A MODEL FOR SYSTEM-WIDE COLLABORATION TO SUPPORT INTEGRATED SOCIAL BEHAVIOR AND LITERACY EVIDENCE-BASED PRACTICES

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In the face of dwindling financial resources, educational leaders are looking to refine resource allocation while maintaining a focus on improved student outcomes. This article presents initial findings from a professional development state initiative called Effective Behavioral and Instructional Support Systems (EBISS). The EBISS initiative aims to teach practicing educators about two evidence-based systems of practice and how to blend those practices for more efficient and effective school systems. The targeted systems are School-Wide Positive Behavioral Interventions and Supports and School-Wide Reading Model. Descriptive statistics from 140 participating elementary schools suggest there was an increase in (a) the administration of behavior and literacy screening tools, (b) the number of teams examining and analyzing these data, and (c) the implementation scores and student outcomes at selected grade levels. Continued exploration of data-based collaboration in school buildings appears warranted.

Researchers have documented a gap between knowledge of effective programs and knowledge of how to implement those programs as intended to receive the full potential benefit of improved student outcomes (Burns & Ysseldyke, 2005; Carnine, 1999; Fixsen, Naoom, Blase, Friedman, & Wallace, 2005; Greenwood, Kratochwill, & Clements, 2008; Stein et al., 2008). The act of adopting an evidence-based practice (EBP) and not implementing it fully is characterized in the research world as a problem with treatment integrity, but in practice, it is frequently referred to as an “implementation gap” (Fixsen & Blase, 2009; Gresham, 2009; Reeves, 2007). There are many possible reasons why this implementation gap exists in schools. Several longitudinal studies on a variety of comprehensive school reforms revealed that fewer than 50% of teachers received training on the chosen practice, fewer than 10% of schools used the comprehensive school reforms as intended, and the majority of students did not benefit (Aladjem & Borman, 2006; Vernez, Karam, Mariano, & DeMartini, 2006). The lack of impact on students as a result of poor implementation is a critical point to underscore as more schools try to adopt specific practices. For example, Hulleman and Cordray (2009) describe the stark difference between positive treatment effects realized in “laboratory” settings and the lack of effects once the treatment is implemented in more authentic education settings. The importance of treatment integrity and implementation science has therefore taken a prominent role in the debate about the use and effectiveness of EBPs (Backer et al., 2011, August 15–17; Sanetti & Kratochwill, 2009).

To address the implementation gap, educational research has extended its focus from identifying EBPs to implementing those practices effectively and sustaining quality implementation over time to increase student achievement (Fixsen et al., 2005; Reeves, 2007). The purpose of this article is

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to present the conceptual background, implementation features, and preliminary descriptive results from one state’s efforts to address the implementation gap. Results from the first 2 years of a 5-year professional development initiative entitled Effective Behavioral and Instructional Support Systems (EBISS; http://ctl.uoregon.edu/pd/projects/ebiss) are presented. The goal of the EBISS initiative is to provide an implementation infrastructure for districts and schools to more efficiently install, implement, and sustain a continuum of effective school-wide academic and behavioral practices, designed to culminate in measured improvements in important student outcomes.

**Effective Behavioral and Instructional Support Systems**

Although an array of EBPs are available for educators to choose from, the EBISS initiative blends the key elements of the School-Wide Reading Model (SWRM; Kameenui & Simmons, 1998) and School-Wide Positive Behavioral Interventions and Supports (SWPBIS; Sugai & Horner, 2002). The SWRM and SWPBIS share many core components. Both systems use a multitiered model of prevention that identifies struggling students through systematic screening and provides increasing levels of support that match the needs of students (McIntosh, Horner, Chard, Boland, & Good, 2006; Sadler & Sugai, 2009). Both systems encourage teachers, school administrators, and district leaders to collaborate and make decisions based on student performance data (Ervin, Schougheney, Goodman, McGlinchey, & Matthews, 2006; Sadler & Sugai, 2009). A review by Stewart, Brenner, Martella, and Marchand-Martella (2007) indicates that an integrated, three-tiered model may lead to larger literacy gains than a reading intervention alone. As instructional variables can have an influence on behavior problems, the instructional improvements from a multitiered reading model also have the potential to reduce behavior problems (Munk & Karsh, 1999). Finally, an integrated model may offer a more cost-effective approach to reading and behavior challenges (Stewart et al., 2007; Sugai & Horner, 1999).

**School-Wide Reading Model**

The SWRM (Kame’enui, Simmons, & Coyne, 2000; Kameenui & Simmons, 1998) is an integrated system of research-based instructional design and delivery, screening and progress monitoring assessments, and curricula to improve reading achievement and prevent reading problems (Baker et al., 2011). Although the SWRM can be applied to kindergarten through 12th grade, this article will focus on implementation within an elementary setting. All students from kindergarten to 6th grade are screened for risk of reading problems at the beginning, middle, and end of the school year. Based on screening results, students are placed within core instruction, core instruction plus supplemental instruction, or highly intensive interventions. Intensive intervention can include additional instructional time, smaller group sizes, a very explicit instructional delivery style, and narrow skill-based content focus (Good, Simmons, & Kame’enui, 2001). The SWRM includes seven essential elements (Baker et al., 2011; Kame’enui et al., 2000; Simmons et al., 2002):

