DISTRICT CAPACITY AND THE IMPLEMENTATION OF POSITIVE BEHAVIOR

INTERVENTIONS AND SUPPORTS: AN EXPLORATORY STUDY

by

ALLISON WRIGHT BLAKELY

A DISSERTATION

Presented to the Department of Special Education and Clinical Sciences
and the Graduate School of the University of Oregon
in partial fulfillment of the requirements
for the degree of
Doctor of Philosophy

September 2017

DISSERTATION APPROVAL PAGE

Student: Allison Wright Blakely

Title: District Capacity and the Implementation of Positive Behavior Interventions and Supports: An Exploratory Study

This dissertation has been accepted and approved in partial fulfillment of the requirements for the Doctor of Philosophy degree in the Department of Special Education and Clinical Sciences by:

Dr. Robert Horner	Chairperson
Dr. Kent McIntosh	Core Member
Dr. Erin Chaparro	Core Member
Dr. Jeffery Todahl	Institutional Representative

and

Sara D. Hodges	Interim Vice Provost and Dean of the Graduate School

Original approval signatures are on file with the University of Oregon Graduate School.

Degree awarded September 2017

© 2017 Allison Wright Blakely

DISSERTATION ABSTRACT

Allison Wright Blakely

Doctor of Philosophy

Special Education and Clinical Services

September 2017

Title: District Capacity and the Implementation of Positive Behavior Interventions and
Supports: An Exploratory Study

The purpose of this study was to examine the relation between *district capacity* as
measured by the District Capacity Assessment (DCA) and the *initial*, *depth, scale*, and
sustained implementation of an evidence-based practice (EBP), Positive Behavior
Interventions and Supports (PBIS). This exploratory analysis also examined the internal
structure of the DCA and how district-level context may influence the overall DCA score.
Results from the study showed a positive relation between DCA scores and Tier I (i.e.,
initial) and Tier II (i.e., *depth*) of PBIS implementation. While this study did not provide
conclusive evidence between the DCA and all aspects of PBIS implementation, it does
provide implications for future inquiry into the study of *district capacity*. The discussion
will review the findings, overview the limitations, discuss the implications of the results,
and provide future directions for researchers, policy-makers, and practitioners interested
in the further study of district capacity.

CURRICULUM VITAE

NAME OF AUTHOR: Allison Wright Blakely

GRADUATE AND UNDERGRADUATE SCHOOLS ATTENDED:

> University of Oregon, Eugene
> Portland State University, Portland, Oregon

DEGREES AWARDED:

> Doctor of Philosophy, Special Education, 2017, University of Oregon
> Master of Science, Special Education, 2007, Portland State University
> Bachelor of Science, Educational Foundations, 2002, University of Oregon

AREAS OF SPECIAL INTEREST:

> Positive Behavior Interventions and Supports
> Implementation Science
> Special Education Administration

PROFESSIONAL EXPERIENCE:

> Adjunct Faculty, Portland State University, 2015-2016
>
> University Supervisor, University of Oregon, 2013
>
> Learning Specialist, North Clackamas School District, 2007-2012

GRANTS, AWARDS, AND HONORS:

> OSEP Doctoral Grant, Project RISE, University of Oregon 2012-2017
>
> Rose Gross Scholarship, University of Oregon, 2014

PUBLICATIONS:

Hansen, S. G., **Blakely, A.W.**, Dolata, J. K., Raulston, T., & Machalicek, W. (2014). Children with Autism in the Inclusive Preschool Classroom: A Systematic Review of Single-Subject Design Interventions on Social Communication Skills. *Review Journal of Autism and Developmental Disorders*,*1*(3), 192-206.

Knowles, C., **Blakely, A.W,** Hansen, S., & Machalicek, W. (2017). Parents with Intellectual Disabilities Experiencing Challenging Child Routines: A Pilot Study Using Embedded Self-Determination Practices. *Journal of Applied Research in Intellectual Disabilities*, *30*(3), 433-444.

ACKNOWLEDGMENTS

First, I would like to acknowledge and extend my deepest appreciation to my advisor and dissertation chairperson, Dr. Rob Horner, for his support over the past five years and throughout the dissertation process. I also want to thank Drs. Erin Chaparro, Kent McIntosh, and Jeff Todahl for being members of my committee and for each providing insightful and thoughtful feedback.

Special thanks should be extended to my mentors, Dr. Renee Bradley and Debbie Egan for being role models, supporters and for pushing me to keep working towards this goal. I am also particularly grateful to Dr. Billie Jo Rodriguez for being a staunch supporter and a dear friend. Additional thanks should be given to my colleagues: Drs. M. Kathleen Strickland-Cohen, Sarah Hansen, Sarah Pinkelman, Christen Knowles and Michelle Massar for offering continual support as both scholars and friends.

This dissertation could not have been completed without the support from my family. Louis and Stevie, thank you for raising me to be a driven, educated woman and for providing extra resources (e.g., walking around money) that helped me survive as a graduate student. My sister, Kelsey, deserves special thanks because she has always been my biggest champion, has given me encouragement when I have needed it most and keeps me laughing on the daily. Lastly, much gratitude is owed to Brendan Watkins, thank you for your reassurance, unwavering support, and love. Although I did not know you when I started working on my PhD, I am beyond thankful that I am finishing with you by my side and I look forward to many post-PhD adventures.

This dissertation is dedicated to my former students.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

CHAPTER I

INTRODUCTION

Federal policy in the US requires that school districts hold schools accountable for student academic and social success (Klein, 2015). The recent support of evidence-based practices (EBPs) in education policy is founded on the idea that if there is investment in the core *capacity* of school districts there will be improved adoption and sustained implementation of evidence-based practices in schools, leading to valued outcomes for students (Turri, et al., 2016). *District capacity* is defined as the systems, activities, and resources necessary to adopt innovations, implement with fidelity, scale up, and sustain a practice. Quantifiable measurement of district capacity is proposed using the District Capacity Assessment (DCA; Ward, et al. 2015). This study is designed to quantify the relationship between *district capacity* (as measured by the DCA) and the implementation of positive behavioral interventions and supports (PBIS). Advances in the use of the DCA and PBIS make such an assessment possible, recent methodology advances in multi-level modeling make it practical, and the embrace of EBPs in our current education policies make this analysis crucial.

The remainder of this chapter provides the literature supporting this inquiry. First, the importance of evidence-based practices (EBPs) and the frameworks of Implementation Science (Fixsen et al, 2005) are provided. Next, the basics of scaling-up and sustaining EBPs are specified followed by a description of the EBP used for this study, Positive Behavior Interventions and Supports (PBIS). School districts, the unit of analysis, and *district capacity* are explained and a logic model provides a visual to guide

the reader from valued outcomes to importance of *district capacity*. This chapter

concludes with the purpose of the study and research questions.

Evidence-Based Practices

The use of evidence-based practices (EBP) is encouraged in nearly every field,

from healthcare to business, and is typically lauded as an effective way to ensure

improved outcomes such as quality of care (Grol & Grimshaw, 2003; Kitson, Harvey, &

McCormack, 1998) or higher profit margins (Nilsson, Johnson, & Gustafsson, 2001;

Prahalad & Hammond, 2002). Investing in EBPs in our schools is heavily influenced by

our most important educational policies. For example, On December 10, 2015, when

President Obama signed the Every Student Succeeds Act (ESSA), a civil rights law, it

upheld critical protections for our most disadvantaged students and ensures states and

school districts hold schools accountable by requiring an investment in EBPs. Similar to

ESSA, the Individuals with Disabilities Education Act (IDEA; 2004) also directs focus to

the use evidence-based practices. IDEA requires that Individualized Education Plans

(IEPs) include services supported by scientifically-based research, and that failure to

respond to scientific research-based interventions may be a criterion for identifying a

specific learning disability (Yell, Shriner, & Katsiyannis, 2006). The emphasis on the use

of empirically-based interventions within laws such as ESSA and IDEA is promising,

however, without a prioritization in the quality of *implementation*, the vision of these

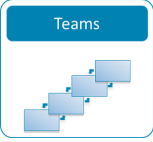policies is in danger of falling short of stated expectations.
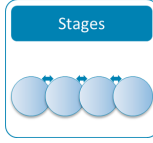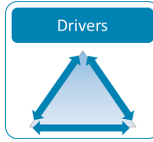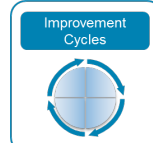
Implementation Science

Pressman & Wildavsky (1973) noted that the fate of even the best planned,

supported, and promising of policies rested in what happened when individuals

throughout the policy system interpreted and acted on them (Bardach, 1977; Berman & McLaughlin, 1978; Fixsen, Naoom, Blase, Friedman, & Wallace, 2005). Public policy not only needs to look good on paper, or be formulated into words and concepts that resonate with stakeholders, but proponents of change also must consider that the greatest hurdle comes with *implementation*. In other words, for educational policy such as ESSA and IDEA to be linked with improved outcomes, investment in implementation is essential (Carnine, 1997; Sugai & Horner, 2006).

Implementation can be defined as, "A specified set of activities designed to put into practice an activity or program of known dimensions" (Fixsen, et al., 2005, p.5). Several frameworks are available that define the features of implementation (e.g., Re-AIM, Jilcott, Ammerman, Sommers, & Glasgow, 2007; PARiHS, Kitson, Rycroft-Malone, Harvey, McCormack, Seers, Titchen, 2008) the frameworks used in this study, however; are built on the logic of the Active Implementation Frameworks develop by Fixsen and colleagues (2005, table 1). These frameworks on based on the basis that implementation involves two sets of activities (i.e., implementation activities and intervention activities) and two sets of outcomes (i.e., implementation outcomes and intervention outcomes). This framework provides what needs to be done (interventions), how to establish what needs to be done, and who will do the work (e.g., active implementation). In this context, the interventions that "need to be done" are empirically validated evidence-based practices that result in specific positive outcomes when used in defined contexts by defined personnel with defined populations (Flay, et al., 2005; Horner, Sugai, & Anderson, 2010). Ultimately, effective implementation teams engage with the active implementation frameworks to move from selecting and implementing a

practice to sustaining the chosen practice over time.

Table 1. Active Implementation Frameworks

Framework	Definition	Visual
Implementation teams	Teams plan and oversee the implementation process through each stage of the implementation process	
Implementation stages	Stages of implementation are exploration, installation, initial implementation, and full implementation	
Implementation drivers	There are three driver domains: competency (selection, training, coaching, fidelity), organization (decision support data systems, facilitative administration, systems intervention), and leadership (adaptive, technical)	
Improvement cycles	Implementation teams use an iterative processes by which improvements are made and problems solved based on the Plan-Do-Study-Act Cycle	

Implementation Teams

Teams responsible for implementation play an important role in the creation of systems that are prepared to take new practices and are the communication links between staff, leaders, and administrators (Fixsen, Blase, Metz, & Van Dyke, 2013; Metz & Bartley, 2012). A major task for implementation teams is to be held accountable for the effective implementation of the practice. Teams are responsible for lateral and horizontal communication within the organization. They also prepare for and respond to competing interests to the implementation plan. A major responsibility of the team becomes to

communicate about the outcomes of both the intervention and the implementation activities. To measure these specific activities, teams use performance assessment measures, where the fidelity of implementation is a vital component.

Fidelity of Implementation. For the objectives of legislation such as ESSA and IDEA not to fall short of meeting the needs of students, measuring the fidelity in which the selected evidence-based practice is implemented (i.e., *fidelity of implementation*) is essential. Simply put, fidelity of implementation (FoI) is defined as the extent to which a program, intervention, framework, or practice, "is implemented as intended" (Schulte, Easton, & Parker, 2009, p. 460). Measures for fidelity are typically used to create action plans for initial or sustained implementation (Tobin, Vincent, Horner, Dickey, & May, 2012).

Active implementation activities often take place over several years and can be described across four main stages: (a) exploration, (b) installation, (c) initial implementation, and (d) full implementation. (Fixsen et al., 2005). The implementation stages are dynamic within the context of schools, where moving back and forth among stages is common as personnel and circumstances change (e.g., policy, funding).

Implementation Stages

The *Exploration* stage is the critical starting place. Taking the time for exploration can save time and money and improves the chances for success. During Exploration, an Implementation Team assesses readiness and addresses readiness concerns (if apparent; Chamberlain, Brown, & Saldana, 2011). For example, the *Hexagon Tool,* created by the National Implementation Research Network (Fixsen, Kizer, & Van Dyke, 2009), can help implementation teams select instructional, behavioral, and social-emotional, practices

that are evidence-based by reviewing six broad factors in relation to the program or practice under consideration. The Hexagon Tool helps teams and schools analyze the appropriateness of EBPs relevant to the unique context, helping establish if the EBP is an appropriate match, is feasible to implement, and fits a need within the context. A key activity in the exploration stage is the systematic use of data to analyze a known problem within the district, to take inventory of current practices, and to use tools such as the hexagon tool to determine if there are other resources that can help address the problem area in a more effective and efficient way.

If data shows that investing in a specific EBP would be appropriate, the next and often overlooked stage, is called *Installation*. This stage requires the identification of the resources needed to implement the chosen practice. Essential resources that need to be in place for the practice to reach full implementation are identified. These needs often include activities like developing staff selection procedures, identifying training and coaching needs and resources, and establishing fidelity tools. For the practice to reach the most students, adequate planning and preparation is essential. Many EBPs fail to reach implementation with fidelity because this stage can be easily overlooked. This failure can be avoided if critical attention is provided to the essential "start-up" activities and costs needed to implement the chosen EBP.

The next stage, *Initial Implementation*, describes when practitioners are using the practice for the first time. This stage can be tenuous, as attempting to use new skills can be awkward, or it can be difficult to change from the old ways of doing things. Often, there can be motivations for reverting to old routines, and external resources (i.e., support

from coaches, Joyce & Showers, 2002) become more important to ensure reformed practices.

Full Implementation describes the stage where at least 50% of the practitioners are using the practice with fidelity. Full implementation is difficult to meet, however, without essential supports. For the practice to be considered fully implemented, practitioners, staff, and administrators must be able to adapt and adjust to continually changing contexts. The use of effective practices is maintained and improved over time and withstands transitions (e.g., leadership, funding). During this stage, the *new way* becomes the standard way, where nearly all practitioners use the practice with fidelity.

Implementation Drivers

According to the *Merriam-Webster*, an engine is "a mechanism or object that serves as an energy source" (Merriam-Webster Online Dictionary, 2016). Within the context of implementation, the mechanisms that provide the energy to promote change are called the implementation *drivers.* These drivers describe the facilitators and barriers to implementation. Similar to the implementation stages, the drivers are dynamic and interact in interesting ways. The implementation drivers are divided into three categories: (a) leadership, (b) organization, and (c) competency (Fixsen, et al., 2005)

Leadership. Effective implementation requires leadership to solve problems regarding adaptive and technical issues. For example, leaders may convene groups to identify and resolve problems (adaptive) or help manage time and funding (technical) needs that arise when initiating change in the adoption of a new practice. In schools, building administrators play a vital role in the adoption and implementation of an EBP, where turnover in leadership can be barrier to effectively implement or continue to

implement a practice (Clayton & Johnston, 2011; Strickland-Cohen, McIntosh, & Horner, 2014).

Organization. Organization refers to effective implementation related to facilitative administration, useful and accessible decision-support data systems, and systematic supports developed by administrators (i.e., superintendents, principals) and other non-teaching support staff. These individuals initiate organizational practices, support system-change interventions, and help remove institutional barriers so practitioners can make use of the new EBP. Even the most effective practices can be overcome with problems when funding or policy interferes with implementation efforts. Systems alignment, or the degree to which the systems with the community, state, and federal levels are supportive and enabling, are an integral piece of the organizational driver. Within the organization driver, a decision-support data system becomes an essential component for guiding the processes of establishing the practice, supports for practitioners, and the assessments of outcomes.

Competency. To reach full implementation, an investment in selection (e.g., hiring practices), training (e.g., teaching people new ways of doing things), and coaching (e.g., providing prompts and feedback to ensure the practice is being used effectively), needs focused attention. Support for teachers is required for students to actually experience an evidence-based practice delivered in an effective manner. Training and coaching become essential components of implementation, partly because teacher beliefs, self-efficacy, attitudes, and perceptions all influence whether and to what degree a teacher tries a new practice (Sparks, 1988).

Competency also includes *performance feedback,* which typically refers to the

assessment of the skills taught in training, and reinforced and expanded during coaching. Performance feedback assessments can be related to the context (e.g., completion of training, availability of resources, acceptable practitioner/coach ratio), compliance (e.g., core components of the interventions being used by practitioners) and competence (e.g., the intervention components used to certain skill level. Performance feedback can take on a variety of forms within school systems. For example, coaches use information to develop action plans, teams use information to guide implementation, and administrators can evaluate the effectiveness of training and coaching (Fixsen et al., 2005).

The processes of leadership, organization, and competency are integrated and must be linked to maximize the influence on the organizational culture and to resist fragmentation (Meyer, Scott, Strang, 1986). The implementation drivers also compensate for one another so that a weakness in one component can be overcome by strengths in other components (Fixsen et al., 2005). To be most effective, implementation teams, who are responsible for aligning the drivers with the implementation stages, work using effective problem solving cycles, described at improvement cycles.

Improvement Cycles

Successful implementation teams use an iterative framework for problem solving where they engage in four specific behaviors: (a) plan, (b) do, (c) study, and (d) act. Commonly known as PDSA cycles or a Deming cycle, Plan-Do-Study-Act, describes a team process that has evolved from post-World War II industrial control processes. A PDSA is useful in identifying and making small improvements to reach implementation goals.

The *plan* phase of the cycle refers to identifying the objectives and specific processes aimed at systematic improvement. Other activities in this phase might be asking questions, making predictions, and making a plan (i.e., identify who, what, when, where) to carry out the PDSA cycle. During the *do* phase of the cycle, the specific actions related to the plan are carried out. The implementation team executes the plan, documents unforeseen problems and obstacles, and engages in data collection to ensure the plan is put into place. The study phase refers to the monitoring and process where the implementation team examines the data by asking, *what did we learn? What worked? What went wrong?* Data analysis would be completed, results would be compared to predictions made during the plan phase, and the data would be summarized to help the team understand what was learned. During the *act* phase, the application of what was learned occurs. The implementation team decides what changes, adoptions, and abandonments need to occur based on the data analysis during the study phase. Critical to this phase is the iterative nature, where the implementation team asks: What's next? and begins the PDSA cycle again (Taylor, McNicholas, Nicolay, Darzi, Bell, & Reed, 2013).

Through the empirical lens of Implementation Science, we are beginning to understand the complexities of implementing evidence-based practices and with notable degrees of fidelity. However, successful implementation of an effective practice does not signal the completion of work. The practice or collection of practices must be sustained over time to ensure the practices become a part of the culture. It would be a fallacy to assume that because a certain level of implementation has occurred, it would continue to occur. Instead, an investment in specific practices needs to occur as a final stage to sustain implementation.

Sustained Implementation

Unfortunately, there is no guarantee that a practice will remain in place (or remain in place with adequate fidelity) once a certain level of implementation has been met (McIntosh, Horner, & Sugai, 2009). Failures to sustain the practice can happen due to a variety of reasons. For example, once initial implementation has been reached, often supports and resources (such as training and coaching) are removed or funding no longer exists. Moreover, sustaining implementation in classrooms is complicated because teachers who face challenges during implementation will often revert to traditional, comfortable practices (Lieberman, 2000; Gersten, Chard, & Baker, 2000). Issues such as these, plus a variety of others, can cause stress on the implementation drivers and impede sustained implementation (Fixsen, Blase, Timbers, & Wolf, 2001).

For initiatives to endure over time, withstand staff turnover, and continually evolve to better support students and staff, the practice must have *sustainability,* typically a "rare phenomenon" in education (Fixsen et al., 2005). Sustainability is "a practice's potential for durable implementation with high fidelity, when considering features of the practice, its implementation, and the context of implementation". *Sustained implementation* (the desired outcome for any initiative) and *sustainability* (the presence of variables that predict an initiative's sustained implementation) are distinctly different (McIntosh et al., 2015).

A model of sustainability proposed by McIntosh, Horner, and Sugai (2009) consists of four variables: (a) priority, (b) effectiveness, (c) efficiency, and (d) continuous regeneration. With attention to these variables, teams can guide the process of implementation toward a sustained effort of implementation.

Priority. Priority is the importance of the practice when compared to other practices. School personnel are more likely to engage in implementation activities related to practice if appropriate priority is given to the practice by support through administration, integration into existing and new initiatives, and allocation of ongoing resources. When effective innovations are integrated into policy and are evident in hiring practices, job descriptions, and personnel orientation, such innovations have a higher probability of sustaining implementation (Barrett, Bradshaw, & Lewis-Palmer, 2008; George & Kincaid, 2008). When the scope of support stretches from school-level personnel to district and state leadership, the practice can be integrated into the core values of the organization (Han & Weiss, 2005) or into new or existing initiatives (McLaughlin & Mitra, 2001). With enough support from the organization and funding agencies, implementation is more likely to withstand competition from competing initiatives that vie for time and resources (McIntosh, 2015).

Effectiveness. Previously, effectiveness referred to the actual effects of the practice on student outcomes, but within sustained implementation, it also refers to the perceived effects by school personnel (Han & Weiss, 2005). While practices are most effective when they are both evidence-based and implemented with fidelity, school personnel will find implantation activities more reinforcing if they perceive the intervention as effective. Therefore, the duality of effectiveness, is dependent on the extent the practice is evidence-based and the extent to which implementation is done to fidelity (McIntosh, 2015).

Efficiency. Efficiency is related to the level of effort needed for initial implementation and sustained performance over time. Overly difficult or burdensome

practices can increase teacher stress, even if the practice is effective (McIntosh, Filter, Bennett, Ryan, & Sugai, 2010). Within implementation activities, resources will often be related to the rate of efficiency of implementation, where outside personnel (e.g., external coaches) can enhance the efficiency of a practice (McIntosh et al., 2015).

Continuous regeneration. Continuous regeneration describes the process of using data to monitor, adapt, and enhance implementation (McIntosh et al., 2009) and represents the highest level of implementation, adaptation of practices over time (Baker, Gersten, Dimino, & Griffiths, 2004). Three mechanisms drive continuous regeneration: (a) capacity building, the process of developing expertise within the organization as external supports are discontinued; (b) continuous measurement, a regular system of measuring intended outcomes and implementation fidelity; and (c) data-based problem solving, which involves the focused analysis of data to improve system function in relation to valued outcomes.

Initial implementation and sustained implementation require specific, thoughtful, action based on a variety of data sources. Implementation of an innovation/practice within one unit (i.e., school) can be complicated but implementation on a broad scale (e.g., scaling-up) is undoubtedly complex.

Scaling-up

Scaling-up generally refers to the process by which researchers and educators initially implement interventions or innovations on a small scale, validate them, and then implement them more widely in real-world conditions (Odom, 2009). Fixsen and colleagues define scaling up as a process where at least sixty-percent of students who could benefit an innovation actually experiences the innovation (Fixsen, Blase, Horner,

Sims, and Sugai, 2013). Typically, scaling-up describes the process focused on expansion of schools and/or districts using an intervention. Scaling-up research commonly considers what it takes to expand and sustain an intervention in real-world settings (Fixsen & Blase, 2009). Scaling up requires a shift in ownership to be successful, and scaled-up reforms must bring about lasting change that goes beyond surface structures or procedures (Coburn, 2003). Scaling up must involve more than the spread of the surface-level aspects of a new approach, such as the routines, activities, and materials associated with it but also integration in the beliefs, norms, and principles underlying the practice. To reach scale, ownership of the practice must shift so that it is perceived to be an internally managed effort, by the school personnel who are implementing the practice. Ownership at this level is beyond typical buy-in or acceptance, requiring a deeper, broader, substantial level of support (McLaughlin & Mitra, 2001).

