

Implementation and Sustainability of Early Childhood Positive

Behavior Support in Kansas: A Statewide Survey

by

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Abstract

The purpose of this study is to evaluate the current status of implementation and sustainability of positive behavior support (PBS) practices within community child care and Head Start/Early Head Start programs in the state of Kansas. A survey study was conducted and collected data from 103 participating programs. The results suggest that PBS professional development (PD) and current PBS application both have not achieved scale-up. Two assessment tools are embedded in the survey. Stages of Implementation Analysis - Early Childhood Positive Behavior Support (SIA-ECPBS; 16 items, $\alpha = .920$) is developed using an implementation science framework and aims to evaluate the level of PBS implementation. The mean of SIA-ECPBS scores of 30 responding programs ($M = 15.43$, $SD = 8.29$, $Median = 15.5$) indicates a low level of PBS implementation. Early Childhood Universal Behavior Sustainability Index (ECUBS; 30 items, $\alpha = .940$) is developed to evaluate level of PBS sustainability. The mean of ECUBS scores of 17 responding programs ($M = 44.46$, $SD = 12.23$, $Median = 31$) indicates a high level of sustainability. One-way ANOVA was used to examine the associations between program variables and level of PBS implementation and sustainability. The results indicate that whether programs have received training on all PBS components, or some PBS components significantly impacts the level of PBS implementation.

This survey study is the first attempt to investigate PBS implementation and sustainability via the lens of implementation science at the state level for Kansas child care and Head Start/Early Head Start programs. Implications for practitioners, policy makers, and researchers are discussed.

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Chapter 1: Background and Statement of the Problem

The goal of this study is to understand the use of positive behavior support (PBS) practices, as well as factors that are associated with sustainable implementation of PBS practices in early care and education (ECE) programs in the state of Kansas. PBS practices can promote social emotional competence and reduce challenging behaviors in young children (Lucyshyn, Dunlap, & Freeman, 2015). As a result, national professional organizations (e.g., Division for Early Childhood, 2014) and federal and state regulatory agencies (e.g., U.S. Department of Health and Human Services & U.S. Department of Education, 2016) have promoted the implementation of PBS practices by the ECE workforce. However, there is a lack of knowledge on PBS professional development (PD) and implementation status at the program and state level. In addition, the field has limited understanding of real-world factors leading to PBS practice implementation and sustainability. Developing a deeper understanding of the factors that support implementation and sustainability as well as those that impede implementation and/or sustainability is crucial for ensuring that investments in professional development result in meaningful and sustained positive outcomes for young children and their families.

Thus, the overarching goal of this dissertation is to expand the field's knowledge of implementation of PBS practices at authentic ECE settings. The dissertation is grounded in an implementation science framework. A survey study was conducted to understand the current status of PBS PD and the level of implementation and sustainability of PBS practices in child care and Head Start programs in the state of Kansas. Policy and practice implications for supporting a sustainable professional development system to promote durable PBS implementation are addressed.

In this chapter, the researcher first introduces the significance of social emotional learning (SEL) in early years, followed by a discussion of the social, emotional, and behavioral difficulties faced by many young children today. The researcher then describes the promise that the use of positive behavior support practices holds for addressing early social, emotional, and behavioral difficulties as supported by research and professional literature. The problem to be addressed in this dissertation is then described as research gaps that are based upon our knowledge from a national perspective as well as more narrowly within the state of Kansas. A description of the theoretic and conceptual framework guiding the study design follows. Last, the research questions are presented.

Significance of the Early Years for Social Emotional Competence

The importance of the early years in the development of social emotional competence in young children and its later impact on their school success and wellbeing across the life span is a shared understanding for policy makers and early care and education (ECE) professionals. Key professional organizations have called for an increased focus on ensuring that all young children are provided with the needed supports to develop strong social and emotional skills in addition to fostering academic school success (e.g., AAP Council on Early Childhood, APP Committee on Psychosocial Aspects of Child and Family Health, APP Section on Developmental and Behavioral Pediatrics, 2016; Division for Early Childhood, National Association for the Education of Young Children, & National Head Start Association, 2014). Social emotional competence has been described as a multidimensional construct that includes self-awareness, self-management, social awareness, relationship skills, and responsible decision-making [Collaborative for Academic, Social, and Emotional Learning (CASEL), 2012]. A significant body of literature supports the link between social emotional competence to overall positive

child outcomes in areas including communication, cognition, physical health, mental health, academic performance, and long-term wellbeing (e.g., O’Conner, De Feyter, Carr, Luo, & Romm, 2017; Rock & Crow, 2017). The importance of social emotional competence during the early childhood years is also emphasized in federal- and state-level ECE policies (e.g., Head Start, the Individuals with Disabilities Education Act Part C & Part B Section 619; U.S. Department of Health & Human Services, Administration for Children and Families). Furthermore, all 56 States and Territories have developed Early Learning Guidelines (ELG), and 100% of those ELGs included social emotional guidelines for infants, toddlers, and preschoolers (National Center on Early Childhood Quality Assurance, 2016).

Social Emotional and Behavioral Difficulties in Young Children

Although the significance of early year social emotional competence is a shared understanding across caregivers, professionals, and researchers, young children are still facing challenges in their social emotional learning. Several national reports note that young children still lack access to high quality social emotional care and education and thus are struggling socially, emotionally, and behaviorally across home, school, and communities (e.g., Division for Early Childhood of the Council for Exceptional Children, 2017; U.S. Department of Education Office for Civil Rights Data, 2014; U.S. Department of Health and Human Services & U.S. Department of Education, 2016). The detrimental effects of social emotional difficulties have been addressed in a number of studies by researchers from different disciplines. For example, in a recent policy statement the American Association of Pediatrics (AAP Council on Early Childhood, APP Committee on Psychosocial Aspects of Child and Family Health, APP Section on Developmental and Behavioral Pediatrics, 2016) noted that social emotional difficulties can lead to a wide range of disadvantageous social, behavioral, academic, and health outcomes,

including lack of school engagement, low academic performance, stressful interpersonal relationship, internalizing or externalizing behaviors, health issues such as obesity, as well as mental health issues such as anxiety and depression. In particular, social, emotional, and behavioral difficulties is more prevalent and the consequences tend to be more severe for children from low-income homes as they are more likely to be exposed to adversity and receiving care and education from programs that are often poorly resourced (Costello, Gordon, & Adrian, 2001).

Challenging behaviors, defined as "any repeated pattern of behavior or perception of behavior that interferes with or is at risk of interfering with optimal learning or engagement in prosocial interactions with peers and adults" (Smith & Fox, 2003, p5), can be one of the most harmful of the consequences of difficulties with social emotional competence. That is, challenging behaviors can lead to immediate harm (e.g., injury to self and others, property destruction) and severe consequences (e.g., suspension and expulsion) for young children within ECE settings (Hemmeter, Fox, & Hardy, 2016). Researchers have estimated that the prevalence of challenging behavior among children from two to five years old rate ranges from 10% to 20% (Lavigne, LeBailly, Hopkins, Gouze, & Binns, 2009). When examining the prevalence for young children from low-income families, these rates are increased by two to three times. For example, in studies that included children enrolled in Head Start programs, the estimates ranged from 23 % to 33 % (Gross, Sambrook, & Fogg, 1999; Qi & Kaiser, 2003).

Using Positive Behavior Support to Address Social Emotional and Behavioral Difficulties

Given the prevalence, severity, and long-term detriments of challenging behavior and social emotional difficulties in young children, growing national concern exists about making high quality social emotional learning programs accessible to all children, especially for those

from low-income households (Dougherty et al., 2015; National Research Council and Institute of Medicine, 2009). For nearly thirty years, positive behavior support (PBS) has been proven efficient and is well recognized as an evidence-based approach to reducing challenging behaviors and fostering individual's quality of life (Lucyshyn, et al., 2015). The application of PBS has been expanded across a wide range of populations and multiple levels of implementation. The definition of PBS has been evolving across time and varies across the literature depending on population focus and overall scope of implementation. This study uses the following definition of PBS that Kincaid and his colleagues (2016) proposed as a broad guiding definition of PBS:

PBS is an approach to behavior support that includes an ongoing process of research-based assessment, intervention, and data-based decision making focused on building social and other functional competencies, creating supportive contexts, and preventing the occurrence of problem behaviors. PBS relies on strategies that are respectful of a person's dignity and overall well-being and that are drawn primarily from behavioral, educational, and social sciences, although other evidence-based procedures may be incorporated. PBS may be applied within a multi-tiered framework at the level of the individual and at the level of larger systems (e.g., families, classrooms, schools, social service programs, and facilities). (p.71)

Furthermore, the researcher specifies and provides examples to define early childhood PBS drawing from the work in program-wide PBS (PWPBS) for ECE programs. Particularly, the well-developed and widely implemented PWPBS work known as the *Pyramid Model for Promoting Young Children's Social Emotional Competence* (Fox, Dunlap, Hemmeter, Joseph, & Strain, 2003) is used to operationalize the definitions of early childhood PBS practices for this study.

Pyramid Model as a Demonstration of Early Childhood PBS

In what follows, the researcher introduces the Pyramid Model as a demonstration of PBS in ECE. An overview of characteristics and research base of the Pyramid Model is provided. The Pyramid Model is a PWPBS framework for organizing research-based practices to use in early

childhood settings and defines 3 levels, referred to as tiers, of support. The first tier involves universal practices to promote responsive caregiving relationships and high-quality supportive environments for all children (Fox, Hemmeter, & Snyder, 2014). The second tier refers to targeted supports for children who require more systematic and focused social emotional instruction. The third tier includes practices to provide individualized positive behavior support (IPBS) for children with persistent challenging behaviors that are not responsive to interventions at other tiers. At this tier, educators develop, implement, and evaluate children's IPBS plans through collaborative teaming, functional assessment, and data-based decision making (Dunlap, Wilson, Strain, & Lee, 2013).

Substantial empirical research supports the effectiveness of practices at each tier of the Pyramid Model (e.g., Conroy, Sutherland, Vo, Carr, & Ogston, 2014) and provides descriptions on teachers' use of the model within ECE programs (e.g., Branson, & Demchak, 2011). Recently, an empirical study using a cluster-randomized controlled trial design examined the effects of classroom-wide implementation of the Pyramid Model and reported positive results on both teacher implementation and child outcomes (Hemmeter, Snyder, Fox, & Algina, 2016).

Across these empirical examinations of effects of the Pyramid Model practices on improving children's social emotional competence and addressing challenging behaviors, professional development (PD) has been identified as a key component to support sustained implementation fidelity (Hemmeter et al., 2016a). Several features of promising PD approaches have been suggested in the literature, including (1) courses, workshops, or online modules and materials that provide content knowledge and multiple exemplars of practices, (2) sustained support related to implementing practices (i.e., coaching), (3) feedback about real world

implementation, and (4) data system connecting practice improvements to child outcomes (Kretlow & Bartholomew, 2010; Snyder, Hemmeter, & Fox, 2015).

With a growing body of evidence of effectiveness and efficacy of the Pyramid Model in promoting social emotional competence and addressing challenging behaviors in young children, the field has increasing interests in replicating and scaling up the Pyramid Model. A recent policy statement offers guidance on promoting the use of preventive practices to reduce suspension and expulsion in ECE settings and foster social emotional competence in young children (U.S. DHHS & U.S. DE, 2016). The statement encourages programs to implement PBS practices and lists the Pyramid Model as a reliable resource for ECE programs and practitioners. Furthermore, two federally funded resource centers (i.e., The Center on the Social and Emotional Foundations for Early Learning - CSEFEL, <http://csefel.vanderbilt.edu>, and the Technical Assistance Center on Social Emotional Intervention for Young Children - TACSEI, <http://challengingbehavior.fmhi.usf.edu>), and a newly funded center (National Center for Pyramid Model Innovations – NCPMI) focusing on promoting the social emotional development and school readiness of young children birth to age five provide and continue to develop substantial resources to support the replication and scale-up efforts of the Pyramid Model.

The Problem

Gaps in Early Childhood PBS Implementation at Authentic Settings

Even with this effort and investment, widespread and sustained implementation of early childhood PBS practices continues as a challenge (Vinh, Strain, Davidon, & Smith, 2016). More research is needed to understand the current status of the use of PBS practices at ECE programs and the challenges that programs face in implementation and maintain of the PBS practices. According to an Institute of Education Sciences (IES) funded literature review on social

emotional learning strategies for young children (O' Conner et al., 2017), the field lacks the information on real world PBS implementation. Specifically, four gaps have been identified in the current literature regarding the implementation and sustainability of PBS practices within authentic ECE programs.

Gap one. The teachers who participated in the effectiveness and efficacy studies (e.g., Hemmeter, et al., 2016b) were usually highly qualified, certified teachers and thus only represent one small segment of the ECE workforce. In addition, the professional development strategies that used in those studies do not represent the professional development support teachers are receiving in the real world. The field has limited understanding on what are the existing professional development strategies and how do those strategies work with the larger ECE workforce (Hemmeter, et al., 2016b), especially community child care and Head Start/Early Head Start (HS/EHS) program teachers who are more likely to serve children with higher social, emotional and behavioral needs (Qi & Kaiser, 2003).

Gap two. The current literature usually captures a short period of time (i.e., weeks to months) of PBS implementation either during the initial PD or shortly after PD. To date, no studies have specifically reported on a more in-depth picture of how ECE programs and providers adopt, adapt, implement, and sustain PBS practices after they have received PD for years.

Gap three. The field lacks the information as to what extent the characteristics at the program level could affect the implementation outcomes of specific PBS practices (Cook & Odom, 2013). The measures currently reported may not be sensitive enough to assess subtle changes in targeted outcomes and the contextual factors that may impact outcomes across environments (Knoster, 2018).

Gap four. Last but not least, current literature has not provided robust linkages between the current efforts of equipping the ECE workforce to implement PBS practices and distal child outcomes in social emotional competence and challenging behaviors (O' Conner et al., 2017).

Gaps in Early Childhood PBS Implementation in the State of Kansas

The state of Kansas appears to have a relatively long history of adopting PBS practices into their ECE settings and is nationally recognized for having state level initiatives in place to promote early childhood PBS implementation and scaling-up. The Pyramid Model Consortium (PMC, <http://www.pyramidmodel.org>, 2016) reported that 29 states in the U.S. operating state level initiatives that provide professional training to ECE personnel on PBS model. Specifically, PMC identified four states as CSEFEL State, four states as TACSEI State, 12 states as Pyramid Model Partners, and seven states as Pyramid Model State. The State of Kansas is recognized as one the Pyramid Model States.

Since 2001, numerous professional organizations and PD agencies in the state of Kansas have been involved in providing PD opportunities to ECE professionals to promote the use of PBS to support social emotional learning and addressing challenging behaviors in young children. For example, the Southeast Kansas Community Action Program (SEK-CAP) is one of the earliest regional agencies in the State of Kansas that introduced Pyramid Model to local child care and Head Start Programs. Up to date, SEK-CAP still includes Pyramid Model as one of their main ECE approaches. NCPMI recognizes Head Start programs operated by SEK-CAP as one of their four Pyramid Model demonstration sites across the nation. Other exemplar professional organizations and agencies include: Kansas Inservice Training System (KITS, <http://kskits.org/>), Life Span Institute at Parsons, University of Kansas (KU); Kansas Child Care Training Opportunities (KCCTO, <https://kccto.org/>); Kansas Technical Assistant System

Network (TASN); Kansas Head Start Association (KHSA); Kansas Institute for Positive Behavior Support (KIPBS); Juniper Gardens Children's Project, KU; and National Training Institute on Effective Practice: Addressing Challenging Behavior (<http://nti.cbcs.usf.edu/>).

The state of Kansas and its ECE professionals have been exposed to PBS for almost two decades. Yet, no empirical research report exists to capture an accurate picture of implementation and sustainability of PBS at authentic ECE settings at the state level. The gaps of PBS implementation in ECE settings in the State of Kansas are consistent with those identified earlier at a national level.

Summary of the Problem. The current study focuses on contributing to our understanding of PBS implementation while attending to the first three gaps in PBS implementation (i.e., status of PBS PD for child care and HS/EHS programs, post PD evaluation, program factors impacting sustainable implementation) at ECE settings in the state of Kansas. The last gap regarding linking professional development and implementation to distal child outcomes is beyond the scope of the current study. These gaps in real world PBS implementation reflect the translational disconnection between research and practice within ECE (Buysse & Wesley, 2006). Particularly, with an increasing interests and investments in installing, implementing and scaling-up PBS in child care and HS/EHS programs, it is imperative to conduct research to document and examine PBS implementation and sustainability at those settings. An application of implementation science concepts and principles provides a useful guide for the current study.