1. School-wide priorities and practices focus on the essential content in beginning reading development: phonological awareness, alphabetic understanding, reading fluency, vocabulary, and comprehension (National Reading Panel, 2001);
2. Reliable and valid assessment data inform instructional practices (Black & Wiliam, 1998; Fien et al., 2010);
3. Protected and sufficient time (60-120 minutes) is allocated to reading instruction to make sure students reach key reading goals and benchmarks (Baker et al., 2011; Carnine, Silbert, Kame’enui, & Tarver, 2010);
4. High-quality implementation of research-based instructional programs is emphasized, including explicit instructional delivery (Foorman, Francis, Fletcher, Mehta, & Schatschneider, 1998; Gunn, Smolkowski, Biglan, Black, & Blair, 2005; Mathes et al., 2005);
5. Differentiated, multitiered instruction provides supports based on individual student need (Baker, Gersten, Haager, & Dingle, 2006);
6. School leadership uses data to support effective instruction (Simmons et al., 2002);
7. High-quality professional development drives efforts to continuously improve the quality of instruction (Joyce & Calhoun, 2010).

In their study of the SWRM, Greenwood, Tapia, Abbott, and Walton (2003) were able to increase teacher implementation of effective literacy instruction through professional development and coaching. Over 3 years of training and implementation, Greenwood et al. documented an increase in student outcomes on CBM reading assessments in kindergarten and first grade. Baker et al. (2011) demonstrated improvements in CBM reading assessments, as well as on summative measures of reading and comprehension associated with the SWRM (e.g., Stanford Achievement Test, 10th ed.). At the core of this model are collaborative teams that help extend teacher learning beyond the traditional 1-day workshop. These examples, as well as others (Reis, McCoach, Little, Muller, & Kaniskan, 2011; Simmons et al., 2002), have demonstrated moderate to strong evidence for the foundations of the SWRM (Gersten et al., 2009).

School-Wide Positive Behavior Interventions and Supports

SWPBIS aim to improve student adjustment, social behavior, and academic success through methods that increase positive behavior and make problem behavior irrelevant (Bambara & Kern, 2005; Carr et al., 2002). To accomplish this, SWPBIS takes a systems approach that incorporates EBPs, such as explicit instruction, applied behavior analysis, and data-based decision making. Like the SWRM, SWPBIS organizes prevention and intervention efforts into primary, secondary, and tertiary tiers of support (Horner, Sugai, Todd, & Lewis-Palmer, 2005; Walker et al., 1996). Primary or universal supports include explicit instruction for all students in the school’s behavioral expectations, encouraging desired behavior with positive reinforcement, discouraging inappropriate behavior through clearly defined consequences, and the use of data for making decisions and evaluation. Secondary prevention efforts include behavior management strategies, and possibly instructional adjustments, for students at risk for problem behavior but who have not yet developed the need for intensive intervention. Students with the most intense problem behaviors fall into the third tier, where they receive comprehensive and individualized support (Bambara & Kern, 2005; Horner & Repp, 1999).

Successful SWPBIS implementation generally requires commitment from educators to improve their students’ behavioral and social competence, regular meetings of a behavior leadership team, administrative leadership, budgetary commitment, allocation of the necessary personnel and staff time, and a data collection and reporting system for decisions and evaluation (Horner et al., 2005; Sugai & Horner, 2002). Leadership team members routinely examine the school’s Positive Behavioral Interventions and Supports (PBIS) practices and review relevant student data, such as office discipline referrals, attendance rates, suspensions, academic performance, or other measures that will help the team support students. The team members might, for example, identify environments within the school that contribute to certain potentially problematic behaviors (e.g., noise, running). The team develops and adjusts the plan accordingly, which could include increasing adult supervision and introducing precorrection strategies (e.g., Lewis, Colvin, & Sugai, 2000).

SWPBIS has been shown to be a cost-effective, prevention-oriented approach to reduce the amount of problem behavior within schools, suspensions, and students’ need for school-based counseling services. Also, SWPBIS improves the amount of time available for instruction, positive interactions between students and teachers, and perceptions of the schools’ organizational health (e.g., Blonigen et al., 2008; Bradshaw, Mitchell, & Leaf, 2010; Hawken & Horner, 2003; Horner et al., 2009; Muscott, Mann, & LeBrun, 2008; Turnbull et al., 2002). In a randomized controlled trial with elementary schools as the unit of assignment, Horner et al. (2009) observed that SWPBIS...
implementation improved students’ perceptions of school safety, led to an increase in third-grade reading performance, and reduced office discipline referrals. Although evidence for SWPBIS has recently grown, most of the evaluations have focused on elementary schools (e.g., Bradshaw, Koth, Bevans, Ialongo, & Leaf, 2008; Horner et al., 2009), with less attention given to middle schools and nearly no evaluations in high schools. Although many of the core principles and practices remain the same across types of schools, Flannery, Sugai, and Anderson (2009) suggest that high schools have some unique challenges that affect successful and sustainable implementation. For the purposes of this article, the focus of implementation of SWPBIS is only at the elementary level.

**BLENDING SCHOOL-WIDE BEHAVIOR AND LITERACY SYSTEMS**

Successful examples of the blending of SWPBIS and SWRM generally show positive trends in literacy performance and decreases in the number of behavior problems (Ervin et al., 2006; McIntosh et al., 2006). Demonstrations of combining SWPBIS and the SWRM have been addressed in the literature from district and state perspectives. From a district perspective, Sadler and Sugai (2009) report that collaboration and data-based teams were at the core of the district’s blended model. The district reported an increase over time in levels of implementation of SWPBIS on the School-Wide Evaluation Tool (SET; Todd et al., 2005), an increase in the percentage of students reaching grade-level goals, and a decrease in the amount of office discipline referrals. Anecdotally, the authors reported that throughout the district, educators focused on the common goal of collaborative data-based problem solving. The researchers speculated that a common goal, partnered with the high-quality implementation of EBPs, led to improved outcomes demonstrated over the course of 5 years.