Positive Behavior Interventions and Supports (PBIS)

Positive Behavior Interventions and Supports is an EBP used in over 24,000 schools (PBIS; pbis.org), thus providing a unique opportunity to examine implementation, sustained implementation, and scaling-up an EBP. Additionally, A growing body of empirical evidence demonstrates that schools who implement PBIS to criterion are more likely to experience positive outcomes (e.g., lower rates of problem behavior, higher achievement, higher emotional regulation; Bradshaw, Waasdorp, & Leaf, 2012; Childs, Kincaid, & George, 2010; Flannery, Fenning, Kato, McIntosh, 2014; Horner et al., 2009). Instead of a prescribed program or scripted curriculum, PBIS is broken down into core features that are easily disseminated across a broad audience.

More than one singular practice, PBIS is defined as "a framework for enhancing

the adoption and implementation of a continuum of evidence-based interventions" (Sugai, 2000). Core features (i.e., kernels) are the "smallest functional units" needed to produce valued outcomes (Embry and Biglan 2008; Horner & Sugai, 2015). Emphasizing core features, rather than specific practices allow school personnel to tailor strategies and practices to the local context. The main features of PBIS are creating school climates that are (a) predictable, (b) prevention oriented, (c) positive, and (d) safe and the EBPs within a PBIS framework are organized across three tiers: (a) *universal* supports for all students (Tier I), (b) *strategic* support for small groups of students (Tier II), and (c) *intensive* supports for individual students (Tier III) (Figure 1).

The Tier I level focuses on establishing a positive school culture that includes (a) defining and teaching behavioral expectations, (b) implementing a system for reinforcing performance of these expectations, (c) establishing a system for correcting and
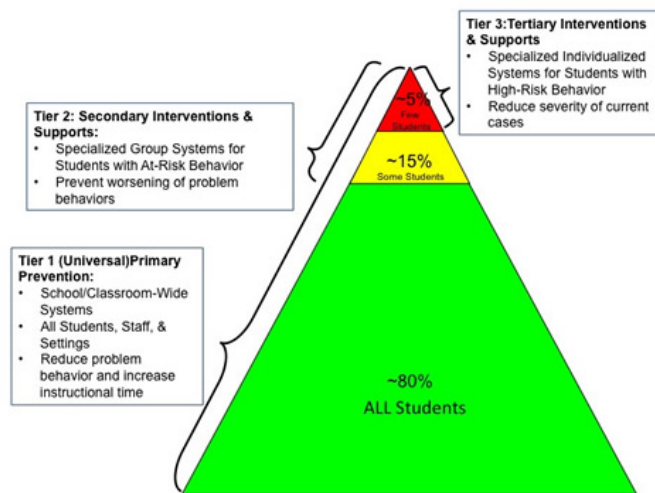
redirecting problem behavior, and (d) developing an efficient system to use data for

Figure 1. PBIS Framework (Walker et al., 1996; Sugai et al., 2014)

decision making. These components are organized around highly valued outcomes (e.g., academic and social competence) and using research-validated procedures needed to

achieve this outcomes with at least 80% of the population (Horner & Sugai, 2015; Horner et al., 2010; Putnum et al., 2003; Lewis & Sugai, 1999; Sugai et al., 2014). Tier I is designed to be proactive for all members of the population and must be efficient and integrated with other elements of the school. The purpose of primary prevention (Tier I) is both to reduce problem behavior and promote positive behavior (Horner & Sugai, 2015).

Tier II (i.e., secondary, strategic) supports practices focus on a moderate level of intensity of supports that address students with ongoing problem behavior. Tier II supports are in addition to Tier I supports and are designed for students who would benefit from additional academic and behavioral supports. Tier II practices are designed to meet the needs of 10-15% of the students within a population who need a higher rate of recognition and more frequent behavioral prompts (Crone, Hawken, Horner, 2010; Sugai, Simonsen, Bradshaw, Horner, & Lewis, 2014). Tier II supports typically are packaged and standardized for highly efficient implementation across multiple students (e.g., first step to success: Walker et al., 2009; Check-in/Check-out: Hawken et al., 2006).

Tier III (i.e., tertiary) practices are individualized and designed to provide students with comprehensive supports that are organized around behavioral, academic, mental health, physical, social, and contextual variables (Crone et al., 2010). This level of support is only designed for 5% or fewer students in a school and is implemented in conjunction with Tier I and Tier II supports. The high-intensity plans are monitored for both implementation and effectiveness (Pinkelman, 2014).

A focus on the core features within Tiers I, II, and III allow for assessment and measurement of the implementation process (Algozzine et al., 2010). Implementation and

sustained implementation is largely dependent on not just implementation of the core features but also on the creation of *systems* that support implementation (Horner & Sugai, 2015). Systems around the policies, teams, data, and funding are integrated around improved outcomes, intervention practices to address student behavior, systems to support and sustain adult behavior, and the data needed for adaptation and continued improvement (Horner & Sugai, 2015; McIntosh, 2010).

PBIS is also an exemplar for its collection and use of data for decision-making. Implementation fidelity is systematically measured across all three tiers, where school teams use data to demonstrate improved outcomes (Newton et al., 2012) and sustained implementation (McIntosh et al. 2014). Where Implementation science (Fixsen et al., 2005) separates practices (i.e., what is done to change student behavior) from the practices used to produce organizational change), PBIS integrates these practices into one systematic framework where data guides implementation efforts.

One example, the Tiered Fidelity Inventory (TFI; Algozzine et al., 2014) was developed to be a comprehensive fidelity of implementation tool. The purpose of the TFI is to provide school PBIS teams with a valid, reliable, and efficient measure to determine to what extent the core features of PBIS are being implemented to benefit students. The TFI has a variety of uses (e.g., needs assessment, guide for implementation, an index for sustained implementation). The TFI is intended to be used by school teams with the support of an external PBIS coach, who facilitates the administration, ensures accuracy of scoring, and guides the team through interpreting the results. Due to varying team membership, the group assessing Tier I supports may be different from the assessors of Tier II and Tier III supports (McIntosh et. al., 2016)

Within the logic of PBIS implementation, students are the unit of impact (e.g., focus on improved outcomes), schools are the unit of intervention (e.g., creating tiered systems to support behavior), and districts are the unit of implementation (Horner & Sugai, 2015). District level leadership teams are the mechanism for broad and sustained implementation where they are responsible for actively managing and guiding the implementation process.

School Districts

Using PBIS as the EBP for the current study, the unit of analysis is the school district. The relation between schools and districts (also known as Local Education Agencies, LEAs) has a long, complex history dating back to 1647. During that time, law first linked schools and communities when colonists in Massachusetts were worried about the influx of illiterate settlers. The Massachusetts Bay Colony enacted the General School Act of 1647, which required towns with more than fifty people to hire a teacher (Jernegan, 1918; Kaestle & Vinovskis, 1978). Three hundred and sixty years later, the US Department of Education oversees over 14,000 school 1s with 98,000 schools and budgets totally over $500 billion annually (U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics). Our current educational system has evolved from one-room schoolhouses into an array of simple to complex systems, but the relationship between the school and school district remains.

A school district is a geographical and political unit for the local administration of education. The local level of control is the heart of the US education system where local communities operate schools, implement and enforce state laws and policies, develop and implement their own educational policies, hire and supervise professional teaching staffs,

and raise money to pay for schools. School districts hold a large responsibility for implementation efforts. Not only are school districts mandated by policy (e.g., ESSA) but they also are responsible for using the allocated funds provided by the federal, state, and local government to operate schools for the benefit of local students. Moreover, the majority of districts in the US are very small. Almost two-thirds have less than fifteen hundred students and only about three percent have large enrollments (i.e., more than 15,000). Yes, nearly 45 percent of US students are educated in the in these large school districts (Supovitz, 2006).

School districts are typically managed with a school board, which provides oversight and governance for the district and its schools. The school board is at the top of the organizational hierarchy and comprised of elected or appointed members. The authority of the school board differs between districts and states, and they are generally responsible for the appointment and dismissal of the superintendent. The superintendent is responsible for the management of several departments within the district and daily operations. Building principals manages the daily operations at the school level and report to the district superintendent.

Until recently, the primary purpose of district office was to sustain public support of education, negotiate with personnel unions, carry out mandates from the federal government, and other financial and legal issues (Louis, 1989). In the 1990s, many states began to require school districts audit school performance as a proxy measure for student performance (Lee, Seashore Louis, & Anderson, 2012). More recently, the role of school districts has expanded further to develop policies and practices that will support achievement. Although building level leadership (i.e., principals) is widely considered a

significant predictor for student success, little is known about the influence of school districts on school and student level variables (Leithwood, 2012; Robinson, Hohepa, & Lloyd, 2009; Waters, Marzano, & McNulty, 2003) even though the success of schools to implement and sustain reform efforts typically rests with district-level facilitation (Sanders, 2008, 2009). Research has notably struggled to fully explain this relationship. Several studies have attempted to analyze the effects of district-level characteristics on school level outcomes, but many fall short with respect to theoretical guidance and typically fail to advance theory (Leithwood, 2010). Rorrer, Skrla, and Scheurich (2008) noted, "Intermittent attention to the district as the unit of study has left a void in our understanding of the complexities associated with the ability of district-level leaders to contribute to successful, systemic educational reform" (p. 307).

Although the relationship between school districts and schools has existed for many years, measuring how schools and districts work together (or sometimes against one other) is a relatively new phenomenon. Using the magnitude of research that exists in implementation, colleagues at the National Implementation Research Network (NIRN; nirn.org) have created a measure with the suggestion that assessing *district capacity* may be helpful in moving educational research forward.

District Capacity

Schools may struggle with initial implementation (Vinciullo & Bradley, 2009; Flaspohler, Duffy, Wandersman, Stillman, & Maras, 2008) or to sustain practices (Santangelo, 2009; McIntosh et al., 2013) without necessary external supports such as financial and professional opportunities. These necessities are often managed by school districts. Ward and colleagues (2015) define *district capacity* as the development of

20

"systems, activities, and resources that are necessary for schools to successfully adopt and sustain" (p.5) practices. The *District Capacity Assessment* is based on the logic of Implementation Science (Fixsen et al., 2005) and the key organizational activities required for high levels of district capacity are organized by the *Implementation Drivers* (i.e., leadership, competency, organization). The logic model for the District Capacity Assessment is provided in Figure 2.
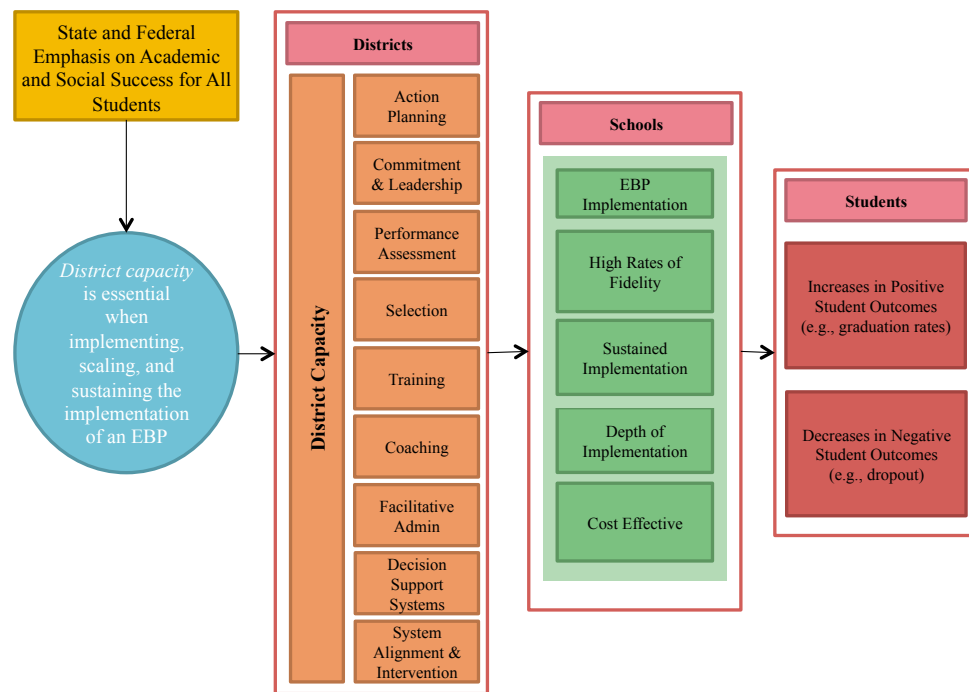
Figure 2. Examining the relationship between district capacity and PBIS implementation

The logic model provided is based on the hypothesis that investing at the district level in the *Implementation Drivers* (i.e., leadership, competency, organization) based on the extensive literature base in Implementation Science will improve implementation, scaling, and sustaining of an effective practice, such as PBIS. To date, most research has

focused on school-level PBIS effectiveness, implementation, and sustainability factors, but relatively little is known about how district-level implementation efforts (e.g., capacity building) may influence implementation at the school-level. PBIS serves as one opportunity to do this analysis, given the large number of schools and the elements of Implementation Science that are reflected in the way PBIS has been implemented.

Study Purpose

The purpose of this study is to investigate the potential associations between *district capacity* and the initial and sustained adoption of Positive Behavior Interventions and Supports (PBIS). This study seeks to identify which elements of district capacity may be related to the implementation, depth of implementation, scale of implementation, and sustained implementation. Additionally, this study seeks to identify to what extent contextual factors (e.g., enrollment, urbanicity, per student expenditures) moderate these potential associations. This study will answer the following specific research questions:

Specifically, the research questions for this study are:

1. To what extent is the DCA moderated by contextual variables (e.g., number of schools per student expenditure)?

   Hypothesis: Context does not influence DCA scores

2. How are scores on the DCA associated with *initial* (i.e., Tier I) implementation of PBIS?

   Hypothesis: There is a positive association between the DCA and the *initial* implementation of PBIS

3. If initial implementation is met, how are scores on the DCA associated with *depth* (i.e., Tier II/Tier III) of PBIS?

Hypothesis: There is a positive association between the DCA and

the *depth* of implementation of PBIS

4. How are scores on the DCA associated with the *scale* (i.e., the proportion

of schools using PBIS) of PBIS?

Hypothesis: There is a positive association between the DCA and

the *scale* of implementation of PBIS

5. How are scores on the DCA associated with the district-level *sustained*

(i.e., years PBIS has been used within the district) use of PBIS?

Hypothesis: There is a positive association between the DCA and

district-level *sustained* use of PBIS

CHAPTER II

METHODOLOGY

Participants

All districts in the United States meeting the following criteria were eligible for inclusion in the study: (a) a least one administration of the District Capacity Assessment (DCA; Ward et al., 2015 [Version 6.0]) from the 2014-2015, 2015-2016, or 2016-2017 school year and (b) at least one school within the district with at least one year of PBIS fidelity of implementation data reported during the DCA year. Using these criteria, a preliminary sequential cohort of 136 Districts and 1,492 K-12 schools were obtained.

Power analysis. A power analysis was conducted (Optimal Design 3.0 software; Spybrook, Bloom, Congdon, Hill, Martinez, Raudenbush, 2011) to determine the number of schools and school districts needed to be able to draw meaningful conclusions from the data about *district capacity*. Power analysis provides the minimum number of subjects required to detect any effects that result from the independent variable, and for this study *district capacity* based on: (a) the size of effect of district capacity in the population, (b) the type of statistical tests to be used (i.e., regression, multi-level modeling), and (c) the level of significance of the study ($p < .05$).

Power analysis protects again the probability of Type II error (i.e., failure to reject the null hypothesis even though it is false; Lee, 2000). For this study, power analysis provided a minimum number of schools required to detect the effect of *district capacity*, if related to PBIS implementation. It was determined that at least 80 school districts with at least five school districts would be required to detect an acceptable significance level

($p = .05$), this study included 97 school districts with at least five schools, therefore the power requirement estimate exceeded the minimum.

Measures

Several measures were used in this study to examine the dependent and independent variables of interest. Data for DCA and PBIS fidelity measures are reported to the Center on Positive Behavioral Interventions and Supports (PBIS; pbis.org) and were de-identified prior to any analyses.

District capacity assessment (DCA). The District Capacity Assessment (DCA; Ward et al., 2015) was used as a measure to assess the *capacity* of a local school district to support implementation of evidence-based practices, in this case PBIS. The DCA is a 26-item assessment, completed by a District Implementation Team (DIT) with a specific innovation (e.g., Positive Behavioral Interventions and Supports) in mind. The DCA is used to develop an action plan, monitor an action plan, and support the development of system for school districts to use support several initiatives and practices across schools. The DCA is grounded in the key organizational activities centered on the critical Implementation Drivers (e.g., Leadership, Competency, and Organization).

Preliminary psychometrics of the DCA were completed using a sample of one hundred ninety-five DCAs within 18 states (DCA Technical Manual, 2016). According to Cronbach's alpha coefficients of the District Capacity Assessment (DCA), the DCA composite scales, and the DCA subscales, the overall total DCA score has strong internal consistency with a Cronbach's alpha coefficient of .908. The three composites also have adequate internal consistency: Leadership ($\alpha = .794$), Competency ($\alpha = .791$), and Organization ($\alpha = .805$). The eight subscales vary in internal consistency. The Planning

subscale (α= .797), Coaching subscale (α= .832), and Decision Support Data Systems

subscale (α= .818) all have adequate internal consistency. The Leadership subscale

(α= .689), Performance Assessment subscale (α= .224), Selection subscale (α= .563),

Training subscale (α= .606), and Facilitative Administration subscale (α= .678) are all

below the adequate level of internal consistency (i.e., .700; Russell et al., 2016). Table 1

provides a synopsis of the DCA. For all multi-level model questions, the DCA scores are

grand-mean centered based on the recommendations of Peugh (2010).

Table 2

District Capacity Assessment

Measure	Type	Purposes	Completers	Subscales (Items)
District Capacity Assessment (DCA)	External or self-assessment	• Assess *district capacity* based on Active Implementation Frameworks • Guide implementation of effective innovations • Progress monitoring	External and District Implementation Team (DIT)	Leadership • Leadership (5) • Planning (3) Competency • Selection (2) • Training (2) • Coaching (2) • Performance Assessment (2) Organization • Decision Support (3) • Facilitative Administration (6) • Systems Intervention

PBIS fidelity measures. There are several measures available to schools using a PBIS framework. For this study, only Tier measures and the Tiered Fidelity Inventory (which measures Tiers one, two and three) are utilized. Each measure is described below.

Tiered Fidelity Inventory. (TFI; Alogozzine, et al., 2014) The TFI measures the extent to which Tier I (universal), Tier II (targeted) and Tier III (intensive) core features are in place and each scale can be assessed separately or together to evaluate overall implementation across all tiers. Tier I examine fifteen critical features of universal supports such as "Expected academic and social behaviors are taught directly to all students in classrooms and across other campus settings/locations." Tier II evaluates thirteen core features of targeted interventions such as "Tier II team uses decision rules and multiple sources of data (e.g., ODRs, academic progress, screening tools, attendance, teacher/ family/student nominations) to identify students who require Tier II supports." Tier III includes seventeen items (e.g., "Behavior support plans include a hypothesis statement, including (a) operational description of problem behavior, (b) identification of context where problem behavior is most likely, and (c) maintaining reinforcers (e.g., behavioral function) in this context" (Algozzine et al., 2010).

The purpose of the TFI is to provide a valid and reliable instrument that can be used over time to guide the implementation and sustained used to PBIS systems. The TFI is completed by a school Systems Planning Team (typically 3-8 individuals including a building administrator and an external coach or district coordinator). By design, the TFI is a more comprehensive and efficient measure of fidelity, with a common format, scale, and language to assess each tier, for schools at any level of implementation. There are several ways a school team can utilize the TFI: (a) as a complete index of all tiers to

establish implementation status and determine focus, (b) as a quarterly progress monitoring tool to guide action planning for implementation of tiers of current focus, and (c) as an annual formative evaluation for tiers already in place. A Likert-type scale and detailed rubric are used by the school team to indicate if the content of each item is *not implemented*, *partially implemented*, or *fully implemented* and data sources are included to help teams evaluate each item objectively (McIntosh, et al., 2016).

A large-scale validation study of the TFI showed the overall internal consistency of the measure was .96. Alphas for Tiers I, II, and III were .87, .96, and .98, respectively, providing evidence of strong internal consistency (citation). Pearson correlations were calculated between the TFI and other existing measures of fidelity of implementation and all correlations were statistically significant. Table 3 provides a synopsis of the TFI.

Table 3

Tiered Fidelity Inventory

Measure	Type	Purposes	Completers	Subscales (Items)
Tiered Fidelity Inventory (TFI)	External or self-assessment	• Assess fidelity for Tier I, II, and III • Guide systems implementation • Progress monitoring	External Coach & PBIS Teams	Tier I • Teams (2) • Implementation (9) • Evaluation (4) Tier II • Teams (4) • Interventions (5) • Evaluation (4) Tier III • Teams (4) • Resources (3) • Support Plans (6) • Evaluation (4)

School Evaluation Tool (SET). The SET is a direct observation tool designed to measure

the critical features of SWPBIS (Sugai, Lewis-Palmer, Todd & Horner 2001).

External reviewers interview administrators, teachers, and students and evaluate

permanent products (Horner et al., 2004). 28-items, divided into seven subscales are on

the set. The subscales are: (a) expectations defined, (b) behavioral expectations taught,

(c) on-going system for rewarding behavioral expectations, (d) system for responding to

behavioral violations, (e) monitoring and decision-making, (f) management, and (g)

district-level support. At the conclusion of the SET, an overall score as well as scores for

each subscale are reported between the range of 0 and 100%. Schools with SET scores of

80/80 (i.e., minimum scores of 80% for expectations taught and 80% across all subscales)

are considered to meet the minimum level of implementation for Tier I of PBIS.

Benchmarks of Quality (BoQ). The BoQ is a measure of Tier I PBIS used by

many states across the US (Child, Kincaid, & George, 2011). Using data from 720

schools, a concurrent validity assessment showed significant correlations between the

SET and the BoQ and while scoring on the BoQ varies across items and results in a

maximum score of 107, 70% is considered reaching criterion for Tier I PBIS, similar to

the 80/80 on the SET (Cohen, Kinkaid, & Childs, 2007).

Team Implementation Checklist (TIC). The TIC is a self-assessment tool that is

used by PBIS teams to create action plans and improve implementation efforts. The TIC

consists of 22 items across six subscales (i.e., establish commitment, establish and

maintain team, self-assessment, establish school-wide expectations, prevention systems,

classroom behavior support systems, and capacity for function-based support). In an

analysis of the BoQ and TIC, Vincent and Tobin (2012) showed that 180 of 448 schools

that scored at least 80% on the TIC, also scored above 70% on the BoQ.

Self-Assessment Survey (SAS). The SAS is designed to be completed by all staff, annually during the spring to help PBIS teams develop action plans for implementation. The SAS is a 20-30 minute 46-item assessment across four domains (i.e., school-wide discipline systems; non-classroom management systems (e.g., cafeteria, hallway, playground); classroom management systems; and systems for individual students with the most challenging behavior (Sugai, Horner & Todd, 2003).

Benchmarks for Advanced Tiers (BAT). The Benchmarks for Advanced Tiers (Anderson et al., 2009) is a comprehensive assessment of Tier II and Tier III supports completed by a school team. Specifically, the BAT looks at the systems, data management, and practices essential for implementation and results in an action plan needed for furthering implementation efforts (Anderson & Borgmeier, 2010).

