more intensive and individualized needs. It was delivered as a group-based intervention, and students checked in daily with a trained CICO coordinator at the start of their day and again near the end of the school day to review the behavioral expectations and set daily goals based on a score card with teachers' feedback.

The critical features of CICO include increased positive adult attention, a link to schoolwide behavioral goals and expectations, frequent feedback, continuous home-school communication, and positive reinforcement (Crone et al., 2010; Simonsen et al., 2011). CICO is a readily available intervention that was implemented across multiple settings by many staff with continuous progress monitoring to help transition students from skill development to self-management. In addition to implementing evidence-based targeted interventions and monitoring of these interventions, the tier 2 team designed the eligibility criteria and implementation system for youth to receive the tier 3 RENEW intervention.

Students were selected for tier 2 supports according to specific behavioral and academic indicators established by the tier 2 team, including 3 or more major ODRs within a 4-week period; 5 or more unexcused absences in a quarter; 2 or more class failures in a quarter; 5 to 10 nurse visits in a 2-week period; 6 incidents of tardy to a class in a quarter; and/or failure to complete a minimum of 50% of class assignments in a 2-week period after initiating parent contact and student conferences. Teachers were encouraged to identify students who exhibited internalizing behaviors not captured by the stated criteria using criteria such as frequent visits to the nurse or guidance office and lack of homework completion after multiple student conferences. In addition to the teacher referrals, faculty were required to document all classroom interventions they utilized to support the student, along with the duration of the attempted intervention(s). This allowed members of the tier 2 team to collaborate and problem-solve with the classroom teacher to identify simple and effective behavioral strategies he or she could deliver to the student, as well as to avoid duplication of efforts of interventions. These

strategies were monitored by the teacher and team to determine their effectiveness. If the student continued to be nonresponsive in a 2-week time frame, the tier 2 team would begin formulating a quick hypothesis as to the function of the behavior according to data and offer other targeted supports along the multitiered continuum. The team reviewed data monthly to nominate students for targeted supports.

The tier 2 team was trained by university staff in a brief functional behavioral assessment and behavior support planning approach during the 2010–2011 school year and began to design and implement basic function-based plans with a cohort of 18 students. The first task of the tier 2 team was to train all faculty on function of behavior so staff could effectively implement the behavior support plans and understand behavior in the context of the environment. Using resources such as *Building Positive Behavior Support Systems in Schools* by Crone and Horner (2003), the tier 2 team analyzed the available data from referral forms and office discipline data to develop an operational definition of the behavior and then conducted brief interviews with staff using Functional Assessment Checklist for Teachers and Staff (FACTS A & B). Short student interviews were conducted using the Student-Guided Functional Assessment Interview Tool adapted from Reed, Thomas, Sprague, and Horner (1997). From the combined interview data, a testable hypothesis describing the problem behaviors, the antecedents and consequences, and the function of behavior was generated. If the team reached consensus about its hypothesis statement and the student fit the criteria of mild to moderate problem behaviors, then a subcommittee within this team created a basic BSP. These team members then met with the referring staff to review the BSP and discuss how to implement the recommended strategies. A follow-up meeting was scheduled to evaluate the effectiveness of the plan.

After conducting more research on evidence-based behavior practices, the tier 2 team decided to implement CICO to quickly address the needs of students who were showing the first signs of problem behavior and seeking adult attention. The tier 2 team was trained on the procedures of CICO by the university staff, using resources such as CICO-SWIS readiness checklist and *Responding to Problem Behavior in Schools* by Crone et al. (2010). A CICO coordinator was identified who received further training for the specific role of overseeing implementation and using the SWIS data system. This coordinator was someone who was respected by both students and faculty, had effective communication skills, and was dependable. A rollout to the faculty was delivered by the tier 2 team so teachers would have thorough knowledge of their role in providing positive and corrective feedback during the class period and rating the students' performance on the daily score card. Student and family orientation to CICO was also provided

by members of the tier 2 team and the CICO coordinator. Once students were enrolled in the intervention, data were monitored bimonthly.