From a state-level perspective, Ervin et al. (2006) shared findings from a pilot program of a professional development initiative focused on the blending of SWPBIS and SWRM. Their sample consisted of four elementary schools that received training and some “seed money” over the course of 5 years to build and sustain SWPBIS and the SWRM. The researchers concluded that although the trends were consistently positive across all schools, the magnitude of the changes varied according to school context. For example, there were smaller changes in student performance at the school with the highest number of students receiving free and reduced lunch. Also, teacher “buy-in” played a significant role in adoption and sustainability. One school withdrew from SWRM implementation because it was not philosophically aligned with the teachers’ ideas on literacy screening. In both of these model demonstrations, attempts were made to blend two systems of EBPs together, and in both cases, treatment integrity and outcomes varied across school contexts, but findings were generally positive on student outcomes and implementation variables. A meta-analysis by Stewart et al. (2007) addressing the blending of academic and behavior systems demonstrated that integrated models of school-wide behavior and reading systems resulted in large effect sizes on reading outcomes and moderate effect sizes on behavior outcomes. Importantly, integrated models produced larger effect sizes for reading and behavior outcomes than either model implemented independently (Stewart et al., 2007).

**EBISS Teaming Framework: A Model for Collaboration**

The EBISS initiative builds on previous research and blends SWPBIS and the SWRM for greater efficiency of resources and improved student outcomes. The EBISS initiative uses ongoing high-quality professional development and coaching delivered to school and district personnel on the essential features of SWPBIS and the SWRM to improve implementation and outcomes. The purpose of the EBISS initiative is to improve implementation of an integrated model of SWPBIS and the SWRM at the district and school levels. The district-level focus is how the EBISS initiative differs
from previous efforts. At the core of the EBISS initiative is the EBISS teaming framework. The Oregon Coaches Task Force developed the teaming framework; the group was brought together by the Oregon Department of Education and included a variety of stakeholders. The Oregon Coaches Task Force consisted of experts in both SWPBIS and SWRM from schools, districts, regional service districts, and universities. The charge of the Oregon Coaches Task Force was to synthesize the known research base and examples from high-implementation schools and districts to model a teaming structure that would integrate behavior and reading. The Oregon Coaches Task Force created the EBISS teaming framework, which was used as a central professional development theme of the EBISS initiative.

The EBISS Teaming Framework in Figure 1 clarifies the organizational structures required to implement a blended model of school-wide behavioral and reading support systems in each elementary school in a district. The EBISS teaming framework ensures effective and efficient communication loops and improvement cycles between the district and school teams and among team members within a school building. The district team comprises district administrators plus school-level leaders. The school-level leaders could be teachers, specialists, and/or principals. The district team should have individuals who have the capacity to interpret systems-wide behavior and reading data. Often this data analyst role (Todd et al., 2011) is played by district PBIS or instructional
coaches. In Figure 1, between the district team and the school building leadership team, the role of the systems coach is identified. This role can be filled by one person or it can be a role shared by multiple people within the district leadership team. The systems coach is highlighted as a pivotal team member facilitating communication between district-level and school-level stakeholders. At the building level, the EBISS teaming framework blends behavior and literacy data teams to allow multiple stakeholders to respond to both sets of data for a more comprehensive view of building implementation. Systems coaches, along with building-level representatives, facilitate the communication of the district-level implementation plan with the school buildings. Similarly, the school-level representatives hold the responsibility of sharing practical implementation concerns and feedback from the building with the district team.

The EBISS model brings together several key implementation features:

(a) leadership and commitment, (b) action planning with schools, (c) coordination and coaching, (d) professional development and training, (e) ongoing assessment and evaluation, (f) visibility and political support, and (g) funding. These EBISS implementation features come together in the following ways. First and foremost, a district team (also referred to as district leadership team or district implementation team), comprising district administrators and school representatives, is formed and meets every other month to self-assess their systems-level structures that support the implementation of the SWRM and SWPBIS. For example, the district team might decide to establish hiring practices, procedures, and job descriptions that require applicants to have SWPBIS and SWRM knowledge and demonstrated skills. The district leadership team is also responsible for developing systems to support action planning with EBISS schools. This means that the systems coach or a coaching team goes out to meet with the school team to help them align their goals with district priorities. The systems coach helps school teams develop an action plan based on their unique context and data. Time and resources are made available for systems coaches and schools to engage in collaborative teamwork to analyze student data and to update their action plans regularly.

Additional features of EBISS implementation include coordination, coaching, and professional development and training. Professional development and training are provided to all staff through various methods, based on the results of student performance data and implementation data. Professional development and coaching activities focus on observed knowledge gaps that impede the implementation of SWPBIS and the SWRM. Careful attention is paid to a coordinated coaching plan to ensure that what is trained is also coached, so all staff are supported in their implementation efforts (Joyce & Calhoun, 2010). District teams are asked to create yearly professional development and coaching calendars to address known capacity issues, including new administrator and teacher hires, assessment training, and coaching on a district-wide data-based decision making process. The development of collaborative, data-based decision-making teams to provide ongoing assessment and evaluation of behavior and literacy data drives all decisions at the district and school levels. District teams and school teams make adjustments to action plans based on a careful analysis of their implementation data and student outcome data. Similar to the approach schools take in working with students, a proactive prevention-oriented approach to learning is promoted, and struggling teachers and principals are supported through mentoring and professional development opportunities.