School district demographics. School district characteristic data available from the National Center for Educational Statistics (NCES, 2014-2015 school year; fiscal data from 2013-2014) were used to determine district demographics including: (a) number of schools, (b) number of students, (c) full-time equivalency (FTE), (d) student-to-teacher ratio, (e) percent of English Language Learners, (ELL), (f) percent of students with an Individualized Education Plan (IEP), (g) per student expenditure, (h) state, and (i) locale (i.e., city, suburb, town, rural).

Additional Variables. Two additional variables were also created. The first one was created by using the "first year with data" retrieved from the PBIS Technical Assistance Center to create a continuous variable denoting the length of time between the first year and the present. Additionally, the proportion of schools using PBIS was created by finding the quotient of schools with any PBIS fidelity measure by the total number of

schools within a district.

Statistical Analysis

All analyses used the Statistical Package for Social Science (SPSS; IBM SPSS

Statistics for Windows, Version 24.0). Before addressing each research question, school

district demographics and created variables were analyzed for any central tendency

issues. Following guidelines provided by Chen and colleagues (2017), Tabachnick and

Fidell (2007) and Howell (2007) proportional and moderately or substantially negatively

skewed data were transformed using the arcsin square-root, square-root, and logarithmic

functions (respectively). No positively skewed data was present. Missing data was not

present given the selection criterion that made the presence of data necessary for

inclusion.

Exploratory factor analysis (EFA). The purpose of the EFA was to explore the

underlying constructs of the DCA to determine the scores, or sets of scores, that might be

used to address the research questions in the study. The EFA utilized all 136 school

districts from the sequential cohort from the years 2014-2015, 2015-2016, and 2016-2017.

All 26 items in the DCA were included in the EFA. For all 136 districts, a score of 0, 1 or

2 for each item reflected, *Not in Place Partially in Place* or *Fully in Place*. Before

analysis, each item was theorized to reflect the *Implementation Drivers* of *Leadership,*

Organization and Competency and the EFA would allow for exploration on if these

constructs. Principal axis factoring (PAF) with oblique rotation was specified because of

the underlying theory regarding the structure of the DCA was hypothesized and because

the assumption that the factors would be intercorrelated. The results of the factor analysis

were compared with the factor analysis results provided in the District Capacity

Assessment Technical Manual (Russell et al., 2016.)

Analytic Approach

To explore the extent to which *district capacity* and the implementation of PBIS

vary in relation to one another, a combination of regression and multi-level modeling was

utilized. Each research question investigated for its appropriateness for the use of a multi-

leveled approach. If the research question included more than one level of data (school

and school district data) and had a significant ICC then multilevel modeling was used.

Otherwise traditional OLS was used.

Multilevel modeling. Hierarchical (e.g., nested, multilevel) levels of grouped data

are a relatively common phenomenon in the social sciences (Osborne, 2000; Woltman,

Feldstain, MacKay, Rocchi, 2012). For several questions in this study, a multi-level

approached was favorable due to the nested nature of the extant data set (i.e., schools

nested in districts). A primary difference between ordinary single-level regression, and

multi-level modeling is the ability to estimate one or more of the coefficients in the

model as fixed or random. Where a fixed effect has only a single value in the model and

is applied to all level-1 units, the random effect can vary between the level-2 units. With

regards to this particular study, multi-level modeling allow to control for the grouping

variable, in this case, the district.

The process for multi-level modeling is very similar, regardless of the research

question. First, the unconstrained or null model is created, followed by the addition of

any level-1 predictor or control variables, followed by any level-2 covariates, and lastly

the variables of interest (e.g., district capacity). Multilevel modeling for this dissertation

included two procedural steps: (a) the unconstrained (null) model assessed whether there was variability in the outcome variable at the district level (thus necessitating a multi-level modeling approach) then (b) models examined relationships between *district capacity* and the outcome variable of interest.

> ***Unconstrained model testing.*** First unconditional model was examined before any further analysis was completed. The first step includes calculating as an intra class correlation coefficient (ICC). A significant ICC signals a clustering effect, giving rise to correlated error, a violation of ordinary regression models (thus necessitating multi-level modeling techniques). The equation that was used to calculate the ICC is provided in Equation 1.

Equation 1: Intra class correlation

$$\frac{\tau_{00}}{\sigma^2 + \tau_{00}} \qquad\qquad 1$$

Within this equation, τ_{00} is the level-2 intercept variance and σ^2 is the level 1 variance. A statistically significant τ_{00} signaled the need for multilevel modeling.

> The analytic approach (including if multi-leveling or ordinary least squares regression was used) for each specific research question is described in the following section.

> **Research question one.** *To what extent is the DCA score moderated by contextual variables (e.g., number of schools, per student expenditure)?*

> All 136 school districts with a DCA score and no missing data were eligible to be included in this study. The results from the EFA (discussed in the following chapter) justified the DCA be examined as a one factor, or total score for this question and all subsequent analyses involving DCA scores. The independent variable for research

question one included all the school district demographic data and research created variables. The dependent variable for research question one was the DCA score. Bivariate correlations and regression analyses were examined between the contextual variables and the total DCA score.

Research question two. *How is the DCA score associated with Tier 1 PBIS level of implementation?*

Participants for this part of the study were school districts with DCA scores and at least one school with a Tier I, TFI score or a SET. The total DCA score was the independent variable and only districts were retained if it was clear they were using the DCA to guide the implementation of PBIS or (some iteration of a MTSS with behavior supports). The dependent variable was the Tier I Implementation score that was either the TFI or the SET. Because both of these are reported on a continuous, proportional scale of 0 to 1.0 this variable was transformed using the arcsin-square root transformation as suggested by (Chen et al., 2017) for proportional outcome measures.

First, the unconditional model (equation 2) was modeled. If the ICC is significant then multi-level modeling is favorable (as outlined). If the ICC is not significant, ordinary regression techniques would be utilized, next the DCA total score was modeled. Specifics about each equation are provided in equations two, three and four.

Model 1. The Unconditional model

$$\text{Level 1:} \quad TierI_{ij} = \beta_{0j} + r_{ij} \qquad\qquad 2$$

$$\text{Level 2:} \quad \beta_{0j} = \gamma_{00} + u_{0j}$$

$$\text{Mixed Model:} \quad TierI_{ij} = \gamma_{00} + u_{0j} + r_{ij}$$

where:

$TierI_{ij}$ is the Tier I score for i school nested in j district; continuous scale

β_{0j} is the intercept for the jth district

r_{ij} is the random error associated with school i in j district

γ_{00} is the overall mean intercept

u_{0j} is the unique random effect of district j (error) on β_{0j}

The level-1 error (r_{ij}) is expected to follow a normal distribution with a mean of 0) and a variance of σ^2 (see equation 3; Sullivan, Dukes, and Losina, 1999; Woltman, Feldstain, McKay, Rocchi, 2012).

$$E(r_{ij}) = 0; var(r_{ij}) = \sigma^2 \hspace{4cm} 3$$

Model 2. DCA, Total Score

$$\text{Level 1:} \quad TierI_{ij} = \beta_{0j} + r_{ij} \hspace{3cm} 4$$

$$\text{Level 2:} \quad \beta_{0j} = \gamma_{00} + u_{0j}$$

$$\text{Mixed Model:} \quad TierI_{ij} = \gamma_{00} + \gamma_{10}DCA + u_{0j} + r_{ij}$$

Following a significant result but because there is a lack of a clear direction due to theory or from the EFA, correlations between the DCA scores and outcome measure were assessed to determine if any post hoc analyses would be practical. Parameter estimates, standard, errors, and model fit statistics are reported in the results section.

Research question three. *How is the DCA score associated with Tier II/III PBIS level of implementation, when Tier I is achieved?*

Participants for this question were the same as research question two but were restricted to schools that met Tier I criterion on the TFI or SET. The dependent variable for this question was labeled *depth* for schools that were attempting (scores greater than .00) to implement Tier II on the TFI or the BAT. '*Depth*' was coded as a dichotomous

variable where: *1* = Yes, Tier II score and *0* = no Tier II score. At the time of this study,

not enough scores were available to analyze Tier III adoption.

Similar to research question two, the unconditional model (equation 2) was first

modeled followed by the total DCA score. To answer this question, link function

estimation procedures were used to reflect the binomial distribution of the outcome

variable. Specific equations are provided in equations five and six.

Model 1. The Unconditional model

$$\eta(depth_{ij}) = \beta_{0j} \qquad \text{Level 1:}$$

$$\beta_{0j} = \gamma_{00} + u_{0j} \qquad \text{Level 2:}$$

$$\eta(depth_{ij}) = \gamma_{00} + u_{0j} + r_{ij} \qquad \text{Mixed Model:}$$

5

where:

η = the link function

$\eta(depth_{ij})$ is the probability of adopting PBIS Tier II; dichotomous scale

β_{0j} the log odds of a school to adopt/not adopting Tier II

u_{0j} the residual term where $N \sim (0, \pi_{00})$

Model 2. DCA total score

$$\eta(depth_{ij}) = \gamma_{00} = \beta_{0j} \qquad \text{Level 1:}$$

$$\beta_{0j} = \gamma_{00} + u_{0j} \qquad \text{Level 2:}$$

$$\eta(depth_{ij}) = \gamma_{00} + \gamma_{10}DCA + u_{0j} + r_{ij} \qquad \text{Mixed Model:}$$

6

The results report the log-likelihood statistic, parameter estimates, standard error,

and model fit statistics.

Research question four. *How is the DCA score associated with the proportion of*

schools within a district and Tier 1 PBIS level of implementation?

For this research question, participants were included to schools districts if they

had at least four schools with any fidelity measure. The dependent variable for this

question was labeled *scale,* which derived from the quotient of the number of schools

within a district with a fidelity measure by the total schools with the district. This

question was analyzed with total number of districts. Ordinary least squares (OLS)

regression analysis was used in this analysis because all the data were organized at the

school district level, negating the necessity for a multi-leveled approach.

Research question five. *How is the DCA score associated with District-level*

sustained use of PBIS?

All participants were included in this part of the study. The dependent variable

was labeled *sustain* and was created by taking the "first year with data" for the school.

The dependent variable for this question was labeled *scale,* which derived from the

quotient of the number of schools within a district with a fidelity measure by the total

schools with the district. This question was analyzed with total number of districts from

4-136 as well as subsets of 10-20 and 20-30 total schools. Traditional regression was

used to examine this question because all the data was at the district level. Equations for

the unconditional model and specified model are provided in equations labeled six and

seven.

Model 1. The Unconditional model

Level 1: $Sustain_{ij} = \beta_{0j} + r_{ij}$ 6

Level 2: $\beta_{0j} = \gamma_{00} + u_{0j}$

Mixed Model: $Sustain_{ij} = \gamma_{00} + u_{0j} + r_{ij}$

where:

$Sustain_{ij}$ is a continuous variable created from the first year with data

Model 2. DCA

Level 1: $Sustain_{ij} = \beta_{0j} + r_{ij}$ $\qquad$ 7

Level 2: $\beta_{0j} = \gamma_{00} + u_{0j}$

Mixed Model: $Sustain_{ij} = \gamma_{00} + \gamma_{10}DCA + u_{0j} + r_{ij}$

Summary

At this time, there is a major emphasis on implementation of effective practices and to date, this emphasis has been on the quality of the practices and not the *capacity* of the host environment to support the implementation of the practices. The lack of empirical evidence examining the link between schools and the host environment (i.e., school districts) these methods, along with any results, are not meant just provide such evidence but to also help guide the field in a clear direction.

CHAPTER III

RESULTS

The purpose of this study was to explore the potential associations between
district capacity and the implementation of PBIS to strengthen our knowledge about the
relation between school districts and schools. Research question one examined the
influence of district contextual variables on the District Capacity Assessment for the
purposes of helping to establish if control variables were needed for the subsequent
research questions. Research questions two, three, four, and five addressed the
association between district capacity and the initial, depth, scale, and sustained
implementation respectively.

District capacity

Before addressing the specific research questions, an Exploratory Factor Analysis
(EFA) was completed using the items on the DCA to determine how the DCA should be
used to address the research questions. The data was screened for univariate outliers and
missing data with no cases found. The minimum amount of data for a factor analysis was
satisfied with a sample size of 142, providing a ratio of over five cases per variable.
However, a ratio of over 10 cases per variable (i.e., 260+) is ideal for optimal analysis.

Factor analysis. Principal axis factoring (PAF) with oblique rotation was
specified because of the underlying theory regarding the structure of the DCA was
hypothesized and because the assumption that the factors would be intercorrelated.
Initially, the factorability of 26 items from the DCA were examined and it was observed
that 10 of the 26 items correlated at least .3 with at least one other item. This low level of
correlations reveals an orthogonal rotation may be more appropriate. The Kaiser-Meyer-

Olkin (KMO) measure of sampling adequacy was .86, which is above the commonly recommended value of .6, and Bartlett's Test of Sphericity was significant ($\chi^2(352) = 1406.88$, $p < .001$). The diagonals of the anti-image correlation matrix (.75) were over the recommended .5. Communalities were analyzed and question twelve (i.e., "District uses a process to report policy relevant information to outside entities") was omitted because it failed to reach the minimum threshold of .3.

Initial eigenvalues indicated the first factor contributed to 30% of the variance. Factors, two, three, four, five, six and seven had eigenvalues just over one, which explained 7% or less of the variance. While a one factor solution lacks theoretical support the point of inflection on the scree plot shows the break at one. After examining the solutions for two, three, four, five, six, and seven factors using both Varimax and Direct Oblimin rotations, a five-factor solution with PAF and Varimax rotation was the most interpretable. This solution required a total of three additional items to be eliminated because they did not contribute to a simple factor structure and failed to meet a minimum criteria of having a primary factor loading of .4 or above, and no cross-loading of .3 or above. The items "District outlines a formal procedure for selecting EIs through the use of guidance documents, District documents how current EIs link together," and "Funds are available to support the implementation of the EI" were eliminated because they failed to contribute to a simple factor structure and did not meet the minimum criteria of having a primary factor loading of .4 or above, and no cross-loading of .3 or above.

For the final stage with PAF with 22 total items varimax and oblimin rotations, were conducted, with five factors explaining 50% of the variance. The factor loading matrix for this final solution is presented in Table 4. The results from factor analysis in

this study have some similarities as the factor analysis included in the technical adequacy manual for the DCA (Russell et al., 2016, results provided in table 5). In particular, the factors labeled "coaching and training" and "DIT established" are nearly identical to the second and third factors provided in the technical adequacy manual. However, the five factors proposed in table 4 though interpretable, lack evidence to support the DCA being examined by composite scores, therefore *district capacity* for this study was defined by the overall total score.

Table 4

Factor loadings and communalities based on principal axis factoring with Varimax rotation for 22 items of the District Capacity Assessment (DCA) (n = 142)

		Factor				
	Item	1	2	3	4	5
DIT Team Process	10. District utilizes a communication plan	0.54				
	11. District uses process for addressing internal barriers	0.50				
	9. DIT actively monitors the implementation of the implementation plan	0.49				
	16. District provides a status report of the EI to the school board	0.46				
	8. District has an implementation plan for the EI	0.41				
	20. District uses a process for selecting staff who will implement and support the EI	0.36				
Training & Coaching	24. DIT uses a coaching service delivery plan		0.75			
	25. DIT uses coaching effectiveness		0.72			

	data			
	23. DIT uses training effectiveness data	0.57		
	26. Staff feedback is on-going	0.47		
	21. Staff members selected have a plan to continuously strength skills	0.40		
	22. DIT secures training on the EI for all district/school personnel and stakeholders	0.36		
DIT Established	1. There is a DIT to support the implementation of an EI		.77	
	2. DIT includes someone with executive authority		.77	
	3. DIT has identified a coordinator		.57	
	4. DIT uses an effective team meeting process		.47	
Data Systems	5. DIT has access to data			.72
	5. DIT supports the use of a fidelity measure			.58
	7. DIT has a process for using data for decision-making			.31
Link to Schools	18. BIT implementation plans are linked to district improvement plan				.79
	17. BITs are developed and functioning to support the implementation of EIs				.47
	19. BITs have a process for using data for decision making				.42

Table 5

DCA Technical Adequacy Results Compared to Current Analysis of the DCA (N = 195)

NIRN Factor	Item	Agreement	Relation to Current Analysis
	19. BITs have a process for using data for decision making	−	Link to Schools
	18. BIT implementation plans are linked to district improvement plan	−	Link to Schools
	17. BITs are developed and functioning to support the implementation of EIs	−	Link to Schools
	14. DIT has access to data	−	Data Systems
1	15. DIT has a process for using data for decision-making	−	Data Systems
	16. District has an implementation plan for the EI	−	Team process
	17. DIT actively monitors the implementation of the implementation plan	−	Team Process
	13. DIT supports the use of a fidelity measure	−	Data
	16. District provides a status report of the EI to the school board	−	DIT Team Process
	25. DIT uses coaching effectiveness data	+	
	24. DIT uses a coaching service delivery plan	+	
2	23. DIT uses training effectiveness data	+	Training & Coaching
	21. Staff members selected have a plan to continuously strength skills	+	
	26. Staff feedback is on-going	+	
	2. DIT includes someone with executive authority	+	
	1. There is a DIT to support the implementation of an EI	+	
3	2. DIT has identified a coordinator	+	Est. Team
	4. DIT uses an effective team meeting process	+	
4	7. Funds are available to support the implementation of the EI	−	omitted

43

20. District uses a process for selecting staff who will implement and support the EI	–	Training & Coaching
22. DIT secures training on the EI for all district/school personnel and stakeholders	–	Training & Coaching
11. District uses process for addressing internal barriers	–	DIT Team Process
12. District uses a process to report policy relevant information to outside entities	–	omitted
5. District outlines a formal procedure for selecting EIs through the use of guidance documents	_	omitted
10. District utilizes a communication plan	–	DIT Team Process
6. District documents how current EIs link together	_	omitted

(row label "5" appears beside item 5)

Research question one

 The first research question examines how contextual variables may influence scores on the DCA. This question was explored based on the purposes of predetermining if may be necessary to control for contextual variables in the other research questions. Bivariate correlations and regression analyses were examined between seven contextual variables and the total DCA score. All 136 school districts were included in this analysis. The results suggest that *context* (as defined by district level variables) is not a significant predictor of district capacity. Descriptive statistics, correlations, and regression weights are provided in table 6, with no significant predictors highlighted for the independent variable.

Table 6

Descriptive Statistics, Correlations and Regression Analysis for District Capacity

Assessment

	M	SD	Correlation with DCA	Multiple regression weights	
				b	β
2. Number of schools	17.91	21.58	.033	.313	.147
3. Number of students	10604	13645	.010	28.9	.039
4. Student/ Teacher Ratio	19.30	4.21	.030	.003	.057
5. Full-time equivalency	549.88	796.66	.013	-5.860	-.141
6. Percent of ELL students	8.69	10.64	-.005	.037	.035
7. Percent of students with an IEP	12.36	3.45	.089	.862	.153
8. Per student expenditure	$11,181	$3, 891	-.033	.0056	-.086

Research question two

Research question two examined the potential relation between *district capacity* and implementation of tier I of PBIS. This sample included 943 schools and 80 school districts. The mean Tier 1 score was 68.2 (*SD* 22.70) and the mean DCA total score was 44.7 (*SD* 17.76). Table 7 provides the parameter estimates this question. The null model was specified to determine the amount of variance that exists between school districts. The results of the null model suggested that schools generally scored slightly below meeting the criteria (70% or above) for Tier I implementation ($\beta_{00} = .692$, 95% CI [.388,

45

.865] with a standard deviation of .019. The addition of the grouping variable, district

name, was statistically different from zero ($t = 4.9$, $p < .001$). The examination of the

level 1 and level 2 variance components reveled an ICC of ($\rho = .033$). This suggests that

97% of the variance is attributed to school-level differences and 3% is attributed to the

district level.

The unstandardized regression coefficient of the DCA total score is statistically

significant ($b = .0920$, $p < .001$) meaning the inclusion of the DCA variable explains

approximately 9.2% of the residual error in the null model. Given the statistically

significant coefficient, the DCA total score is positive for Tier I PBIS implementation.

The addition of DCA improved the model fit, or lowered the deviance, by a statistically

significant amount, making district capacity positively associated with Tier I PBIS

implementation.

In testing the difference between the null model and the addition of the DCA,

three test statistics are reviewed. The first, the chi-square goodness of fit test statistic, was

examined and found to be significant, $\chi^2(1) = 176$, $p < .001$. This means the addition of

the DCA total score improved the model fit by a statistically significant amount. Mixed

methods results provide two other fit indices: the Akaike Information Criterion (AIC) and

Bayesian Information Criterion (BIC). Smaller values on the AIC and BIC indicate a

better fit. With the addition of the DCA total score, both the AIC and BIC decreased,

suggesting the interpretation of the DCA within the LMM is appropriate and improves

model fit.

Table 7

Unconditional and Conditional Model Parameter Estimates for District Capacity, Total
Score and Tier I PBIS Implementation

	Unconditional		DCA, Total	
	estimate	*SE*	*estimate*	*SE*
Fixed effects				
Intercept	.682	.0003	.692	.008
DCA, Total			.092	.004
Random effects				
σ_e^2	.0019		.002	.002
τ_{00}	.6046		.005	.000
Fit				
χ^2	224		40.19	
AIC	228		46.19	
BIC	237		60.03	

Predicted DCA scores equation number 8 were calculated and then the correlation

between the observed Tier I scores and the predicted Tier I scores was $r = .086$, $p = .008$.

The square of this value (i.e., $.086^2 = .007$) suggests that less than one percent of the

variation in Tier I scores can be explained by *district capacity*.

$$\widehat{TierI}_{ij} = .682 + .09(DCA_j - \overline{DCA}) \qquad\qquad 8$$

In summary, Tier I fidelity of implementation scores are expected to increase as

district capacity score increase. Although this Tier I scores would increase more rapidly

and the results are statistical significant, the practical significance is minimal. Essentially,

every 1-unit increase in *district capacity* results in a less than one percent increase in Tier I scores.

Research question three

The third question of inquiry examined schools that met the criterion for Tier I implementation (above 70% on the Tier I of the TFI or the SET) and had scores for Tier II PBIS implementation. The sample for this question was 512 schools and 69 school districts. The mean DCA total score for these school districts was 41.5 (*SD* 15.84). The null model was specified to determine the amount of variance that exists between school districts. The addition of the grouping variable, district name, was statistically different from zero ($t = 5.55, p < .001$). The examination of the level 1 and level 2 variance components reveled an ICC of ($\rho = .032$). This suggests that 97% of the variance is attributed to school-level differences and 3% is attributed to the district level.

The odds ratios indicate that for every one-unit increase in district capacity is associated with .051 unit increase in the expected log odds of Tier II adoption. The deviance-based Chi square value $\chi^2(1) = 75, p < .001$. for district capacity and Tier II adoption indicate that the multilevel random intercept model fits better than the unconditional model. Additionally, smaller AIC and BIC for the conditional model has better fit. In conclusion, Tier II adoption is expected to increase as district capacity increases. This is statistically significant but the practical significance is minimal. The parameter estimates and goodness of fit statistics for research question three are provided in table 8.

Table 8

Mixed Effects Logistic Regression Parameter Estimates for District Capacity, Total

Score and Tier II PBIS Implementation

	Unconditional		DCA, Total	
	estimate	*SE*	*estimate*	*SE*
Fixed effects				
Intercept	1.32	.321	1.31	.112
DCA, Total			.051	.0004
--2*Log Likelihood	6.28		6.33	
Random effects				
σ_e^2	.0212		.013	.016
τ_{00}	.0411		.002	.000
Fit				
χ^2	2797		2722	
AIC	2799		2798	
BIC	2804		2802	

Research question four

This research question focused on the relationship between district capacity, as measured by the DCA, and the extent to which a district had scaled up PBIS, as measured by the proportion of schools in the district reporting a PBIS fidelity score. One-hundred nine districts were included in the sample. Bivariate analyses and scatterplots were examined to determine if a linear relationship existed between district capacity and the proportion of schools implementing. Further analyses were not preformed due to

inadequate sample size (provided in table 9) and lack of a linear relation. Future

directions are provided in the discussion.