Tier 3 implementation

The major elements of the RENEW model include (a) personal futures planning; (b) individualized school-to-career services including work-based learning, school-based learning, and connecting activities; (c) unconditional service provision and supports; (d) strengths-based service provision; (e) building relationships and linkages in the community (natural supports); (f) flexible resource development and funding; (g) individualized team development; and (h) workplace or career-related mentoring (for a detailed description of the RENEW model, please see Malloy, Drake, Abate, & Cormier, 2010). Individual data collected for students in RENEW included student academic records, attendance, behavior, and community functioning.

Students were identified for RENEW tier 3 services by the tier 2/3 team due to their failure to respond to secondary level supports. Data monitored by the tier 2/3 team showed these students exhibited chronic discipline or truancy issues or multiple and complex emotional and behavioral needs that extended outside of school. Some of the specific criteria that indicated these students were in need of higher level supports were being off track to graduate due to being significantly behind in credits; repeating a grade level; nonresponse to tier 2 interventions after 6 weeks of monitoring with documentation that secondary-level interventions were implemented with fidelity; escalating ODRs, with six or more in a 4-week period and/or five or greater out-of-school or in-school suspensions in a 2-week period; and a high absenteeism rate reflected by five or more unexcused absences in a quarter.

The university staff provided RENEW services to the first five student participants as an opportunity to demonstrate to school staff how the intervention is delivered and to create buy-in. In the fall of 2008, the university staff provided two full days of RENEW facilitator training to 18 regular and special education teachers, paraprofessionals, and school counselors. Five of the trained school staff members provided the RENEW intervention to an additional 23 RENEW participants between 2008 and 2012. The university staff supported the facilitators with twice-monthly coaching sessions and reflective supervision meetings throughout the project period. Complete data were available for 25 students who participated in RENEW.

RENEW implementation was monitored by university staff through twice-monthly observations for at least one youth meeting per quarter using the RENEW procedure manual (Malloy et al., 2012). In addition, the university staff administered an early version of the RENEW fidelity of implementation instrument, the RENEW integrity tool (RIT; Malloy & Drake, 2009). These

data were used by the external coach and the school team to assess the level and quality of implementation of the RENEW model.

Data collection and analysis

The University of New Hampshire Institutional Review Board approved the study, and informed consent was obtained from school officials to use school-level data and deidentified student data. The human subjects approval was obtained for this study, and informed school consent was used for school-level data and deidentified student data for tier 2. The demographics of this school reflect many of the high schools in the state. The abundance of schools with similar demographics limits the possibility this school could be identified.

This study was conducted in the real-world high school setting, and thus the data were collected according to availability at each level and for each intervention. While multiple data sources were available for tiers 2 and 3, ODR data were selected as the primary tier 1 outcome measure. ODRs are often used as a measure of PBIS tier 1 outcomes (Spaulding, 2010), and the ODR data for the case study schools appeared to be the most reliable data that were available to measure tier 1 outcomes. Early warning systems (Burke, 2015; Carl, Richardson, Cheng, Kim, & Meyer, 2013) have used outcomes such as out-of-school suspensions, days absent, unexcused days absent, credit hours earned per in-school suspensions, GPA, and dropout to identify students at risk of failure. Given their connection with screening for tier 2 and 3 supports, these data were selected as outcome measures for interventions beyond tier 1.

Tier 1 fidelity data

Fidelity of universal PBIS implementation was determined by scores on the School-Wide Evaluation Tool (SET; Sugai, Lewis-Palmer, Todd, & Horner, 2005) and the Team Implementation Checklist (TIC). The SET was conducted by university staff in the spring of each year. The SET is an assessment of the school's implementation of seven features of PBIS. Fidelity of implementation is achieved with an overall score of 80% or greater on the SET, plus a score of 80% or above on the feature for expectations taught. Descriptive statistics were used to analyze changes over time.