The final two EBISS implementation features are visibility and political support, and funding. These ensure that resources are differentiated and provided to schools to implement their action plans. The district team identifies key stakeholders at the district and community levels, and provides them with accessible reports to outline successes and challenges in an attempt to garner the support for EBISS and the funds required to take EBISS priorities to scale. The seven features of EBISS are aligned and integrated to develop the systems strength required for full implementation of the School-Wide Reading and PBIS models. Emerging descriptive research is demonstrating how system-wide transformation requires a clear mission and the support of a district leadership team to
Effective Behavioral and Instructional Systems

Research Questions

The evaluation data collected do not allow us to address causal questions connected to EBISS implementation; however, it is important to address several questions to monitor progress at a descriptive level. In this article, the questions are grouped into two areas: 1) implementation of critical features, and 2) student outcomes.

Research Questions for Implementation. Do SWPBIS and SWRM implementation features increase in schools over the 2 years of the EBISS initiative? In particular, did the number of schools with literacy and behavior teams in place increase from Year 1 to Year 2? Did school personnel screen and progress monitor student literacy and behavior data in more schools in Year 2 than in Year 1? For SWPBIS implementation, did more schools meet the SET goal of 80/80 in Year 2 than in Year 1?

Research Questions for Student Outcomes. Proximal data were used to evaluate school outcomes with respect to student literacy screening data and distal data were used with respect to student performance on state reading assessments. Do more students demonstrate grade-level reading skills in Year 2 than in Year 1 on literacy screening measures? Do fewer students perform below grade level in Year 2 than in Year 1 on literacy screening measures? Do more students meet or exceed state-level standards in Year 2 than in Year 1 on state assessments? Do fewer students perform below grade level on the state assessment in Year 2 than in Year 1?

Method

Participants

EBISS initiative participants included elementary schools from across Oregon, from rural to semi-urban settings. Similar mean percentages of students eligible for free and reduced lunch programs were found in the 2007-2008 school year when EBISS schools (49.51%) and non-EBISS schools (50.02%) were compared. Mean percentages of students from minority backgrounds were also similar between EBISS schools (31.58%) and non-EBISS schools (31.52%). EBISS schools differed from other schools in the state only on mean student enrollment. In the 2007-2008 school year, EBISS schools, on average, had 462 students, whereas non-EBISS schools had 341 students enrolled. Two years of data were available to describe the outcomes of EBISS schools. Data from Year 1, collected in the 2007-2008 school year, represents the first implementation year of the EBISS initiative, and some, but not all, schools in participating EBISS districts had begun to implement EBISS activities. The second year of data, collected for the 2008-2009 school year, describes schools that continued EBISS implementation from Year 1, as well as schools that began implementation of EBISS. These data are referred to as Year 1 and Year 2, respectively. The analyses that follow were conducted with elementary schools, which we defined as schools with kindergarten through fifth grade. The sample included 151 schools in Year 1 and 176 schools in Year 2. For this study, only schools with 2 years of data were included. The final EBISS sample included 140 schools with data from Years 1 and 2, which represents all 22 participating districts.

Measures

Each year of the EBISS initiative schools, in collaboration with the district systems coach, were asked to complete an online summary of their school-level data. The data collected included...
basic implementation information, such as the data systems used for literacy and behavior, as well as student-level outcome data. An implementation fidelity measure of SWRM implementation was not required as part of the EBISS initiative. Some schools did use the Planning and Evaluation Tool for Effective School-Wide Reading Programs–Revised (Kame‘enui & Simmons, 2003), but data were insufficient for data analysis.

**Measures of School-Wide Implementation Practices**

**School-Wide Evaluation Tool.** The SET is a research-validated instrument designed to assess and evaluate the critical features of school-wide effective behavior support across a school (Todd et al., 2005). The SET includes 28 questions across seven features, including (a) expectations defined, (b) behavior expectations taught, (c) acknowledgment procedures, (d) correction procedures, (e) monitoring and evaluation, (f) management, and (g) district-level support. Responses are gathered through a review of school records, direct observations, and staff and student interviews. The internal consistency of the SET was documented at .96 (alpha coefficient), and test–retest reliability was reported at .97. Interscorer agreement was estimated to be .99. Construct validity was estimated by comparing scores on the SET with scores on the Effective Behavior Support Self-Assessment Survey. The correlation between the two measures was .75 (Horner et al., 2004; Vincent, Spaulding, & Tobin, 2010).

**Student Reading Outcomes**

**Dynamic Indicators of Basic Early Literacy Skills.** Dynamic Indicators of Basic Early Literacy Skills (DIBELS; Good & Kaminski, 2002) is an assessment system designed to measure the acquisition of early literacy skills from kindergarten through sixth grade. The assessments are short (1 minute) fluency measures used to regularly monitor the development of early literacy and early reading skills. DIBELS measures have been demonstrated to be reliable and valid indicators of early literacy development and predictive of later reading proficiency. In this manner, they aid in the early identification of students who are not progressing as expected. Nonsense Word Fluency (NWF) and Oral Reading Fluency (ORF) are the two most studied DIBELS measures (Baker et al., 2008; Fien et al., 2008; Wood, 2006). The results of DIBELS assessments can be used to evaluate individual student development as well as provide grade-level feedback toward validated instructional objectives. On DIBELS ORF passages, alternate-form reliability drawn from the same level ranged from .89 to .94, and test–retest reliabilities for elementary students ranged from .92 to .97 (Good & Kaminski, 2002). Baker et al. (2008) reported concurrent validity of .82 with Grade 1 Stanford Achievement Test-10 (SAT-10, .80 with Grade 2 SAT-10, and .67 with Grade 3 Oregon Assessment of Knowledge and Skills (OAKS) Reading.