Theoretical and Conceptual Framework for the Study

Implementation Science

Implementation Science serves as the foundation for understanding the gaps between what we know from research about effectiveness and efficacy of the PBS model and the implementation and sustainability in the real world of practice. The definition of implementation science can be traced to the inaugural issue of *Implementation Science*, in which Eccles and Mittman (2006) defined implementation science as “the scientific study of methods to promote the systematic uptake of research findings and other evidence-based practices into routine practice” (p. 1). According to Kelly and Perkins (2012), the science of implementation focuses on understanding the processes, procedures, and conditions that promote or impede the transfer, adoption, and use of evidence-based practices in the context of everyday settings. The science of implementation has recently gained attention in the fields of ECE as a growing body of research and reports have examined the processes and core components of implementing evidence-based practices from the research to the field of practice (Durlak & DuPre, 2008; Fixsen & Blase, 2008; Halle, Metz, & Martinez-Beck, 2013). As Odom commented in a volume (Halle, et al., 2013) funded by Office of Planning, Research, & Evaluation (OPRE) of the Administration for Children & Families, "The ECE field is striving to fulfill the lofty mission of moving the most effective practices into common use in ECE programs. To support this mission, the emerging field of implementation science, with all its promise, is coming to the rescue" (pxii).

PBS Implementation via the Lens of Implementation Science

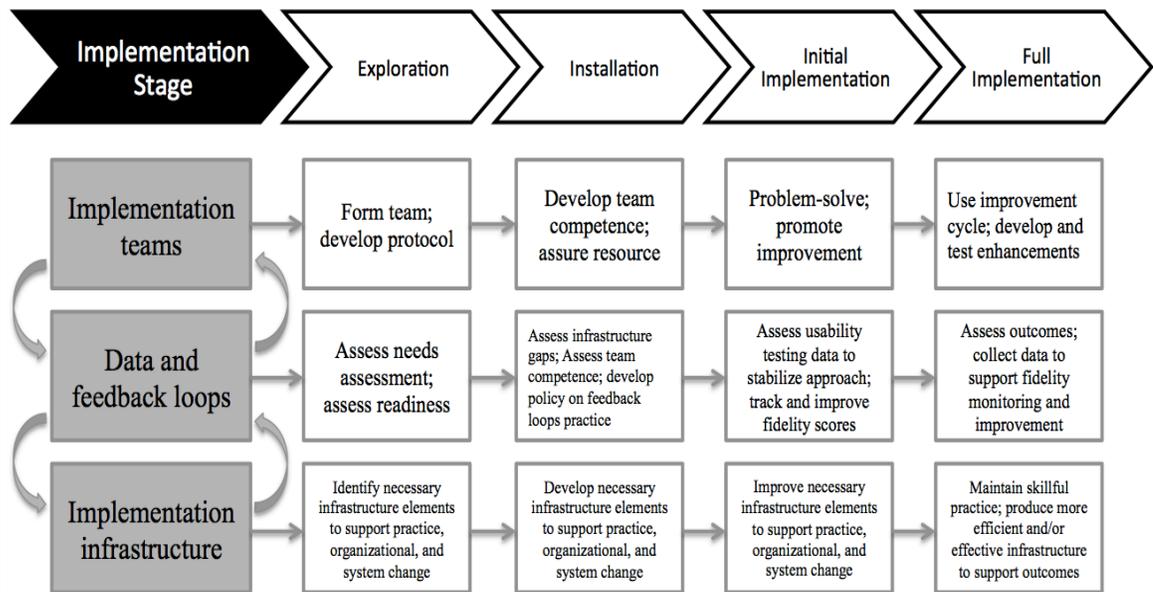
Research focusing on issues in PBS implementation in authentic settings, through an implementation science lens, has addressed a number of important concerns including: state funding decisions on scaling up school-wide PBS (SWPBS; Gage et al., 2014), factors impacting

sustainable implementation of SWPBS (McIntosh et al., 2011; McIntosh et al., 2013; McIntosh et al., 2014; McIntosh et al., 2018; McIntosh, Filter, Bennett, Ryan, & Sugai, 2010; McIntosh, Horner, & Sugai, 2009; McIntosh, Kim, Mercer, Strickland-Cohen, & Horner, 2015; Mercer, McIntosh, Strickland-Cohen, & Horner, 2014), leadership capacity (Lowery, 2015), theoretical model of decision-making to scale Pyramid Model (Johnson, 2017), and teacher well-being and PBS implementation (Ross, Romer, & Horner, 2012).

However, much of this research has focused on school wide PBS practices and targeted on older children. While limited effort is in place to assess many of these same issues for early childhood PBS, more work is needed to fully understand how the school-age literature does or does not provide guidance for the implementation and sustainability of PBS practices for ECE programs.

Figure 1 illustrates an integrated stage-based active implementation framework (ISAIF), which guides this study to examine the current level of PBS implementation in community center-based child care and HS/EHS programs in the state of Kansas. In an OPRE research brief, Metz, Naoom, Halle, and Bartley (2015) suggest using the ISAIF to study implementation of innovations for early childhood programs and systems. Metz and colleagues (2005) refined the existing implementation frameworks (Fixsen, Naoom, Blase, Friedman, & Wallace, 2005) by identifying common features that need to be attended to at each stage of implementation in an effort to support early care and education policymakers', researchers', and practitioners' understanding and use of effective implementation practices at each stage of implementation. The ISAIF identifies four distinct stages within the implementation process including exploration, installation, initial implementation, and full implementation. These four stages are not absolute categories, yet iterative and nonlinear (Frank & Schroeder, 2013). Across these four

common stages of implementation, the following three shared components are identified (1) implementation teams, (2) data and feedback loops, and (3) implementation infrastructure. These three components or categories of activities are crucial across the four stages to achieve sustainable implementation (Metz, et al., 2015).



Adapted from OPRE Research Brief #2015-48 (Metz, et al., 2015)

Figure 1. An integrated stage-based active implementation framework (ISAIF).

The conceptual framework depicted in Figure 2 guides the examination of the level of sustainability of PBS as well as factors associated with sustainability in community center-based child care and Head Start programs in the state of Kansas. This conceptual framework combines the theories of implementation science and theories for sustainable implementation of PBS. As described above, three key components or categories of activities must be in place in order to ensure sustainable implementation of PBS after a program has received training(s) across critical aspects of PBS. First, activities around "implementation teams" include effective teaming practices to provide supporting systems for sustainable implementation. Second, activities

around "data system and feedback loops" involve establishing data system to monitor implementation and establishing procedures to use data and feedback to improve implementation. Third, "implementation infrastructure" describes how does the program respond to needs for changes, modification, and/or retraining based on data monitoring (Metz et al., 2015). These three components are aligned with the factors related to sustained implementation of SWPBS that were identified by McIntosh and his colleagues (McIntosh, et al., 2009; McIntosh, et al., 2013). McIntosh and his colleagues proposed a sustainability framework for SWPBS based on literature and feedback from SWPBS experts (McIntosh, et al., 2009). They then developed a survey (i.e., School-Wide Universal Behavior Sustainability Index-School Teams, SUBSIST) based on the SWPBS sustainability framework (McIntosh et al., 2011) and eventually confirmed that three factors (i.e., priority, team use of data, capacity building) were associated with sustained SWPBS implementation (McIntosh et al., 2013). With substantial validity and reliability, SUBSIST is selected to be one of the foundational measures that this study adapts and applies to explore whether those K12 sustainability factors also apply to PBS sustainability in ECE settings.

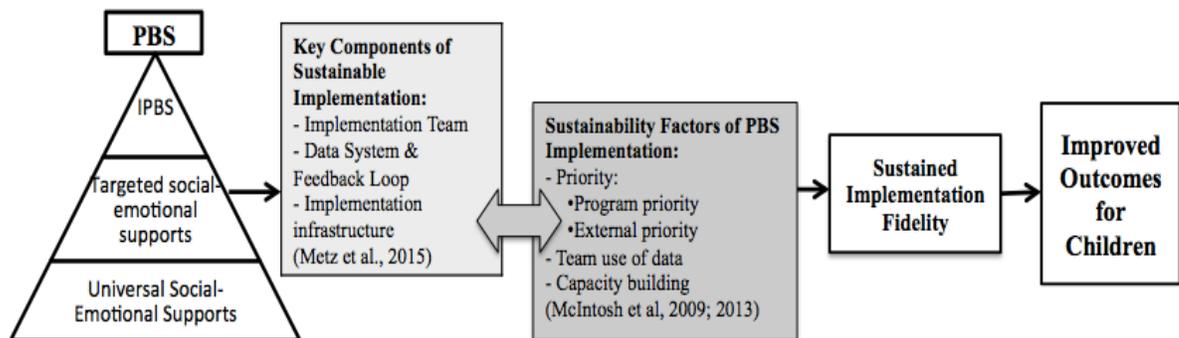


Figure 2. Factors Associated with Implementation and Sustainability of PBS in EC Programs.

Research Objectives

As noted in an implementation science framework, gathering information that allows us to clearly describe the process of achieving implementation and sustainability in authentic settings is crucial to bridge the research-to-practice gap and to reap the benefits of investments in early childhood initiatives (Fixsen, et al., 2005). Within the scope of this study, **implementation** is defined as a process of bringing an established model from research to practice (Franks & Schroeder, 2013). There are four functional stages of implementation including exploration, installation, initial implementation, and full implementation. **Sustainability** is defined as a practice's potential for durable implementation with high fidelity (McIntosh, et al., 2009). Sustainability is embedded within each of the four stages rather than considered a discrete, final stage. To sustain an initiative, both financial and programmatic sustainability are required as an active component from the initial stages of implementation (Halle et al., 2013). The overarching goal of the current study is to bridge the literature gaps by examining the current status of implementation and sustainability of PBS practices within authentic ECE programs.

The following two objectives guide the study.

Objective 1. Examine the status of implementation and sustainability of PBS in Kansas child care and Head Start/Early Head Start (HS/EHS) programs. Information on current implementation and sustainability status is crucial in providing guidance to policymakers, programs administrators, and practitioners to improve current practice (Fixsen et al., 2005). However, few measurement tools are available to support collection of this information that would allow for a complete understanding of the current level of implementation of PBS within ECE programs. The National Implementation Research Network (Blase, Van Dyke & Fixsen, 2013) and OPRE of ACF (Metz et al., 2015) have both proposed a planning tool based on the

ISAIF to guide the programs through each stage of implementation and evaluate the ongoing status of innovation application at the program level. This planning tool, however, has not been tested by programs and researchers nor specifically used to assess the level of implementation via the lens of implementation stages. This study adapted this planning tool to investigate the current level of implementation of PBS in ECE settings.

Objective 2. Identify factors that are associated with sustainable implementation of PBS in Kansas child care and Head Start/Early Head Start (HS/EHS) programs. Quality implementation and sustainability means that the program has established an effective mechanism by which practitioners, young children and their families actually benefit from the practices (Halle et al., 2013). Objective 2 aims to identify factors that are associated with sustainable implementation of PBS at early care and education (ECE) settings. The ISAIF (Metz, et al., 2013) and a K-12 sustainability framework (McIntosh et al., 2009) both include a range of factors that might facilitate or inhibit sustainable implementation. This study adapted SUBSIT (McIntosh et al., 2013) items to investigate sustainability factors of PBS implementation in early childhood settings.

Research Questions

Specifically, the following four research questions guided the study.

RQ1. What is the current status of PBS related professional development for child care and Head Start/Early Head Start (HS/EHS) programs in the state of Kansas?

RQ2. What is the current level of implementation of PBS in child care and HS/EHS programs that have received PBS related professional development?

RQ3. What are the associations between the current level of implementation of PBS and program variables?

RQ4. To what extent do K12 PBS sustainability factors apply to early childhood PBS implementation?

Chapter 2: Literature Review

The purpose of this literature review is to highlight the work that has been done in terms of positive behavior support (PBS) practices in early childhood and to identify gaps in need of further investigation. To achieve this purpose, PBS as an evidence-based approach in educational systems is presented. Subsequently, a more detailed description of the literature base on the use of PBS in early childhood settings is provided. As a part of discussing the use of PBS in early childhood settings, the important issue of implementation and sustainability challenges in authentic early childhood settings is addressed.

To facilitate a comprehensive look at the available literature, a targeted search for articles and other primary source materials addressing topics of PBS implementation and sustainability was conducted using ERIC, PsycINFO, EBSCOhost Electronic Journals Service, Teacher Reference Center, Psychology and Behavioral Sciences Collection, and SAGE Premier Journals. The author used the following key words to search the online database for relevant articles: PBS, Positive behavior intervention and support (PBIS), PBS implementation, PBIS implementation, PBS sustainability, PBIS sustainability, PBS scale up, PBIS scale up, PBS/PBIS state-wide implementation, scaling-up PBS/PBIS, Pyramid Model, early childhood PBS/PBIS, early childhood multi-tiered support system (MTSS), program-wide positive behavior support (PWPBS), and school-wide positive behavior support (SWPBS). This is not an exhaustive list of key terms used to conduct the searches; however, the above list represents the scope of the subject matter searched. No time limit was set during database searches. After completing the database searches, the author also used snowballing search technique (Lecy & Beatty, 2012) to identify relevant articles.

PBS as an Evidence-based Approach

PBS as an evidence-based approach in educational systems is addressed in the following sections by describing the: (1) definition and defining features of PBS; (2) evolution and origin of PBS; (3) nation-wide recognition of PBS as well as scale-up efforts of PBS in the United States; and (4) research evidence supporting the effectiveness and efficiency of PBS in addressing challenging behaviors.

Defining PBS

Positive behavior support (PBS) is a broad and systematic approach for addressing problem behavior and improving quality of life (Carr et al., 1999; Koegel, Koegel, & Dunlap, 1996). The focus is on expanding the learner's positive behavioral skills repertoire (i.e., expanding the learning of functional/adaptive, academic, and social skills) and redesigning environments to be more supportive to eliciting desired behavioral results from the learner. For nearly thirty years, PBS has been proven effective and efficient and is well recognized as an evidence-based approach to reducing challenging behaviors and fostering improvements in individual's quality of life (Lucyshyn, et al., 2015). The application of PBS has been expanded across a wide range of populations and settings. The definition of PBS continues to evolve and varies depending on population focus and overall scope of implementation. In an attempt to provide for the field an update and refinement of the definition of PBS, Kincaid and other leading PBS scholars (2016) proposed the following definition:

PBS is an approach to behavior support that includes an ongoing process of research-based assessment, intervention, and data-based decision making focused on building social and other functional competencies, creating supportive contexts, and preventing the occurrence of problem behaviors. PBS relies on strategies that are respectful of a person's dignity and overall well-being and that are drawn primarily from behavioral, educational, and social sciences, although other evidence-based procedures may be incorporated. PBS may be applied within a multi-tiered framework at the level of the individual and at the level of larger systems (e.g., families, classrooms, schools, social service programs, and facilities). (p.71)

Dunlap, Sailor, Horner, and Sugai (2009) have proposed that four core features distinguish PBS from other behavioral intervention practices. Those four defining features of PBS are (a) utilizing research-validated behavioral intervention techniques that originated from applied behavioral science; (b) integrating multiple intervention components to provide practical, durable, and ecologically valid support; (c) commitment to long term improvements of an individual's quality of life; and (d) emphasizing the need for a contextual fit of PBS service within the broad cultural and organizational systems that facilitate sustained effects.

Use of applied behavior analysis techniques. The central feature of PBS is its commitment to theories and methods applied behavior analysis (ABA) (Baer, Wolf, & Risley, 1968). ABA is grounded in the assumption that human behavior can change and provides a precise conceptual model and research validated technologies to promote desired behaviors and minimize problem behaviors of individuals. Within the theoretical foundations of ABA, PBS focuses on utilizing four main behavioral techniques (Dunlap & Fox, 2011), including:

1. Use of functional behavioral analysis (FBA) to determine the needs that link to the individual's problem behaviors (Dunlap, Kern-Dunlap, Clarke, & Robbins, 1991; Iwata, Dorsey, Slifer, Bauman, & Richmand, 1982/1994).
2. Reorganizing and redesigning the environment to prevent the occurrence of problem behaviors (Kern, Choutka, & Sokol, 2002).
3. Teaching replacement behaviors – especially those with similar functions as the problem behaviors – that make problem behaviors less efficient (Carr, 1997).
4. Manipulating consequences to ensure desired behaviors are rewarded (Horner, Carr, Strain, Todd, & Reed, 2002).