Tier 1 outcome data

The Tier 1 data included annual event dropout rate, ODRs, out-of-school suspension rates, and in-school suspension rates, collected each summer after final grades were submitted. Discipline outcome data were collected using SWIS twice per year after each semester ended. Dropout rates were collected

from the New Hampshire Department of Education's database (NH DOE, 2012), calculated as the number of dropouts divided by the number enrolled on October 1 of each year, plus students that dropped out before October 1. Descriptive statistics were used to analyze dropout and out-of-school and in-school suspension rates. These data indicators were not tested for comparable significance. The change-point test (Siegel & Castellan, 1998), a nonparametric version of regression analysis, which can be used to identify localized changes in the smoothness of a curve, was used to determine whether there was a significant change in the slope of the ODR data during the project (Bohanon et al., 2012)

Tier 2 fidelity data

Tier 2 fidelity of implementation was monitored by using the team self-assessment and action-planning tool, adapted from the Checklist for Individual Student Systems (CISS) and the Targeted Team Checklist (Anderson et al., 2011; Muscott & Mann, 2007) twice per year every spring and fall. Descriptive statistics were used to analyze changes in data over time.

Tier 2 outcome data

Tier 2 student-level outcomes were collected by school quarter, including numbers of ODRs, unexcused absences, and suspensions. Number of credits earned for students who received the tier 2 interventions could only be collected by semester (half year). Overall one-way ANOVA was used to identify significant reductions in these outcomes variables. Post hoc analysis involved Tukey's honest significant difference (HSD) to identify changes in timepoints.

Tier 3 fidelity data

Components of the TIC were used to track tier 3 supports. The TIC approximates the constructs of the SET, and the tools are highly correlated with each other; however, the TIC adds components related to intensive interventions (e.g., team in place, systems in place) (Vincent, Spaulding, & Tobin, 2010). Fidelity of implementation of the RENEW model was monitored by IOD staff twice per year, but not collected for this study. Descriptive statistics were used to analyze changes in data over time.

Tier 3 outcome data

RENEW student-level data were collected per semester and include ODRs, suspensions, unexcused absences, credits earned, and annual noncumulative GPA, calculated by assigning values to letter grades according to the school's

GPA scale. Many of these factors, particularly unexcused absences and GPA, have been found to be reliable predictors of student graduation (Burke, 2015). Overall one-way ANOVA was used to identify significant reductions in these outcomes variables. Post hoc analysis involved paired sample *t* tests to identify changes in timepoints. Table 1 outlines the training and data collection schedule during the 6 years of the project.

Results

Fidelity (RQ1)

The school achieved fidelity of schoolwide tier 1 PBIS implementation during the second year of implementation, indicated by a score of 80% or greater on the SET (Sugai, et al., 2010). The school's SET scores were 36% at baseline (2006–2007), 83% in 2007–2008, 91% in 2008–2009, 89% in 2009–2010, 86% in 2010–2011, and 93% in 2011–2012. The behavioral expectations taught scores were 0 at baseline (2006–2007), 70 in 2007–2008, 80 in 2008–2009, 90 in 2009–2010, 70 in 2010–2-11, and 90 in 2011–2012. The interview components of the SET provided qualitative data relative to how the school staff and students perceived the contextual fit of the tier 1 program. The staff began to indicate satisfaction with the changes in the school, beginning with the spring 2009 SET assessment. The assessment showed that the majority of faculty and students knew the behavioral expectations and had participated in tier 1 teaching events, or "rollouts." Several teachers who were interviewed stated that there was a positive difference in the school's culture and that there was more consistency and systematic application of discipline within the school.

According to the CISS and Targeted Team Checklist for tier 2, the team achieved implementation scores of 26% in fall 2010, 63% in spring 2011, 63% in fall 2011, and 87% in spring 2012, indicating improved implementation of tier 2 supports over time. Scores on the TIC related to tier 3 intervention processes (e.g., team in place, systems in place) indicated that basic components were partially in place during the fall of 2009, and fully in place by the spring of 2011.

Tier 1 outcomes (RQ2)

School-level data also showed that the annual event dropout rate, ODR, and out-of-school suspension rate dropped between the first year of PBIS implementation (2007–2008) and the final project year (2011–2012). In-school suspension rates increased during the same period (see Table 2). It is important to note that the state age of compulsory education increased from 16 years to 18 years on July 1, 2009, resulting in a reduction in reported dropout rates statewide.

Table 1. Annual Schedule of APEX Training and Data Collection.