Table 9

Correlations and Descriptive Statistics for between District Capacity Assessment Scores

and Proportion of Schools with Fidelity of Implementation Scores

| | M (SD) | Number of schools within the district | | | | | |
		4-175	10-19	10-29	20-29	20-39	30-39
DCA	.45(.18)	-.001 *N* = 109					
	.43(.13)		-.012 *N* = 26				
	.44(.17)			.070 *N* = 38			
	.47(.16)				.295 *N* = 11		
	.44(.16)					.119 *N* = 19	
	.44(.16)						-.147 *N* = 8

Note. *N = Number of schools within the sample*

Research question five

The final research question addressed the association between district capacity, as

measured by the DCA, and sustained use of PBIS, as measured by the length of time

PBIS was used within a district. This analysis included 80 school districts and 943

schools. The null model was specified to determine the amount of variance that exists

between school districts. The results of the null model suggest that the grouping variable

(school district) was statistically different than zero ($1.30 =, p < .001$). The examination

of the level one and level two variance components reveled an ICC of ($\rho = .082$),

suggesting that 92% of the variance is attributed to the variance at the school level and

the remaining 8% can be attributed to the district level. The unstandardized regression

coefficient of the DCA total score was not statistically significant ($b = .279$, $p = .227$).

Summary

In the five research questions addressed in the study, Tier I implementation and

Tier II adoption were statistically significant. While statistical significance was not

present in the other questions, the information provided in the analyses is useful in

determining future directions to examine district capacity and its potential association to

scale and sustained implementation.

CHAPTER IV

DISCUSSION

The purpose of this study was to explore the relation between district capacity and

the implementation of Positive Behavior Interventions and Supports (PBIS). Beyond a

simple adoption of an evidence-based practice (EBP), this study examined the initial

level, depth, scale, and sustained implementation of PBIS. Before this investigation, a

lack of empirical evidence linking district-level team performance to school-level

outcomes (i.e., fidelity of implementation) existed, sparking a necessity for more inquiry.

This chapter will review the findings, overview the limitations, discuss the implications

and provide future directions for researchers, policy-makers, and practitioners interested

in the further study of district capacity.

Review of the findings

Results showing a relation between level of district capacity and both *initial* (i.e.,

Tier I) PBIS implementation and *depth* (i.e., Tier II) of PBIS implementation are

promising. For initial implementation, multi-level modeling was able to show a positive

association between increases in the District Capacity Assessment (DCA; Ward et al,

2015) and Tier I fidelity of implementation with school-level results from the Tiered

Fidelity Inventory (TFI; Algozzine et al., 2010) and the School Evaluation Tool (SET;

Sugai, Lewis-Palmer, Todd, & Horner, 2001). Additionally, generalized multi-level

modeling showed a positive association between district capacity and the adoption of Tier

II PBIS.

Additional analyses were also completed to examine the potential effect of

context (i.e., contextual variables that may have confounded the results) and exploratory

analyses to learn more about the internal structure of the DCA (the independent variable of inquiry). Context, as shown with bivariate correlations and regression, was not a significant predictor of *district capacity*, as hypothesized. Using factor analysis, the internal structure of the DCA is still in the development process, where we currently lack enough data to support the theorized factor structure of the DCA.

Statistical analyses were also completed on the scale of implementation (using a proportional outcome measure of schools implementing divided by the total number of schools) and district-level sustained implementation (using the "first year with data" to create a length of time PBIS has been used within the district variable). These analyses did not provide evidence of a relation between district capacity as measured by the DCA and the *scale* of PBIS implementation or the district-level *sustained* use of PBIS implementation.

Limitations

Several limitations were present in this study and should be considered when interpreting the results. While the information gained from this study may be valuable in the research of district capacity, the nature of exploratory research can only allow for exploration and cannot offer final or conclusive results. Another limitation was that the data set used was relatively small thus limiting generalizability. While the power analysis showed that there was enough base level data to complete the analyses, more data was needed for the factor analyses (e.g., more than 260 DCA scores) and to examine the question of scale (e.g., at least four schools per district for each level of scale).

Additionally, the data used in this study were convenience samples from schools and districts using the online PBIS database (i.e., the OSEP Technical Assistance Center,

pbis.org). Lastly, the internal structure of the DCA is still in development, we are unable to determine if it measures what it claims to measure, and if the factors of DCA are actually the critical components for effective implementation.

The methods used in the analyses also present limitations, particularly with how the data was managed. For example, the outcome variable in research question five was researcher created by using the school level first year with data. This might not be the proxy for "sustained district capacity." In the future, the more appropriate measure might be to examine several district capacity scores over time, which would allow a longitudinal analysis. Similarly, the outcome measure of "proportion of schools within a district" in research question four may not be the best way to examine scaling. One alternative might consider scaling as a question of comparing cohorts of schools with one another. For example, schools within districts could be clustered into cohorts, where initial implementers (i.e., schools who were the first schools within the district to implement PBIS) could be compared to other initial implementation cohorts. Similarly, "second wave" adopters could be identified by cohorts allowing for analyses to span not only across this cohorts but also between initial implementers and second wave implementers.

Implications

This research sought to solidify the association between district capacity and the implementation of an evidence-based practice, PBIS. Even with the variety of limitations, positive relations could be determined for *initial* and *depth* of implementation. Unfortunately, results were inconclusive for the examination of *scale* and *sustained* implementation. The abilities of a school district to help schools achieve initial

implementation, full implementation, and sustained implementation may be distinctly different and warrant further discussion. Additionally, the results (or lack there of) regarding scaling-up an innovation may require special attention.

Initial implementation

In the Active Implementation Frameworks (Table 1), initial implementation occurs when practitioners are using an innovation for the first time (Fixsen et al., 2005). In the sample for this study, it is likely that most districts ($M = 42.5$ DCA scores) are still working to establish the features of *district capacity* as they engage in initial PBIS adoption in specific schools. During this *initial* stage of implementation, the current structure of the database makes it challenging to determine if any external supports are helping districts or individual schools with implementation efforts. Establishing a locally-driven, long-term investment in PBIS often requires supports from the PBIS technical assistance center, a state agency, or regional educational service district. The results examining *initial* implementation would benefit from a separation in the analyses of the type and level of support school teams (and district leadership teams) receive from regional, state or federal technical assistance entities.

Full implementation

The Active Implementation Frameworks describe full implementation as when initial implementation (i.e., *the new way*) becomes the standard. Ideally, during this stage any external supports could be removed and the district would still support the innovation. Research question three began to address full implementation by considering the *depth* (implementation of Tier II of PBIS) of implementation. However, in order to reach full implementation of PBIS, enough schools implementing Tier II and Tier III

(i.e., criterion scores for at least 80 districts with at least five schools per districts) would be needed to complete a thorough analysis of this question. Additionally, using the same measure would make the analyses more interpretable if, for example, 80 schools districts with at least five schools per district had TFI scores.

Sustained implementation

An emerging, if challenging, message from implementation science is that success with initial adoption of an innovation should not be assumed to ensure sustained implementation. Instead, specific actions are needed to ensure that 'the way of doing business' remains, even when changes occur (Bolger, 2000; Saxby, 1999). Similar to other work by McIntosh and colleagues (2009), some continuous improvement measures will likely be needed to ensure that full implementation does not diminish over time. Effective *district capacity* will include policies, systems and practices that support continuous improvement. It is possible that while trying to maintain district capacity external supports, such as a technical assistance center, may be needed. These supports should be considered temporary, as the goal is to maintain district capacity without the support of outside entities. While the field continues to examine the supports needed for a school to adopt effective practices, a similar level of examination is needed to define the supports needed for a district leadership team to build the *capacity* needed for sustained use of effective practices. The present results suggest that initial efforts in this direction should focus on creating teams, collecting data, and supporting schools in implementation.

Scaling-up

While scaling-up should be considered an iterative process (integrated within the implementation and sustainability efforts), it has yet to be formally validated. Using a sequential cohort as the basis for this statistical analysis proved challenging and future analyses should consider the ratio of schools with a district and how that ratio expands over time. Typically, initial implementation efforts are used to leverage larger, scaled programs of implementation. In a descriptive study by Cressey, Whitcomb, McGilvray-Rivet, Morrison, and Shander-Reynolds (2014), a five-year process was described from adopting PBIS within one grade in a school, to school-wide implementation, to sustained implementation was outlined by the authors. In a much larger study, Horner and colleagues highlighted four key areas of state *capacity* (i.e., administrative leadership and funding, local training and coaching capacity, behavioral expertise, and local evaluation capacity) as being perceived as critical for a state to move SWPBIS to scale. District capacity, unfortunately, still needs formal validation.

Future Directions

Policy-makers, practitioners, and researchers interested in district capacity, assist schools to implement evidence-based practices that improve student outcomes. The core features of district capacity to support functional implementation need to be major focus for future research, and a target for design, development and investment by local school districts. An investment in the core features of *district capacity* will take investments from policy-makers, practitioners, and researchers.

Policy

Federal and state agencies commonly fund efforts to build, evaluate and implement educational practices. Missing in these efforts are requirements for (a) formal

measurement of fidelity with which a practice is used, and (b) establishment of the local capacity to support depth of use, sustained use, and scaled use. A formal policy recommendation is to incorporate fidelity and capacity expectations in funded projects related to the implementation of educational practices. If schools improve their adoption of new and effective practices we cannot only rely on federal, state and regional supports; effective educational practices need to be implemented with high fidelity, at scale and sustained with active participation of the district.

Practice

School districts are responsible for adopting effective practices and the creation of the teams and data-systems to implement the practice. In order to ensure the practice produces high academic and social outcomes for the greatest amount of students, school districts need to use (a) fidelity measures to ensure the practice is being used as intended, and (b) invest in training and coaching to help teachers implement the practice with fidelity. Measures, such as the TFI, will help inform DITs about implement at schools within the district to see where more supports are needed. Additionally, on-going investment in training and coaching will ensure teachers (the personnel for delivering the practice to students) have the supports needed to implement the practice with fidelity.

Research

Researchers interested in district capacity have several avenues of inquiry they can pursue but three areas in particular would be useful: (a) defining core district capacity, (b) develop reliable and efficient measures of district capacity, and (c) separate capacity features by function.

Core district capacity. To understand district capacity, the core features of *district capacity* need to be defined. For example, the purpose of the DCA is help district implementation teams (DITs) determine if they have the systems or structures in place to provide the necessary supports for schools to implement an EBP. The DCA does not inform to what level or what level of quality the supports need to in place to influence the desired effects of initial, sustained and scaled adoption. Ideally, an initial capacity measurement tool would show to what extent a district has the minimal set of features in place to produce a desired implementation effect (e.g. adoption of Tier I PBIS at fidelity). In defining the features of initial capacity, the results are encouraging. To continue to understand core capacity, factor analysis will continue to be a useful tool. A ratio of at least 10:1 or 10 respondents per question (i.e., 260) should be met before proceeding with such analyses (Costello & Osborne, 2005). Using exploratory and confirmatory factor analyses to solidify three to five constructs (or the core elements of capacity) will allow for the creation of composite scores, which will in turn allow district capacity to be examined from its core components.

Furthermore, the difference between *district capacity* with and without external supports, needs to be further defined. Our current model of data collection for *district capacity* does not allow for activities supported by an external source (e.g., technical assistance center, state agency) to be distinguished from activities that are supported with no external supports. In one study by Strickland-Cohen and Horner (2015), the authors showed a positive relation between training typical school personnel how to create and implement behavior support and decreases in problem student behavior. After receiving training and technical assistance the staff ability to use assessment data to define

59

functional behavior support plans improved. In this study, the expertise to develop capacity was provided from an external source (e.g., the researcher). An extension of this research could be to examine where only in-district resources were used to provide the training and technical assistance to the staff or how a district ensures these newly acquired skills do not lapse over time. Extensions such as these would help to create "self-sufficient" school districts that were able to increase and sustain practices without external supports.

Measures of capacity. The ultimate result of capacity development is subscribing to a 'way of doing business' (Bolger, 2000; Saxby, 1999). Achieving a new way of doing day to day operations, however, requires not only defining the core features but determining *effective* capacity. Measurements of effective capacity could address three areas in particular: (a) performance, (b) stability, and (c) adaptability. Performance of district capacity would analyze effectiveness and efficiency of the resources used by a DIT (UNDP, 2009). The DCA for example, asks if the "DIT uses coaching effectiveness data" but our current knowledge about effective coaching is still emerging (Massar, 2017). As we refine our knowledge around coaching we will be able measure, specifically if the coaching provided not only works, but is it enough, and if and where more might be needed.

Examining the stability of *district capacity* will help build the features needed to maintain a system. The US school system is complex and unlike any other in the world (Supovitz, 2006). Part of this complexity is in part because of the variability in the political and funding schemes (Supovitz, 2006, Swanson, 1988). Unpredictability in funding, high staff turnover, or lack of stakeholder participation are potential barriers to

implementation or sustainability efforts. Using the prior example of coaching, the funding to provide enough coaches or a high level of turnover of coaches within a district may need further analyses in order to develop long-term solutions.

Measures should also capture the adaptability of district implementation teams. The effective and efficient response to issues related to capacity or how anticipatory teams are of future issues could be useful in reaching full implementation or sustaining implementation efforts. For example, if a school district experiences high turnover related to coaches, a DIT might develop an action plan to retain coaches or examine the ways supports and trains district-level coaches.

Lastly, measurements in capacity should remain functionally feasible for DITs to complete. Researchers should remain cognizant of the demanding atmosphere of school districts and although an overly laborious assessment may lend to a stronger factor structure, it would not be feasible for most districts. Currently, it is recommended that the DCA be completed twice a year and each DCA takes one or two hours to complete. Ideally, any district-level assessment (such as the DCA) should not only provide a snapshot of current capacity, but lead to a clear action plan that guides investment in time and resources for improvement over the next 6 to 12 months.

Functions of capacity. Unfortunately, this study was unable to separate the specific functions of capacity regarding the initial, full, scale, and sustained capacity of school districts. While the core features will be relevant to identify they may be different depending on the function of capacity. Vital to the study of *district capacity* will be to identify the specific features that relate to the initial, full, scale, and sustained capacity. When practitioners use the DCA to develop action plans, being able to distinguish

between the core features of capacity and how they relate to implementation (whether it be initial, full, scaled or sustained efforts) would be essential to creating useful plans to guide district-level teams.

Conclusion

Finally, this study was unprecedented in that it examined a school district measure (the DCA) and its relation to implementation of PBIS, an evidence-based practice (EBP). The recent support of EBPs in education policy is founded on the idea that if there is investment in the core capacity of school districts there will be improved adoption and sustained implementation of evidence-based practices in schools, leading to valued outcomes for students. As a field, it is important that we continue to refine our understanding of *district capacity* while supporting districts achieve levels of capacity that support schools implement our most important practices.

APPENDIX A

DISTRICT CAPACITY ASSESSMENT

District Capacity Assessment

Version 6.0

Citation

Suggested Citation: Ward, C., St. Martin, K., Horner, R., Duda, M., Ingram-West, K., Tedesco, M., Putnam, D., Buenrostro, M., & Chaparro, E. (2015). District Capacity Assessment. University of North Carolina at Chapel Hill

Contributors:

Anna Harms, Kathleen Ryan Jackson, Ellen Nacik, Christine Russell

Reviewers:

Roger Bearup, Lynnette Borree, Courtney Buck, Melissa Dawes, Cortney Duffner, Pete Frommeyer, Jennifer Graber, Anne Gordon, Julia Heilman, Susan Hoheisel, Ed Huth, Rachel James, Donna Jones, Nicole Kalmbach, Erica Karg, Cheyne LeVesseur, Lynne Loeser, Claire MacArthur, Susan Mielcarek, Tamara Morrow, Sandra Naoom, Shelli Otten, Carrie Peter, Heather Reynolds, Lisa Runyon, Patricia Sinen, Tawny Smith, Caroline Stout, Rod Teeple, Kelly Tuomikoski, John Vail, Sarah Weaver, Jerry Zielinski, Joe Zima

State Implementation & Scaling-up of Evidence-based Practices
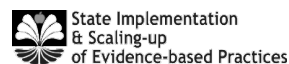
email: sisep@unc.edu

web: http://www.scalingup.org

Effective implementation capacity is essential to improving education.
The State Implementation & Scaling-up of Evidence-based Practices Center
supports education systems in creating implementation capacity for
evidence-based practices benefitting students, especially those with disabilities.

nirn National Implementation Research Network

email: nirn@unc.edu
web: http://nirn.fpg.unc.edu

The mission of the National Implementation Research Network (NIRN)
is to contribute to the best practices and science of implementation,
organization change, and system reinvention to improve
outcomes across the spectrum of human services.

District Capacity Assessment

Table of Contents

The primary purpose of the District Capacity Assessment (DCA) is to assist school districts to implement effective innovations that benefit students. The *capacity* of a district to facilitate building-level implementation refers to the systems, activities, and resources that are necessary for schools to successfully adopt and sustain Effective Innovations.

Introduction and Purpose

The specific purposes of the DCA are to:

1. Provide a **District Implementation Team (DIT)** with a structured process for the development of a District Capacity Action Plan

2. Provide a DIT with information to monitor progress towards district, regional, and state capacity building goals

3. Support a common infrastructure for the implementation of **Effective Innovations (EI)** to achieve desired outcomes for students

4. Provide district, regional and state leadership with a regular measure of the **capacity** for implementation and sustainment of Effective Innovations in districts

Focus of the DCA

The DCA is administered with a specific innovation (e.g. Early Literacy, Positive Behavioral Interventions and Support, Multi-Tier System of Supports) in mind. *An **Effective Innovation** is any set of operationally defined practices used in a defined context (e.g. schools) to achieve defined outcomes.* It is important to choose one innovation and answer the DCA questions with that innovation in mind.

Schedule and Timeframe of DCA Administration

In January/February, the DIT formally completes the DCA with the assistance of a trained administrator and facilitator. For progress monitoring purposes, the DCA is re-administered in July/August to refine the **District Capacity Action Plan**. During the DCA administration to monitor progress, the team reviews previous DCA scores, updates scores based on recent progress, and adjusts the District Capacity Action Plan as necessary. It is acceptable, however, for a district to complete the DCA at any point during the year that would help achieve targeted functions/purposes.

Given the importance of the process and the complexity of the items, the anticipated duration to complete the DCA is one to two hours. Exact times will depend on the number of individuals participating and the familiarity of the team with the DCA and the process. The first implementation of the DCA typically takes more time than subsequent administrations. Preparing key documents prior to the DCA reduces the time for implementation (see page 5 for list of documents).

Process and Key Roles

The formal administration process consists of introducing the DCA and its purpose, providing an overview of the administration process and scoring, introducing the concepts or big ideas, reading each

item aloud and providing any necessary clarification, facilitating the discussion and voting process, and recording the score for each item. Information about key roles are provided in the table below:

DCA Administrator	• A trained individual responsible for leading the discussion and adhering to the DCA Administration Protocol. This individual is preferably external to the district team and does not vote.
Facilitator	• An individual who has a relationship with the respondents and experience in the district and who supports the Administrator by helping to contextualize items for respondents or provide examples of work in which the district has engaged.
Note Taker	• Records ideas shared for action planning and any questions and issues that are raised during administration.
Respondents	• Respondents are knowledgeable raters including District Implementation Team (DIT) members and other staff intentionally selected for their implementation knowledge, experience with the innovation being used, and leadership in the district.
Observer	• Observers are invited with permission of the district team to learn about the DCA process or the activities in the district. Observers do not vote.

Preparation for the DCA and Administration

Prior to launching into the administration of the DCA the following should be in place:

1. District Implementation Team agrees to DCA administration and the commitment of time

2. Materials to be assembled in preparation for DCA administration include:
    a. Previously completed DCA forms and/or data/reports from previous DCAs if applicable
    b. Blank copies (paper or electronic) accessible to all respondents
    c. Data sources to inform DCA assessment (District Improvement Plan needed at a minimum)

Roles and Job Descriptions
☐ List of DIT members, roles, and job titles
☐ Listing of BIT members

☐ Executive Leader job description
☐ DIT Coordinator job description
☐ Interview protocol (including procedures used during the selection process)

Team Processes
☐ DIT Meeting schedule
☐ DIT linking communication protocols

☐ Meeting Agendas, Minutes, and Attendance
☐ Graphic of problem-solving process used

Guidance Documents
☐ Documentation of EI selection procedure
☐ Process documentation for sharing of policy relevant information to regional and state organizations

☐ Documentation of linking EIs
☐ Process documentation for addressing internal district barriers

Budget
☐ Professional Learning budget allocations

☐ Grant budget allocations

District Capacity Assessment

Plans
- ☐ DIT implementation plan for EI
- ☐ Sample BIT implementation plans
- ☐ Sample of coaching service delivery plans
- ☐ Communication plan
- ☐ Documentation of implementation plan monitoring
- ☐ Sample of staff professional learning plans
- ☐ District professional learning schedule

Data and Measures
- ☐ Fidelity measure
- ☐ Practice Profile for EI
- ☐ Training outcome data
- ☐ Coaching effectiveness data
- ☐ Fidelity assessment data (feedback data)
- ☐ Evidence of performance feedback process
- ☐ Sample Data Reports
- ☐ Sample School Board Status Report
- ☐ Sample stakeholder Reports

Scoring

The District Implementation Team completes the DCA together by using the *DCA Scoring Guide* to discuss each item and come to consensus on the final score for each item. The respondents score each item on a 0-2 scale utilizing a *simultaneous and public voting process*. This type of voting process facilitates participation of all respondents and neutralizes any potential power influences in the voting process. When asked to vote (e.g. "Ready, set, vote."), respondents simultaneously hold up either two fingers to vote "fully in place," one finger to vote "partially in place," or a closed hand to vote "not in place."

If the team is unable to arrive at consensus, additional data sources for each item are documented in the *DCA Scoring Guide* and should be used to help achieve consensus. Consensus means that voters in the minority can live with and support the majority decision on an item. If consensus is not able to be reached, the Facilitator encourages further discussion at a later time and the majority vote is recorded so that the results can be scored and graphed.

Research Basis and Outcomes from the DCA Completion

The research basis of the DCA is derived from the implementation science research literature and its Active Implementation Frameworks (Fixsen, Naoom et al., 2005). The Active Implementation frameworks "help define what needs to be done (effective interventions), how to establish what needs to be done, who will do the work (effective implementation), and establish the hospitable environment for the work (enabling contexts) to accomplish the positive outcomes" (Blase, Fixsen et al., 2005). The Active Implementation Frameworks are universal and apply to any attempt to use Effective Innovations. The frameworks consist of Usable Innovations, Implementation Teams, Implementation Drivers, Improvement Cycles, and Implementation Stages.