**Oregon Assessment of Knowledge and Skills.** OAKS is a multiple-choice, state-wide assessment that evaluates students’ mastery of Oregon content standards (Oregon Department of Education [ODE], n.d.). The OAKS reading/literature assessment is given to all students in Grades 3 to 8 and Grade 11. A variety of reading selections are presented that emphasize reading for literary experience, reading to gain information, and reading to perform a task. Questions are designed to assess students’ knowledge of vocabulary, developing an interpretation, and demonstrating a general understanding. The Oregon Department of Education (2005) reported criterion validity correlations for OAKS Reading with the California Achievement Test of .75 and with the Iowa Test of Basic Skills of .78. The four alternate forms used for the OAKS Reading demonstrated internal consistency reliability (Kuder-Richardson Formula 20) of .95 (ODE, 2000).
Table 1
Summary of Yearly EBISS Professional Development

<table>
<thead>
<tr>
<th>Audience</th>
<th>Professional Development Content</th>
<th>Method of Delivery</th>
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<tbody>
<tr>
<td>District Team</td>
<td>Introduction to EBISS model</td>
<td>Required: 1-hour webinar provided by EBISS technical assistance (TA) providers</td>
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<td></td>
<td>District-level data review</td>
<td>Required: 1 site visit per year from an EBISS TA provider</td>
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<td></td>
<td>Data-based decision making within the context of efficient &amp; effective team meetings</td>
<td>Optional: additional visits from EBISS TA provider</td>
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<td></td>
<td></td>
<td>Required: 1-day workshop for entire district team</td>
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<td></td>
<td></td>
<td>Optional: attendance at state PBIS conference, 1-2 days</td>
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<tr>
<td>Systems Coach</td>
<td>District team facilitation &amp; data analysis</td>
<td>Required: monthly communication via phone, email, or webinar to help facilitate</td>
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<td></td>
<td>district-level challenges to EBISS implementation</td>
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<td></td>
<td>SWPBIS and SWRM implementation</td>
<td>Required: 2-day workshop (1 in the fall and 1 in the spring) led by EBISS TA</td>
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<tr>
<td></td>
<td>SWRM explicit reading instruction for grades K-5</td>
<td>Optional (Year 2): 9-day training of trainers provided by EBISS TA providers</td>
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<td></td>
<td>EBISS TA providers</td>
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Procedures

The Office of Special Education Programs funded Oregon’s application for a State Personnel Development Grant. The ODE then requested applications from school districts that were interested in receiving subgrants to participate in the EBISS initiative. Subgrant applications included questions about the type of behavior and literacy systems districts and schools currently had in place. All school districts that applied for subgrants received funding and no districts withdrew from implementation of the EBISS initiative in the first two years. School district participation began in the 2007–2008 school year.

Each participating district ($N = 22$) received partial funding to support the role of the systems coach. These dollars funded one primary person (i.e., systems coach) at the district level for approximately 25 days throughout the school year. For larger districts, it was not uncommon to have two to three team members who shared the role of the systems coach. For smaller districts, the systems coaches were sometimes educational specialists who were hired as consultants from local education service agencies. Over the 25 days, the systems coaches’ jobs were to facilitate district and building data meetings and to attend EBISS-sponsored professional development activities. Table 1 lists the technical assistance, professional development, and coaching activities implemented as a part of the EBISS initiative. To support the coaches, state technical assistance providers from the University of Oregon and ODE met with each district’s systems coach to determine the support a district needed, based in part on their literacy and behavior data. Through this process, districts and schools received a range of support, including, but not limited to, training on analyzing data reports, training on the administration and scoring of literacy assessments, and modeling of effective instructional practices in both literacy and classroom behavior management. EBISS technical assistance providers attended at least one district leadership team meeting per year. Most system coaches received consultative communication (e.g., phone call or email) at least monthly.

Ongoing professional development was also delivered to district and school-building leadership. EBISS participants received professional development throughout the year as teams and also as
individuals on the essential EBISS implementation features: (a) leadership and commitment, (b) action planning with schools, (c) coordination and coaching, (d) professional development and training, (e) ongoing assessment and evaluation systems, (f) visibility and political support, and (g) funding. The primary focus of professional development was the implementation of SWPBIS and the SWRM, and the general features of the EBISS teaming framework to blend both systems. As described in Table 1 systems coaches attended 2 days of professional development targeted toward systems-level implementation of both SWPBIS and SWRM. Each spring, district teams attended a 1-day workshop focused on collaborative teaming and data-based action planning. Most district teams included representative teachers from various grade levels, selected principals, and district-level administrators from both special and general education. Representatives occasionally included instructional assistants, parent volunteers, board members, and superintendents or assistant superintendents. Systems coaches were required to attend these trainings with their teams and were responsible for synthesizing information from all professional development activities to disseminate information back to district- and school-level colleagues.