	Professional development			Outcome data			Fidelity data	
Year	Tier 1	Tier 2	Tier 3	Tier 1	Tier 2	Tier 3	Tier 1	Tier 2
1	PBIS Overview SWIS training	Tier 2 Foundation	RENEW Overview	Annual event dropout rate			SET	
2	Tier 1 Boosters: Schoolwide rollouts	Tier 2 Intervention		Annual event dropout rate ODR ISS/OSS			SET	
3	Tier 1 Boosters: Proactive approaches to discipline	Basics of applied behavioral analysis	RENEW Facilitator training	Annual event dropout rate ODR ISS/OSS		ODR ISS/OSS Absences Credits GPA	SET	
4	Tier 1 Boosters function of behavior	CICO Overview	RENEW Booster trainings	Annual Event dropout rate ODR ISS/OSS		ODR ISS/OSS Absences Credits GPA	SET TIC	BST
5	Tier 1 Boosters faculty CICO overview	CICO Training brief FBA/BSP	RENEW Booster trainings	Annual event dropout rate ODR ISS/OSS	ODR ISS/OSS Absences	ODR ISS/OSS Absences Credits GPA	SET TIC	BST
6	Tier 1 Boosters faculty CICO overview	CICO Training brief FBA/BSP	RENEW Booster trainings	Annual event dropout rate ODR ISS/OSS	ODR ISS/OSS Absences Credits CICO Scores	ODR ISS/OSS Absences Credits GPA	SET TIC	BST

Note. APEX = Achievement in Dropout Prevention and Excellence; PBIS = Positive Behavioral Interventions and Supports; SWIS = School-wide Information System; RENEW = Rehabilitation for Empowerment, Natural Supports, Education, and Work; CICO = Check In/Check Out; ODR = office discipline referral; ISS/OSS = in-school suspension/out-of-school suspension; SET = School-wide Evaluation Tool; TIC = Team Implementation Checklist; BST = Behavior Support Team Checklist; GPA = grade point average.

Table 2. Tier 1 Implementation and Outcome Data.

Year	2006–2007	2007–2008 Baseline Year	2008–2009	2009–2010	2010–2011	2011–2012	Change baseline to 2012
SET scores(overall/ expectations taught)	36/0	83/70	91/80	89/90	86/70	93/75	+10/5
Number of major ODRS/100 students	101	260	198	152	117	146	−114
Number of in-school suspensions/100 students	N/A	29.89	59.00	49.83	36.86	50.86	+20.97
Number of out-of-school suspensions/ 100 students	N/A	46.63	34.00	31.50	31.39	24.57	−22.06
Annual event dropout rate—case school	3.7	2.8	2.1	1.39	.88	.88	−1.92
Annual event dropout rate—state	3.2	2.5	1.7	.97	1.19	1.26	−1.24

Note. SET = School-wide Evaluation Tool; ODR = office discipline referral.

The average daily number of ODRs per 100 students was 1.34 in 2007–2008, 1.01 in 2008–2009, 0.85 in 2009–2010, 0.74 in 2010–2011, and 0.77 in 2011–2012. The total monthly ODR rate was adjusted for per month, per 100 students, per day to provide a more consistent comparison across time-points. A significant change point in ODRs was identified in the month of December 2008 ($z = 3.67$, $p < .000$) and was sustained through 2012 (Figure 2).

Tier 2 outcomes (RQ3)

Individualized student supports

The numbers of ODRs, suspensions, and unexcused absences were compiled by calendar quarter and credits earned were compiled by semester. Changes in means were compared between baseline (before intervention), the period when

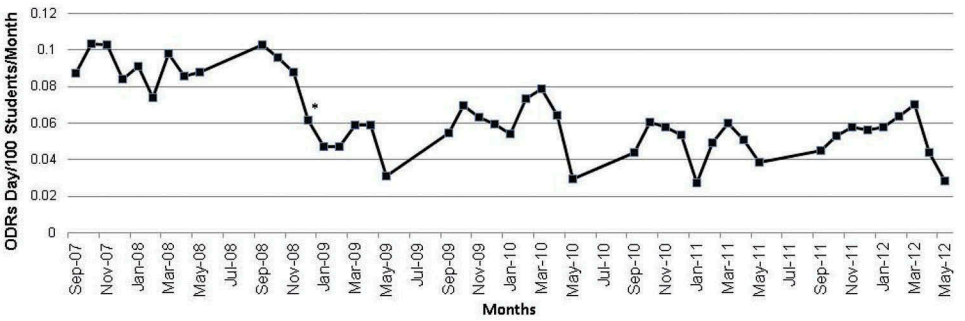

Figure 2. Office discipline referral per 100 students per month.
Note. ODR = office discipline referral. Bimonthly ODR rates over time, showing significant reductions beginning in December 2008 (*z = 32.678, *p* .0003).