The Implementation Drivers assessed by the DCA:

- **Leadership -** Active involvement in facilitating and sustaining systems change to support implementation of the effective innovation through strategic communication, decisions, guidance, and resource allocation

- **Competency** - Strategies to develop, improve, and sustain educators' ability to implement an Effective Innovation as intended in order to achieve desired outcomes. Competency Drivers include: **Performance Assessment, Selection, Training, and Coaching**
- **Organization** – Strategies for analyzing, communicating, and responding to data in ways that result in continuous improvement of systems and supports for educators to implement an effective innovation. Organization Drivers include: **Decision Support Data System, Facilitative Administration, and Systems Intervention**

DCA Items Mapping to Drivers Domains and corresponding subscales:

Implementation Drivers and Subscales	DCA Item #:
Leadership	
• Leadership	1, 2, 3, 7, 17
• Planning	8, 9, 18
Competency	
• Performance Assessment	13, 26
• Selection	20, 21
• Training	22, 23
• Coaching	24, 25
Organization	
• Decision Support Data Systems	14, 15, 19
• Facilitative Administration	4, 5, 6, 10, 11, 16
• Systems Intervention	12

Outcomes from DCA completion:

1. Summary report with (a) Total score, (b) Sub-scale Scores and (c) Item Scores

2. Action plan for identifying immediate and short-term activities to improve district capacity to implement effective innovations

Administration Prerequisites

To assist districts in improving their capacity to implement effective innovations, administrators are required to successfully complete the DCA Administration online short course (http://implementation.fpg.unc.edu).

SISEP.org is a web-based application that allows District Implementation Teams to complete the DCA. Team scores are entered electronically, and reports are generated to view (a) Total Scores, (b) Sub-scale Scores, and (c) Item Scores. These data are used to assess current level, monitor progress across time, and plan actions that will improve capacity to implement evidence-based practices.

To access SISEP.org, DIT members are provided with a user ID, user type, and permission to enter DCA data and access reports. A user type and level of permission are determined and set by either the National SISEP Center, State Education Agency (SEA), or Regional Entity SISEP.org Coordinator. Note that once access is granted to a district, the user has access to view all of the district's DCA data. The user types that can be assigned to a user are listed below in the table.

District Capacity Assessment

SISEP.org User Types	Description
Coordinator	A coordinator can add surveys to a district, add users to a district, take surveys, and view reports.
Team Member	A team member may only view reports.

We ask that you let us know how you use the DCA so we can use your experience and data to improve and expand the assessment. Please respond to Caryn Ward (contact information below). Thank you.

Caryn Ward, Ph.D.,
Senior Implementation Specialist
caryn.ward@unc.edu
FPG Child Development Institute
CB 804
University of North Carolina at Chapel Hill
Chapel Hill, NC 27599-8040
Cell 919-414-9528
Reception 919-962-2001

DCA Administration Fidelity Checklist

Protocol Steps	Step Completed?
	Y=Yes; N=No **N/A= unsure or** **not applicable**

	Protocol Steps	Y	N	N/A
1.	**Respondents Invited**- Administrator and/or Facilitator invites knowledgeable raters including DIT members and others	Y	N	N/A
2.	**Materials Prepared in Advance-** Administrator and/or Facilitator ensures that copies (paper or electronic) of a blank DCA are available for each member and ensures that a room is set up with a laptop, projector, internet connection, and conference phone (video if possible) for any participants joining remotely	Y	N	N/A
3.	**Overview**- Administrator provides a review of DCA, purpose, and instructions for voting	Y	N	N/A
4.	**Administration**- Blank DCA is projected on screen for entire team to view. If team is using SISEP.org, the web based version is projected on the screen	Y	N	N/A
5.	**Administration**- Each question is read aloud. After the Administrator reads a question, the Facilitator says, "ready, set, vote" and all respondents vote simultaneously and publicly to neutralize influence during the voting process (e.g. hold up 2 fingers to vote "fully in place," 1 finger to vote "partially in place," or a closed hand to vote "not in place" or holds up a card with the number 0, 1, or 2)	Y	N	N/A
6.	**Administration**- Facilitator tallies the votes and notes agreement or discrepancies for each question	Y	N	N/A
7.	**Consensus**- If complete agreement is reached move on to the next question. If not, the Facilitator invites an open, brief discussion of the reasons for differences in scoring. The group is asked to vote again. The vote can occur multiple times at the discretion of the Facilitator. The goal is to reach consensus. Consensus means that the minority voters can live with and support the majority decision on an item. If the minority persists in not being able to live with the majority vote, the Facilitator encourages further discussion at a later time and the majority vote is recorded so that the results can be scored and graphed.	Y	N	N/A
8.	**Recording**- Administrator documents each scoring decision on sisep.org which is projected for all respondents to see, or on the paper copy used to record all votes	Y	N	N/A
9.	**Data summary**- After the last question has been asked and answered, the Administrator clicks the link on SISEP.org to display graphs of total scores and subscale scores	Y	N	N/A
10.	**Review**- While viewing the graphs, Administrator highlights all of the subscales that moved in a positive direction and celebrates progress toward 80% or better subscale scores	Y	N	N/A
11.	**District Status Review-** Facilitator initiates a discussion of updates on achievements, progress, and major milestones or barriers that have occurred since previous administration	Y	N	N/A
12.	**Action-** Facilitator asks respondents to discuss three domains they would like to set as agenda items for their regular meetings	Y	N	N/A
13.	**Planning**- If there is not sufficient time for #11 and #12 the Facilitator ensures that a date and time are set for the District Status Review and Action related to selecting domains	Y	N	N/A
14.	**Conclusion**- Administrator thanks the team for their openness and for sharing in the discussion	Y	N	N/A

Comments/Notes:

District Capacity Assessment (DCA): Scoring Form

District Name: Date:

DCA Administrator: Facilitator:

Effective Innovation: DIT Members:

Directions: The District Implementation Team completes the District Capacity Assessment (DCA) together by using the *DCA Scoring Guide* to discuss each item and come to consensus on the final score for each item. If the team is unable to arrive at consensus, additional data sources for each item are documented in the *DCA Scoring Guide* and should be used to help achieve consensus. Scores are recorded on this *Scoring Form* below and then entered into SISEP.org.

Item	Score		
1. There is a District Implementation Team (DIT) to support implementation of Effective Innovations (EI)	2	1	0
2. DIT includes someone with **executive leadership** authority	2	1	0
3. DIT includes an identified **coordinator** (or coordinators)	2	1	0
4. DIT uses an effective team meeting process	2	1	0
5. District outlines a formal procedure for selecting EIs through the use of **guidance documents**	2	1	0
6. District documents how current EIs link together	2	1	0
7. Funds are available to support the implementation of the EI	2	1	0
8. District has an **implementation plan** for the EI	2	1	0
9. DIT actively monitors the implementation of the plan	2	1	0
10. District utilizes **a communication plan**	2	1	0
11. District uses a process for addressing internal barriers	2	1	0
12. District uses a process to report **policy relevant information** to outside entities	2	1	0
13. DIT supports the use of a **fidelity** measure for implementation of the EI	2	1	0
14. DIT has access to data for the EI	2	1	0
15. DIT has a process for using data for decision making	2	1	0
16. District provides a status report on the EI to the school board	2	1	0
17. **Building Implementation Teams (BITs)** are developed and functioning to support implementation of EIs	2	1	0
18. BIT implementation plans are linked to district improvement plan	2	1	0
19. BITs have a process for using data for decision making	2	1	0
20. District uses a process for selecting staff (internal and/or external) who will implement and support the EI	2	1	0
21. Staff members selected to implement or support the EI have a plan to continuously strengthen skills	2	1	0
22. DIT secures training on the EI for all district/school personnel and stakeholders	2	1	0
23. DIT uses training effectiveness data	2	1	0
24. DIT uses a **coaching service delivery plan**	2	1	0
25. DIT uses coaching effectiveness data	2	1	0
26. Staff performance feedback is on-going	2	1	0

Scoring Guide

DCA Item:	2 points	1 point	0 points	Data Source
1. There is a District Implementation Team (DIT) to support implementation of Effective Innovations (EI)	A team is developed and is • Representative of the district (e.g., K-12) • Of functional size	A team is developed and representative of the district -HOWEVER- The size of the team is not functional (e.g., too large or too small) to effectively accomplish work	There is not a team -OR- Team composition is not representative of the district	List of team members, roles, and job titles
2. DIT includes someone with executive leadership authority	DIT includes someone with executive leadership authority to approve and support team decisions (e.g., adequate funding, resource allocation, Information Technology - IT support, and positions) -AND- Attendance at meetings is regular -AND- When scheduling conflicts occur, the leader makes sure (s)he is provided with relevant information (decisions and potential barriers that need to be addressed by other district leaders) within 1-2 days after the meeting	DIT includes someone who has executive leadership authority to approve and support team decisions -AND- Attendance at meetings is regular -HOWEVER- When scheduling conflicts occur there is not a mechanism for the leader to be provided with relevant information within 1-2 days after the meeting	There is no one with executive leadership authority represented on the DIT -OR- The executive leader's attendance at meetings is infrequent	Executive leader job description List of team members, roles, and job titles Linking communication protocol
3. DIT includes an identified coordinator (or coordinators)	Coordinator assumes a lead role in preparing for and facilitating the DIT meetings, agenda topics and monitoring completion of	DIT includes a designated coordinator -AND- Coordinator assumes a lead role	DIT does not include a designated coordinator -OR- The coordinator does not assume	Coordinator job description

DCA Item:	2 points	1 point	0 points	Data Source
	assigned actions -AND- Coordinator is knowledgeable about the selected EI and implementation science in order to make recommendations to the DIT and the executive leader overseeing the DIT -AND- Coordinator has adequate time to fulfill responsibilities	in preparing for and facilitating the DIT meetings, agenda topics and monitoring completion of assigned actions -HOWEVER- The coordinator needs to deepen knowledge of the EI to make recommendations to the DIT and the executive leader overseeing the DIT. -OR- Time is not adequate to fulfill responsibilities given the scope of the work and/or the size of the district being supported	a lead role in making recommendations to the DIT or facilitating meetings	
4. DIT uses an effective team meeting process	DIT meets in person monthly (during the school year) or more frequently depending on amount of work -AND- Meeting roles are consistently assigned and used (e.g., facilitator, recorder, time keeper, norms monitor) -AND- Process is in place for absent team members to receive updates shortly following the meeting -AND- Team documents and completes assignments outlined on an	DIT meets in person monthly or more frequently depending on amount of work -HOWEVER- Meeting roles and responsibilities are inconsistently used during the meeting -OR- Absent team members are inconsistently updated following meetings -OR- Assignments are inconsistently completed within the designated timelines	It is difficult to establish an effective team meeting process due to meeting less frequently than monthly -OR- Inconsistent attendance by team members	Meeting schedule Meeting Agendas, Minutes, and Attendance

DCA Item:	2 points	1 point	0 points	Data Source
	action plan within designated timelines			
5. District outlines a formal procedure for selecting EIs through the use of **guidance documents**	Guidance documents and formal procedures are in place -AND- Procedure to select an EI includes an analysis of the following variables: Need for the EI; Fit and alignment with other EIs/initiatives/programs; Resources needed to fully implement; Evidence to demonstrate effectiveness; Maturity of the EI; Capacity within the district to successfully implement the EI (e.g. Hexagon Tool) -AND- Procedure is consistently used	A formal procedure is in place -BUT- The procedure to select an EI includes an analysis of only some (at least half) of the following variables: Need; Fit; Resources; Evidence; Maturity of the EI; Capacity to implement -OR- The procedure is not consistently used	No formal procedure is in place -OR- The procedure to select an EI includes only one or two of the following variables: Need; Fit; Resources; Evidence; Maturity of the EI; Capacity to implement	Guidance documents Documentation showing how the procedure has been used within the past 2 years
6. District documents how current EIs link together	Documentation displays new and existing EIs the district supports -AND- Documentation includes statements regarding how all EIs are compatible and add value to one another to achieve improved implementation and student outcomes	Documentation displays the new and existing EIs the district is supporting -BUT- It is unclear how the initiatives/practices are compatible and add value to one another	There is no documentation of how new and existing EIs are compatible -OR- Documentation was once created but has not been updated in the past 2-3 years, making it obsolete	Document displaying how all EIs are linked or compatible
7. Funds are available to	There is evidence of commitment to sustain funding for on-going	There is evidence of commitment to funding for the EI for a	There is no commitment to funding the EI	Professional Learning budget

DCA Item:	2 points	1 point	0 points	Data Source
support the implementation of the EI	implementation and scale-up of the selected EI	minimum of one year or less		allocations Grant budget allocations
8. DIT has an implementation plan for the EI	The plan is updated as needed using: • Fidelity data • Student outcome data • Capacity data (e.g., Organization, Competency, Leadership data) • Scale up data (e.g., each school's stage of implementation) -AND- The plan's goals are **S.M.A.R.T.** and include strategies/activities to achieve the goals -AND- The plan has been approved by executive leadership -AND- The plan for implementing the EI is integrated into the district's continuous improvement planning process	The plan is developed and focuses most heavily on: • Fidelity data • Student outcome data -AND- The plan has been approved by executive leadership -BUT- The plan is lacking in strategies to address: • Capacity data • Scale up data -OR- The plan includes only broad goals to implement the EI, not S.M.A.R.T. goals and strategies/activities -OR- The plan has not yet been fully integrated into the continuous improvement planning process but the intent is to do so	There is not a plan -OR- District has no goal(s) to implement the EI -OR- The plan focuses primarily on a training plan for the EI but fails to encompass a minimum of two of the following: • Fidelity data • Student outcome data • Capacity data • Scale up data -OR- The plan has not been approved by executive leadership	District implementation plan Record of approval (meeting minutes or other written communication, signature)
9. DIT actively monitors implementation of the plan	DIT monitors implementation of the plan a minimum of three times per year -AND- Monitoring includes documentation of:	DIT monitors the plan three times per year -HOWEVER- Monitoring only includes documentation of: • Completion status of	DIT monitors the plan less than three times per year	Documentation of monitoring

DCA Item:	2 points	1 point	0 points	Data Source
	• Completion status of activities • Reasons activities were not completed (e.g. insufficient funding, training) • Team decisions (e.g., provide required resources to complete activities, next steps with communication of barriers)	activities • Reasons activities were not completed (e.g. insufficient funding, training)		
10. District utilizes a communication plan	The plan is written and accessible to all staff -AND- The plan includes all of the following components: • List of stakeholder groups identified in the district's organizational chart (e.g., outside agencies, families) • Type of information to share and receive from identified stakeholders • Who is responsible for communication with each group • Frequency and methods of communication • Plan to evaluate communication method and data at least annually	The plan is in the process of being written and accessible to all staff -AND- Currently, communication is informally happening and/or is dependent on one main person -OR- The plan focuses primarily on following components: • List of stakeholder groups identified in the district's organizational chart (e.g., outside agencies, families) • Who is responsible for communication with each group • Frequency and methods of communication	There is not a plan for communication -OR- Stakeholders are reporting communication to be ineffective	Communication plan Stakeholder report summaries indicating communication has been effective

DCA Item:	2 points	1 point	0 points	Data Source
	-AND- Stakeholders report the communication has been effective			
11. District uses a process for addressing internal barriers	A formal process is in place (e.g., specific documents and steps) -AND- The process is consistently used to remove internal barriers (e.g., policy and guidance documents revised to support new ways of work, resources are allocated/re-allocated)	The process is informal -OR- The process is used inconsistently across all situations that would warrant use	There is not a process -OR- The process is not used for addressing internal barriers preventing successful implementation of the EI	Guidance document outlining process Documentation showing how the process has been used in the past six months (e.g., examples of identifying a barrier, defining a solution, and implementing the solution with effect)
12. District uses a process to report policy relevant information to outside entities	A formal process is in place to report policy relevant information (e.g., state/federal laws, mandated use of funds, bargaining agreements) to **regional units**, state department of education, etc. -AND- The process is consistently used for reporting to outside entities	The process is informal -OR- The process is used inconsistently across all situations that would warrant use	There is not a process -OR- The process is not used for reporting policy-relevant information to the regional unit or state department	Guidance document outlining process Evidence of use
13. DIT supports the use of a fidelity measure for implementation	DIT supports schools to use a research validated fidelity measure as recommended that is highly correlated with (i.e.,	DIT supports schools to use a fidelity measure for the EI as recommended, but the measure is currently in development (i.e.,	DIT does not support schools to use any fidelity measures for the EI -OR-	Fidelity measure or practice profile

78

DCA Item:	2 points	1 point	0 points	Data Source
of the EI	predictive of) intended outcomes for the EI	not yet correlated with outcomes or research validated) -OR- District has developed practice profiles to operationalize the EI for use in developing a fidelity measure	DIT does not support schools to use the fidelity measure as recommended (e.g., frequency, audience)	Data (e.g., local or published) demonstrating that fidelity predicts intended outcomes
14. DIT has access to data for the EI	All of the following data are accessible for the DIT to analyze: • Fidelity data • Student outcome data (e.g., **universal screening data, progress monitoring data,** and **summative assessment data**) • Capacity data (e.g., DCA, Assessing Drivers Best Practices) • Scale up data (e.g., Stages of Implementation Analysis: Where are we now)	The DIT only has access to at least two of the following types of data, but not all types: • Fidelity data • Student outcome data • Capacity data • Scale up data	No data are accessible -OR- Data accessible for the DIT to analyze are primarily focused on student outcomes	Sample data reports
15. DIT has a process for using data for decision making	A specific problem solving process is utilized -AND- All data are used in the following ways: • Fidelity data are analyzed to improve implementation supports (e.g., selection, training, coaching supports to ensure EI is being implemented as intended) • Student outcome data	A specific problem solving process is utilized -HOWEVER- DIT only use at least two of the following types of data for problem solving, but not all types: • Fidelity data • Student outcome data • Capacity data • Scale up data	DIT does not use a specific problem solving process -OR- DIT primarily uses student outcome data to analyze student outcomes	Graphic of problem-solving process

79

DCA Item:	2 points	1 point	0 points	Data Source
	(screening, progress monitoring, summative assessments/state test) are used to determine the impact the EI is having on student outcomes • Capacity data for the EI are used to enhance leadership, organizational or competency supports • Scale-up data are used to create differentiated plans for schools based on their current stage of implementation			
16. District provides a status report on the EI to the school board	The report includes at least five of the following seven types of information: • Number of schools across the district working to implement the EI • Each school's stage of implementation • Internal capacity to develop structures to support the EI (leadership, organization, competency) • Fidelity of implementation for the EI • Impact of the EI on student outcomes • Stakeholder information (e.g., survey data from staff and parents) about	The report includes less than five of the different types of information outlined in the 2-point criteria	A status report has never been provided to the school board -OR- Report focuses only on action, not on data	Copy of most recent school board status report

DCA Item:	2 points	1 point	0 points	Data Source
	implementation of the EI • Upcoming work to scale-up the EI and continue improving -AND- At minimum twice a year			
17. Building Implementation Teams (BITs) are developed and functioning to support implementation of EI	Every school in the district has a BIT -AND- BITs overlap as much as possible (e.g., one or more members) with the school improvement team -AND- DIT supports BITs (e.g., provides training, coaching, etc.)	Some, but not all, schools in the district have a BIT -OR- BITs do not strategically overlap with the school improvement team -OR- BITs do not have the necessary supports from DIT	None of the schools in the district have a BIT	List of BIT members List of school improvement team members Linking communication protocol
18. BIT implementation plans are linked to district improvement plan	80% or more of schools with BITs have implementation plans linked to the district priorities within the district improvement plan	At least half of the BITs have implementation plans that are linked to the district priorities within the district improvement plan	BITs do not have implementation plans that are linked to the district priorities within the district improvement plan	School level plan
19. BITs have a process for using data for decision making	BITs use a specific problem-solving model -AND- All data listed below are used in the following ways: • Fidelity data are analyzed to improve implementation supports such as selection, training and coaching to ensure the EI is being implemented as intended • Student outcome data	BITS use a specific problem-solving model -AND- The BIT primarily uses a combination of two of the three sources of data: • Fidelity data • Student outcome data relying mostly on screening data but not consistently using other measures like progress monitoring data and	BIT does not use a specific problem-solving model -OR- BIT chooses to primarily use annual summative assessment data (e.g., state test) to analyze student outcomes	Evidence of the problem-solving process Analysis of action plans and updated improvement plans based on analysis of the data

DCA Item:	2 points	1 point	0 points	Data Source
	(screening, progress monitoring, and summative assessment/state test) are used to determine the impact of the EI • Capacity data are used to develop structures to support the EI (leadership, organization, competency)	summative assessment data • Capacity data are used to develop structures to support the EI (leadership, organization, competency)		
20. District uses a process for selecting staff (internal and/or external) who will implement and support the EI	Job descriptions align with the function of positions required to support the EI -AND- Job **interview protocol** includes documentation and assessment of core skills needed to implement the EI -AND- Interview protocol includes specific procedures for assessing candidate capacity to perform key skills (e.g., work task, role play) and use feedback provided during the interview to improve performance during a simulated work activity -AND- Interview protocol is refined and revised at least annually to improve the selection process	Job descriptions exist and include general descriptions that may align with competencies needed to implement the EI -OR- Interview and selection protocols exist but do not include documentation and assessment of core skills or demonstrated ability to perform skills in simulated activity during the interview -OR- Interview protocol is refined and revised less than annually	Job descriptions exist but do not align with competencies needed to implement the EI -OR- Generic job interview protocol (e.g. similar protocol for any position) exists in the district	Job descriptions Interview protocol (including procedures used during the selection process)
21. Staff members selected to implement or	All selected staff assigned to implement or support the EI have a professional learning plan that	Each selected staff member has a plan that includes only some of the criteria outlined in the 2-	All selected staff who are expected to support the EI in a variety of roles do not have a	Staff professional learning plans

DCA Item:	2 points	1 point	0 points	Data Source
support the EI have a plan to continuously strengthen skills	includes: • Areas for further development • Training for initial competency development (if needed) • Coaching supports • Time allocated within job responsibilities to develop knowledge outlined in plan	point response -OR- Selected staff have a plan with time allocated to implement but the plan focuses mostly on initial competency development (training) and limited follow-up supports (coaching)	professional learning plan	
22. DIT secures training on the EI for all district/school personnel and stakeholders	Highly competent individuals provide trainings (e.g., deep content knowledge, effective presentation skills) -AND- Trainings are skill based, include opportunities for practice/behavioral rehearsals when applicable, and provide participant feedback -AND- All staff have opportunities to receive training as outlined in their professional learning plans	Highly competent individuals provide trainings -AND- Trainings are skill based and opportunities for practice/behavioral rehearsals are provided when applicable, and provide participant feedback -OR- All staff do not have opportunities to execute a professional learning plan. Plans are limited to either new staff or staff who are relatively new in their positions (e.g., non-tenured teachers)	Trainings are not skill based and do not include opportunities for practice or behavioral rehearsals -OR- A one-sized fits all professional learning plan is developed for staff regardless of their current strengths and needs to accurately implement/support the EI	District professional learning schedule Training evaluations Sample of staff professional learning plans
23. DIT uses training effectiveness data	Training evaluation data (e.g., pre-post of knowledge/skills, observations) and training performance assessment data (e.g., schedule, content, process) are analyzed to determine	Training evaluation data are primarily analyzed to determine the effectiveness of training (initial and on-going) -OR- Training effectiveness data are	Data are not analyzed to determine effectiveness of training	Training outcome data Evidence that data are used for improvements

DCA Item:	2 points	1 point	0 points	Data Source
	effectiveness of training (initial and on-going) -AND- Training effectiveness data are utilized to inform needs in selection/recruitment, coaching, and other implementation supports	only utilized to inform improvements to the training content and delivery		
24. DIT uses a coaching service delivery plan	Coaching service delivery plan for the EI includes a combination of: • Direct observation • Prompting • Modeling • Feedback • Assistance in adaptation of EI to local context • Consultation without direct observation -AND- Adherence to the coaching service delivery plan is regularly reviewed	The plan only includes consultation without direct observation -OR- Coaching service delivery plan developed but is not current (over a year old)	No coaching service delivery plan exists -OR- The coaching service delivery plan is not being implemented	Sample of coaching service delivery plans
25. DIT uses coaching effectiveness data	Coaching effectiveness is assessed at least every 6 months, using multiple sources of data including: • Fidelity measures • Coach observations • Staff satisfaction surveys (coaching recipients, coach, other stakeholders) • Coaching service delivery adherence data	Coaching effectiveness is assessed annually and multiple sources of data are used to improve coaching -OR- Coaching effectiveness data are only utilized to inform coaching improvements	Coaching effectiveness is not assessed using multiple sources of information	Coaching effectiveness data such as staff satisfaction surveys Evidence the data are used to inform improvements

DCA Item:	2 points	1 point	0 points	Data Source
	-AND- Coaching effectiveness data are utilized to inform improvements in coaching, selection/recruitment, training, and other implementation supports			
26. Staff performance feedback is on-going	Performance feedback (e.g., fidelity) process is in place to provide consistent feedback to all staff who are implementing or supporting the EI, including trainers and coaches • Feedback is specific to implementation of the EI • Those providing feedback have knowledge of the EI and understand the components of high quality implementation • Collaborative review of data with all staff is perpetual • Data is used to celebrate accomplishments • Data is used to strengthen staff skills (at all levels)	The process for performance feedback related to implementing the EI is either in development or partially in place (e.g., process is in place but is not policy or policy is in place but is not fully implemented) -OR- The process for the performance feedback is currently being aligned with the implementation of the EI - OR - Feedback data are collected and reviewed but it is done on an annual basis rather than in an on-going way	No process is in place for providing performance feedback to staff implementing or supporting the EI -OR- The process for the performance feedback is unable to be aligned with the implementation of the EI -OR- Individuals providing the performance feedback are not knowledgeable enough about the EI to accurately determine what should and should not be seen	Evidence of performance feedback process Fidelity assessment data

Action Planning

Step 1: For any item listed below a "2" consider actions that may be completed within the next 3 months.