Integrating multiple intervention components. This second key feature of PBS involves providing practical and multicomponent interventions to promote behavior change across the full spectrum of individuals' daily life experience. The emphasis is on providing practical interventions that incorporate a variety of supporting elements to ensure that a range of caregivers (e.g., educators, family members, other service providers) can deliver PBS support across individuals' natural living ecology (Gaylord-Ross, Weeks, & Lipner, 1980; Greenwood, Carta, Arreaga-Mayer, & Rager, 1991). That is PBS intervention is emphasized on a broad scale and goes beyond the immediate environment to the address all of the significant daily settings in which the individual engages (e.g., classroom, school, home, and community) (Lucyshyn, Dunlap, & Albin, 2002).

Improvements in quality of life. The focuses on providing practical and multicomponent interventions to promote behavior change across the full spectrum of individuals' daily life experience supports this third attribute – a commitment to improve the individual's quality of life. Specifically, a foundational aspect of implementing PBS is pursuing lifestyle change guided by the values of the individual and their advocates (Carr et al., 2002). This means the design of PBS support does not only focus on reducing problem behaviors. Instead, behavior support prioritizes the formation of durable positive behaviors that can lead to long term changes in the individual's lifestyle (Dunlap et al., 2009).

Promoting system change. Last but certainly not the least, PBS developers and advocates emphasize its promise to promote system change by directly addressing the organizational and cultural contexts in which PBS is delivered (Dunlap et al., 2009). For example, the design of PBS services considers a broad range of factors within the system where the individual lives (e.g., the cultural expectations, organizational policy, varying schedules of

service providers). The decision-making process of designing the PBS service delivery approach in a given context must be team based in order to produce sustainable outcomes. Such comprehensive consideration of both the individual's immediate environment and extended social systems allows PBS interventions to expand to larger social structures (e.g., families, communities, schools, organizations) (Horner, Sugai, Todd, & Lewis-Palmer, 2015).

Origin and Evolvement of PBS

The origin of PBS can be traced back to the early 1980's. Within the waves of civil right movement and the progression of deinstitutionalization, significant advancement was achieved in conceptualizing how behavioral services should be organized and provided in a more ethical way to person with significant behavioral challenges (Carr et al., 1999). In response to minimizing the use of punishers (e.g., electric shock) to treat severe problem behaviors in individual with developmental disabilities, the technology of PBS emerged as a means to emancipate individuals by helping them develop proactive and socially desirable behaviors through the application of nonaversive behavioral intervention to minimize the occurrence of problem behaviors. During this period, pioneering behavioral psychologists (e.g., Dunlap et al., 1991; Iwata et al., 1982) published research and conceptual perspectives that focus on understanding the needs (i.e., function) behind an individual's problem behaviors and thus design function-match behavioral interventions. This early contribution led directly to the establishment of the strategy of functional behavioral analysis - one of the foundational features of PBS (Carr et al., 1999).

In the early 1990's, it became clearer that applications of PBS were able to be extended to broader populations (e.g., young children, people with less serious problem behaviors at community settings), especially students with emotional and behavioral disorders (EBDs) in schools (Harlacher & Rodriguez, 2017; Sugai & Horner, 2006). PBS has evolved into a

distinctive and broad approach that is not only associated with “severely disabled” person but is for all people, with or without disabilities (Sugai & Horner, 2002). School-wide PBS or school-wide PBIS (SWPBIS) became a conceptually and empirically strong process for supporting the achievement of socially and educationally important outcomes for all students at K12 environments, expanding across schools, classrooms, homes, and communities (Harlacher & Rodriguez, 2017). Along this progression, it is increasingly visible that PBS practices became well organized into different levels – or tiers -within schools or any large organizational environments in which the services were delivered.

It was evident that the success of PBS efforts was dependent on the context in which the support plans were implemented (Carr et al., 2002). A need clearly existed for a multitiered strategy that articulated a continuum of procedures at both the individual level and at the level of larger systems (e.g., families, classrooms, schools, social service programs, and facilities). Specifically, PBS was organized into a three-tiered model. The first tier involves universal practices to promote responsive caregiving relationships and high-quality supportive environments for each and every learner (Fox, Hemmeter, & Snyder, 2014). The second tier refers to targeted supports for children and youth who require more systematic and focused behavioral instruction. The third tier includes practices to provide individualized positive behavior support for children and youth with persistent challenging behaviors that are not responsive to interventions at other tiers (Horner, Sugai, Todd, & Lewis-Palmer, 2005; Dunlap, Wilson, Strain, & Lee, 2013).

Nation-wide Recognition of PBS

Since its beginnings in the 1980s, PBS has been increasingly established as a popular and empirically grounded technology. The general approach, including functional assessment and

positive interventions, has been endorsed in federal (e.g., the Individuals with Disabilities Education Act; IDEA) and state statutes. Congress first identified Positive Behavioral Interventions and Supports (PBIS) – an interchangeable term to PBS - within IDEA 1997 as the favored preventive and intervention strategy for addressing student behaviors that impede learning.

In 1987, the U.S. Department of Education, Office of Special Education Programs (OSEP) provided funding for a national research and training center on the topic of nonaversive behavior management. Starting in 1998, OSEP and the Office of Elementary and Secondary Education (OESE) provided continuous funding to develop the national technical assistance center on PBIS (www.pbis.org) to “support schools, districts and states to build systems capacity for implementing a multi-tiered approach to social, emotional, and behavior support (OESE Technical Assistance Center on PBIS, 2017).” By now, PBIS OSEP Technical Assistance Center have partnered with all 50 states in the United States as well as Washington, D.C. and Guam. To date, 25911 schools joined the PBIS campaign (OESE Technical Assistance Center on PBIS, 2017).

An emphasis on the use of PBIS was reiterated with Congress’ reauthorization of IDEA in 2004. Specifically stated within the findings section, Congress noted that 30 years of scientific research led to the decision that PBIS was an effective, evidence based, preferred strategy for improving the learning outcomes for children with behavior challenges, thus offering a more inclusive environment for all students (IDEA, 20U.S.C. § 1400 (c)(5)(F), 2004). PBIS is mentioned within IDEA several times (e.g., 20 U.S.C. § 1400 (c)(5)(F), § 1414(d)(3)(B)(i), §1415(k)(1)(F)(i), § 1415(k)(1)(D), § 1454(a)(3)(B)(iii)(l), § 1464(a)(6)(D) & (f)(2)(A)(iv)(l), §

1464(b)(2)(H), and § 1483(1)(C & D) (2004). IDEA suggests that PBIS should be considered whenever students' behavior impedes learning (20 U.S.C. § 1414 (d)(3)(B)(i), 2004).

Effectiveness and Efficiency of PBS

The rapidly growing applications of PBS lead to an outpouring of applied research that started to form the empirical base of PBS. The *Journal of Positive Behavior Interventions* began to operate in 1999. In addition, numerous textbooks and practitioner manuals are now available (e.g., Baker & Ryan, 2014; Sailor, Dunlap, Sugai, & Honer, 2009; Simonsen, & Myers, 2015). Meta analyses and research syntheses of PBS studies have been published to summarize the effectiveness and efficiency of using PBS to benefit a wide range of populations with different support needs. For example, as a response to the request from the US Department of Education's Office of Special Education Programs (OSEP), Carr and his associates (1999) reviewed and synthesized 109 research articles published between 1985 and 1996 and examined data of 230 participants with developmental disabilities. The results indicated that PBS was widely applicable to individuals with serious problem behaviors across the entire age range (with the least attention given to preschool age children), the entire range of developmental and intellectual disability (i.e., mild moderate, significant), and across multiple types of problem behaviors (e.g., aggression, self-injurious behavior, property destruction, tantrums, and combinations). In the summaries of the success rate of using PBS to reduce problem behavior, Carr and colleagues noted that across studies success was reported between 50% to 67.7% of cases. Their review also revealed that the use of functional behavioral assessment and the focus on "correcting environmental deficiencies" was increasing rapidly in the field.

Later research syntheses and meta-analyses continued to expand the evidence base of the effectiveness of using PBS across populations and service delivery settings. For example,

Machalicek, O'Reilly, Beretvas, Sigafoos, & Lancioni (2007) evaluated 26 studies, between 1995 and 2005, in which specific PBS techniques (i.e., antecedent manipulations, redesign instructional contexts, differential reinforcement) were implemented with students with autism spectrum disorders (ASD) in school settings. Their analysis of the studies led the authors to report that 84.62% of the studies (n = 22) produced positive outcomes in reducing challenging behaviors. Brosnan and Healy (2011) pinpointed empirical studies published between 1980 and 2009 that used a PBS based approach (i.e., antecedent alterations, reinforcement-based strategies and consequence manipulations) to treat aggression in individuals (3 to 18 years of age) with a variety of developmental disabilities and levels of severity. Their analysis also suggested major positive outcomes across the studies that were included in their review. Two meta-analyses using effect size as an indicator of the effectiveness of PBS approach in promoting proactive behaviors and reducing problem behaviors in students diagnosed with emotional and/or behavioral disorders attending school settings have been conducted (i.e., Gage, Lewis, & Stichter, 2012; Goh & Bambara, 2012). Overall, FBA-based PBS interventions were found to be equally effective across diverse student populations and educational settings (e.g., self-contained classrooms, inclusive classrooms) (Gage et al., 2012; Goh & Bambara, 2012).

Conroy, Dunlap, Clarke, and Alter (2005) conducted the first critical review and synthesis of the PBS literature (i.e., 73 articles between 1984 and 2003) for young children (birth to six years old) with problem behaviors. The results suggested an increasing trend of research using PBS with young children – primarily including children with disabilities between three and six years of age. This review found two primary settings in which PBS interventions were being implemented with young children – (1) PBS interventions implemented by teachers in either community-based or school-based early childhood special education classes and (2) PBS

interventions implemented by family members at home and community settings in which the child and family participated. The majority of PBS interventions reported in the 73 articles focused on providing an instructional intervention (66%) or a multicomponent intervention (45%) (Conroy, et al., 2005).

PBS in Early Care the Education Setting

In early childhood education, as is the case with other age levels, PBS implementation has moved to using a multi-tiered program-wide PBS (PWPBS) model with young children attending early care and education (ECE) settings. A well-established and widely implemented PWPBS model used in the early childhood education field (birth to 8 years of age) is the *Pyramid Model for Promoting Young Children's Social-Emotional Competence* which is frequently shorten to “The Pyramid Model” (Fox, et al, 2003).

The Pyramid Model. The Pyramid Model is a PWPBS framework for organizing research-based practices to use in early childhood settings. It defines 3 levels, referred to as tiers, of support. Substantial empirical research supports the effectiveness of practices at each tier of the Pyramid Model (e.g., Conroy, Sutherland, Vo, Carr, & Ogston, 2014) and provides descriptions on the implementation of the model within ECE programs (e.g., Branson, & Demchak, 2011).

Tier 1 PBS practices. The first tier of “The Pyramid Model” involves utilizing universal practices to promote responsive caregiving relationships and high-quality supportive environments for all children (Fox, et al., 2014). This is based on the understanding that children are less likely to engage in problem behavior when they know what to do, how to do it, and what is expected. The universal behavior support, thus at tier 1 focuses on teaching children about routines, giving clear directions, and arranging the environment to support engagement and

appropriate behavior (Strain & Hemmeter, 1999). Environments that are engaging, predictable, and characterized by ongoing positive adult-child interactions are necessary for promoting children's social and emotional development and preventing challenging behavior. Research shows that early childhood settings rated as high on the quality of the social and physical environments were associated with more positive social outcomes and a reduction in problem behavior for young children (Burchinal, Peisner-Feinberg, Pianta, & Howes, 2002). Promotion and prevention practices, discussed in detail in a number of publications, relate to the following environmental characteristics: physical setting, schedules, routines, transitions, activity type and size, adaptations and modifications, behavioral expectations, and teacher behaviors (e.g., Lawry, Danko, & Strain, 1999; Neilsen, Olive, Donovan, & McEvoy, 1999; Sandall et al., 2008). Tier 1 support has been reported to produce positive outcomes across both academic and social areas (Jolstead et al., 2017; Stanton-Chapman, Walker, Voorhees, & Snell, 2016).

Tier 2 PBS practices. Researchers have found that prosocial behaviors may not occur naturally in preschool classrooms (Eisenberg & Fabes, 1998; Neilsen et al., 1999) and that children's problem behavior is often the result of skill limitations in social and communication domains and in emotional competence. When children are able to persist at difficult tasks, communicate their emotions effectively, control their anger, and problem solve, they are less likely to engage in problem behavior. Creating a caring, socially rich, cooperative, and responsive environment that supports children in gaining these skills requires an intentional and systematic approach (Joseph & Strain, 2003; Webster-Stratton, 1999). An intentional approach to teaching social skills and supporting emotional development requires the use of a range of strategies that include teaching the concept, modeling, rehearsing, role-playing, prompting children in context, and providing feedback and acknowledgment when the behavior occurs

(Grisham-Brown, Hemmeter, & Pretti-Frontczak, 2017). Teacher-directed activities provide an ideal context for introducing, modeling, and role-playing new skills. Free-play activities provide opportunities for children to practice new skills and get feedback from adults and peers. In addition, some children may need individualized one-on-one instruction.

Research on effective strategies for teaching social skills indicates that for instruction to be most effective it must be comprehensive. The most successful social-emotional approaches focus on social skills and emotional development on a daily basis, use a systematic, intentional approach for teaching critical skills, and acknowledge the skills in context (Joseph & Strain, 2003). These successful approaches also provide training and support to parents or other caregivers who can then support their children's behavior at home and other context in which the child and family engage in on a regular basis (Webster-Stratton, 1999). This type of comprehensive approach is critical given the effect of children's social-emotional development on their development in other areas and their transition to and later success in school.

Tier 3 PBS practices. Even when universal and secondary practices are in place, some children, including those with diagnoses that include behavioral challenges (e.g., autism, behavior disorders), may engage in challenging behavior. These children will need an individualized plan based on an understanding of their behavior. Researchers have found that 5 to 33% of children in preschool settings have engaged in significant challenging behaviors that require a more intensive approach (Lavigne et al., 2009; Qi & Kaiser, 2003). For children with recurrent challenging behavior, a systematically designed and consistently implemented plan is needed. Individualized positive behavior support (IPBS) (Fox, Dunlap, & Cushing, 2002; Fox Dunlap, & Powell, 2002; Powell, Dunlap, & Fox, 2006) constitutes the top level of the Pyramid model. IPBS involves identifying (a) environmental factors (e.g., interactions, activities) that

trigger and maintain behavior; (b) the function of the behavior; (c) more appropriate behaviors or skills to replace the challenging behavior (e.g., social skills, communication skills); and (d) a behavior support plan that includes strategies for reducing the likelihood that the behavior will occur, instructional strategies for replacement skills, and strategies for responding to the child in a way that supports the development and use of the skills (Fox, et al., 2002). It is essential that at this more intensive level of intervention, a plan for addressing a young child's challenging behaviors should be comprehensive, developmentally appropriate, and developed in partnership with families and other relevant individuals in the child's life, including professionals, family members, and other adults who interact with the child on a regular basis (e.g., child care providers, related services staff, mental health consultants). The effectiveness of this approach depends on consistent implementation across the child's everyday environments (Snell et al., 2014) and the provision of support and training to family members (Webster-Stratton, 1999) and other caregivers responsible for implementing the plan (Frey, Lee Park, Browne-Ferrigno, & Korfhage, 2010).