behavior support was initiated (time 1), and one and two periods after the intervention was initiated (times 2 and 3). Overall one-way ANOVA showed significant reductions in ODRs ($F(3, 66) = 5.91$, $p = .001$) and in-school suspensions ($F(3, 66) = 7.65$, $p < .001$). Post hoc comparisons adjusted using Tukey's HSD showed significant differences in ODRs between baseline and time 2 and between baseline and time 3. As shown in Table 3, there were also significant differences for in-school suspensions between baseline and times 2 and 3.

Check In/Check Out

Changes in means of ODRs, suspensions, unexcused absences, and credits earned were compared between baseline, the quarter when CICO was initiated (time 1), and the two quarters after initiation (times 2 and 3). Overall one-way ANOVA showed significant differences for unexcused absences ($F(3, 44) = 4.92$, $p = .005$ (see Table 4). Post hoc comparisons adjusted using Tukey's HSD showed the differences are between baseline and times 1, 2, and 3, indicating that students showed immediate improvement as soon as they were enrolled and that improvement was consistent over time (not increasing or decreasing).

Tier 3 outcomes (RQ4)

Renew

Data were compared from the semester before the student began RENEW services (baseline), the first semester when enrolled in RENEW (Time 1), and the semester after enrollment (Time 2). A one-way ANOVA showed no sig-

Table 3. Outcomes of Students With Behavior Support Plans Over Four Semesters ($n = 18$).

Outcome variable	Baseline	Time 1	Time 2	Time 3
Credits earned	2.64	2.64	1.67	2.43
ODR	3.83	2.11	0.67**	0.56**
Unexcused absences	2.47	2.60	2.73	2.31
ISS	1.39	0.72	0.22**	0.11**
OSS	0.67	0.28	0.12	0.06

Note. ODR = office discipline referral; ISS = in-school suspension; OSS = out-of-school suspension.
**Significant change in means from baseline: $p < .01$.

Table 4. Outcomes of Students in Check In/Check Out Over Four Semesters ($n = 13$).

Outcome variable	Baseline	Time 1	Time 2	Time 3
Credits earned	2.08	2.44	2.71	3
ODR	2.23	1	2.09	1.45
Unexcused absences	8.46	3.85*	3.91*	2.45*
ISS	1.38	.38	1.2	0.4
OSS	.69	.31	0.6	0.3

Note. ODR = office discipline referral; ISS = in-school suspension; OSS = out-of-school suspension.
*Significant change in means from baseline: $p < .05$.

Table 5. Outcomes of Students in RENEW (n = 25).

Outcome variable	Baseline	Time 1	Time 2
ODR/semester	5.64	5.52	4.04
ISS/semester	.88	1.36	1.08
OSS/semester	1.32	1.16	.64
Credits earned/semester	2.27	1.85	2.54
All absences/semester	20.20	20.38	15.04
Unexcused absences/semester	15.44	15.52	11.42
Annual GPA	.84	1.14*	N/A

Note. RENEW = Rehabilitation for Empowerment, Natural supports, Education and Work; ODR = office discipline referral; ISS = in-school suspension; OSS = out-of-school suspension; GPA = grade point average.
*Significant difference in means from baseline: $p < .05$.

nificant difference in ODRs, out-of-school suspensions, in-school suspensions, credits earned per semester, days absent, or unexcused days absent (see Table 5). Annual GPAs were compared for the year before RENEW (baseline) and the year when enrolled in RENEW (time 1). A paired sample t test showed a significant increase in mean GPA from baseline (M = .84, SD -.55) to year one in RENEW (M = 1.14, SD = 0.76), $t(24) = -2.16$, p = .041.