Step 2: Define the action, "who" is responsible, when it will be accomplished, and the team/meeting when updates on the action will be reviewed.

Step 3: Team should prioritize the areas or items that are most critical to improve– critical defined as most likely to improve fidelity, sustainability and student outcomes.

Subscale and Items	Action	Who	When	Next Update
1. Leadership				
2. Action Planning				
3. Performance Feedback				
4. Selection				
5. Training				
6. Coaching				
7. Decision Support System				
8. Facilitative Administration				
9. Systems Intervention				

Glossary

Browse the glossary below to learn the vocabulary terms commonly encountered in the DCA. To successfully administer the DCA, knowledge of these terms is necessary. The glossary was compiled using the following resources: SISEP's Active Implementation Hub, National Implementation Research Network, and PBIS.org.

Authority

Authority in the context of the DCA refers to the power or right to make decisions regarding budgets, positions, and allocation of resources.

Building Implementation Team (BIT)

An organized and active group that supports the implementation, sustainability, and scale-up of Effective Innovations by integrating the use of implementation stages, drivers and improvement cycles.

Capacity

Systems, activities, and resources that are necessary for schools to successfully adopt and sustain effective innovations.

Coaching

Coaching is defined as regular, embedded professional development designed to help teachers and staff to use the program or innovation as intended.

Coaching Service Delivery Plan

A written plan detailing the frequency of coaching observations, methods of support, and routines and methods (e.g. written, verbal) for providing constructive feedback in a safe environment.

Communication Protocol

A written document outlining the frequency, type, and format of communication between teams for the following purposes: communicate progress and celebrate success throughout the system, report systemic barriers that are preventing or hindering implementation and should be resolved by one of the groups, report on actions taken to resolve or address past issues, and revisit past decisions and agreements periodically to ensure that solutions are still functional.

Coordinator

District staff member assuming a lead role in preparing for and facilitating the DIT meetings, agenda topics and monitoring completion of assigned actions.

Decision Support Data System

District Capacity Assessment

A system for identifying, collecting, and analyzing data that are useful to the teacher, school, and district for decision making to improve implementation of the EI. Specifically, the utilization of process data, performance (fidelity) data, and outcome data is measured and data are used.

Diagnostic Assessment

Assessments which provide more in depth information about an individual student's specific skill, for the purpose of guiding future instructional supports.

District Capacity Action Plan

A detailed plan outlining actions needed to reach one or more goals for improving district capacity.

District Implementation Plan

A detailed plan outlining actions needed to reach one or more goals for effective and sustained implementation of an EI.

District Implementation Team

An organized and active group that supports the implementation, sustainability, and scale-up of Effective Innovations by integrating the use of implementation stages, drivers and improvement cycles.

District Improvement Plan

A detailed plan outlining actions needed to reach one or more goals for performance improvement.

Effective Innovation

An innovation is anything that is new to a district and that is intended for use to improve effectiveness or efficiency. The innovation was developed based on the best available evidence (e.g., evaluation results, research findings).

Executive Leadership

A process of social influence in which a person can enlist the aid and support of others in the accomplishment of a specific task.

Fidelity

Fidelity is defined as doing what is intended.

Formal

Formal refers to an established hierarchy, procedure or set of specific behaviors.

Facilitative Administration

District Capacity Assessment

Organization driver focused on the internal processes, policies, regulations, and structures over which a district implementation team has some control in order to create and maintain hospitable environments to support new ways of work.

Guidance Documents

Publically available documents outlining the a process and/or procedure and its implementation.

Implementation

A specified set of activities designed to put into practice an activity or program of known dimensions. According to this definition, implementation processes are purposeful and described in sufficient details such that independent observers can detect the presence and strength of the "specific set of activities" related to implementation.

Implementation Science

Implementation science is the study of methods to promote the integration of research findings and evidence into policy and practice. It seeks to understand the behavior of professionals and other stakeholders as key variables in the sustainable uptake, adoption, implementation, and sustainability of Effective Innovations.

Improvement Cycles

Improvement cycle is a planned sequence of systematic and documented activities aimed at improving a process (e.g., PDSA Cycle – Plan, Do, Study, Act).

Informal

Informal refers to an activity or process that is marked by the absence of formality or structure.

Interview Protocol

A document outlining the various activities used within a selection process of a staff member.

Performance Assessment

Performance assessment refers to measuring the degree to which a teacher or staff are able to use the intervention or instructional practices as intended. Performance assessment (fidelity) measures the extent to which an innovation is implemented as intended.

Policy Relevant Information

Data and material that can be used to inform the development and/or refinement of a policy or statement of intent adopted by a Board or senior governance body.

Progress Monitoring

Frequent assessment to provide more in depth information about an individual student's specific skills, for the purpose of guiding instructional supports.

© 2015 **Page 27**

Regional Unit

An educational entity providing various school districts within a specified geographic region of the state with a wide array of educational programs and services, many of which are too costly or limited in demand for a single location.

Scaleworthy or Scalable Practices

Practices that have sufficient social and scientific validation to warrant the large-scale investment needed to transform these practices into Standard Practice.   Scalable practices have documentation that they are needed, effective, usable, and feasible.

Selection

Selection refers to the purposeful process of recruiting, interviewing, and hiring '*with the end in mind'.* Selection through an *active implementation lens* includes identifying skills and abilities that are pre-requisites and/or specific to the innovation or program, as well as attributes that are difficult to train and coach.

SMART Goal

SMART is a mnemonic acronym, giving criteria to guide in the setting of goals and/or objectives. A SMART goal is defined as one that is specific, measurable, achievable, relevant, and time- bound.

Summative Assessment Data

Measures used to gather information about student performance compared to grade level standards.

Systems Intervention

An Organization driver focused on the external variables, policies, environments, systems or structures that influence or have impact on the district and schools.

Training

Training through an *active implementation lens* is defined as purposeful, skill-based, and adult-learning informed processes designed to support teachers and staff in acquiring the skills and information needed to begin using a new program or innovation.

Universal Screening

The systematic assessment of all children within a given class, grade, school building, or school district, on academic and/or social-emotional indicators that the school personnel and community have agreed are important.

Copyright

© 2015 National Implementation Research Network

APPENDIX B

TIERED FIDELITY INVENTORY

SWPBIS Tiered Fidelity Inventory
version 2.1

Table of Contents

Introduction and Purpose

The purpose of the SWPBIS Tiered Fidelity Inventory (TFI) is to provide a valid, reliable, and efficient measure of the extent to which school personnel are applying the core features of school-wide positive behavioral interventions and supports (SWPBIS). The TFI is divided into three sections (Tier I: Universal SWPBIS Features; Tier II: Targeted SWPBIS Features; and, Tier III: Intensive SWPBIS Features) that can be used separately or in combination to assess the extent to which core features are in place.

The TFI is based on the features and items of existing SWPBIS fidelity measures (e.g., SET, BoQ, TIC, SAS, BAT, MATT). The purpose of the TFI is to provide one efficient yet valid and reliable instrument that can be used over time to guide both implementation and sustained use of SWPBIS. The TFI may be used (a) for initial assessment to determine if a school is using (or needs) SWPBIS, (b) as a guide for implementation of Tier I, Tier II, and Tier III practices, (c) as an index of sustained SWPBIS implementation, or (d) as a metric for identifying schools for recognition within their state implementation efforts.

The TFI is completed by a school Systems Planning Team (typically 3-8 individuals including a building administrator and external coach or district coordinator), often with input from Tier I, II and/or III teams if these are independent groups. It is strongly recommended that the TFI be completed with **an external SWPBIS coach as facilitator**. Validity research on the TFI shows that school teams are more accurate when an external coach facilitates TFI completion.

The first time the TFI is used, we recommend that a team examine all three tiers. If the resulting action plan focuses only on one or two tiers, then progress monitoring (use of the TFI every 3-4 months) may only include those tiers addressed in the action plan. **Note that the TFI may be used to assess only one or two of the tiers.** In most cases it will be useful to have the end-of-the-year administration of the TFI include scoring for all three tiers.

Completion of the TFI produces scale and subscale scores indicating the extent to which Tier I, Tier II and Tier III core features are in place. As a general rule, a score of 80% for each tier is accepted as a level of implementation that will result in improved student outcomes, but research is currently underway to identify a specific criterion for each tier of the TFI.

The TFI is intended to guide both initial implementation and sustained use of SWPBIS. Each administration of the TFI results not only scale scores for Tier I, Tier II, and/or Tier III, but also information for developing an **action plan** that guides implementation.

The TFI may be completed using paper and pencil, or by accessing the forms on www.pbisapps.org. Any school working with a state PBIS coordinator may access the website, TFI content, and reports. The TFI may also be downloaded from www.pbis.org.

Cost

There is no cost to use the TFI or its online scoring and reporting features. The TFI is a product developed as part of the U.S. Department of Education's Office of Special Education Programs National Technical Assistance Center on Positive Behavioral Interventions and Supports.

Intended Participants

The TFI is intended to be completed by members of a school's System Planning Team, with the active presence and guidance of an external SWPBIS coach.

Schedule of Administration

School teams are encouraged to self-assess SWPBIS implementation when they initially launch implementation of SWPBIS, and then **every third or fourth meeting** until they reach at least 80% fidelity across three consecutive administrations. Once fidelity on a tier is met, the team may choose to shift to annual TFI assessment for the purpose of evaluating sustained implementation. Note that schools new to SWPBIS may start by using only the Tier I section of

the TFI, and as they improve their implementation of Tier I, they may add assessment of Tier II and/or Tier III features.

Preparation for Administration/ Completion Time

School teams completing the Tier I scale should arrange a TFI Walkthrough (see Appendix A) before completing the TFI. We recommend that an external coach complete the TFI Walkthrough, although teams completing the Tier I scale more than once per year (i.e., for progress monitoring) may have a school staff member complete it.

The time to complete the TFI depends on (a) the experience that the team and coach have with the process, (b) the extent of preparation for TFI completion , and (c) the number of tiers assessed.

School teams new to the TFI should schedule 30 min for Tier I, 30 min for Tier II, and 30 min for Tier III. If team leaders have assembled relevant sources of information prior to the meeting, and, if the team and coach have already completed the TFI at least twice, the time required for implementation may be approximately 15 min for each tier.

Outcomes

Criteria for scoring each item of the TFI reflect degrees of implementation (0 = Not implemented, 1 = Partially implemented, 2 = Fully implemented) of Tier 1: Universal SWPBIS Features, Tier II: Targeted SWPBIS Features, and Tier III: Intensive SWPBIS Features. A complete administration of the TFI produces three scale scores: Percentage of SWPBIS implementation for Tier I, Percentage of SWPBIS implementation for Tier II, and Percentage of SWPBIS implementation for Tier III, as well as subscale and item scores for each tier. The subscale and item reports are produced to guide coaching support and team action planning.

Glossary and Acronym Key

Aggregated Data: Individual data that are averaged at the school or district level (e.g., the percent of all students on check-in check-out meeting their daily point goals).

FTE (Full-Time Equivalent): Funding allocated to an individual for specific responsibilities (e.g., behavior consultant), with 1.0 = full time work. Allocated FTE may be an individual's position or official release time for tasks.

Life Domain: Each area of a student's life to consider when planning comprehensive support, such as educational/vocational, emotional/psychological, family, medical, residence, safety, and social.

Natural and Formal Supports: Natural supports are the relationships that occur in everyday life, usually involving relationships with family, friends, co-workers, neighbors, and acquaintances. Formal Supports usually involve some sort of payment and may include relationships with service providers such as teachers, other school staff, or community agency representatives.

Person Centered Planning: A team-based approach involving a range of strategies and activities designed to help assist students in planning their life and supports. The focus is on personal self-determination and enhancing independence.

Quality of Life: The extent to which physical, mental, social, and emotional functioning is consistent with personal preferences. It is determined by the student and family.

RENEW (Rehabilitation for Empowerment, Natural supports, Education, and Work): A wraparound-based process specifically designed for adolescents and young adults that emphasizes self-determination and student voice. The focus of RENEW is on high school completion, employment, post-secondary education and training, and community integration.

Targeted Interventions Reference Guide: A matrix used to indicate a school's Tier II interventions and indicate which student needs (e.g., function of problem behavior) they can support. It is included in Appendix B.

Tiered Fidelity Inventory (TFI): A validated SWPBIS fidelity of implementation measure that assesses all three tiers of support (this measure).

TFI Behavior Support Plan Worksheet: A sheet used to score the school's existing behavior support plans for the Tier III scale. It is not needed for the Tier I or II scales. It is included in Appendix C.

TFI Walkthrough Tool: An interview form used for the Tier I scale that includes questions for randomly selected staff and students. Completed by an external reviewer (for evaluation purposes) or a member of the school team (for progress monitoring purposes). It is not needed for the Tier II or III scales. It is included in Appendix A.

Walkthrough (informal): Any type of walkthrough used to assess quality of instruction (not the TFI Walkthrough Tool).

Wraparound: A person-centered process for developing and implementing individualized care plans for youth at-risk of emotional and behavioral disorders. Wraparound brings the student, family, school, agency staff members and informal supporters together as a team to develop a coordinated supports.

Tier I: Universal SWPBIS Features

NOTE: This section may be completed individually or with other tiers as part of the full Tiered Fidelity Inventory

Feature	Possible Data Sources	Scoring Criteria
Subscale: Teams		
1.1 **Team Composition:** Tier I team includes a Tier I systems coordinator, a school administrator, a family member, and individuals able to provide (a) applied behavioral expertise, (b) coaching expertise, (c) knowledge of student academic and behavior patterns, (d) knowledge about the operations of the school across grade levels and programs, and for high schools, (e) student representation.	• School organizational chart • Tier I team meeting minutes	0 = Tier I team does not exist or does not include coordinator, school administrator, or individuals with applied behavioral expertise 1 = Tier I team exists, but does not include all identified roles or attendance of these members is below 80% 2 = Tier I team exists with coordinator, administrator, and all identified roles represented, AND attendance of all roles is at or above 80%
1.2 **Team Operating Procedures:** Tier I team meets at least monthly and has (a) regular meeting format/agenda, (b) minutes, (c) defined meeting roles, and (d) a current action plan.	• Tier I team meeting agendas and minutes • Tier I meeting roles descriptions • Tier I action plan	0 = Tier I team does not use regular meeting format/ agenda, minutes, defined roles, or a current action plan 1= Tier I team has at least 2 but not all 4 features 2 = Tier I team meets at least monthly and uses regular meeting format/agenda, minutes, defined roles, AND has a current action plan

Scoring Criteria: 0=Not implemented; 1=Partially implemented; 2=Fully implemented

Feature	Possible Data Sources	Scoring Criteria
Subscale: Implementation		
1.3 **Behavioral Expectations:** School has five or fewer positively stated behavioral expectations and examples by setting/location for student and staff behaviors (i.e., school teaching matrix) defined and in place.	• TFI Walkthrough Tool • Staff handbook • Student handbook	0 = Behavioral expectations have not been identified, are not all positive, or are more than 5 in number 1 = Behavioral expectations identified but may not include a matrix or be posted 2 = Five or fewer behavioral expectations exist that are positive, posted, and identified for specific settings (i.e., matrix) AND at least 90% of staff can list at least 67% of the expectations
1.4 **Teaching Expectations:** Expected academic and social behaviors are taught directly to all students in classrooms and across other campus settings/locations.	• TFI Walkthrough Tool • Professional development calendar • Lesson plans • Informal walkthroughs	0 = Expected behaviors are not taught 1 = Expected behaviors are taught informally or inconsistently 2 = Formal system with written schedules is used to teach expected behaviors directly to students across classroom and campus settings AND at least 70% of students can list at least 67% of the expectations
1.5 **Problem Behavior Definitions:** School has clear definitions for behaviors that interfere with academic and social success and a clear policy/ procedure (e.g., flowchart) for addressing office-managed versus staff-managed problems.	• Staff handbook • Student handbook • School policy • Discipline flowchart	0 = No clear definitions exist, and procedures to manage problems are not clearly documented 1 = Definitions and procedures exist but are not clear and/or not organized by staff- versus office-managed problems 2 = Definitions and procedures for managing problems are clearly defined, documented, trained, and shared with families

Scoring Criteria: 0=Not implemented; 1=Partially implemented; 2=Fully implemented

Feature	Possible Data Sources	Scoring Criteria
1.6 **Discipline Policies:** School policies and procedures describe and emphasize proactive, instructive, and/or restorative approaches to student behavior that are implemented consistently.	• Discipline policy • Student handbook • Code of conduct • Informal administrator interview	0 = Documents contain only reactive and punitive consequences 1 = Documentation includes and emphasizes proactive approaches 2 = Documentation includes and emphasizes proactive approaches AND administrator reports consistent use
1.7 **Professional Development:** A written process is used for orienting all faculty/staff on 4 core Tier I SWPBIS practices: (a) teaching school-wide expectations, (b) acknowledging appropriate behavior, (c) correcting errors, and (d) requesting assistance.	• Professional development calendar • Staff handbook	0 = No process for teaching staff is in place 1 = Process is informal/unwritten, not part of professional development calendar, and/or does not include all staff or all 4 core Tier I practices 2 = Formal process for teaching all staff all aspects of Tier I system, including all 4 core Tier I practices
1.8 **Classroom Procedures:** Tier I features (school-wide expectations, routines, acknowledgements, in-class continuum of consequences) are implemented within classrooms and consistent with school-wide systems.	• Staff handbook • Informal walkthroughs • Progress monitoring • Individual classroom data	0 = Classrooms are not formally implementing Tier I 1 = Classrooms are informally implementing Tier I but no formal system exists 2 = Classrooms are formally implementing all core Tier I features, consistent with school-wide expectations

Scoring Criteria: 0=Not implemented; 1=Partially implemented; 2=Fully implemented

100

Feature	Possible Data Sources	Scoring Criteria
1.9 **Feedback and Acknowledgement:** A formal system (i.e., written set of procedures for specific behavior feedback that is [a] linked to school-wide expectations and [b] used across settings and within classrooms) is in place and used by at least 90% of a sample of staff and received by at least 50% of a sample of students.	• TFI Walkthrough Tool	0 = No formal system for acknowledging students 1 = Formal system is in place but is used by at least 90% of staff and/or received by at least 50% of students 2 = Formal system for acknowledging student behavior is used by at least 90% of staff AND received by at least 50% of students
1.10 **Faculty Involvement:** Faculty are shown school-wide data regularly and provide input on universal foundations (e.g., expectations, acknowledgements, definitions, consequences) at least every 12 months.	• PBIS Self-Assessment Survey • Informal surveys • Staff meeting minutes • Team meeting minutes	0 = Faculty are not shown data at least yearly and do not provide input 1 = Faculty have been shown data more than yearly OR have provided feedback on Tier I foundations within the past 12 months but not both 2 = Faculty are shown data at least 4 times per year AND have provided feedback on Tier I practices within the past 12 months
1.11 **Student/Family/Community Involvement:** Stakeholders (students, families, and community members) provide input on universal foundations (e.g., expectations, consequences, acknowledgements) at least every 12 months.	• Surveys • Voting results from parent/family meeting • Team meeting minutes	0 = No documentation (or no opportunities) for stakeholder feedback on Tier I foundations 1 = Documentation of input on Tier I foundations, but not within the past 12 months or input but not from all types of stakeholders 2 = Documentation exists that students, families, and community members have provided feedback on Tier I practices within the past 12 months

Scoring Criteria: 0=Not implemented; 1=Partially implemented; 2=Fully implemented

Feature	Possible Data Sources	Scoring Criteria
Subscale: Evaluation		
1.12 **Discipline Data:** Tier I team has instantaneous access to graphed reports summarizing discipline data organized by the frequency of problem behavior events by behavior, location, time of day, and by individual student.	• School policy • Team meeting minutes • Student outcome data	0 = No centralized data system with ongoing decision making exists 1 = Data system exists but does not allow instantaneous access to full set of graphed reports 2 = Discipline data system exists that allows instantaneous access to graphs of frequency of problem behavior events by behavior, location, time of day, and student
1.13 **Data-based Decision Making:** Tier I team reviews and uses discipline data and academic outcome data (e.g., Curriculum-Based Measures, state tests) at least monthly for decision-making.	• Data decision rules • Staff professional development calendar • Staff handbook • Team meeting minutes	0 = No process/protocol exists, or data are reviewed but not used 1 = Data reviewed and used for decision-making, but less than monthly 2 = Team reviews discipline data and uses data for decision-making at least monthly. If data indicate an academic or behavior problem, an action plan is developed to enhance or modify Tier I supports
1.14 **Fidelity Data:** Tier I team reviews and uses SWPBIS fidelity (e.g., SET, BoQ, TIC, SAS, Tiered Fidelity Inventory) data at least annually.	• School policy • Staff handbook • School newsletters • School website	0 = No Tier I SWPBIS fidelity data collected 1 = Tier I fidelity collected informally and/or less often than annually 2 = Tier I fidelity data collected and used for decision making annually

Scoring Criteria: 0=Not implemented; 1=Partially implemented; 2=Fully implemented

Feature	Possible Data Sources	Scoring Criteria
1.15 **Annual Evaluation:** Tier I team documents fidelity and effectiveness (including on academic outcomes) of Tier I practices at least annually (including year-by-year comparisons) that are shared with stakeholders (staff, families, community, district) in a usable format.	• Staff, student, and family surveys • Tier I handbook • Fidelity tools • School policy • Student outcomes • District reports • School newsletters	0 = No evaluation takes place, or evaluation occurs without data 1 = Evaluation conducted, but not annually, or outcomes are not used to shape the Tier I process and/or not shared with stakeholders 2 = Evaluation conducted at least annually, and outcomes (including academics) shared with stakeholders, with clear alterations in process based on evaluation

Scoring Criteria: 0=Not implemented; 1=Partially implemented; 2=Fully implemented