**Statistical Methods**

To examine changes from Year 1 to Year 2, we relied primarily on two types of analyses. First, for dichotomous data, such as whether schools had a literacy team in place, we computed a standard $\chi^2$ test. For tests of continuous measures, such as SET scores or the mean percent of students who met the state standard on the OAKS, we tested gains from Year 1 to Year 2 with $t$ tests. As a test of net differences, this analysis provides an unbiased and straightforward interpretation of the results (Cribbie & Jamieson, 2000; Fitzmaurice, Laird, & Ware, 2004). Gain-score models were fit to the data with SAS PROC MIXED (Version 9.2; SAS Institute Inc., 2009), using restricted maximum likelihood, which is generally recommended for multilevel models (Hox, 2002). Maximum likelihood estimation allows the use of all available data and provides potentially less biased results, provided the missing data were missing at random (Schafer & Graham, 2002). In the present study, missing data did not likely depend on unobserved determinants of the outcomes of interest (Little & Rubin, 2002).

**RESULTS**

This section provides general descriptive information about the sample of schools and specific information about behavior and literacy systems in Year 1. It then addresses our research questions, improvement from Year 1 to Year 2, as professional development and technical assistance was administered and systems coaches worked with schools and district teams to increase implementation of EBISS.

**Behavior Support**

In Year 1, out of 140 schools, 118 (84%) had a behavior leadership team, and 119 (85%) had a tiered model of behavior interventions. In Year 1, 130 schools (93%) had a behavior data tracking system, 102 (73%) reported having a behavior action plan in place, and 108 (77%) reported collecting SET data. EBISS elementary schools reported three primary behavior support programs: 119 had implemented or begun to implement PBIS, four relied on character education, and two used Time to Teach. A small subset used multiple programs, and 15 schools reported no behavior support programs in place. Of the 140 elementary schools, 108 collected SET scores to measure their PBIS implementation in Year 1. Of those schools, 67 (61%) met the desired 80/80 criterion, and the average score was 85.4.
Table 2  
*Changes in Implementation Structural Support of SWPBIS and SWRM From Year 1 to Year 2*

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<tr>
<th></th>
<th>$\chi^2$</th>
<th>df</th>
<th>$p$</th>
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<td><strong>SWPBIS Implementation</strong></td>
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<tr>
<td>Behavior Leadership Team</td>
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<td>.0242</td>
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<td>Tiered Behavioral Model</td>
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<td>.0362</td>
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<tr>
<td>Behavior Action Plan</td>
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<td>.0028</td>
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<td><strong>SWRM Implementation</strong></td>
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<tr>
<td>Literacy Leadership Team</td>
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<td>.0005</td>
</tr>
<tr>
<td>Tiered Reading Model</td>
<td>17.02</td>
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<td>&lt;.0001</td>
</tr>
<tr>
<td>Literacy Screening System</td>
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<td>.1222</td>
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<td>Literacy Progress</td>
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<td></td>
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<td>.1234</td>
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<tr>
<td>Reading Model Action Plan</td>
<td>41.69</td>
<td>1</td>
<td>&lt;.0001</td>
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</table>

**Literacy Support**

In Year 1, out of 140 schools, 98 (70%) reported having a literacy leadership team in place, 74 (53%) had a tiered reading model in place, and 121 (86%) were using a literacy screening system. We separately asked schools if they had a progress monitoring system in place, and 101 (72%) reported they did. Only 45 schools (32%) reported having a reading model action plan in place. The majority of schools ($n = 106$, 76%) reported using DIBELS data in Year 1 for their literacy screening system, and 11 of those schools used a second screening system, such as Every Child a Reader or easyCBM. Some schools used AIMSweb for storing and reporting their data. Fourteen schools used DRA, and one each used only easyCBM and Phonological Awareness Literacy Screening. All schools used the same systems for screening as for progress monitoring, and 18 schools reported using no system for either screening or progress monitoring.

**Improved Implementation**

The results presented here address the research question regarding EBISS schools’ implementation of behavior and literacy school-wide systems.

**Behavior Support.** Did the number of schools with behavior teams, models, and action plans in place increase from Year 1 to Year 2? Table 2 displays the changes from Year 1 to Year 2 in implementation and structural elements of SWPBIS. There was a statistically significant increase in the number of schools with a behavior leadership teams in place. From Year 1 to Year 2, the number of teams increased from 118 (84%) to 130 (93%). The number of schools reporting a tiered behavior support model in place increased significantly, from 119 (85%) to 130 (93%). The number of schools that reported having a behavior action plan in place increased from 102 (73%) to 122 (87%), which also represented a statistically significant improvement.

**Screening Systems.** School personnel screened and progress monitored student behavior in more schools in Year 2 than Year 1. Descriptively, 130 schools had implemented PBIS by Year 2, up from 119 in Year 1. One school continued to use Time to Teach, and only nine reported no behavior support program in Year 2. The number of schools using SWIS to enter and track behavioral screening data increased from 64 to 79, a statistically significant improvement. Ten schools began to use Excel or custom software for behavioral screening.
Implementation Measures. Did more schools implement behavior management programs successfully? That is, did SET scores increase over 2 years and did more schools attain the 80/80 criterion in Year 2 than in Year 1? SET scores did increase, on average, from 85.4 in Year 1 to 90.4 in Year 2, a statistically significant improvement \((t = 3.78, df = 88, p = .0003)\). In addition, more schools met the 80/80 criterion on the SET, from 67 (61%) in Year 1 to 73 (78%) in Year 2, a difference that was statistically significant \((\chi^2 = 7.28, df = 1, p = .0070)\). In Year 1, 43 schools failed to meet the 80/80 criterion, but in Year 1, only 20 schools failed to meet the 80/80 criterion.