A review of individual documents showed that all students who received the RENEW intervention developed uniquely constructed, individualized teams that included school staff, and 16 of the 25 teams (64%) also included family and community members, such as probation or child welfare case managers, mental health providers, and residential providers, among others. All 25 students had written action plans targeting goals identified by the youth. Seventeen of the 25 students developed individualized alternative activities to obtain credits, including community- and work-based learning experiences, independent study (identified as Extended Learning Opportunities in New Hampshire), and internships. It is also important to note that only 1 of the 25 students dropped out of high school (4%), 17 students (68%) graduated with a regular or General Equivalency Diploma (GED), 2 (8%) students were on track to graduate in June of 2014, 1 student was placed out of district, and 4r (16%) students moved out of district.

Discussion

The purpose of this case study was to describe the process and outcomes experienced by one high school that implemented positive behavior practices at all three tiers using the multitiered PBIS framework. This study included a description of practices implemented by the school and school- and student-level outcomes pre- and postintervention, including changes in rates of problem behavior, attendance, dropout rates, and academic performance. The case study high school reached and sustained full implementation of a multitiered PBIS framework within 3 years using the APEX PBIS model as the blueprint for staff training, practice selection, and implementation. The

school was able to develop and implement a system of universal, targeted, and tertiary supports that provided consistency and that was effective in improving student behavior and engagement. The high school experienced a reduction in ODR rates beginning in 2008. This is similar to other case examples in which increases in fidelity of implementation are associated with decreases in ODR rates (Bohanon et al., 2012).

The results indicate that implementation of tier 1 interventions, through techniques such as the direct teaching of classroom expectations (Simonsen, Fairbanks, Briesch, Myers, & Sugai, 2008), may be associated with improvements in student behaviors and students' connection with the school (i.e., dropout). While there was an increase in in-school suspensions, the school staff indicated that they intentionally increased their use of in-school instead of out-of-school suspensions to keep students in the building and offer those students opportunities for academic recovery. According to descriptive data, it appears that the increased number of in-school suspensions offsets the number of fewer out-of-school suspensions, a factor that indicates a need to work with teachers to implement positive supports in the classroom to keep students in the instructional environment and to reduce the number of suspensions of any kind.

Implementation of tier 2 behavior practices was associated with improved student attendance and behavioral outcomes. In addition, individualized behavior support plans appeared to have a positive effect on student behavior, a major risk factor related to high school failure. Students in the CICO intervention showed improved school attendance, suggesting that the increase in positive adult attention may have a favorable impact on student motivation to attend school. These results indicate that interventions based on function of behavior and student plans designed around proactive, positive interactions have the potential to improve student behavior and engagement, and therefore reduce their dropout risk.

The high school staff were able to implement the RENEW tertiary intervention for the highest need students despite the fact that RENEW is time intensive. The students in RENEW were clearly the highest risk and lowest performing group of those studied, indicated by significant numbers of absences and behavior problems at baseline, and yet only one student in RENEW dropped out during the study period. The RENEW intervention improved overall academic performance among some of the most challenged students in the school, indicated by a significant improvement in GPA. Academic performance is found to be a reliable predictor of future student graduation (Burke, 2015). The case study demonstrates that it is possible to organize school resources, particularly staff time, to provide interventions at all three tiers, including an intensive intervention for the most at-risk high school students. More research is needed to assess the impact of RENEW on a high school's dropout rate and to further assess the impact of RENEW on student academic performance, engagement, and behavior.

One of the primary challenges to implementation in the school included scheduling time for staff to receive training, consultation, and to participate as members of tier 1 and the tier 2/3 systems teams. Staff needed time beyond their regularly scheduled duties to learn new practices such as CICO or RENEW. This required the school administrators to shift some staff time from existing job responsibilities to allow for the implementation. In addition, there were conflicts between school staff regarding the continued use of reactive and exclusionary discipline practices and policies and the implementation of positive behavior support strategies. Further, administrative and staff turnover required ongoing training and consultation from year to year to ensure continued implementation. To address these challenges, the external PBIS coaches focused on developing reciprocal working relationships with school team members and staff that provided interventions such as CICO, and adjusted the consultation to better meet the needs of the school staff. Further, the external coaches helped the school to document its systems and practices to provide guidance for new staff. This case study indicates that intensive external coaching contributed to the school's sustained implementation of the PBIS framework and evidence-informed practices at all three tiers.