Hemmeter and colleagues (2016) conducted an empirical study using a cluster-randomized controlled trial design to examine the effects of professional development on implementing the Pyramid Model in preschool classrooms. Compared to the control group in which teachers only received workshops on the Pyramid Model, teachers in the intervention group received a professional development (PD) intervention that in addition to the workshops on the model included ongoing follow up individualized coaching sessions. After 12 to 16 weeks of receiving the professional development, the intervention teachers improved their implementation fidelity of the Pyramid Model practices as compared to the control group teachers. In addition, children who attended the intervention teachers' classrooms were rated as

having better social skills and fewer challenging behaviors as compared to children in the control group teachers' classes. This study, in addition to adding to the research on the positive impact on children's social skills and reduction in challenging behaviors when the Pyramid Model is implemented with fidelity also begins to focus more on how to ensure implementation with fidelity. That is, Hemmeter and colleagues (2016b) as an outcome of their study demonstrated that ongoing coaching significantly enhanced implementation fidelity and in turn impacted child outcomes.

Issues in ECE PBS Implementation and Maintenance

Even with the rapid growth of PBS applications in ECE settings as well as the nationwide scaling up efforts, the field still lacks substantive information on how to address challenges and barriers that may occur in the real world of early childhood education with PBS implementation (O' Conner et al., 2017). Particularly, although PBS has been described and used extensively with older children, its use in early childhood programs requires consideration of some additional key issues. For instance, many young children spend time in multiple settings on any given day. Some young children may attend a prekindergarten program in the morning and a child care program in the afternoon in addition to other settings such as home, church, and other community-based activities. Thus, it is important to consider this range of settings and the skills of caregivers in each of those environments when developing a behavior support plan for the child. Another consideration in implementing PBS with young children is the developmental nature of problem behavior in young children. Many problem behaviors in young children reflect developmentally expected behaviors, behaviors associated with lack of experience in group settings, and behaviors associated with skill deficits, particularly in the areas of language, communication, and cognitive and social development. Understanding these issues is important

in developing a behavior support plan that not only works for the child but also works in the multiple environments in which young children spend their time.

Given the different challenges encountered when implementing PBS in early childhood setting, more research is needed to understand the current status of the use of program wide PBS in ECE programs and the challenges that programs face in implementation and maintenance of the PBS practices (Vinh, Strain, Davidon, & Smith, 2016). Particularly, bringing effective practices to scale across large systems requires attending to how information and belief systems come together in decisions to adopt, implement, and sustain those practices (Johnson, 2017). Based on the literature review, the field lacks information on three key areas regarding the implementation and sustainability of early childhood PBS at the program level.

First, the need exists to have a complete picture of effective professional development strategies to prepare early childhood education providers to implement PBS strategies with fidelity. The teachers who participated in Hemmeter and colleagues (2016b) effectiveness and efficacy studies were primarily highly qualified, certified/licensed teachers and thus only represent one small segment of the ECE workforce. The professional development strategies used do not represent the professional development support teachers are typically receiving in the real world. The field has limited understanding on which of the strategies are essential, which have the greatest benefit in relation to the resources required, how to match intensity of professional development with preparation/prior knowledge and skills of the teacher and ultimately how do the various strategies work with the larger ECE workforce (Hemmeter, et al., 2016b). Addressing these questions is particularly acute as we look to community child care and Head Start teachers who are more likely to serve children with higher social, emotional and behavioral needs (Qi & Kaiser, 2003).

Second, research studies typically only capture a short period of time (i.e., weeks to months) of PBS implementation either during the initial professional development or shortly after professional development, with a focus on collecting data within confined intervention research contexts. Dunlap and colleagues (2010) conducted a descriptive analysis of PBS impact on 21 individuals ranging in age from 3 to 39 years. Their purpose was to examine long term outcomes of PBS on the individual across all relevant settings. Measures of problem behavior, implementation of PBS plans, and quality of life (QOL) were collected over a two-year period. Improvement of problem behavior and QOL were found at individual level, yet no indications of PBS plan integrity over extended periods of implementation were reported. Although this study provided novel evidence of long term PBS implementation and outcomes for diverse participants, it is difficult to generalize this finding to ECE programs given the ideographic nature of the participants' portfolios. To date, few research has specifically reported on a more in-depth picture of how programs and providers adopt, adapt, implement, and sustain PBS practices after they have received professional development.

Third, ECE programs have not been consistently relying on using science of implementation (Kelly & Perkins, 2012) to guide sustainable applications of PBS. Implementation science is a promising framework to bridge the implementation gaps between research studies and real-world implementation of PBS (Cook & Odom, 2013). Increasing number of pioneering projects have used implementation science to guide the process of adopting, adapting, implementing, and maintaining the usage of EBPs in ECE settings, and the outcomes of sustainable implementation are promising and inspiring (Halle et al., 2013). Yet neither research study nor real world application have used implementation science to guide investigations or implementations of early childhood PBS. Specifically, through the lens of

implementation science and acknowledging the importance of ecological and contextual fit, the field lacks the information as to what extent the characteristics at the program level could affect the implementation outcomes of specific PBS practices (Cook & Odom, 2013). Specifically, the measures currently reported may not be sensitive enough to assess subtle changes in targeted outcomes and respectful of the contextual factors that may impact outcomes across environments (Knoster, 2018). Fortunately, investigations of PBS implementation and sustainability at K12 settings have been carried out for near a decade. The section below reviewed the current knowledge of implementation and sustainability issues of PBS practices at school settings, with an aim to draw valuable lessons to address similar research questions pertaining to early childhood PBS implementation and sustainability.

PBS Implementation and Sustainability Issues in K12 Settings

Research focusing on issues in PBS implementation in authentic settings, through an implementation science lens, has addressed a number of important concerns including: state funding decisions on scaling up school-wide PBS (SWPBS) (Gage et al., 2014), factors impacting sustainable implementation of SWPBS (McIntosh et al., 2011; McIntosh et al., 2013; McIntosh et al., 2014; McIntosh et al., 2018; McIntosh, Filter, Bennett, Ryan, & Sugai, 2010; McIntosh, Horner, & Sugai, 2009; McIntosh, Kim, Mercer, Strickland-Cohen, & Horner, 2015; Mercer, McIntosh, Strickland-Cohen, & Horner, 2014), leadership capacity (Lowery, 2015), theoretical model of decision-making to scale Pyramid Model (Johnson, 2017), and teacher well-being and PBS implementation (Ross, et al., 2012).

Gage and colleagues (Gage, et al., 2014) conducted a survey and follow up interviews to examine how state education agencies secured and used funding for implementing and sustaining school wide PBS. Data collected from nine high-implementation states suggest that funding and

efforts to initiate and scale up PBS were primarily from special education, even though PBS is a systematic process to support all students. The authors suggested that effective scaling-up of PBS linked not only to funding, and encouraged future researchers and policy makers to understand other important implementation factors including leadership coordination and collaboration, general and special education integration, procedural ease, collaboration and use of data political support, attention to implementation stage and readiness of districts and schools to move to a next stage, local implementation expertise, and priority (Gage et al., 2014). For early childhood PBS implementation, although only a small numbers of states (i.e., n=12, The Pyramid Model Consortium, 2016) have statewide agencies to promote and monitor PBS scaling up process, it is empirical to investigate similar topics and draw valuable knowledge about state wide factors that may impact successful implementation.

Sensitive measure is needed to assess implementation factors that may impact the outcomes of PBS implementation through the process of adopting, implementing, and sustaining PBS at the program level (Knoster, 2018). Understanding factors that link to sustainable implementation is crucial to reap the benefits of investment on scaling up evidence-based practices at authentic settings (Halle, et al., 2013). To date, only a few measures have been developed to provide snapshots of early childhood PBS implementation status at the program level (e.g., Fox et al., 2014; Steed, Pomerleau, & Horner, 2012; Steed & Webb, 2013). However, no theoretically and psychometrically sound measure exists to examine factors that can predict sustainable PBS practices at natural ECE settings. Valuable lesson can be learned from K12 PBS studies that have focus on implementation factor issues since late-2000.

McIntosh and his colleagues (2011) developed and validated a measure (i.e., the *School-Wide Universal Behavior Sustainability Index- School Teams*, SUBSIST; McIntosh, Doolittle,

Vincent, Horner, & Ervin, 2009) to assess factors that enhance or prevent sustainability of school-wide PBS at the universal tier using a model of sustainability proposed by McIntosh and colleagues (2009). The research validated measure – SUBSIST – was then used to identify factors associated with sustainability of SWPBS and the relative contributions of those factors to predicting sustained implementation of SWPBS. Factor analyses of responses from 217 schools across 14 U.S. states revealed School Priority, School Team Use of Data, District Priority and District Capacity Building were the four factors significantly related to sustained implementation in real life. Specifically, Team Use of Data and Capacity Building were found significant independent predictors (McIntosh, et al., 2013).

In addition, quantitative data gathered by SUBSIST and qualitative data gathered by three open ended questions were analyzed by a mixed-methods approach and provided more in-depth information about the perceptions of factors surrounding successful implementation and sustainability of school age PBS (McIntosh, et al., 2014). Consistent with findings of McIntosh and his colleague's examination of SUBSIST responses (2013), school administrator support, effective teaming, and use of data for decision making were perceived as most important to both implementation and sustainability, and barriers were rated as relatively less important (McIntosh, et al., 2014). Furthermore, school demographic characteristics and school team actions were assessed for their relations with those four sustainability factors empirically derived from SUBSIST (McIntosh, Kim, Mercer, Strickland-Cohen, & Horner, 2015). Data from 860 schools revealed that school demographic characteristics were not significantly related to sustainability, while the frequency of sharing data with the whole school staff were statistically significantly related to sustainability (McIntosh, et al., 2015). With the same 860 participating schools, McIntosh and his colleagues (2018) analyzed school and district implementation fidelity data

after three years of the initial SUBSIST evaluation and found that adequate implementation fidelity and better Team Use of Data for decision making in the year 1 study (McIntosh, et al., 2015) were the strongest predictors of sustained implementation in year 3.

The theoretical model of sustainability proposed by McIntosh and his colleagues (2009) align with the sustainability factor structure proposed by Metz and her associates (2015). Metz et al. (2015) combined the theories of implementation science and theories for sustainable implementation of PBS and identified three key groups of factors (i.e., implementation teams, data system and feedback loops, implementation infrastructure). Although no empirical study has been conducted to validate this early childhood PBS sustainability model, the conceptual connections between K12 investigation and early childhood framework allows future researchers to transform and transcend existing knowledge to understand PBS implementation and sustainability issues within a different population and context.

Conclusion

This chapter highlights the work that has been done on PBS practices in early childhood and identifies the gaps in the current literature that are in need of further investigation. It is clear that the field lacks the knowledge on important questions regarding sustainable PBS implementations in authentic ECE settings. More research is needed to improve the understanding of early childhood PBS implementation and sustainability. Special attention should be given to those areas identified earlier, including: (1) depicting an accurate picture of professional development experience of PBS at the state level, especially for less resourced child care and Head Start/Early Head Start programs; (2) conducting longitudinal investigation on PBS implementation at the program level after programs have received PBS training; and (3) utilizing

implementation science framework to guide the investigation and application of early childhood PBS.

The lack of information of early childhood PBS implementation at authentic ECE settings reflects the translational disconnection between research and practice within ECE (Buisse & Wesley, 2006). Especially, with the increasing amount of investments and efforts put into installing and scaling-up early childhood PBS across the nation, it is imperative to conduct research to address issues of implementation and sustainability and to document and evaluate real world early childhood PBS applications.

Chapter 3: Methods

The overarching goal of this study is to understand the use of positive behavior support (PBS) practices, as well as factors that impact sustainable PBS practice implementation, in early care and education programs in the state of Kansas. Two objectives guide this study: Objective 1. Examine the status of implementation and sustainability of PBS in Kansas Child Care and Head Start programs; and Objective 2. Identify factors that are associated with sustainable implementation of PBS at early care and education (ECE) settings.

Four research questions (RQs) are designed to address these two objectives.

RQ1. What is the current status of PBS related professional development for child care and Head Start/Early Head Start (HS/EHS) programs in the state of Kansas?

RQ2. What is the current level of implementation of PBS in child care and HS/EHS programs that have received PBS related professional development?

RQ3. What are the associations between the current level of implementation of PBS and program variables?

RQ4. To what extent do K12 PBS sustainability factors apply to early childhood PBS implementation?

A survey was developed and administered to address these four research questions. Specifically, adapting existing measurements, a survey was conducted with licensed center-based child care and Head Start/Early Head Start (HS/EHS) programs in the state of Kansas. Descriptive statistics of the current status of PBS professional development experience of child care and HS/EHS programs in the state of Kansas is used to address RQ1. The level of implementation (i.e., RQ2) was determined by a summation of scores of survey items pertaining to implementation stages. To address RQ4, statistical analyses were conducted to explore the

associations between program variables and the level of implementation (i.e., summation of implementation scores). The factors associated with sustained implementation (i.e., RQ4) were also examined and the connections between PBS sustainability factors between K12 and ECE settings were explored.

In this chapter the specific methods for addressing the four research questions are described with the process of developing the survey items and the methods and procedures for recruiting participant programs and disseminating the survey. The chapter concludes with the steps of data analysis to address each research question.

Survey Development

The initial draft of the survey was composed of two parts. Part I was designed to gather program demographic information as well as information regarding the PBS related training the programs have received. Part II of the survey was designed to understand programs implementation and sustainability of PBS practices.

Part I - Program Demographic and PBS Training Information

Part I of the survey served to collect program demographic information and general characteristics of PBS related training that responding programs have received (See Appendix A, Q 1 to 13). The first seven questions of the 13 questions for Part I, were designed to collect general program variables including type of program (e.g., child care, Head Start/Early Head Start, preschool), age range of the children served by the program, the size of the program in terms of how many children are enrolled, the geographic region served by the program (i.e., determined by the zip code), the respondent's role in the program, and basic information of the approaches the program uses to address social emotional learning and challenging behaviors.

Question 8 served as a branching question and thus as a way to identify programs that have received PBS related training/professional development. Specifically, the survey was only continued for those if the respondent selected “Yes, we have received training on all components of PBS as a program-wide approach” or “Yes, we have received training on some components of PBS approach.” For those that responded no or not sure to Question 8, they were redirected to either exit the survey, refer the survey to other potential informants, or contact the research if they needed clarification information of the survey.

For those programs that responded yes to Question 8, five more questions were presented in which they were asked to provide information about the nature of PBS trainings received. These 5 questions were developed based on the literature related to training variables which had been reported to be related to PBS implementation and sustainability. These training variable include the types of the training (e.g., workshop, conference sessions, online training), the length of the training, the length of time for receiving PBS training and support (i.e., when were the first and last training received respectively), who received the training, and whether follow up support was provided after the initial training.

Part II - Stages of Implementation and Sustainability

Part II of the survey was for programs that have received some training/preparation in PBS or components of PBS (i.e., those programs responding “yes” to Question 8 of Part I). The focus of the items was on gaining an understanding of the level of implementation and sustainability of the PBS practices for the programs. The items for this part were developed using two existing measures of implementation and sustainability: Stages of Implementation Analysis (SIA) (Blasé, Van Dyke, & Fixsen, 2013) and School-Wide Universal Behavior Sustainability Index- School Teams (SUBSIST; McIntosh, Doolittle, Vincent, Horner, & Ervin, 2009).

Part II was divided into two components. Stages of Implementation Analysis-Early Childhood Positive Behavior Support (SIA-ECPBS) and Early Childhood Universal Behavior Sustainability Index (ECUBS). The first, SIA-ECPBS focuses on assessing the past and current implementation of PBS by the programs and was based on the *Stages of Implementation Analysis* (SIA) tool (Blasé et al., 2013). The second, ECUBS focuses on implementation and sustainability factors and was based on the *School-Wide Universal Behaviors Sustainability Index-School Teams* (SUBSIST; McIntosh, et al., 2009). The development process of Part II of the survey required that both measures serving as foundation tools (i.e., SIA and SUBSIST) had to be modified to address the context of early childhood education and care settings and the content areas of PBS appropriate for early childhood. To more fully describe the development process of Part II, a description of each foundational measure is provided along with specific modifications decisions that were made and the rationale for each decision. Once this work was accomplished the revised “questions” needed to be merged and organized. Finally, the initial draft of the survey went through an expert and field review process of modification to prepare the final version.