Literacy Support. Did the number of schools with literacy teams, tiered models of instruction, and action plans in place increase from Year 1 to Year 2? Table 2 presents the findings of the structural elements necessary for implementation of the SWRM. The number of schools with a literacy leadership team in place increased from 98 schools (70%) in Year 1 to 122 schools (87%) in Year 2, a statistically significant increase. The number of schools that reported having a tiered reading model in place increased significantly, from 74 (53%) to 107 (67%). Two nonsignificant changes were the number of schools with a literacy screening system in place, which increased from 121 (86%) to 129 (92%), and the number of literacy progress monitoring systems that were in place, which increased from 101 (72%) schools in Year 1 to 112 schools (80%) in Year 2. The largest statistically significant change was seen in the increase in the number of schools with a reading model action plan in place, which more than doubled, from 45 (32%) in Year 1 to 99 (71%) in Year 2.

Screening Systems. School personnel screened and progress monitored student literacy data in more schools in Year 2 than in Year 1. Descriptively, the number of schools with literacy screening systems in place increased from 122 in Year 1 to 129 in Year 2. The number of schools using DRA decreased from 14 schools in Year 1 to seven schools in Year 2. The number of schools using DIBELS or easyCBM increased from 107 to 122. Only two more schools adopted progress monitoring systems in Year 2 compared with Year 1 (124 vs. 122).

Proximal Outcomes. Most schools collected and reported the proportion of students who achieved benchmark, had some risk (strategic), or were at high risk (intensive) using DIBELS or related measures. We found statistically significant changes in first-grade outcomes on all three levels of risk (Table 3), but no similar changes in Grades kindergarten, 2, 3, 4, or 5. Of the schools that reported using DIBELS in first grade, the average percent that exceeded benchmark increased by 4.1% in Year 2, up from 59.4% in Year 1. Accordingly, the mean percent of students with some risk, characterized as strategic, decreased by 2.7% in Year 2, down from 23.0% in Year 1, and the percent of at-risk students requiring intensive interventions, decreased by 2.3%, down from 18.6% in Year 1.

Distal Outcomes. The difference between the means of Year 1 and Year 2 on OAKS, are shown in Table 4 and provide information about a distal outcome of interest. Means of students who

Table 3

<table>
<thead>
<tr>
<th></th>
<th>( t )</th>
<th>( df )</th>
<th>( p )</th>
</tr>
</thead>
<tbody>
<tr>
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<td>.0009</td>
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<tr>
<td>Strategic</td>
<td>−2.95</td>
<td>99</td>
<td>.0040</td>
</tr>
<tr>
<td>Intensive</td>
<td>−2.45</td>
<td>90</td>
<td>.0164</td>
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</tbody>
</table>
Table 4
Change in Oregon Statewide Reading Assessment Results in Grades 3–5 From Year 1 to Year 2 of EBISS Implementation

<table>
<thead>
<tr>
<th>Grade</th>
<th>Benchmark</th>
<th>Did Not Meet</th>
<th>t</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
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<td>−0.20</td>
<td>115</td>
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<tr>
<td></td>
<td>Met</td>
<td>3.05</td>
<td>118</td>
<td>.0028</td>
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<tr>
<td></td>
<td>Exceeded</td>
<td>−3.95</td>
<td>117</td>
<td>.0001</td>
<td></td>
</tr>
<tr>
<td>Grade 4 Benchmark</td>
<td>Did Not Meet</td>
<td>−3.94</td>
<td>107</td>
<td>.0001</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Met</td>
<td>0.85</td>
<td>112</td>
<td>.3966</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Exceeded</td>
<td>0.09</td>
<td>109</td>
<td>.9290</td>
<td></td>
</tr>
<tr>
<td>Grade 5 Benchmark</td>
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<td>.0052</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Met</td>
<td>1.91</td>
<td>116</td>
<td>.0590</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Exceeded</td>
<td>0.75</td>
<td>115</td>
<td>.4556</td>
<td></td>
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</table>

exceeded, met, and did not meet the OAKS benchmark goals for third, fourth, and fifth grades were analyzed. From the third-grade OAKS data, the average percent of students who met the benchmark increased by 3.5% in Year 2, up from 48.9% in Year 1. The percent of students who exceeded the benchmark in Year 2, however, declined 4.2%, down from 35.2% in Year 1. Among fourth-grade OAKS data, we found that the percent of students who did not meet the benchmark decreased 3.0%, down from the 17.3% who failed to meet it in Year 1. The percent of fourth graders who met the benchmark increased 1.1%, and the percent that exceeded the benchmark increased 0.1%, but neither increase was statistically significant. Similarly, the mean percent of fifth graders who failed to meet the benchmark decreased 2.7%, from 24.5%, but the percent who met the benchmark increased 2.0%, up from 50.0%. The percentage of students who exceeded the benchmark standard rose 0.6%, from 25.0%, but this change was not statistically significantly.