Tier II: Targeted SWPBIS Features

NOTE: This section may be completed individually or with other tiers as part of the full Tiered Fidelity Inventory

Feature	Possible Data Sources	Scoring Criteria
Subscale: Teams		
2.1 **Team Composition:** Tier II (or combined Tier II/III) team includes a Tier II systems coordinator and individuals able to provide (a) applied behavioral expertise, (b) administrative authority, (c) knowledge of students, and (d) knowledge about operation of school across grade levels and programs.	• School organizational chart • Tier II team meeting minutes	0 = Tier II team does not include coordinator or all 4 core areas of Tier II team expertise 1 = Tier II team does not include coordinator and all 4 core areas of Tier II team expertise OR attendance of these members is below 80% 2 = Tier II team is composed of coordinator and individuals with all 4 areas of expertise, AND attendance of these members is at or above 80%
2.2 **Team Operating Procedures:** Tier II team meets at least monthly and has (a) regular meeting format/agenda, (b) minutes, (c) defined meeting roles, and (d) a current action plan.	• Tier II team meeting agendas and minutes • Tier II meeting roles descriptions • Tier II action plan	0 = Tier II team does not use regular meeting format/agenda, minutes, defined roles, or a current action plan 1= Tier II team has at least 2 but not all 4 features 2 = Tier II team meets at least monthly and uses regular meeting format/agenda, minutes, defined roles, AND has a current action plan

Scoring Criteria: 0=Not implemented; 1=Partially implemented; 2=Fully implemented

Feature	Possible Data Sources	Scoring Criteria
2.3 **Screening:** Tier II team uses decision rules and multiple sources of data (e.g., ODRs, academic progress, screening tools, attendance, teacher/ family/student nominations) to identify students who require Tier II supports.	• Multiple data sources used (e.g., ODRs, time out of instruction, attendance, academic performance) • Team decision rubric • Team meeting minutes • School policy	0 = No specific rules for identifying students who qualify for Tier II supports 1 = Data decision rules established but not consistently followed or used with only one data source 2 = Written policy exists that (a) uses multiple data sources for identifying students, and (b) ensures that families are notified promptly when students enter Tier II supports
2.4 **Request for Assistance:** Tier II planning team uses written request for assistance form and process that are timely and available to all staff, families, and students.	• School handbook • Request for assistance form • Family handbook	0 = No formal process 1 = Informal process in place for staff and families to request assistance 2 = Written request for assistance form and process are in place and team responds to request within 3 days
Subscale: Interventions		
2.5 **Options for Tier II Interventions:** Tier II team has multiple ongoing behavior support interventions with documented evidence of effectiveness matched to student need.	• School Tier II handbook • Targeted Interventions Reference Guide	0 = No Tier II interventions with documented evidence of effectiveness are in use 1 = Only 1 Tier II intervention with documented evidence of effectiveness is in use 2 = Multiple Tier II interventions with documented evidence of effectiveness matched to student need

Scoring Criteria: 0=Not implemented; 1=Partially implemented; 2=Fully implemented

Feature	Possible Data Sources	Scoring Criteria
2.6 **Tier II Critical Features:** Tier II behavior support interventions provide (a) additional instruction/time for student skill development, (b) additional structure/predictability, and/or (c) increased opportunity for feedback (e.g., daily progress report).	• Universal lesson plans • Tier II lesson plans • Daily/weekly progress report • School schedule • School Tier II handbook	0 = Tier II interventions do not promote additional instruction/time, improved structure, or increased feedback 1 = All Tier II interventions provide some but not all 3 core Tier II features 2 = All Tier II interventions include all 3 core Tier II features
2.7 **Practices Matched to Student Need:** A formal process is in place to select Tier II interventions that are (a) matched to student need (e.g., behavioral function), and (b) adapted to improve contextual fit (e.g., culture, developmental level).	• Data sources used to identify interventions • School policy • Tier II handbook • Needs assessment • Targeted Interventions Reference Guide	0 = No process in place 1 = Process for selecting Tier II interventions does not include documentation that interventions are matched to student need 2 = Formal process in place to select practices that match student need and have contextual fit (e.g., developmentally and culturally appropriate)
2.8 **Access to Tier I Supports:** Tier II supports are explicitly linked to Tier I supports, and students receiving Tier II supports have access to, and are included in, Tier I supports.	• Universal lesson plans and teaching schedule • Tier II lesson plans • Acknowledgement system • Student of the month documentation • Family communication	0 = No evidence that students receiving Tier II interventions have access to Tier I supports 1 = Tier II supports are not explicitly linked to Tier I supports and/or students receiving Tier II interventions have some, but not full access to Tier I supports 2 = Tier II supports are explicitly linked to Tier I supports, and students receiving Tier II interventions have full access to all Tier I supports

Scoring Criteria: 0=Not implemented; 1=Partially implemented; 2=Fully implemented

Feature	Possible Data Sources	Scoring Criteria
2.9 **Professional Development:** A written process is followed for teaching all relevant staff how to refer students and implement each Tier II intervention that is in place.	• Professional development calendar • Staff handbook • Lesson plans for teacher trainings • School policy	0 = No process for teaching staff in place 1 = Professional development and orientation process is informal 2 = Written process used to teach and coach all relevant staff in all aspects of intervention delivery, including request for assistance process, using progress report as an instructional prompt, delivering feedback, and monitoring student progress
Subscale: Evaluation		
2.10 **Level of Use:** Team follows written process to track proportion of students participating in Tier II supports, and access is proportionate.	• Tier II enrollment data • Tier II team meeting minutes • Progress monitoring tool	0 = Team does not track number of students responding to Tier II interventions 1 = Team defines criteria for responding to each Tier II intervention and tracks students, but fewer than 5% of students are enrolled 2 = Team defines criteria and tracks proportion, with at least 5% of students receiving Tier II supports
2.11 **Student Performance Data:** Tier II team tracks proportion of students experiencing success (% of participating students being successful) and uses Tier II intervention outcomes data and decision rules for progress monitoring and modification.	• Student progress data (e.g., % of students meeting goals) • Intervention Tracking Tool • Daily/Weekly Progress Report sheets • Family communication	0 = Student data not monitored 1 = Student data monitored but no data decision rules established to alter (e.g., intensify or fade) support 2 = Student data (% of students being successful) monitored and used at least monthly, with data decision rules established to alter (e.g., intensify or fade) support, and shared with stakeholders

Scoring Criteria: 0=Not implemented; 1=Partially implemented; 2=Fully implemented

Feature	Possible Data Sources	Scoring Criteria
3.3 **Screening:** Tier III team uses decision rules and data (e.g., ODRs, Tier II performance, academic progress, absences, teacher/family/student nominations) to identify students who require Tier III supports.	• School policy • Team decision rubric • Team meeting minutes	0 = No decision rules for identifying students who should receive Tier III supports 1 = Informal process or one data source for identifying students who qualify for Tier III supports 2 = Written data decision rules used with multiple data sources for identifying students who qualify for Tier III supports, and evidence the policy/rubric includes option for teacher/family/student nominations
3.4 **Student Support Team:** For each individual student support plan, a uniquely constructed team exists (with input/approval from student/family about who is on the team) to design, implement, monitor, and adapt the student-specific support plan.	• Three randomly selected Tier III student behavior support plans created in the last 12 months (see TFI Tier III Support Plan Worksheet)	0 = Individual student support teams do not exist for all students who need them 1 = Individual student support teams exist, but are not uniquely designed with input from student/family and/or team membership has partial connection to strengths and needs 2 = Individual student support teams exist, are uniquely designed with active input/approval from student/family (with a clear link of team membership to student strengths and needs), and meet regularly to review progress data

Scoring Criteria: 0=Not implemented; 1=Partially implemented; 2=Fully implemented

Feature	Possible Data Sources	Scoring Criteria
Subscale: Resources		
3.5 **Staffing:** An administrative plan is used to ensure adequate staff is assigned to facilitate individualized plans for the students enrolled in Tier III supports.	• Administrative plan • Tier III team meeting minutes • FTE (i.e., paid time) allocated to Tier III supports	0 = Personnel are not assigned to facilitate individual student support teams 1 = Personnel are assigned to facilitate some individual support teams, but not at least 1% of enrollment 2 = Personnel are assigned to facilitate individualized plans for all students enrolled in Tier III supports
3.6 **Student/Family/Community Involvement:** Tier III team has district contact person(s) with access to external support agencies and resources for planning and implementing non-school-based interventions (e.g., intensive mental health) as needed.	• Three randomly selected Tier III student behavior support plans created in the last 12 months (see TFI Tier III Support Plan Worksheet)	0 = District contact person not established 1 = District contact person established with external agencies, OR resources are available and documented in support plans 2 = District contact person established with external agencies, AND resources are available and documented in support plans
3.7 **Professional Development:** A written process is followed for teaching all relevant staff about basic behavioral theory, function of behavior, and function-based intervention.	• Professional development calendar • Staff handbook • Lesson plans for teacher trainings • School policy	0 = No process for teaching staff in place 1 = Professional development and orientation process is informal 2 = Written process used to teach and coach all relevant staff in basic behavioral theory, function of behavior, and function-based intervention

Scoring Criteria: 0=Not implemented; 1=Partially implemented; 2=Fully implemented

Feature	Possible Data Sources	Scoring Criteria
Subscale: Support Plans		
3.8 **Quality of Life Indicators:** Assessment includes student strengths and identification of student/family preferences for individualized support options to meet their stated needs across life domains (e.g., academics, health, career, social).	• Three randomly selected Tier III student behavior support plans created in the last 12 months (see TFI Tier III Support Plan Worksheet)	• Three randomly selected Tier III student behavior support plans created in the last 12 months (see TFI Tier III Support Plan Worksheet) 0 = Quality of life needs/goals and strengths not defined, or there are no Tier III support plans 1 = Strengths and larger quality of life needs and related goals defined, but not by student/family or not reflected in the plan 2 = All plans document strengths and quality of life needs and related goals defined by student/family
3.9 **Academic, Social, and Physical Indicators:** Assessment data are available for academic (e.g., reading, math, writing), behavioral (e.g., attendance, functional behavioral assessment, suspension/expulsion), medical, and mental health strengths and needs, across life domains where relevant.	• Three randomly selected Tier III student behavior support plans created in the last 12 months (see TFI Tier III Support Plan Worksheet)	0 = Student assessment is subjective or done without formal data sources, or there are no Tier III support plans 1 = Plans include some but not all relevant life-domain information (e.g., medical, mental health, behavioral, academic) 2 = All plans include medical, mental health information, and complete academic data where appropriate
3.10 **Hypothesis Statement:** Behavior support plans include a hypothesis statement, including (a) operational description of problem behavior, (b) identification of context where problem behavior is most likely, and (c) maintaining reinforcers (e.g., behavioral function) in this context.	• Three randomly selected Tier III student behavior support plans created in the last 12 months (see TFI Tier III Support Plan Worksheet)	0 = No plans include a hypothesis statement with all 3 components, or there are no Tier III support plans 1 = 1 or 2 plans include a hypothesis statement with all 3 components 2 = All plans include a hypothesis statement with all 3 components

Scoring Criteria: 0=Not implemented; 1=Partially implemented; 2=Fully implemented

Feature	Possible Data Sources	Scoring Criteria
3.11 **Comprehensive Support:** Behavior support plans include or consider (a) prevention strategies, (b) teaching strategies, (c) strategies for removing rewards for problem behavior, (d) specific rewards for desired behavior, (e) safety elements where needed, (f) a systematic process for assessing fidelity and impact, and (g) the action plan for putting the support plan in place.	• Three randomly selected Tier III student behavior support plans created in the last 12 months (see TFI Tier III Support Plan Worksheet)	0 = No plans include all 7 core support plan features, or there are no Tier III support plans 1 = 1 or 2 plans include all 7 core support plan features 2 = All plans include all 7 core support plan features
3.12 **Formal and Natural Supports:** Behavior support plan(s) requiring extensive and coordinated support (e.g., person centered planning, wraparound, RENEW) documents quality of life strengths and needs to be completed by formal (e.g., school/district personnel) and natural (e.g., family, friends) supporters.	• At least one Tier III behavior support plan requiring extensive support (see TFI Tier III Support Plan Worksheet)	0 = Plan does not include specific actions, or there are no plans with extensive support 1 = Plan includes specific actions, but they are not related to the quality of life needs and/or do not include natural supports 2 = Plan includes specific actions, linked logically to the quality of life needs, and they include natural supports
3.13 **Access to Tier I and Tier II Supports:** Students receiving Tier III supports have access to, and are included in, available Tier I and Tier II supports.	• Three randomly selected Tier III student behavior support plans created in the last 12 months (see TFI Tier III Support Plan Worksheet)	0 = Individual student support plans do not mention Tier I and/or Tier II supports, or there are no Tier III support plans 1 = Individual supports include some access to Tier I and/or Tier II supports 2 = Tier III supports include full access to any appropriate Tier I and Tier II supports and document how access will occur

Scoring Criteria: 0=Not implemented; 1=Partially implemented; 2=Fully implemented

111

Feature	Possible Data Sources	Scoring Criteria
Subscale: Evaluation		
3.14 **Data System:** Aggregated (i.e., overall school-level) Tier III data are summarized and reported to staff at least monthly on (a) fidelity of support plan implementation, and (b) impact on student outcomes.	• Reports to staff • Staff meeting minutes • Staff report	0 = No quantifiable data 1 = Data are collected on outcomes and/or fidelity but not reported monthly 2 = Data are collected on student outcomes AND fidelity and are reported to staff at least monthly for all plans
3.15 **Data-based Decision Making:** Each student's individual support team meets at least monthly (or more frequently if needed) and uses data to modify the support plan to improve fidelity of plan implementation and impact on quality of life, academic, and behavior outcomes.	• Three randomly selected Tier III student behavior support plans created in the last 12 months (see TFI Tier III Support Plan Worksheet)	0 = Student individual support teams do not review plans or use data 1 = Each student's individual support team reviews plan, but fidelity and outcome data are not both used for decision making or not all teams review plans 2 = Each student's individual support team continuously monitors data and reviews plan at least monthly, using both fidelity and outcomes data for decision making
3.16 **Level of Use:** Team follows written process to track proportion of students participating in Tier III supports, and access is proportionate.	• Student progress data • Tier III team meeting minutes	0 = School does not track proportion or no students have Tier III plans 1 = Fewer than 1% of students have Tier III plans 2 = All students requiring Tier III supports (and at least 1% of students) have plans

Scoring Criteria: 0=Not implemented; 1=Partially implemented; 2=Fully implemented

Feature	Possible Data Sources	Scoring Criteria
3.17 **Annual Evaluation:** At least annually, the Tier III systems team assesses the extent to which Tier III supports are meeting the needs of students, families, and school personnel; and evaluations are used to guide action planning.	• Tier III team meeting minutes • Tier III team action plan • Team member verbal reports	0 = No annual review 1 = Review is conducted but less than annually, or done without impact on action planning 2 = Written documentation of an annual review of Tier III supports, with specific decisions related to action planning

Scoring Criteria: 0=Not implemented; 1=Partially implemented; 2=Fully implemented

Scoring the SWPBIS Tiered Fidelity Inventory

The TFI generates scores reflecting the percentage of implementation for Tier I, Tier II, and Tier III core features. Scores are determined by calculating the percentage of possible points awarded for items in each tier (section). No weighting of items is included in this calculation (see below).

Core Features	Items/ Points	Points Award/ Possible Points	Percentage of SWPBIS Implementation
Tier I	1-15 / 30 points	_____/ 30	
Tier II	1-13 / 26 points	_____/ 26	
Tier III	1-17 / 34 points	_____/ 34	

Across time, a school may monitor progress on implementation of SWPBIS by tier as depicted in the simulated data for a school in the figure below. This sample school used the TFI to assess Tier I at six different points in time, Tier II during the last four points in time, and Tier III during the last three points in time.

Tiered Fidelity Inventory Scores for One School Across Six Administrations of the Survey

Time 1   Time 2   Time 3   Time 4   Time 5   Time 6
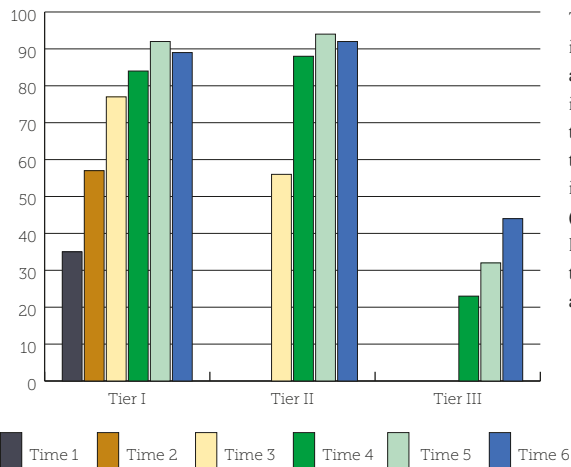
The Inventory also provides a "by Item" report in the PBIS Assessment application, available at www.pbisassessment.org. This Item Report is the basis for Action Planning and is designed to facilitate the decision-making of a team as they identify (a) which items will be the focus of implementation efforts for the coming month, and (b) what the specific action(s) will be, who will lead in completing the action, and a date by which the action is expected to be completed. A sample action planning format is provided below.

Action Planning Form

Item	Current Score	Action	Who	When
Tier I				
1.1 Team Composition				
1.2 Team Operating Procedures				
1.3 Behavioral Expectations				
1.4 Teaching Expectations				
1.5 Problem Behavior Definitions				
1.6 Discipline Policies				
1.7 Professional Development				
1.8 Classroom Procedures				
1.9 Feedback and Acknowledgement				
1.10 Faculty Involvement				
1.11 Student/ Family/ Community/ Involvement				
1.12 Discipline Data				
1.13 Data-Based Decision Making				
1.14 Fidelity Data				
1.15 Annual Evaluation				
Tier II				
2.1 Team Composition				
2.2 Team Operating Procedures				
2.3 Screening				
2.4 Request for Assistance				
2.5 Options for Tier II Interventions				
2.6 Tier II Critical Features				
2.7 Practices Matched to Student Need				

SWPBIS Tiered Fidelity Inventory

25

Item	Current Score	Action	Who	When
2.8 Access to Tier I Supports				
2.9 Professional Development				
2.10 Level of Use				
2.11 Student Performance Data				
2.12 Fidelity Data				
2.13 Annual Evaluation				
Tier III				
3.1 Team Composition				
3.2 Team Operating Procedures				
3.3 Screening				
3.4 Student Support Team				
3.5 Staffing				
3.6 Student/ Family/ Community Involvement				
3.7 Professional Development				
3.8 Quality of Life Indicators				
3.9 Academic, Social, and Physical Indicators				
3.10 Hypothesis Statement				
3.11 Comprehensive Support				
3.12 Formal and Natural Supports				
3.13 Access to Tier I and Tier II Supports				
3.14 Data System				
3.15 Data-Based Decision Making				
3.16 Level of Use				
3.17 Annual Evaluation				

Appendix A: SWPBIS Tiered Fidelity Inventory Walkthrough Tool

Overview

Purpose

This form is used as part of completing the SWPBIS Tiered Fidelity Inventory's Tier I subscale. Use this form to interview a random selection of staff (at least 10% of staff or at least 5 for smaller schools) and students (minimum of 10). This process should take no more than 15 minutes.

Who Should Complete the Tool

It is recommended that this tool is completed by an individual who is external to the school (e.g., external coach, coordinator, evaluator). This use allows for the Tiered Fidelity Inventory to serve as more of an external evaluation than self-assessment. Alternatively, an individual from the school team may complete this tool if the purpose of assessment is for progress monitoring between external evaluations.

Procedure

Randomly select staff and students as you walk through the school. Use this page as a reference for all other interview questions. Use the interview form to record staff and student responses.

Staff Interview Questions

Interview at least 10% of staff or at least 5 for smaller schools

1. What are the _____ (school rules, high 5's, 3 bee's)? (Define what the acronym means)

2. Have you taught the school rules/behavioral expectations this year?

3. Have you given out any _____ since _____?
   (rewards for appropriate behavior)   (2 months ago)

Student interview Questions

Interview a minimum of 10 students

1. What are the _____ (school rules, high 5's, 3 bee's)? (Define what the acronym means)

2. Have you received a _____ since _____?
   (reward for appropriate behavior)   (2 months ago)

SWPBIS Tiered Fidelity Inventory   27

SWPBIS Tiered Fidelity Inventory Walkthrough Tool
Interview and Observation Form

School _____   Date _____

District _____   State _____

Data collector _____

School-wide Expectations: Name of School-wide Expectations:

1. _____   _____

2. _____   Name of Acknowledgment System:

3. _____   _____

4. _____

5. _____

	Staff Questions (Interview 10% or at least 5 staff members)		
	What are the (school rules)? Record the # of rules known.	Have you taught the school rules/ behavior expectations to students this year?	Have you given out any _____ since _____? (2 mos.)
1		Y N	Y N
2		Y N	Y N
3		Y N	Y N
4		Y N	Y N
5		Y N	Y N
6		Y N	Y N
7		Y N	Y N
8		Y N	Y N
9		Y N	Y N
10		Y N	Y N
11		Y N	Y N
12		Y N	Y N
13		Y N	Y N
14		Y N	Y N
15		Y N	Y N
Total			

	Student Questions (at least 10 students)	
	What are the (school rules)? Record the # of rules known	Have you received a _____ since _____?
1		Y N
2		Y N
3		Y N
4		Y N
5		Y N
6		Y N
7		Y N
8		Y N
9		Y N
10		Y N
11		Y N
12		Y N
13		Y N
14		Y N
15		Y N
Total		

Appendix B: Targeted Interventions Reference Guide

A Reference Guide for Function-Based Support Options (Horner & Todd, 2002)

Purpose of Reference Guide

This Reference Guide is designed to be used as a map when discussing function based support needs for students. Use this reference guide when trying to determine intervention options for individual students.

Targeted Interventions Defined

Components of a targeted intervention include (a) increased structure & prompts, (b) instruction on skills, (c) increased regular feedback, and (d) the intervention is available to anyone at anytime.

Instructions

List the targeted interventions that are available in your school. Identify the possible functions that the intervention is designed to deliver by putting an X in the cell of the matrix.

Examples

- **Check In-Check Out** may offer predictable adult attention, organizational structure, and an option for accessing choices through the day.

- **Social Skills Club** participation may offer opportunities for instruction and practice on skills, choice, peer and adult attention and individualized support.

- **Reading Buddies** may offer access to peer attention, choice, option to avoid aversive situation, and individualized support.

Targeted Intervention	Check in, Check out	Social Skills Club	Reading Buddies	Homework Club	Lunch Buddies
Access to Adult Attention	yes	yes	yes	yes	yes
Access to Peer Attention	yes	yes	yes		yes
Access to Choice of Alternatives/Activities	yes	yes	yes	yes	yes
Option for Avoiding Aversive Activities	yes	yes	yes		yes
Option for Avoiding Aversive Social Peer/ Adult Attention	yes				yes
Structural Prompts for 'What To Do' Throughout the Day	yes	yes			
At Least 5 Times During the Day When Positive Feedback is Set Up	yes				
A School-Home Communication System	yes			yes	
Opportunity for Adaptation into a Self-Management System	yes	yes	yes	yes	yes

SWPBIS Tiered Fidelity Inventory   29

119

Targeted Interventions Reference Guide Map

This Reference Guide is designed to be used as a map when discussing function based support needs for students. Use this Reference Guide when trying to determine intervention options for individual students.