This case example illustrates the importance of multitiered implementation, including the power of using evidence-informed tier 2 and tier 3 practices to improve the academic and behavioral outcomes for all students. The case study also illustrates the complexity of PBIS implementation and how school staff worked together in implementation teams, used data more effectively, and organized resources to meet the diverse needs of all students. It is also possible that implementation of schoolwide PBIS in high schools, with a focus on teaching behavior expectations in a systematic way, may yield better school-to-career transition outcomes for all students, including those with social, emotional, or behavioral challenges. The multitiered framework, with the addition of a tier 2 and tertiary level interventions focused on key noncognitive skills, has the potential to offer guidance for replication and more rigorous research in high schools.

Limitations

Several limitations exist in this study. While the value of the case study method is that it provides "an analysis of the context and processes involved in the phenomenon under study" (Johnston, Leach, & Liu, 1999, p. 203), it is limited in that the findings may not be generalized to settings and contexts that differ from those of the case study school. The school in this case study is a medium-size public high school with a primarily White student population, so the outcomes illustrated here may not be generalizable to high schools with more diverse populations or different environments (such as a large, urban high school). In addition, caution should be used in generalizing the findings of

statistical significance of each intervention given the limited number of cases and limited number of semesters studied. Further, the data used here include several imprecise and contextually dependent measures, such as discipline referral data and suspensions, which are influenced by student-teacher interactions, implicit bias, and the specific factors in the setting (Osher, Bear, Sprague, & Doyle, 2010). The case study school received grant funds for a continuous period of 6 years to support its PBIS and RENEW implementation, including training and coaching provided at no cost to the school. Additional work is needed to streamline the model and identify funding streams so the implementation process outlined in this case study can be enacted with the resources that are typically available in high schools.

Despite the fact that training for staff on the tier 2 and RENEW practices was provided according to standardized protocols and project staff provided monthly coaching, modeling, and benchmarking feedback to school staff who were implementing the interventions, the lack of specific RENEW fidelity measures makes conclusions about the outcomes of these interventions more tenuous. Finally, without data from a control or comparison school and groups, the results of this study do not indicate that the implementation of PBIS caused the reductions in dropout rates or behavior problems or the improvements in student achievement and engagement.

Future research

Future research of the impact of the SWPBIS framework in high schools with comparison sites would contribute to the validity of these findings and help to identify the most effective processes for implementation. Research on the impact of teaching behavior expectations and social skills using the SWPBIS framework may also yield important information about how to make implementation more contextually relevant to the high school context. Further, research is needed to assess whether the intentional implementation of evidence-based tier 2 and tier 3 practices is related to improved student outcomes such as higher student graduation rates, especially for high-need populations such as students with disabilities and African American students. More intensive studies specific to issues of staff time and other resources needed to learn and implement research-based, positive behavior support practices in high schools at all 3 tiers can contribute to our understanding of how best to plan and manage staff time in schools to achieve improved outcomes. Clearly, high school students who are facing significantly more complex academic, social, developmental, and transitional challenges as they mature need consistency, support, and opportunities for growth no matter what their individual backgrounds or experiences. More rigorous research about positive strategies and implementation frameworks that support their emotional and behavioral growth and development into adulthood is critical.

Conclusions

This case study offers a blueprint for implementation of a multitiered framework for positive behavioral support practices at the high school level and illustrates how implementation of practices at all three tiers may result in improved student outcomes, including school dropout, student engagement, behavior problems, and academic progression. The study also illustrates the importance of training and PBIS coaching to the fidelity of implementation of each practice being implemented. Youth who have dropout risk factors have some of the worst outcomes of any other subgroup, and yet this case study demonstrated how implementation of tier 2 supports and the RENEW intervention, embedded within the multitiered framework, helped to keep high-risk youth engaged in school and on track for graduation. The continued implementation and innovative adaptations of PBIS in high schools is important and should be encouraged, supported, and assessed as a model for improving school outcomes and the transition to adult life for all youth.

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