Development of Stages of Implementation Analysis-Early Childhood Positive Behavior Support (SIA-ECPBS). The foundation for the SIA-ECPBS was the *Stages of Implementation Analysis* (SIA) tool (See Appendix B) created by the National Implementation Research Network (Blase et al., 2013). The SIA tool was developed using the integrated stage-based active implementation framework (ISAIF) (See Figure 1). Accordingly, SIA categorized implementation activity items into four stages: exploration, installation, initial implementation, and full implementation. Eight to 10 stage-related activity items were allocated to each stage. The purpose of the SIA was to provide program leaders a planning tool when they initiated the

efforts to adopt a new set of evidence-based practices (EBPs) into their program. As a planning tool the SIA provided a framework for activities in which programs would engage throughout the implementation process to ensure sustainable implementation of any new EBPs the program was adopting. The first author of SIA granted permission for the adaptation of SIA for the current study (K. Blasé, January 6th, 2019).

In order to modify the SIA to serve as a “self-report assessment” of implementation of the specific evidenced-based practice of PBS in early childhood education and care contexts rather than as a planning tool, five tasks were undertaken. First, descriptions and examples of key components of PBS were added to operationalize and contextualize the original items. The wording of the original SIA items did not reflect any specific EBP but rather were described in general terms. For example, the first item within the exploration stage was “Form ‘implementation team’ or repurpose/expand a current group.” To contextualize this item, “PBS” was added to the original item and the definition of PBS was also included as a note. The adapted version of this item was “We have formed an implementation team for PBS (see Item 1 in the survey package in Appendix A).”

Second, a review of the response process for each “question” was conducted. The SIA was often completed as an interview and collaboratively with the training team at the beginning of a program’s movement to implement an EBP innovation. In the present study, the responses would be to a survey and programs would have already had some level of training and commitment to the EBP of PBS. The following response process was developed for the SIA-ECPBS. The participants were asked to rate the extent to which the statement reflect what was present in their programs at the time of the response on a 3-point scale from “Not True” to “True”. This 3-point scale echoed the scoring system used in the original SIA [i.e., “In Place”

(scored 2), “Initiated or Partially in Place” (scored 1), “Not Yet in Place” (scored 0)]. This means “Not true” indicates the activity stated in the item was “Not Yet in Place” in the program, granting a score of 0. “Partially true” indicates the activity stated in the item was “Initiated or Partially in Place”, granting a score of 1. “True” indicates the activity stated in the item was “In Place”, granting a score of 2. An option of “I don’t know” was also included to the choices. The summation of scores of SIA-ECPBS items within each stage or across all stages would indicate the status of PBS implementation.

Third, original SIA items designed to help users to decide whether they should adopt certain EBPs were removed because the programs who were responding to those questions were ones who had already decided to adopt PBS and were currently implementing PBS at the time of filling up the survey. Exemplar items were: “Review and identify how program-wide PBS might match your target areas and address needs” and “Implementation team makes final recommendation to select or not program-wide PBS; forward to appropriate level for final selection” (See the original SIA in Appendix B).

Fourth, a review of the items/questions was conducted to ensure that the-remaining items represent three key components (or categories of activities) of sustainable implementation within each stage. There three key components are implementation teams, data and feedback loops, and implementation infrastructure. For example, within the exploration stage, an exemplar item that represents “implementation team” is “We have engaged in discussions and reviews about PBS implementation related activities, timeline, benefits, and risks, and communicate activities to administrators, teachers, staff, and families (See Item 2 of survey package in Appendix A).” An exemplar question that represents “data and feedback loops” is “We have selected targeted areas to address the needs of children, teacher, and family regarding social emotional learning

and challenging behaviors (see Item 4 of survey package in Appendix A).” An exemplar question that represents “implementation infrastructure” is “We have developed methods to assess ‘buy-in’ of PBS for administrators, teachers, staff, and families (See survey item 5 of survey in Appendix A).”

Fifth, items related to the concept "implementation drivers" were removed because this study did not use this terminology to conceptualize factors associated with quality implementation. Exemplar items are “Review and discuss PWPBS in relation to implementation drivers” and “Monitoring and support systems are in place for each Implementation Driver” (see the original SIA in Appendix B).

Development of Early Childhood Universal Behavior Sustainability Index (ECUBS).

The Early Childhood Universal Behavior Sustainability Index (ECUBS) was adapted from the School-Wide Universal Behavior Sustainability Index- School Teams (SUBSIST; McIntosh et al., 2009, see Appendix C). The permission to adapt was granted by its first author (K. McIntosh, personal communication, January 5th, 2019). SUBSIST was designed to investigate factors that impact implementation and sustainability of universal tier school-based PBS. This measure consisted of 39 items that were validated as four distinctive sustainability factors: school priority (items S1.1 to S1.20), district priority (items D1.1 to D1.5), team use of data (items S2.1 to S2.11), and capacity building (items D2.1, D2.2, D2.3) (McIntosh et al., 2013). These four factors presented in SUBSIST conceptually aligned with the three key elements of implementation (i.e., team, data and feedback loop, infrastructure) identified in the ISAIF conceptual framework. To assess factors that impact schoolwide PBS implementation and sustainability, respondents to the SUBSIST are asked to rate the extent to which each of those critical features were present in their schools at the time of response using a 4-point scale [i.e.,

Not true (1) to Very true (4)] as well as the choice of “Don’t know/NA.” In order to create a consistent scoring system across the entire survey, the response options to each question of the adapted ECUBS were adjusted to a 3-point scale [i.e., True (2 points), Partially True (1 point), Not True (0 point)]. An option of “I don’t know” was also included to the choices.

The original SUBSIST was revised to fit early care and education contexts. Particularly, the original items relating to school- and district-level activities were adapted as program- and community-level given ECE programs were mostly not under the administration of school districts and were more likely to be involved in community-level activities. For example, the original SUBSIST item, “The district administration actively supports SW-PBIS” (see question D1.2 in Appendix C), was reworded as “The community- or state- level administration actively supports PBS (see Item 39 in the Appendix A).” In addition, several questions that were strictly pertaining to school district level issues were removed.

Merging SIA-ECPBS and ECUBS. After rewording original items and removing irrelevant items from existing measures, the remaining items of SIA-ECPBS and ECUBS were grouped into four implementation stages and three sustainability components based on the integrated stage-based active implementation framework (ISAIF) (See Figure 1) conceptual framework. Items stating the same activities from both the SIA-ECPBS and ECUBS were considered as duplicates. For example, within the Exploration stage of ECPBS, one item was “Analyze data to determine need and prevalence of need.” This item stated the same “data” related activity as question 2.4 in ECUBS – “Needs assessments (e.g., EBS/PBS Self-Assessment Survey) are conducted.” Another example, in Initial Implementation stage of SIA-ECPBS, one item was “Data systems functioning for measuring and reporting fidelity,” which

was stating the same activity as question 2.5 in ECUBS – “There is regular measurement of fidelity of implementation.” Ten such duplicates across ECPBS and ECUBS were discarded.

After discarding duplicates, the researcher carried out an iterative process to further revise the remaining items to ensure match between research questions and potential responses, working with a team including a mentor faculty member and research and design consultants. Specifically, the researcher focused on reviewing all remaining item drafts to ensure that each directly addressed the research questions such that responses to the survey would result in the highest probability of providing data to answer the questions. Furthermore, the author engaged in a process to ensure that each item was understandable for the target population and related to their experiences. The process included rewording items, revising terms, and adding endnotes to provide definitions and examples for terminologies (e.g., definition of PBS, definition of “implementation team,” example of outcome measures) in order to further contextualize the questions and improve clarity.

Further, the researcher minimized the usage of potentially unfamiliar terminology by using easy to understand examples to describe the activity. For instance, the term of “fidelity of implementation” was rephrased given that respondents might not understand its accurate meaning. The original item “There is regular measurement of fidelity of implementation” was edited as “There is regular assessment of whether program staff are implementing PBS components as they have been trained.” Examples of measurements were also added to this question as “Such measurements may include Teaching Pyramid Observation Tool (TPOT), Prevent-Teach-Reinforce for Young Children (PTR-YC), Prevent-Teach-Reinforce for Families (PTR-F), Teaching Pyramid Infant-Toddler Observation Scale (TPITOS), and Teaching Pyramid Observation Tool (TPOT) (see Item 16 in Appendix A).”

The result of the revision and merging process was that 18 items adapted from the SIA and 38 items adapted from the SUBSIST formed the 56 items of Part II of the survey. Thus, the resulting initial draft of the survey had 69 items, with 13 questions (Part I) designed to collect program characteristics as well as the nature of PBS training received by the programs and the remaining 56 items focused on gathering information about implementation stage as well as sustainability factors.

Expert and Field Review. The initial draft of the survey was shared with an expert panel to obtain feedback on the content validity. The expert panel consisted of 10 individuals, all of whom had extensive experience and expertise in PBS, early childhood education/early childhood special education, and/or effective professional development. After incorporating feedback from the expert panel, three additional items were removed from Part II of the survey package. In addition, numerous changes were incorporated in terms of wording, response options, and provision of supporting explanations within the survey.

Following the expert panel review and revision, together with the research and design consultants the researcher developed an initial version of the on-line survey including carefully considering response options in order to optimize richness of data while respecting survey completers time. The on-line survey draft was then sent to a group of field reviewers (n = 3; one child care program director, two external coaches) to assess not only content but ease of use. Comments and suggestions were incorporated. The revised on-line survey was then shared with a second group of field reviewers (n = 3; one child care program director, one external coach, and one lead teacher). Feedback was again incorporated. The resulting final version of the on-line survey includes 13 questions in Part I and 41 questions in Part II.

As explained earlier, Part II of the survey package is composed of SIA-ECPBS and ECUBS. SIA-ECPBS was designed to measure the current status of implementation and ECUBS evaluate sustainability factors. The final version of SIA-ECPBS consisted sixteen items that were distributed into four implementation stage: exploration (items 1, 2, 3, 4, 5); installation (items 7, 21, 22); initial implementation (items 6, 8, 14, 16, 17); and full implementation (items 18, 19, 20). The range of score of SIA-ECPBS is between 0 and 32. To evaluate the sustainability factor, ECUBS categorizes its items into four factors based on the existing factor structure of SUBSIST. Those four sustainability factors and their items are: “internal priority” measured by items - 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37; “external priority” measured by items - 38, 39, 40, 41; “team use of data” tested by items - 9, 10, 11, 12, 13, 16, 17, 18, 19, 20; and “capacity building” tested by item 14 and 15. As noted, items – 14, 16, 17, 18, 19, 20 served functions in both SIA-ECPBS and ECUBS.

Participants Recruitment and Survey Dissemination

Total Population Sampling. This study was conducted with center-based child care and Head Start/Early Head Start (HS/EHS) programs in the state of Kansas. In order to depict a complete picture of PBS implementation and sustainability at the state level, total population sampling (Etikan, Musa, & Alkassim, 2016) was applied to gather information from all licensed child care Centers and Head Start/Early Head Start programs in Kansas. Total population sampling is a type of purposive sampling where the whole population of interest was recruited as potential participants. Obtaining information from the total population gives deeper insights into the target population than partial samples do, and it also minimizes the risk of biased sample selection (Morse, 1991). After obtaining KU Human Subjects approval, the researcher sent a request for a list of addresses and/or phone numbers of all licensed child care centers and Head

Start programs to Kansas Department of Health and Environment (KDHE, <http://www.kdheks.gov/bcclr/>) as per KDHE policy this information is publicly available upon written request.

Steps of Survey Dissemination. Email and Facebook messenger was used to disseminate the survey. The full list received from KDHE includes contact information of 816 licensed child care and Head Start programs. Contact information provided in the list included program name, address, and phone number. By using the names and mailing addresses of the programs, the researcher conducted thorough Internet searches to identify the program on the internet and obtain email addresses and/or Facebook page information for all 816 programs. This approach yielded email addresses for 511 programs. For programs that displayed more than one email address on their program websites, the researcher only included email addresses that had the most potential to reach to target respondents (i.e., program director, or consultant). The researcher also directly contacted programs (n = 76), who had Facebook pages available to the public but did not provide contact emails, through their Facebook page to explain the study and request email addresses. This approach yielded 16 email addresses for 16 programs. For the remaining 60 programs whose Facebook messengers were reachable, the researcher sent out the survey directly through their Facebook messenger.

Finally, the researcher made individual phone calls to obtain contact information of the remain 229 programs that were not reached either through email or Facebook. From this effort, the researcher was able to talk to an individual with another 45 programs. From these contacts, an additional 14 emails addresses for 14 programs was obtained. To conclude, 601 programs of the total population were directly contacted by the researcher. The survey was sent out either through email addresses or Facebook messengers. For the remaining 215 programs, 152 were

considered reachable as a part of the umbrella organization of which they belonged (e.g., regional or state-wide Head Start associations or private ECE program franchise). The researcher sent emails to 19 such umbrella organizations to request permission and assistance to disseminate the survey. Appendix D provides a listing of these organizations. To conclude, the researcher disseminated the survey package to 753 programs (i.e., 92.28% of the total population) either through individual online contact (i.e., n = 601,) or their umbrella organizations (n = 152).

Strategies for Survey Dissemination. The following six strategies that have been recommended as methods that contributed to increased response rate for surveys were implemented (Alreck & Settle, 1995; Smith & Bost, 2007).

1. Ensure confidentiality (i.e., address confidentiality in recruitment email, consent form, survey introduction, and specific items in the survey);
2. Personalize communication (e.g., ensure use individuals and programs' names during communications);
3. Provide prenotification (e.g., providing cutoff date, introduction that address the importance of the survey, multiple prompts throughout the survey that provide the respondents opportunities to ask and have any questions answered);
4. Use alternate means of survey distribution and collection (i.e., providing choices to the respondents to complete the surveys either through hard copy or digital version of the survey, using phone call, email, web message, and Facebook accounts to disseminate the survey);

5. Use incentives (i.e., a \$25 e-gift card of Amazon.com was provided to each respondent who had completed the survey and left their email address at the end of the survey); and
6. Conduct follow-up (i.e., multiple efforts were exerted to conduct follow-up including: sending emails every 7 – 10 days to the umbrella organizations to communicate the importance of using repeat contact to increase response rate and encourage them to send their programs multiple reminders; contacting individual programs repeatedly to ensure each program receiving at least three reminders after the initial email; responding to clarification questions from the programs; and adding email addresses that were referred by programs to the recruiting list.

As a result, 103 complete responses were recorded on Qualtrics (Qualtrics.com) over a 3 months period. The resulting response rate from a total population was 13.68%. Exclusion method was used to determine whether more than one response were describing the same program. The results show that no more than one responses were found describing the same program, thus, in the following sections, those 103 responses are considered as from 103 different programs.

Data Analysis

The data analysis process consisted of seven steps: (1) conduct descriptive statistical analysis to summarize the characteristics of participating programs; (2) examine internal consistency of SIA-ECPBS; (3) conduct descriptive statistical analysis to evaluate the current status of implementation of PBS based on data collected by SIA-ECPBS; (4) conduct analysis of variance (ANOVA) to examine the associations between program variables and level of PBS implementation indicated by SIA-ECPBS scores; (5) examine internal consistency of ECUBS; (6) conduct descriptive statistical analysis to summarize ECUBS scores; and (7) conduct analysis

of variance (ANOVA) to examine the associations between program variables and level of PBS sustainability indicated by ECUBS scores. All of those analyses were employed in SPSS 25.0 (IBM Corp., 2017).

Descriptive Statistical Analysis of Program Characteristics

Descriptive statistical analysis was conducted with data from all 103 participating programs to summarize program characteristics regarding their PBS preparation experiences. Measures of central tendency (i.e., mean) and measures of variability (i.e., standard deviation) were both used to characterize the participating programs. Program variables were examined for the whole data set and also compared between two groups - those who have received center level of training on PBS (i.e., n = 41) and those who had not (i.e., n = 62). Program variables of interest include types of programs (e.g., child care, Head Start, preschool), age range of the children in the program, the size of the program in terms of how many children are enrolled, the regional area of the program (i.e., determined by the zip code), the respondent's role in the program, and the types of approaches that the program used to address social emotional learning and challenging behaviors.

For those programs who have received center level of training on PBS (i.e., n = 41) and those who have not (i.e., n = 62), descriptive statistical analysis was also conducted to characterize programs based on the variables related to PBS training they have received. Those PBS related variables are types of the training (i.e., in-person training, online training, or combined), the length of the training, who in the program has received the training, and whether follow up support was provided after the initial training.