School: _____ Date: _____

Targeted Intervention					
Access to Adult Attention					
Access to Peer Attention					
Access to Choice of Alternatives/Activities					
Option for Avoiding Aversive Activities					
Option for Avoiding Aversive Social Peer/ Adult Attention					
Structural Prompts for 'What To Do' Throughout the Day					
At Least 5 Times During the Day When Positive Feedback is Set Up					
A School-Home Communication System					
Opportunity for Adaptation into a Self-Management System					

Appendix C: TFI Tier III Support Plan Worksheet

(used for scoring features 3.4, 3.6, 3.8-3.13, and 3.15)

Directions: Select 3 current Tier III plans created in the last 12 months for students needing behavior support. If there are more than 3 plans available, randomly select 3. If there are no plans available, score a 0 for all TFI feature scores. If there are only 1 or 2 plans available, score a TFI feature as 2 only if all plans are scored as 2.

TFI Feature	Scoring Criteria	Plan #1	Plan #2	Plan #3	Sum of Points	TFI Score
3.4 Plans include uniquely constructed team (with input/approval from student/ family about who is on the team).	0 = Plan does not identify the individual student's team 1 = Plan identifies team, but no evidence it was designed with input from student/family or connected to strengths/needs 2 = Plan identifies team designed with input from student/family, connected to strengths/needs, and meets regularly	0 1 2	0 1 2	0 1 2		0 = 0 1-5 = 1 6 = 2
3.6 Plans document (a) district contact person for external agency support and (b) external resources available.	0 = No contact person or resources documented 1 = Contact person OR resources documented 2 = Contact person AND resources documented	0 1 2	0 1 2	0 1 2		0 = 0 1-5 = 1 6 = 2
3.8 Plans include quality of life (QOL) needs/goals and strengths.	0 = No QOL needs/goals or strengths defined 1 = QOL needs/goals or strengths defined, but not by student/family or not reflected in plan 2 = QOL needs/goals or strengths defined by student/family AND reflected in plan	0 1 2	0 1 2	0 1 2		0 = 0 1-5 = 1 6 = 2
3.9 Assessment data are available for academic, behavioral, medical, and mental health strengths and needs, where relevant.	0 = No formal data sources for student assessment 1 = Includes some but not all relevant life-domain information 2 = Includes medical, mental health information, and complete academic data where appropriate	0 1 2	0 1 2	0 1 2		0 = 0 1-5 = 1 6 = 2
3.10 Plans include a hypothesis statement, including (a) operational description, (b) identification of antecedents, and (c) behavioral function.	0 = Hypothesis statement does not include all 3 parts (or is missing) 2 = Hypothesis statement includes all 3 parts	0 2	0 2	0 2		0 = 0 2-4 = 1 6 = 2
3.11 Plans include or consider (a) prevention, (b) teaching, (c) removing rewards for problem behavior, (d) rewards for desired behavior, (e) safety, (f) process for assessing fidelity and impact, and (g) action plan.	0 = Plan does not include all 7 parts 2 = Plan includes all 7 parts	0 2	0 2	0 2		0 = 0 2-4 = 1 6 = 2
3.12 Plans requiring extensive support include specific actions linked to quality of life (QOL) for formal supporters (e.g., school/district personnel) and natural supporters (e.g., family, friends).	0 = Plan does not include specific actions, or there are no plans with extensive support 1 = Plan includes specific actions, but unrelated to QOL needs and/or do not include natural supports 2 = Plan includes specific actions related to QOL needs and include natural supports	0 1 2	Only one plan needed.			0 = 0 1 = 1 2 = 2
3.13 Plans include access to Tier I/II supports.	0 = Plan does not mention Tier I/II supports 1 = Plan notes access to Tier I/II supports 2 = Plan documents how access to Tier I/II supports occurs	0 1 2	0 1 2	0 1 2		0 = 0 1-5 = 1 6 = 2
3.15 Each student's individual team meets at least monthly and uses data to modify plan to improve fidelity or outcomes.	0 = No evidence of meetings, plan review, or use of data 1 = Evidence of review, but no use of both fidelity and outcomes data 2 = Evidence of at least monthly review, with use of both fidelity and outcomes data	0 1 2	0 1 2	0 1 2		0 = 0 1-5 = 1 6 = 2

121

REFERENCES CITED

Anderson, C. M., & Borgmeier, C. (2010). Tier II interventions within the framework of school-wide positive behavior support: Essential features for design, implementation, and maintenance. *Behavior analysis in practice*, *3*(1), 33-45.

Anderson, C., Childs, K., Kincaid, D., Horner, R. H., George, H. P., Todd, A. W., Sampson, N. K., & Spaulding, S. A. (2009). *Benchmarks for advanced tiers*. Eugene, OR: Educational and Community Supports, University of Oregon.

Algozzine, R. F., Barrett, S., Eber, L., George, H., Horner, R. H., Lewis, T. J., . . . Sugai, G. (2014). *PBIS Tiered Fidelity Inventory*. Eugene, OR: OSEP Technical Assistance Center on Positive Behavioral Interventions and Supports. Available at http://www.pbis.org.

Baker, S., Gersten, R., Dimino, J. A., & Griffiths, R. (2004). The sustained use of research-based instructional practice: A case study of peer-assisted learning strategies in mathematics. *Remedial and Special Education, 25*, 5-24.

Bardach, E. (1977). *The implementation game: What happens after a bill becomes a law*. Press Cambridge, MA.

Barrett, S. B., Bradshaw, C., & Lewis-Palmer, T. L. (2008). Maryland statewide Positive Behavior Interventions and Supports Initiative: Systems, evaluation, and next steps. *Journal of Positive Behavior Interventions, 10*, 105-114.

Bradshaw, C. P., Waasdorp, T. E., & Leaf, P. J. (2012). Effects of School-wide Positive Behavioral Interventions and Supports on child behavior problems and adjustment. *Pediatrics*, e1136-e1145. doi:10.1542/peds.2012-0243

Berman, P., & McLaughlin, M. W. (1977). Federal programs supporting educational change: Vol. 7. *Factors affecting implementation and continuation.* Santa Monica, CA: The Rand Corporation.

Blase, K., Kizer, L., & Van Dyke, M. (2009). *The Hexagon Tool: Exploring context*. Chapel Hill, NC: National Implementation Research Network, FPG Child Development Institute, University of North Carolina at Chapel Hill.

Borgmeier, C., Loman, S. L., Hara, M., & Rodriguez, B. J. (2015). Training school personnel to identify interventions based on functional behavioral assessment. *Journal of Emotional and Behavioral Disorders*, *23*(2), 78-89.

Carnine, D. (1997). Bridging the research-to-practice gap. *Exceptional Children*, *63*(4), 513-521.

Chamberlain, P., Brown, C. H., & Saldana, L. (2011). Observational measure of implementation progress in community based settings: the stages of implementation completion (SIC). *Implementation Science*, *6*(1), 1.

Chen, K., Cheng, Y., Berkout, O., & Lindhiem, O. (2017). Analyzing Proportion Scores as Outcomes for Prevention Trials: a Statistical Primer. *Prevention Science, 18*(3), 312-321. doi:10.1007/s11121-016-0643-6

Chingos, M. M., Whitehurst, G. J., & Gallaher, M. R. (2015). School districts and student achievement. *Education Finance and Policy*.

Childs, K. E., Kincaid, D., & George, H. P. (2010). A model for statewide evaluation of a universal positive behavior support initiative. *Journal of Positive Behavior Interventions*, *12*(4), 198-210.

Clayton, J. K., & Johnson, B. (2011). If it ain't broke, don't fix it: A new principal is in town. J*ournal of Educational Leadership, 14*, 22-30.

Coburn, C. E. (2003). Rethinking scale: Moving beyond numbers to deep and lasting change. *Educational Researcher, 32*(6), 3-12.

Cressey, J., Whitcomb, S., McGilvray-Rivet, S., Morrison, R., & Shander-Reynolds, K. (2014). Handling PBIS with care: Scaling up to school-wide implementation. *Professional School Counseling*, *18*(1), 90-99.

Crone, D. A., Hawken, L. S., & Horner, R. H. (2010). *Responding to problem behavior in schools: The Behavior Education Program* (2nd ed.). New York: Guilford.

Coffey, J., & Horner, R. H. (2012). The sustainability of school-wide positive behavioral interventions and supports. Exceptional Children, 78, 407-422.

Darling-Hammond, L., Bae, S., Cook-Harvey, C. M., Lam, L., Mercer, C., Podolsky, A., & Stosich, E. L. (2016). Pathways to New Accountability Through the Every Student Succeeds Act.

Embry, D. D., & Biglan, A. (2008). Evidence-based kernels: Fundamental units of behavioral influence. *Clinical Child and Family Psychology Review, 11*, 75-113.

Engine. [Def. 2b]. (n.d.). In *Merriam-Webster Online*. Retrieved June 7, 2016 from http://www.merriam-webster.com/dictionary/engine

Fixsen, D. L., & Blase, K. A. (2009). Implementation: The missing link between research and practice. *NIRN implementation brief, 1*.

Fixsen, D. L., Blase, K. A., Timbers, G. D., & Wolf, M. M. (2001). In search of program implementation: 792 replications of the Teaching-Family Model. *Offender*

rehabilitation in practice: Implementing and evaluating effective programs, 149-166.

Fixsen, D. L., Naoom, S. F., Blase, K. A., Friedman, R. M. & Wallace, F. (2005). *Implementation Research: A Synthesis of the Literature.* Tampa, FL: University of South Florida, Louis de la Parte Florida Mental Health Institute, e National Implementation Research Network (FMHI Publication #231).

Flannery, K. B., Fenning, P., Kato, M. M., & McIntosh, K. (2014). Effects of School-wide Positive Behavioral Interventions and Supports and fidelity of implementation on problem behavior in high schools. *School Psychology Quarterly, 29*, 111-124. doi:10.1037/spq0000039

Flaspohler, P., Duffy, J., Wandersman, A., Stillman, L., & Maras, M. A. (2008). Unpacking Prevention Capacity: An Intersection of Research-to-practice Models and Community-centered Models. *American journal of community psychology*, *41*(3-4), 182-196.

Flay, B. R., Biglan, A., Boruch, R. F., Castro, F. G., Gottfredson, D., Kellam, S., ... & Ji, P. (2005). Standards of evidence: Criteria for efficacy, effectiveness and dissemination. *Prevention science*, *6*(3), 151-175.

George, H. P., & Kincaid, D. K. (2008). Building district-level capacity for positive behavior support. *Journal of Positive Behavior Interventions, 10*, 20-32.

Gersten, R., Chard, D. J., & Baker, S. (2000). Factors enhancing sustained use of research-based instructional practices. *Journal of Learning Disabilities, 33*, 445-457.

Grol, R., & Grimshaw, J. (2003). From best evidence to best practice: effective implementation of change in patients' care. *The lancet*, *362*(9391), 1225-1230.

Horner, R. H., Kincaid, D., Sugai, G., Lewis, T., Eber, L., Barrett, S., ... & Algozzine, B. (2014). Scaling up school-wide positive behavioral interventions and supports: Experiences of seven states with documented success. *Journal of Positive Behavior Interventions*, *16*(4), 197-208.

Han, S. S., & Weiss, B. (2005). Sustainability of teacher implementation of school-based mental health programs. *Journal of Abnormal Child Psychology, 33*, 665-679.

Hawken, L. S. (2006). School psychologists as leaders in the implementation of a targeted intervention: The Behavior Education Program. *School Psychology Quarterly, 21*, 91-111.

Horner, R. H., & Sugai, G. (2015). School-wide PBIS: an example of applied behavior analysis implemented at a scale of social importance. *Behavior Analysis in Practice*, *8*(1), 80-85.

Horner, R. H., Sugai, G., & Anderson, C. M. (2010). Examining the evidence base for school-wide positive behavior support. *Focus on Exceptional Children*,*42*(8), 1-14.

Horner, R. H., Sugai, G., Smolkowski, K., Eber, L., Nakasato, J., Todd, A. W., & Esparanza, J. (2009). A randomized, wait-list controlled effectiveness trial assessing school-wide positive behavior support in elementary schools. *Journal of Positive Behavior Interventions, 11*, 133-144.

Howell, D. C. (2007). *Statistical methods for psychology* (6th ed.). Belmont, CA: Thomson Wadsworth.

Individuals With Disabilities Education Act, 20 U.S.C. §§ 1400-1482 (2004).

Newton, J. S., Horner, R. H., Algozzine, B., Todd, A. W., & Algozzine, K. (2012). A randomized wait-list controlled analysis of the implementation integrity of team-initiated problem solving processes. *Journal of School Psychology, 50*, 421-441.

Jilcott, S., Ammerman, A., Sommers, J., & Glasgow, R. E. (2007). Applying the RE-AIM framework to assess the public health impact of policy change. *Annals of Behavioral Medicine*, *34*(2), 105-114.

Jernegan, M. W. (1918). Compulsory education in the American colonies: I. New England. *The School Review*, *26*(10), 731-749.

Joyce, B. R., & Showers, B. (2002). *Student achievement through staff development*. Alexandria, VA: ASCD.

Kaestle, C. F., & Vinovskis, M. A. (1978). From apron strings to ABCs: Parents, children, and schooling in nineteenth-century Massachusetts. *American Journal of Sociology*, *84*, S39-S80.

Kincaid, D., Childs, K., Blase, K. A., & Wallace, F. (2007). Identifying barriers and facilitators in implementing schoolwide positive behavior support. *Journal of Positive Behavior Interventions*, *9*(3), 174-184.

Kitson, A., Harvey, G., & McCormack, B. (1998). Enabling the implementation of evidence based practice: a conceptual framework. *Quality in Health care*,*7*(3), 149-158.

Klein, A. "ESEA reauthorization: The Every Student Succeeds Act explained." *Education Week* (2015).

Lee, V. (2000). Using hierarchical linear modeling to study social contexts: The case of school effects. *Educational Psychologist, 35*(2), 125-141.

Lee, M., Seashore Louis, K., & Anderson, S. (2012). Local education authorities and student learning: The effects of policies and practices. *School Effectiveness and School Improvement*, *23*(2), 133-158.

Lieberman, D. A. (2000). *Learning: Behavior and cognition* . Wadsworth/Thomson Learning.

Leithwood, K., & Azah, V. N. (2016). Characteristics of High-Performing School Districts. *Leadership and Policy in Schools*, 1-27.

Leithwood, K. (2010). Characteristics of school districts that are exceptionally effective in closing the achievement gap. *Leadership and Policy in Schools*, *9*(3), 245-291.

Lewis, T. J., & Sugai, G. (1999). Effective behavior support: A systems approach to proactive schoolwide management. *Focus on Exceptional Children, 31*, 1-24.

Louis, K. S. (1989). The role of the school district in school improvement. *Educational policy for effective schools*, 145-167.

Massar, M. M. (2017). *Effects of Coach-delivered Prompting and Performance Feedback on Teacher Use of Evidence-based Classroom Management Practices and Student Behavior Outcomes.* Unpublished doctoral dissertation, University of Oregon.

McIntosh, K., Horner, R. H., & Sugai, G. (2009). Sustainability of systems-level evidence-based practices in schools: Current knowledge and future directions. In *Handbook of positive behavior support* (pp. 327-352). Springer US.

McIntosh, K., Filter, K. J., Bennett, J. L., Ryan, C., & Sugai, G. (2010). Principles of sustainable prevention: Designing scale-up of school-wide positive behavior support to promote durable systems. *Psychology in the Schools, 47*, 5-21. doi:10.1002/pits.20448

McIntosh, K., Kim, J., Mercer, S. H., Strickland-Cohen, M. K., & Horner, R. H. (2014). Variables associated with enhanced sustainability of school-wide positive behavioral interventions and supports. *Assessment for Effective Intervention*, 1534508414556503.

McIntosh, K., Massar, M. M., Algozzine, R. F., George, H. P., Horner, R. H., Lewis, T. J., & Swain-Bradway, J. (2016). Technical Adequacy of the SWPBIS Tiered Fidelity Inventory. *Journal of Positive Behavior Interventions*, 1098300716637193.

McIntosh, K., Massar, M. M., Algozzine, R. F., George, H. P., Horner, R. H., Lewis, T. J., & Swain-Bradway, J. (2016). Technical Adequacy of the SWPBIS Tiered Fidelity Inventory. *Journal of Positive Behavior Interventions*, 1098300716637193.

McIntosh, K., Mercer, S. H., Hume, A. E., Frank, J. L., Turri, M. G., & Mathews, S. (2013). Factors related to sustained implementation of schoolwide positive behavior support. *Exceptional children, 79*, 293-311.

McIntosh, K., & Turri, M. G. (2014). Positive behavior support: Sustainability and continuous regeneration. In C. R. Reynolds, K. J. Vannest, & E. Fletcher-Janzen (Eds.), *Encyclopedia of special education: A reference for the education of children, adolescents, and adults with disabilities and other exceptional individuals* (4th ed., pp. 2061-2064). Hoboken, NJ: Wiley.

McLaughlin, M. W., & Mitra, D. (2001). Theory-based change and change-based theory: Going deeper, going broader. *Journal of Educational Change, 2*, 301-323.

Metz, A., & Bartley, L. (2012). Active implementation frameworks for program success. How to use implementation science to improve outcomes for children. *Zero to Three, 32*(4), 11- 18.

Meyer, J., Scott, W. R., & Strang, D. (1987). Centralization, fragmentation, and school district complexity. *Administrative Science Quarterly*, 186-201.

Nilsson, L., Johnson, M. D., & Gustafsson, A. (2001). The impact of quality practices on customer satisfaction and business results: product versus service organizations. *Journal of Quality Management*, 6(1), 5-27.

Odom, S. L. (2009). The tie that binds evidence-based practice, implementation science, and outcomes for children. *Topics in Early Childhood Special Education*, 29(1), 53-61.

Pinkelman, S. (2014). Effects of Self-delivered Performance Feedback and Impact Assessment via the Individual Student Information System (ISIS-SWIS) on Behavior Support Plan Treatment Fidelity and Student Outcomes.

Peugh, J. L. (2010). A practical guide to multilevel modeling. *Journal of school psychology*, 48(1), 85-112.

Putnam, R. F., Handler, M. W., Ramirez-Platt, C. M., & Luiselli, J. K. (2003). Improving student bus-riding behavior through a whole-school intervention. *Journal of Applied Behavior Analysis, 36*, 583–590.

Prahalad, C. K., & Hammond, A. (2002). Serving the world's poor, profitably.*Harvard business review*, *80*(9), 48-59.

Pressman J. L., & Wildavsky, A. (1973). Implementation. Berkeley: University of California Press.

Russell, C., Ward, C., Harms, A., St. Martin, K., Cusumano, D., Fixsen, D. & Levy, R. (2016). District Capacity Assessment Technical Manual. National Implementation Research Network, University of North Carolina at Chapel Hill

Robinson, V., Hohepa, M., & Lloyd, C. (2009). School leadership and student outcomes: Identifying what works and why. Auckland, NZ: University of Auckland and the New Zealand Ministry of Education.

Rorrer, A. K., Skrla, L., & Scheurich, J. J. (2008). Districts as institutional actors in educational reform. *Educational Administration Quarterly*, *44*(3), 307-357.

Sanders, M. G. (2008). Using Diverse Data to Develop and Sustain School, Family and Community Partnerships A District Case Study. *Educational Management Administration & Leadership*, *36*(4), 530-545.

Sanders, M. (2009). Collaborating for Change: How an Urban School District and a Community-Based Organization Support and Sustain School, Family, and Community Partnerships. *Teachers College Record*, *111*(7), 1693-1712.

Santangelo, T. (2009). Collaborative problem solving effectively implemented, but not sustained: A case for aligning the sun, the moon, and the stars. *Exceptional Children*, *75*(2), 185-209.

Schulte, A. C., Easton, J. E., & Parker, J. (2009). Advances in treatment integrity research: Multidisciplinary perspectives on the conceptualization, measurement, and enhancement of treatment integrity. *School Psychology Review*, *38*(4), 460.

Sparks, G. M. (1988). Teachers' attitudes toward change and subsequent improvements in classroom teaching. *Journal of Educational Psychology*, *80*(1), 111.

Spybrook, Bloom, Congdon, Hill, Martinez, Raudenbush (2011). Optimal Design Software 3.0.

Strickland-Cohen, M. K., & Horner, R. H. (2015). Typical school personnel developing and implementing basic behavior support plans. *Journal of Positive Behavior Interventions*, *17*(2), 83-94.

Strickland-Cohen, M. K., McIntosh, K., & Horner, R. H. (2014). Sustaining effective practices in the face of principal turnover. Teaching Exceptional Children, 46(3), 18- 24.

Sugai, G., Simonsen, B., Bradshaw, C., Horner, R., & Lewis, T. (2014). Delivering high quality school wide positive behavior support in inclusive schools. In J. McLeskey, N. L. Waldron, F. Spooner, & B. Algozzine (Eds.), *Handbook of research and practice for inclusive schools* (pp. 306–321). New York, NY: Routledge.

Sugai, G., & Horner, R. H. (2006). A promising approach for expanding and sustaining the implementation of school-wide positive behavior support. *School Psychology Review*,*35*, 245–259

Supovitz, J. A. (2006). *The Case for District-Based Reform: Leading, Building, and Sustaining School Improvement*. Harvard Education Press. 8 Story Street First Floor, Cambridge, MA 02138.

Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics* (5th ed.). Boston: Allyn and Bacon.

Taylor, M. J., McNicholas, C., Nicolay, C., Darzi, A., Bell, D., & Reed, J. E. (2013). Systematic review of the application of the plan–do–study–act method to improve quality in healthcare. *BMJ quality & safety*, bmjqs-2013-001862.

The White House, Office of the Press Secretary. (2015). Remarks by the President at Every Student Succeeds Act Signing Ceremony [press release]. Retrieved from: https://www.whitehouse.gov/the-press-office/2015/12/10/remarks-president-eve

Tobin, T., Vincent, C., Horner, R., Dickey, C. R., & May, S. (2012). Fidelity measures to improve implementation of positive behavioural support. *International Journal of Positive Behavioural Support*, *2*(2), 12-19.

Turri, M. G., Mercer, S. H., McIntosh, K., Nese, R. N., Strickland-Cohen, M. K., & Hoselton, R. (2016). Examining Barriers to Sustained Implementation of School-Wide Prevention Practices. *Assessment for Effective Intervention*, 1534508416634624.

U.S. Department of Education, National Center for Education Statistics. (2016). *Digest of Education Statistics, 2014* (NCES 2016-006). http://nces.ed.gov/programs/digest/d14/ch_2.asp

Vinciullo, F. M., & Bradley, B. J. (2009). A correlational study of the relationship between a coordinated school health program and school achievement: a case for school health. *The Journal of School Nursing*, *25*(6), 453-465.

Walker, H. M., Horner, R. H., Sugai, G., Bullis, M., Sprague, J. R., Bricker, D., & Kaufman, M. J. (1996). Integrated approaches to preventing antisocial behavior patterns among school-age children and youth. *Journal of emotional and behavioral disorders*, *4*(4), 194-209.

Walker, H. M., Seeley, J. R., Small, J., Severson, H. H., Graham, B. A., Feil, E. G., ... & Forness, S. R. (2009). A randomized controlled trial of the First Step to Success early intervention: Demonstration of program efficacy outcomes within a diverse, urban school district. *Journal of Emotional and Behavioral Disorders*.

Waters, T., Marzano, R. J., & McNulty, B. (2003). Balanced leadership: What 30 years of research tells us about the effect of leadership on pupil achievement. A working paper. Aurora, CO: Mid-continent Research for Education and Learning.

Yell, M. L., Shriner, J. G., & Katsiyannis, A. (2006). Individuals with disabilities education improvement act of 2004 and IDEA regulations of 2006: Implications for educators, administrators, and teacher trainers. *Focus on exceptional children*, *39*(1), 1-24.