**DISCUSSION**

The EBISS initiative provides a model of collaboration in schools and districts, with potentially positive effects on student learning. Over a period of 2 years, adults within school buildings changed their behavior, met as teams, and used behavior and literacy data within meetings to make instructional and system-wide decisions. Measures of SWPBIS implementation increased significantly from the first to the second year of the EBISS initiative. Positive student outcomes were observed, with a statistically significant increase in the percentage of first graders who reached important reading benchmarks from the first year of the initiative to the second year. A decrease in the mean number of students not meeting the state reading test benchmark was demonstrated from Year 1 to Year 2. These data indicate that schools made structural changes in their buildings and that these changes occurred at the same time as an increase in some student outcomes. Important implementation outcomes included adding behavior and literacy leadership teams, adopting a tiered reading model, and action planning to improve both behavior and literacy systems.

Within the national context of diminishing fiscal resources for education, the EBISS initiative provides a model of structural changes that can be made with limited incentives and resources. The EBISS initiative is different from other professional development initiatives or research projects in that much of the responsibility to initiate and implement SWPBIS and SWRM rested on the shoulders of the school district. For example, the internal systems coach was the primary communicator of the
EBISS teaming framework. Both SWPBIS and the SWRM take a considerable amount of personnel buy-in and systems-wide commitment for implementation to reach levels necessary to improve student outcomes. Team members, who attended conferences and other professional development activities, returned to their buildings and translated this information for their school teams. The team members with support from the system coaches had the primary responsibility for generating and maintaining overall commitment within the school districts.

District and school commitment is a strength of the EBISS initiative, but in this case, it is also one of the primary limitations. Essentially, schools and districts choose to apply and participate in the EBISS initiative. It could be argued that schools wanting to participate in the implementation of the EBISS initiative and the EBISS teaming framework were already on a trajectory to change adult behavior and improve student outcomes. We do not know how many schools came to the EBISS initiative with SWPBIS or SWRM experience. We also do not know which schools were entirely new to both systems. We know that as the years engaged in implementation increase, the effect sizes of any comprehensive school reform also increase (Borman, Hewes, Overman, & Brown, 2003). This means that district and school initiatives that are theoretically sound, empirically supported, and well implemented should increase important student outcomes and see the magnitude of those outcomes improve the longer they implement those initiatives. Although promising, the results presented here demonstrate only 2 years out of a total of 5 years of implementation. Further analysis of additional years of data will demonstrate whether these encouraging changes were improved and maintained.

As is common in applied settings, there are many factors that influence implementation that were not measured precisely and can direct future research in this area. For example, it is very difficult for us to determine precisely how many hours of professional development each school and district received. Each district had a different plan and process for disseminating EBISS professional development. Also, there have been varying degrees of turnover in each district. In some cases, the person who received the most training, the systems coach, had moved to another district or role within the district. The amount and type of professional development experiences that may have contributed to the observed changes are unknown and difficult to precisely define, given the scope and resources of the current initiative. Future research should in fact scientifically evaluate all aspects of an integrated SWPBIS and SWRM model, as well as the relevant professional development access and overall implementation efforts. In concert with the need for more rigorous research, we are currently examining the technical adequacy of a district-level EBISS implementation self-assessment tool. This tool will assist EBISS district implementation teams in the self-evaluation and action planning process.

The EBISS model encourages district leadership teams and school data teams to look at student behavior and reading data in unison at the individual student level, but also at the grade and school levels. Professionals in the school building who have traditionally been thought of as “behavior people” are being asked to learn about reading data and vice versa. EBISS schools are building capacity by no longer compartmentalizing behavior data and reading data. In blending two EBPs that share foundational principles, the EBISS model asks schools to work more efficiently. The integration of data teams within the EBISS model requires schools and districts to build internal capacity in these areas.

School psychologists are in a natural position to play the role of systems coach within a building and across a district. Few school personnel have the extensive background and training in assessment and data analysis that school psychologists do. An assessment background paired with a more flexible daily schedule places school psychologists in a unique position to assist teaching staff with critical knowledge that can guide staff in the development of improved instructional and intervention effectiveness. The EBISS model incorporates traditional methods of professional
development (e.g., 1-day workshop), partnered with on-site training and follow-up on a regular basis. This follow-up training and guidance are often provided by an outside technical assistance provider, but it is possible to envision school psychologists serving in this capacity. The traditional role of school psychologists, as well as teachers, principals, and district-level administrators, shifts within the EBISS model. Colleagues across a district are asked to work together; to reflect on, analyze, and act on the data; to problem solve; and to implement EBPs with a high level of fidelity so that student outcomes might be improved by their collective and collaborative efforts.

**CONCLUSION**

Because each EBISS district and school is unique, and EBISS may work differently in some districts and schools compared with others, the EBISS teaming framework is adaptable to a range of education locations, contexts, and settings. The purpose of this article was to present results from the first 2 years of implementation of the EBISS initiative within 140 elementary schools from the state of Oregon. Across different student grade levels, amounts of exposure to professional development, teacher knowledge about the EBISS initiative, and years of prior experience with SWPBIS and the SWRM, positive trends were documented for students and adults. The initial results of the EBISS initiative and implementation of the EBISS teaming framework demonstrate that a collaborative model was built on the EBPs of SWPBIS and SWRM. The EBISS initiative and teaming framework provides researchers and practitioners with initial evidence that the investments in collaborative data teaming may contribute positively to student outcomes.

Ervin and colleagues (2006) discussed the power of a system moving together toward a common goal. The EBISS initiative shares a common goal of improved student academic and behavioral performance through the implementation of an integrated model of the SWRM and SWPBIS. These early results show that the adult implementation gap can be impacted through strong systems reform, and early findings show the reduction of this gap may also help reach our goal of closing the student achievement gap.

**REFERENCES**


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