Analyses of Stages of Implementation Analysis-Early Childhood Positive Behavior Support

Internal Consistency of SIA-ECPBS. Reliability analysis function in SPSS was used to

examine the internal consistency coefficients of SIA-ECPBS. Internal consistency estimates reflect the degree to which the items on a test jointly measure the same construct (Cronbach, 1951). SIA-ECPBS was designed to measure the current status of PBS implementation based on the integrated stage-based active implementation framework (ISAIF) conceptual framework. Sixteen items were distributed into four implementation stage: exploration (items 1, 2, 3, 4, 5); installation (items 7, 21, 22); initial implementation (items 6, 8, 14, 16, 17); and full implementation (items 18, 19, 20). Reliability was calculated for SIA-ECPBS as well as for each of those four subscales (each implementation stage was considered as a subscale).

Descriptive Statistical Analysis of SIA-ECPBS Scores. Descriptive statistical analysis was applied to data collected by SIA-ECPBS. Status of implementation is reflected by the summation of scores of all of the 16 items of SIA-ECPBS. The range of scores of SIA-ECPBS is between 0 and 32. Measures of central tendency (i.e., mean) and measures of variability (i.e., standard deviation) were both used to characterize those 41 programs who have received certain level of training on PBS practices. SIA-ECPBS scores were also summarized by program variables (i.e., level of PBS training, program type, program size, program region, training type, training length, and follow up support).

One-way Analysis of Variance for Program Variables and the Status of Implementation. To test associations between categorical program variables and the status of implementation (i.e., SIA-ECPBS score), one-way analysis of variance (ANOVA) (Howell, 2009) was applied to evaluate how likely it is that any observed difference between the sets of programs arose by chance. Program variables of interest are levels of PBS training, types of the programs, sizes of the programs, regional areas of the programs, types of PBS related training, length of PBS related training, and whether follow up training was provided.

Analyses of Early Childhood Universal Behavior Sustainability Index (ECUBS)

Internal Consistency of ECUBS. Reliability analysis function in SPSS was also used to examine the internal consistency coefficients of ECUBS. ECUBS was subcategorized its items into four factors: internal priority (items 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37), external priority (items 38, 39, 40, 41), team use of data (items 9, 10, 11, 12, 13, 16, 17, 18, 19, 20); and capacity building (items 14, 15). Reliability was calculated for ECUBS as well as for each of those four subscales (each implementation stage was considered as a subscale).

Descriptive Statistical Analysis of ECUBS Scores. Descriptive statistical analysis was applied to ECUBS scores. The score of ECUBS is the summation of scores of the 31 items of ECUBS. The range of scores of ECUBS is between 0 and 62. Measures of central tendency (i.e., mean) and measures of variability (i.e., standard deviation) were both used to characterize those 41 programs who have received certain level of training on PBS practices. ECUBS scores were also summarized by program variables (i.e., level of PBS training, program type, program size, program region, training type, training length, and follow up support).

One-way Analysis of Variance for Program Variables and ECUBS Scores. To test associations between categorical program variables and ECUBS scores, one-way analysis of variance (ANOVA) (Howell, 2009) was applied to evaluate how likely that any observed difference between the sets of programs arose by chance. Program variables of interest are levels of PBS training, types of the programs, sizes of the programs, regions of the programs, types of PBS related training, length of PBS related training, and whether follow up training was provided.

Chapter 4: Results

Chapter 4 provides a description of results from this survey study on PBS implementation and sustainability of child care and Head Start/Early Head Start programs in the state of Kansas.

The results are presented as they address each of the four research questions (RQ):

RQ1. What is the current status of PBS related professional development for child care and Head Start/Early Head Start (HS/EHS) programs in the state of Kansas?

RQ2. What is the current level of implementation of PBS in child care and HS/EHS programs that have received PBS related professional development?

RQ3. What are the associations between the current level of implementation of PBS and program variables?

RQ4. To what extent do K12 PBS sustainability factors apply to early childhood PBS?

PBS Related Professional Development Experience

Program Characteristics

Questions 1 through 13 of the survey were designed to collect data of program demographic information and their experiences related to PBS preparation. Table 1 presents the number and percent of responding programs organized by each of the program variables of interest, including program type, program size, program region, the role of respondents, and the approaches that the programs were using to support social, emotional, and behavior needs (i.e., SEB Approach).

The programs of focus in this study are center-based early childhood child care programs (i.e., serve children birth to five year old) and Head Start/Early Head Start (HS/EHS) programs. Thus, based on data collected via question 1 (i.e., program type) and question 2 (“What is the age range of children in your program?”), participating programs were further categorized into three

groups: Head Start/Early Head Start programs (HS/EHS) serving children birth to five year old, early childhood child care programs (CC-EC) serving children birth to five year old, and child care above programs (CC-Above) that serve children birth to age above five. Of the 103 participating programs, 11.7% were HS/EHS programs, 48.5% were early childhood child care programs, and 39.8% were child care programs serving children birth to age above five.

Based on responses to question 3 (“How many children are enrolled in your program?”), programs with 0 - 30 children enrolled were grouped as small size, programs with 31- 90 children enrolled were grouped as medium size, and programs with more than 90 children enrolled were grouped as large size. Of the 103 programs, 17.5% were small, 38.8% were medium, and 43.7% were large.

The researcher uses the regional categories of child care and Head Start/Early Head Start programs suggested by the statewide child care resource and referral network in Kansas - Child Care Aware® of Kansas (<https://www.ks.childcareaware.org/>). Region 1 (i.e., west Kansas) is composed of 63 counties from west Kansas. Region 2 (i.e., southwest Kansas) is composed of five southwest counties. Region 3 (i.e., southeast Kansas) is composed of 33 southeast counties. Region 4 (i.e., Kansas City area of Kansas) is composed of four counties in Kansas City area. The research grouped 101 programs who had provided the zip code of their programs and found 10.7% belonged to region 1, 14.6% belonged to region 2, 43.7% belonged to region 3, and 29.1% belonged to region 4. Those 101 programs belong to 29 counties.

Table 1

Program Characteristics

Variables	Whole Sample (<i>N</i> = 103)	
	n	%
Program Type		
Head Start/ Early Head Start	12	11.7
Child Care – Early Childhood	50	48.5
Child Care – Above	41	39.8
Program Size		
Small (0-30)	18	17.5
Medium (31-90)	40	38.8
Large(91-above)	45	43.7
Geographic Region^a		
Region 1	11	10.7
Region 2	15	14.6
Region 3	45	43.7
Region 4	30	29.1
Respondent' Role		
Administrator (admin)	69	67
Admin with multiple roles	20	19.4
Consultant	5	4.9
Direct Provider	8	7.8
Other	1	1
SEB Approach		
All PBS Components	1	1
Some PBS Components	17	16.5
All PBS + Other	6	5.8
Some PBS + Other	13	12.6
Curriculum or other practices	43	41.7
I don't know	5	4.9
None	18	17.5

Note. SEB = social, emotional, and behavioral.

a. A total of 101 programs provided zip code.

Question 6 (“What is your role in your program?”) collected data on the roles of the respondents. Of the 103 respondents, 69% were administrators (e.g., director, associate director), 20% were administrators with multiple roles (e.g., a center director who is also a speech and language pathologist), 5% were consultants, 7.8% were direct providers (e.g., lead teacher, speech language pathologist), and 1% were other (i.e., accountant).

The respondents were also asked to answer “What approaches does your program use to promote social-emotional learning and address challenging behaviors in children? (i.e., question 7).” Of the 103 responses, 1% were solely using PBS as a program wide approach, 16.5% were solely using PBS components, 41.7% were solely using social emotional learning curriculum (e.g., *Incredible Years*, *Second Step*, *Empowered to Connect*) or other practices (e.g., trauma informed teaching, conscious discipline, mental health consultation), 5.8% were using program-wide PBS combined with other practices, and 12.6% were using PBS components combined with other practices. There were 17.5% (n = 18) programs answered “None” to this question, and five answered “I don’t know.” Figure 3 presents the percentage of programs based on their training of PBS and current applications of PBS and/or other SEB approaches.

Characteristics of PBS Training

The central purpose of this study is to examine the targeting programs’ experiences in PBS training. The information of PBS training experiences gathered in this survey include training types (i.e., online or in-person), training length, availability of follow-up support, frequency of follow-up support, training agency, role of the trainees, and the dates of the first and last training. Participating programs were grouped based on their answers to question 8 (“Has your program received training on PBS?”). Out of 103 programs, 41 programs (39.8%) have received a certain level of PBS related training (i.e., training on all PBS components or

some PBS components). Specifically, 14.65% had “received training on all components of PBS as a program-wide approach” and 25.16% had “received training on some components of PBS approach,” which results in 39.81% programs that had received training on certain components of PBS. The majority of programs (59.2%) responded “No” to question 8, and one program (1%) suggested “Not Sure.” Figure 3 presents the percentage of programs based on their training experiences of PBS and current applications of PBS and other SEB approaches.

In terms of geographic representation, of the 40 programs that have received PBS training and also provided program zip code, results found that those programs are from 19 counties and belong to all of the four regions (See Figure 4). The PBS training experiences are also depicted in Figure 4 for those programs from different county.

Furthermore, Table 2 presents the characteristics of PBS trainings. Of the 41 programs that have received a certain level of training on PBS, 63.4% of the programs received PBS training solely in person, 4.9% received training solely online, the 29.3% received training through both in person and online. Training length was also examined by asking the respondents to answer Q9-5 [What was the length of the training (s) (Please sum up all trainings your program have received)?]. Of the 41 programs, 29.3% have received half day trainings, 31.7% have received training between one to two days, 12.2% have received training for 3 - 4 days, and 26.8% have received training more than four days accumulatively. There are 53.7% programs (n = 22) have received follow up support or coaching and 42.9% had not.

Table 2

Characteristics of PBS Training

Variables	Has your program received training on PBS?					
	YES (<i>n</i> = 41)		YES All (<i>n</i> = 15)		YES Some (<i>n</i> = 26)	
	n	%	n	%	n	%
Training Type						
In person	26	63.4	10	66.7	16	61.5
Online	2	4.9	0	26.7	2	7.7
Both	12	29.3	4	93.3	8	30.8
Missing data	1	2.4	1	6.7	9	9
Training Length (day)						
0.5	12	29.3	0	0	12	46.2
1 - 2	13	31.7	5	33.3	8	30.8
3 - 4	5	12.2	2	13.3	3	11.5
> 4	11	26.8	8	53.3	3	11.5
Follow up Coaching or Support						
Yes	22	53.7	13	86.7	9	34.6
No	18	43.9	2	13.3	16	61.5
I don't Know	1	2.4	0	0	1	3.8

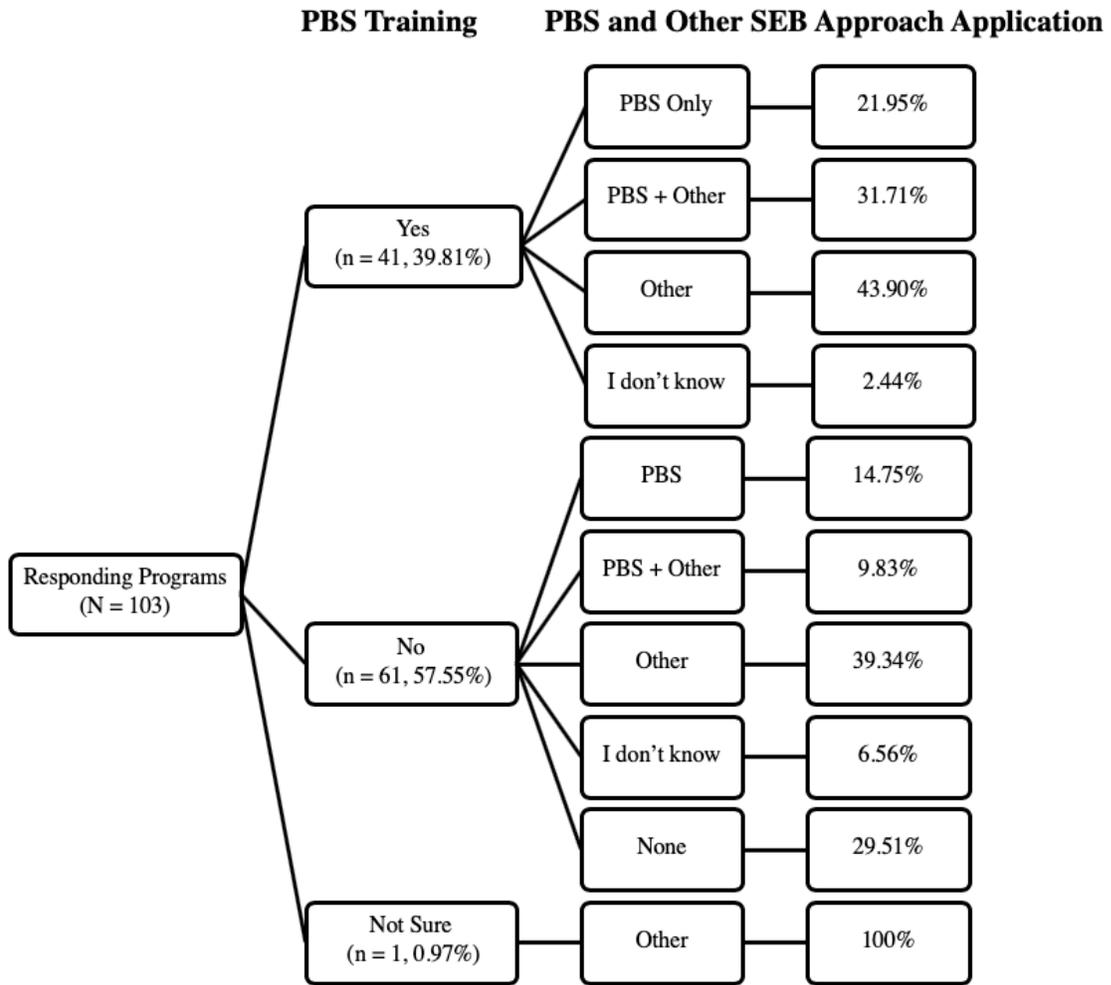


Figure 3. PBS Training and PBS Application.

The survey also collected data of provider (i.e., agency) of PBS training. The respondents were asked to select all appropriate answers from a pool of eight training agencies that have had disseminated training information to public. Those eight agencies are: Kansas Inservice Training System (KITS) from Kansas University Center on Developmental Disabilities; Kansas Institute for Positive Behavior Support: Online Modules; The Southeast Kansas Community Action Program (SEK-CAP); Kansas Head Start Association (KHSA); Kansas Child Care Training Opportunities (KCCTO); Kansas Technical Assistance System Network (TASN); Juniper Gardens Children's Project, University of Kansas; and National Training Institute on Effective Practice: Addressing Challenging Behavior. An option of "Other, please specify ___" was also provided. Out of 37 responding programs, 32.43% have received PBS related training from more than one agency. KCCTO was identified as the agency that had provided PBS related training to nearly half of the programs (i.e., 45.96%). The results of this survey also revealed several training agencies that were not included in the options of this survey. Those training agencies include: Child Care Aware, Douglas County Child Development Association (DCCDA), The Family Conservancy, Mid-America Regional Council, NAEYC International Conference; HighScope International Conference; and Kansas Division for Early Childhood Conference.

Level of PBS Implementation

Internal Consistency of SIA- ECPBS

The internal consistency reliability of SIA-ECPBS was examined using Cronbach's Alpha. The SIA-ECPBS inventory was found to be highly reliable (16 items, $\alpha = .920$). The exploration stage subscale consisted of 5 items ($\alpha = .854$), the installation subscale consisted of 3 items ($\alpha = .703$), the initial implementation subscale consisted of 5 items ($\alpha = .780$), and the full implementation subscale consisted of 3 items ($\alpha = .825$). The researcher used the total score of

the SIA-ECPBS to indicate the level of PBS implementation because it has the strongest internal consistency.

Level of PBS Implementation

Descriptive statistical analyses generated the normality, means and standard deviations of SIA-ECPBS scores across program variables (See Table 3). The respondent has to complete all of the 16 SIA-ECPBS items to generate a SIA-ECPBS score (i.e., ranges between 0 and 32). Responses of “I don’t know” were considered as missing data. Out of 41 program that have received a certain level of training on PBS practices, 73.17% (n = 30) completed all SIA-ECPBS items. Shapiro-Wilk test was used and suggested a normal distribution of the SIA-ECPBS scores ($p = .832$) for the 30 responding programs. Figure 5 depicts the histogram of normality test for SIA-ECPBS scores. The average SIA-ECPBS score is 15.43 (SD = 8.29), which is below the median (i.e., median = 16) thus considered representing a low level of PBS implementation.

Associations between Program Variables and Level of PBS Implementation

One-way ANOVA was conducted to examine the relationships between program variables and the SIA-ECPBS score. Means and standard deviations of SIA-ECPBS scores and ANOVA results for program variables and SIA-ECPBS scores are presented in Table 3. Program variables of interest include level of PBS training (i.e., received training on all PBS components or some of the PBS practices), program types (i.e., HS/EHS, CC-PreK, CC-Above), program size (i.e., small, medium, large), program regions, training type (i.e., in person only, online only, in person and online combined), training length (i.e., 0.5 day, 1 - 2 days, 3 - 4 days, > 4 days), and follow-up support (i.e., whether the program have received support or coaching after the training).

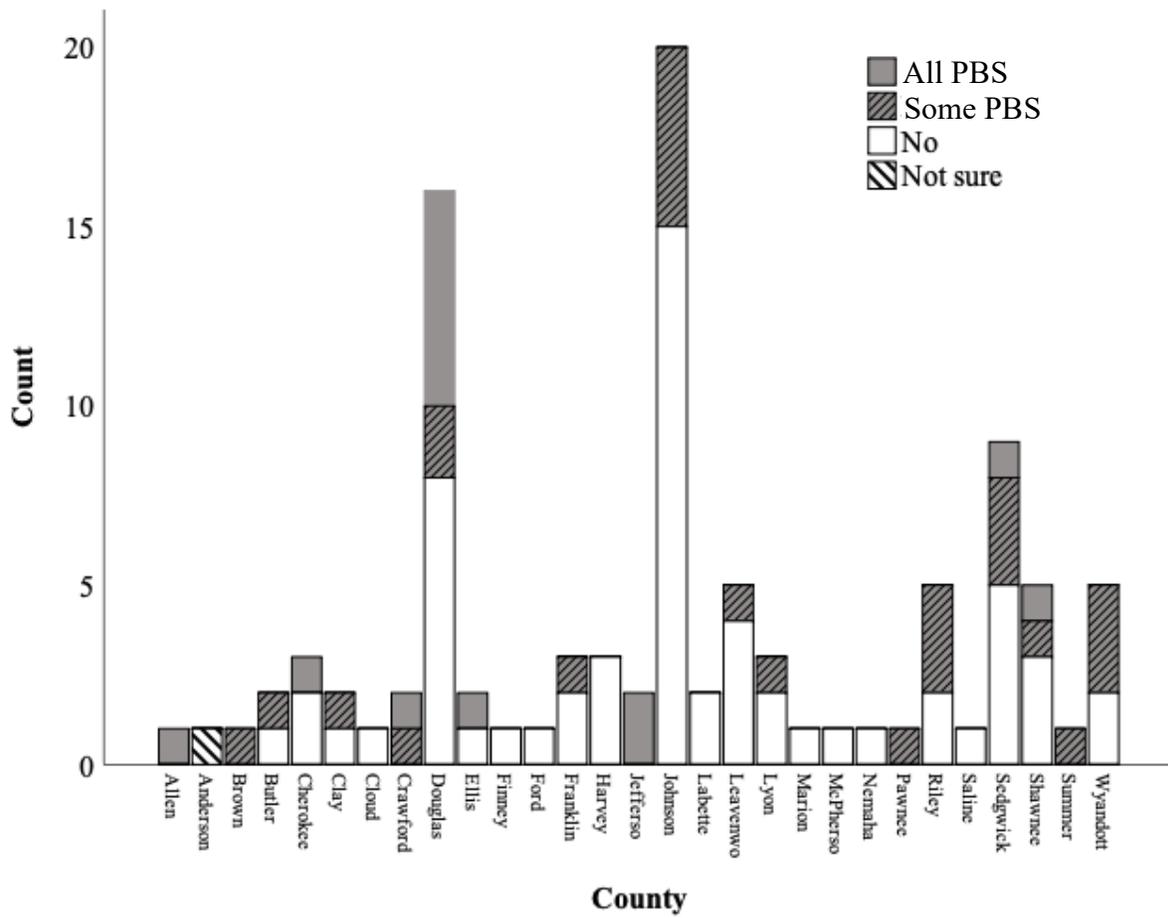


Figure 4. Geographic Representation of Participating Programs (n = 40) and PBS Training Experience.

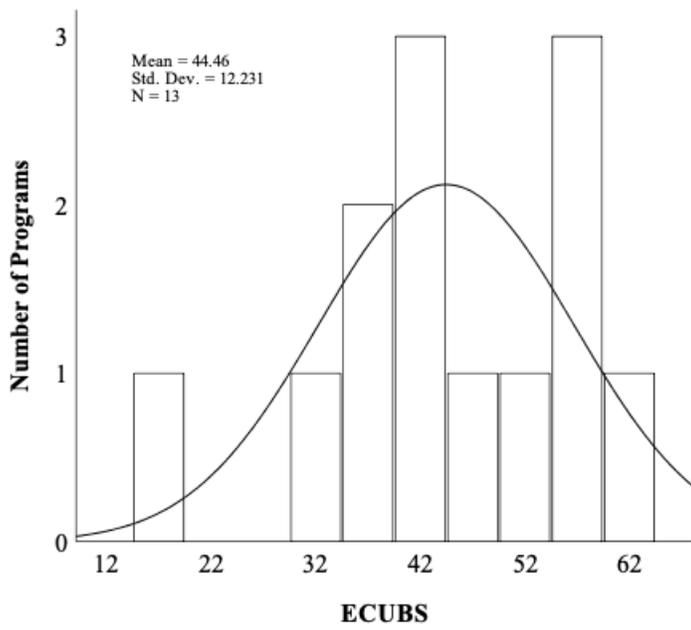
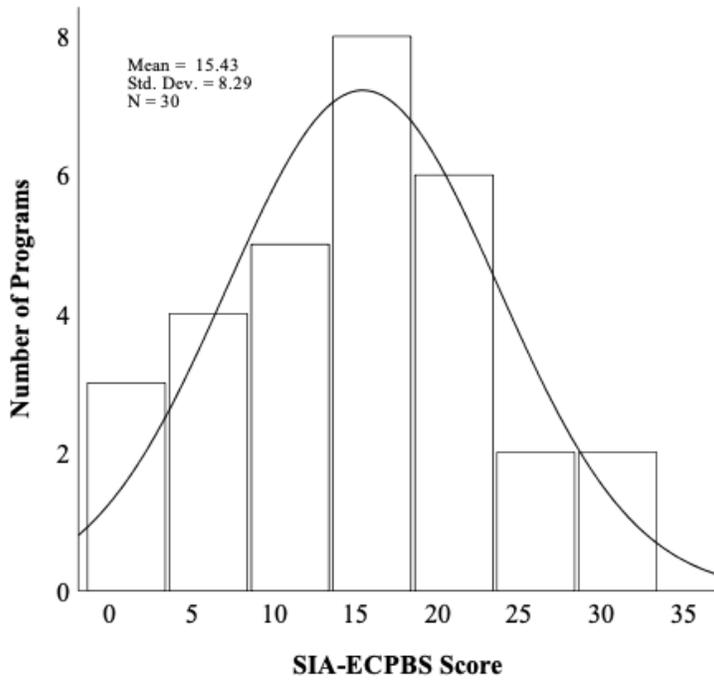


Figure 5. Histograms of Normality Tests for SIA-ECPBS and ECUBS Scores.

Table 3

Means and Standard Deviation of SIA-ECPBS Scores and Analysis of Variance (ANOVA)

Results for Level of PBS Training, Program Type, Program Size, Training Type, Training Length, and Follow up Support

Variables	SIA-ECPBS Score		One-way ANOVA		
	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>	η^2
Whole Sample (n = 30)	15.43	8.29			
Comprehensiveness of PBS Training					
All PBS (30%)	21.78	6.82	9.83	.004	.26
Some PBS (70%)	12.71	7.42			
Program Type					
HS/EHS (13.33%)	18.25	10.8	.386	.684	
Child Care PreK (40%)	15.92	6.82			
Child Care All (46.67%)	14.21	9.08			
Program Size					
Small (13.33%)	18.25	10.81	1.105	.346	
Medium (40%)	15.91	6.83			
Large (46.67%)	14.21	9.08			
Region					
Region 1 (10%)	20	2.65			
Region 2 (13.33%)	14	11.23			
Region 3 (50%)	17	7.34			
Region 4 (23.33%)	8.57	4.72			
Training Type					
In person only (70%)	14.76	8.16	.028	.161	
Online only (6.67%)	7	.00			
Combined (23.33%)	19.85	7.86			
Training Length (days)					
0.5 (33.33%)	11.30	7.29	2.286	.123	
1 - 2 (36.67%)	16.63	9.21			
3 - 4 (6.67%)	15	2.83			
> 4 (23.33%)	19.57	7.63			
Follow Up Support					
Yes (43.33%)	17.85	9.80	1.44	.24	
No (53.33%)	14.25	6.26			

Comprehensiveness of PBS Training. A one-way ANOVA was conducted to evaluate the null hypothesis that there is no difference SIA-ECPBS score based on the comprehensiveness of PBS training that programs have received ($n = 30$). The independent variable, the comprehensiveness of PBS training includes two groups: All PBS components ($M = 21.78$, $SD = 6.82$, $n = 9$), and Some PBS components ($M = 12.71$, $SD = 7.42$, $n = 21$). The assumption of normality was evaluated using Shapiro-Wilk test and found tenable for both group All PBS ($p = .673$) and group Some PBS ($p = .816$). The assumption of homogeneity of variances was tested and found tenable using Levene's Test, $F(1, 28) = .190$, $p = .666$. The ANOVA was significant, $F(1, 28) = 9.83$, $p = .004$, $\eta^2 = .26$. Thus, there is significant evidence to reject the null hypothesis and conclude there is a significant difference score of implementations based on the comprehensiveness of PBS training that programs have received. Using eta-squared, 26% of the total variance is accounted for by the level of PBS training received.

Program Type. A one-way analysis of variance was conducted to evaluate the null hypothesis that there is no difference SIA-ECPBS score based on types of programs ($n = 30$). The independent variable, program types include three groups: HS/EHS ($M = 18.25$, $SD = 10.81$, $n = 4$), Child Care PreK ($M = 15.92$, $SD = 6.83$, $n = 12$), and Child Care All ($M = 14.21$, $SD = 8.29$, $n = 14$). The assumption of normality was evaluated using Shapiro-Wilk test and found tenable for all groups: group HS/EHS ($p = .472$), CC-PreK ($p = .589$) and CC-Above ($p = .937$). The assumption of homogeneity of variances was tested and found tenable using Levene's Test, $F(2, 27) = .845$, $p = .441$. The ANOVA was not significant, $F(2, 27) = .386$, $p = .684$. Thus, there is no significant evidence to reject the null hypothesis and conclude there is no significant difference implementation score based on types of programs.

Program Size. A one-way ANOVA was conducted to evaluate the null hypothesis that there is no difference SIA-ECPBS score based on program size ($n = 30$). The independent variable, program size includes three groups: small ($M = 20.20, SD = 7.190, n = 5$), medium ($M = 13.38, SD = 8.975, n = 8$), and large ($M = 15.00, SD = 1.98, n = 8.178$). The assumption of normality was evaluated using Shapiro-Wilk test and found tenable for all groups: group Small ($p = .795$), group Medium ($p = .849$) and group Large ($p = .999$). The assumption of homogeneity of variances was tested and found tenable using Levene's Test, $F(2, 27) = .286, p = .754$. The ANOVA was not significant, $F(2, 27) = 1.105, p = .346$. Thus, there is no significant evidence to reject the null hypothesis and conclude there is no significant difference implementation score based on types of programs.

Program Region. A one-way ANOVA was conducted to evaluate the null hypothesis that there is no difference SIA-ECPBS score based on program region ($n = 29$). The independent variable, program region includes four groups: region 1 ($M = 20, SD = 2.65, n = 3$), region 2 ($M = 14, SD = 11.23, n = 4$), region 3 ($M = 17, SD = 7.34, n = 15$), and region 4 ($M = 8.57, SD = 4.72, n = 7$). The assumption of normality was evaluated using Shapiro-Wilk test and found tenable for all groups: region 1 ($p = .363$), region 2 ($p = .979$), region 3 ($p = 1$), and region 4 ($p = .699$). The assumption of homogeneity of variances was tested and found tenable using Levene's Test, $F(3, 25) = 1.478, p = .245$. The ANOVA was not significant, $F(3, 25) = 2.785, p = .062$. Thus, there is no significant evidence to reject the null hypothesis and conclude there is no significant difference implementation score based on program regions.

Training Type. A one-way analysis of variance was conducted to evaluate the null hypothesis that there is no difference score of implementations based on training type ($n = 30$). The independent variable, training type includes three groups: In-person Only ($M = 14.76, SD =$

8.16, $n = 21$), Online only ($M = 7$, $SD = .00$, $n = 2$), and Combined ($M = 19.85$, $SD = 7.86$, $n = 7$). The assumption of normality was evaluated using Shapiro-Wilk test and found tenable for two of the three groups: group In-person Only ($p = .877$) and group Combined ($p = .774$).

Among two levels of training type, the assumption of homogeneity of variances was tested and found tenable using Levene's Test, $F(1, 26) = .028$, $p = .161$. The ANOVA was not significant, $F(1, 26) = 2.081$, $p = 0.161$. Thus, there is no significant evidence to reject the null hypothesis and conclude there is no significant difference implementation score based on types of training received by the participating programs.

Training Length. A one-way analysis of variance was conducted to evaluate the null hypothesis that there is no difference SIA-ECPBS score based on training length ($n = 28$). The independent variable, training length includes four groups: 0.5 Day ($M = 11.30$, $SD = 7.289$, $n = 10$), 1 – 2 Days ($M = 16.636$, $SD = 9.212$, $n = 11$), 3 – 4 Days ($M = 15$, $SD = 2.828$, $n = 2$), and > 4 Days ($M = 19.571$, $SD = 7.635$, $n = 7$). The assumption of normality was evaluated using Shapiro-Wilk test and found tenable for three of the four groups: 0.5 Day ($p = .444$), 1 – 2 Days ($p = .971$), and > 4 Days ($p = .831$). The assumption of homogeneity of variances was tested and found tenable using Levene's Test, $F(2, 25) = .136$, $p = .874$. The ANOVA was not significant, $F(2, 25) = 2.286$, $p = .123$. Thus, there is no significant evidence to reject the null hypothesis and conclude there is no significant difference implementation score based on the length of training received by the participating programs.

Follow-up support. A one-way analysis of variance was conducted to evaluate the null hypothesis that there is no difference SIA-ECPBS score based on whether the program has received follow up support on PBS ($n = 29$). The independent variable, training type includes two groups: Yes ($M = 17.846$, $SD = 9.797$, $n = 13$) and No ($M = 14.25$, $SD = 6.256$, $n = 16$). The

assumption of normality was evaluated using Shapiro-Wilk test and found tenable for both Yes group ($p = .677$) and No group ($p = .511$). The assumption of homogeneity of variances was tested and found tenable using Levene's Test, $F(1, 27) = 3.675, p = .066$. The ANOVA was not significant, $F(1, 27) = 1.44, p = .24$. Thus, there is no significant evidence to reject the null hypothesis and conclude there is no significant difference implementation score based on whether the program has received follow up support on PBS.

Sustainability Factors of PBS Practices

Reliability of ECUBS

Cronbach's Alpha was used to examine the internal consistency of ECUBS. The ECUBS inventory was found to be highly reliable (30 items, $\alpha = .940$). The internal priority subscale consisted of 14 items ($\alpha = .848$), the external priority subscale consisted of 4 items ($\alpha = .711$), the team and use of data subscale consisted of 10 items ($\alpha = .912$), and the capacity subscale consisted of 2 items ($\alpha = .686$). The researcher used the total score of the ECUBS to indicate the overall level of sustainable implementation of PBS because it has the strongest internal consistency.

Level of PBS Sustainability

Descriptive statistical analyses generated the normality, means and standard deviations of ECUBS scores across program variables (See Table 4). The respondent has to complete all of the 31 ECUBS items to generate an ECUBS score (i.e., ranges between 0 and 62). Responses of "I don't know" were considered as missing data. Out of 41 program that have received a certain level of training on PBS practices, 31.71% ($n = 13$) completed all ECUBS items. Shapiro-Wilk test was used and suggested a normal distribution of the ECUBS scores ($p = .481$) for the 13 responding programs. Figure 5 depicts the histogram of normality test for ECUBS scores. The

average ECUBS score is 44.46 (SD = 12.23), which is above median (i.e., median = 31) thus indicating a high level of sustainability.

Associations between Program Characteristics and PBS Sustainability

One-way ANOVA was conducted to examine the relationships between program variables and the ECUBS score. Means and standard deviation of ECUBS are presented in Table 4. Program variables of interest include level of PBS training (i.e., received training on all PBS components or some of the PBS practices), program types (i.e., HS/EHS, CC-PreK, CC-Above), program size (i.e., small, medium, large), program region, training type (i.e., in person only, online only, in person and online combined), training length (i.e., 0.5 day, 1 - 2 days, 3 - 4 days, > 4 days), and follow-up support (i.e., whether the program have received support or coaching after the training). The ANOVA results for program variables and ECPBS scores were described below.

Level of PBS Training. A one-way analysis of variance was conducted to evaluate the null hypothesis that there is no difference ECUBS score based on the level of PBS training that programs have received ($n = 13$). The independent variable, level of PBS training includes two groups: All PBS ($M = 47.29$, $SD = 10.53$, $n = 7$), and Some PBS ($M = 41.17$, $SD = 14.20$, $n = 6$). The assumption of normality was evaluated using Shapiro-Wilk test and found tenable for both groups All PBS ($p = .305$) and Some PBS ($p = .489$). The assumption of homogeneity of variances was tested and found tenable using Levene's Test, $F(1, 11) = .255$, $p = .624$. The ANOVA was not significant, $F(1, 11) = 795$, $p = .392$. Thus, there is no significant evidence to

Table 4

Means and Standard Deviations of ECUBS Score

Variables	ECUBS Score	
	<i>M</i>	<i>SD</i>
Whole Sample (n = 13)	44.46	12.23
Level of PBS Training		
All PBS (53.85%)	47.29	10.53
Some PBS (46.15%)	41.17	14.20
Program Type		
HS/EHS (15.38%)	33	22.63
Child Care PreK (38.46%)	52	6.34
Child Care All (46.15%)	41.83	10.19
Program Size		
Small (7.69%)	57	-
Medium (30.77%)	50.50	7.14
Large (61.54%)	39.88	12.93
Program Region		
Region 1 (0%)	-	-
Region 2 (23.08%)	46.67	6.03
Region 3 (61.54%)	43.88	13.87
Region 4 (7.69%)	37	-
Training Type		
In person only (46.15%)	35.17	9.37
Online only (0%)	-	-
Both (53.85%)	52.43	8.10
Training Length		
0.5 (23.08%)	34.67	16.62
1 - 2 (15.38%)	55.5	9.19
3 - 4 (15.38%)	45	15.56
> 4 (46.15%)	45.5	3.55
Follow Up Support		
Yes (69.23%)	46.44	9.91
No (23.08%)	47.67	9.71

reject the null hypothesis and conclude there is a significant difference ECUBS scores based on the level of PBS training that programs have received.

Follow-up Support. A one-way analysis of variance was conducted to evaluate the null hypothesis that there is no difference ECUBS score based on whether the programs have received follow-up support. The independent variable, follow-up support includes two groups: YES ($M = 46.44$, $SD = 9.91$, $n = 9$), and No ($M = 47.67$, $SD = 9.71$, $n = 3$). The assumption of normality was evaluated using Shapiro-Wilk test and found tenable for both groups YES ($p = .395$) and group No ($p = .600$). The assumption of homogeneity of variances was tested and found tenable using Levene's Test, $F(1, 10) = .247$, $p = .630$. The ANOVA was not significant, $F(1, 10) = .034$, $p = .856$. Thus, there is no significant evidence to reject the null hypothesis and conclude there is a significant difference ECUBS scores based on the level of PBS training that programs have received.

Only the above two variables were examined by ANOVA due to untenable normality of the rest of the program characteristics. Specifically, for program size, the assumption of normality was evaluated using Shapiro-Wilk test, and only found tenable for group Medium ($p = .262$) and Large ($p = .701$). For types of Programs, the assumption of normality was evaluated using Shapiro-Wilk test, and only found tenable for group CC-PreK ($p = .099$). For training type, the assumption of normality was evaluated using Shapiro-Wilk test, and only found tenable for group Both ($p = .345$). For regions of programs, the assumption of normality was evaluated using Shapiro-Wilk test, and only found tenable for region 2 ($p = .817$) and region 3 ($p = .198$). For training length, the assumption of normality was evaluated using Shapiro-Wilk test, and only found tenable for group 0.5 ($p = .767$) and group > 4 ($p = .066$).

Chapter 5: Discussion

With an increasing interest and investment in scaling-up PBS – a mature evidence-based approach to address social, emotional, and behavioral needs in young children – the field of early childhood education (ECE) is calling for more investigations on issues related to real world PBS implementation (e.g., Johnson, 2017; Cook & Odom, 2013). The state of Kansas has nearly two decades of experience in providing professional development to promote implementation of PBS strategies in ECE programs. However, no systematic data collection has occurred to assess the impact of that investment on the implementation of PBS. This is especially missing across community-based child care and Head Start/Early Head Start programs that serve children with higher risk for experiencing social, emotional, and behavioral challenges. This study is an initial attempt to collect state level data to understand implementation and sustainability of PBS practices following the programs having engaged in professional development. Specifically, the research questions focused on describing the level of and characteristics of the professional development experienced by the responding programs, the PBS implementation status of programs following their professional development experience, and factors that may have served as both facilitators and barriers to implementation and sustainability. In the remainder of this chapter, contextual challenges for conducting research in ECE settings are addressed, potential explanations of the results from the data analyses for each question is provided. In addition, implications for researchers, policy makers, and practitioners as well as research limitations are addressed.

Contextual Challenges

Prior to discussing the results, contextual challenges encountered in the process of conducting the study warrant attention, given that they have the potential to impact the

conclusions drawn. Two primary ECE contextual factors in particular are worth noting: lack of a shared/unified policies on required knowledge and skills for the workforce and the instability in the workforces. These factors had direct impacts on this study, as they have on other studies conducted to assess implementation and sustainability of innovations to improve outcomes for children.

The first challenge, lack of a shared/unified policies on required competences for the workforce has implication both for pre-service and in-service aspects of professional development. That is, the expectations for the current ECE workforce varies widely based on their role, the ages of the children with whom they work, the settings in which they work, and the organizations and agencies that oversee their work which in turn impacts the professional development opportunities accessible (Institute of Medicine & National Research Council, 2015). Early care and education services are delivered in different types of settings (e.g., child care only for young children, child care serve children from birth to school age, Head Start, private early education company, or faith based organization), funded by a variety of entities (e.g., state and federal departments of education, private funders), and supervised by diverse umbrella agencies (e.g., state level Head Start association, private company, regional professional organizations) (Grisham-Brown, et al., 2017; Shepley & Grisham-Brown, 2019). As a result, the level of understanding, buy-in, and implementation of PBS at the program level may vary greatly and depend immensely upon the PD resources provided to and the ecological contexts within the programs. Furthermore, the heterogeneity of ECE workforce is also manifested in the diverse characteristics of their leadership population. A presumption for this study was that the respondents (i.e., the leaders of the programs) would have a shared basic understanding of the concept of PBS and other aspects of supporting children's social emotional

competence and reduction of challenging behaviors. However, just as with the direct service workforce the diversity in knowledge, skills, and competencies of the leaders impact the outcomes of this study.

The second contextual factor, instable workforce, is manifested by high turnover rate. In a recent follow-up report to the 1989 National Child Care Staffing Study, the researcher noted that little progress has been made over the past 25 years in addressing the need for increased supports and compensation for early childhood professionals, which results in high turnover rates in the field and increased instability of the workforce (Whitebook, Howes, & Phillips, 2014). Especially, based on U. S. Department of Labor, Bureau of Labor Statistics (2009), Whitebook (2011) noted that the average turnover rate in early care and education settings is more than four times higher than that in elementary schools. This contextual challenge of high turnover rate among the ECE workforce compromises another presumption of the current study - survey respondents shall be the most appropriate informants who have complete information and knowledge about their programs' experience with PBS PD and implementation overtime. Thus, again the results and the implications of this study need to be viewed with these factors in mind.

PBS Professional Development

Level of PBS Professional Development

The concept of “scaling up” evidenced-based educational practice has and continues to receive significant attention (DeWire, McKithen, & Carey, 2017). Scaling-up in its most basic form is increasing the numbers of educators and programs that are using a particular intervention. A key aspect thus in these efforts must include professional development activities that disseminate clear and comprehensive information on the innovation to those with direct roles in implementing the innovation. Thus, a first step in understanding the impact of

investments in professional development is to gather information on who, in what roles, and how many individuals received professional development.

The results of this study found that the majority of the 103 participating programs (i.e., $n = 61, 59.2\%$) had not received any training on PBS practices. Sarama and Clements (2013) defined scale-up as “being achieved when over 90% of the children in a given school district are experiencing a given intervention. (p171)” in their efforts to develop and verify a scale-up model for introducing educational interventions to ECE programs. Using similar criteria, scale-up of professional development activities focused on PBS could be defined as having been achieved when over 90% of the programs have received PBS professional development. Based on this definition, the results from this study indicate that professional development activities focused on PBS for early childhood programs and providers has not achieved “scale-up” in the state of Kansas.

One way to verify this finding is to crosscheck early childhood PBS PD dissemination status with other available state level sources of data. Examples of such state level sources of data include statewide records of PBS training dissemination activities delivered by state level organizations. For instant, Kansas Institute for Positive Behavior Support (KIPBS; <http://kipbs.org/>) provides annual report that summaries the progress and accomplishments of the Kansas Mental Health Positive and Behavior Support (KMHPBS) project that aims to introduce PBS to mental health professionals across the state (Kansas Institute for Positive Behavior Support, 2013). KIPBS also made evaluation data for 10 years of PBS PD statewide dissemination available (<http://kipbs.org/sc/files/kmhpbs-kipbs-10-year-data.pdf>). This ten-year evaluation data report provides accurate numbers of Kansas professionals who have received

training, the components of training activities, as well as the outcomes reported back to KIPBS by professionals.

Another example of state level source of data is that PBS Kansas (<http://pbskansas.org/default.html>) archived statewide PBS dissemination activities across community-based service delivery systems. However, community-based child care programs or HS/EHS programs are not included under their list of community-based service delivery systems. Kansas School-Wide PBS (KSWPBS, <http://swpbs.org/schoolwide/index.html>) is a state level technical assistant platform that has also tracked state level data on their efforts to support and monitor implementing school-wide PBS (SEPBS) across Kansas school districts and the record shows that they has been actively involved in installing SWPBS to 16 school districts.

Unfortunately, in the area of early childhood education, especially for community-based child care and HS/EHS programs, data that captures statewide PBS PD dissemination has not been documented in a similar manner. The lack of statewide data systems to track PBS related professional development resources, dissemination activities, and implementation at the program level may well contribute to the gaps in implementation fidelity and sustainability reported. The state of Kansas does not have a state level leadership team to oversee and coordinate PBS dissemination and professional development for early childhood programs. This lack of a leadership team and data monitoring system at the state level may be a contributing factor to the finding that PBS professional development has not yet achieve “scale-up” since leadership and data system are two of the most important factors to facilitate successful implementation and scaling-up (Halle, Metz, & Martinez- Beck, 2013; Lowery, 2015).

Characteristics of PBS Related Professional Development

The information gathered through this survey on the characteristics of the PBS related professional development received by respondents can be categorized in the following ways: training types (i.e., online or in-person), training length (i.e., brief single day or partial day, multiple days), availability and frequency of follow-up support (i.e., coaching, retraining, and on-demand consultation), organizations providing the training, and roles of those receiving the professional development. Noticeably, the programs that had received PBS professional development from the same organization agreed upon the characteristics of their experiences. For example, those who reported that they received their training through National Training Institute on Effective Practices: Addressing Challenging Behavior (NTI), the majority noted that the trainings were provided in-person as a workshop format of one to two days. Respondents also added a number of organizations to the options provided on the survey including Child Care Aware, Douglas County Child Development Association (DCCDA), The Family Conservancy, Mid-America Regional Council, NAEYC International Conference; HighScope International Conference; and Kansas Division for Early Childhood Conference.

The wide range of professional development providers echoes the fact that ECE programs, especially community child care and Head Start/ Early Head Start programs, operate under different administrative entities and thus have various funding sources. Unlike K12 classrooms, ECE programs from the same neighborhood might each belong to a different umbrella organization. This situation leads to greater challenges towards achieving a unified approach to professional development, distribution of resources and establishing statewide comprehensive systems for monitoring access and impact on practice.

PBS Application

The results of this study indicate that only 35.92% (n = 37) of the programs are currently using PBS as an approach to support social emotional learning and to address challenging behaviors for children enrolled in their programs. Thus, it can be said, as noted above for professional development, PBS application has also not been “scaled-up.” When intervention developers or professional development providers introduce an innovation to educational programs, the ideal outcome of such investment is that programs will continuously use the intervention with fidelity thus ensuring sustained utilization and reliable outcomes (McIntosh et al., 2013). However, the results of this study found limited evidence of continual application of PBS following participation in professional development.

Discontinuity of PBS application is indicated by the fact that nearly half of the programs (43.9%) have received training on PBS yet reported that they are not currently utilizing PBS practices in their programs. Disconnection between PBS PD and PBS application is reflected by programs that had not received professional development on PBS. Of those 61 programs that had no PBS PD experiences, 24.59% reported that they are using PBS related approaches (i.e., PBS practices solely or combined with other approaches) to address social emotional learning and addressing challenging behaviors in their program. It appears that these programs had learned PBS practices on their own and had been using it without receiving any external professional development and ongoing support. Unfortunately, no further information was obtained for those programs to further describe how they are implementing PBS practices.

Along with PBS, the field embraces a wide range of other approaches (e.g., curricula, specific practices) to promote social emotional learning and address challenging behaviors in ECE settings (O’Conner et al., 2017). The findings of this study reveal that the majority of the

programs (60.19%, n = 62) were using non-PBS approaches (i.e., either used solely or combined with PBS elements) to support social, emotional and behavioral needs for their children, and 41.74% (n = 43) of them are solely utilizing approaches other than PBS practices. Of those programs who are solely using other approaches, 41.86% have received training on PBS, which indicates that those programs had chosen other approaches over PBS. Several questions are worth exploring for those programs. For example (1) Why aren't these programs currently utilizing PBS practices after they have received training? (2) How did these programs evaluate options of practices for supporting SEL and behavior needs? (3) How was the decision made regarding which approach to keep in their program? and (4) What resources were available to facilitate the programs' decision-making process? Gaining an understanding of the response to these questions is important in our work toward optimizing PD resources and to ensure a "best fit" with program needs (Cook & Odom, 2013).

The answers to the above questions may also provide valuable information to PD providers and innovation developers to support program staff's understanding of the connections between innovation and the approaches they are currently using (Blasé et al., 2013). As we support program staff in making these connections, it is more likely that the innovations will be added to programs' repertoire and integrated with the existing resources in a more efficient manner. The survey findings identified three non-PBS approaches – conscious discipline (65.22%), trauma-informed teaching (26.09%), and mental health consultation (MHC) (30.43%) - that are currently utilized by responding programs. It is important that intervention developers and PD providers help programs understand the similarities of different approaches that serve to achieve similar social, emotional, and behavioral outcomes. For example, Perry and Kaufmann (2009) proposed ways to integrate the Pyramid model and MHC at each tier of support.

Specifically, they noted that programs could use existing MHC counselors as Pyramid coaches and encourage the formation of interdisciplinary assessment team.

PBS Implementation

Level of PBS Implementation

Via the lens of implementation science, the level of implementation is defined as to what extent a program has carried out activities that are critical for sustainable implementation across implementation stages (Blasé et al., 2013). This information is crucial in providing guidance to policymakers, programs administrators, and practitioners to improve current practice (Fixsen et al., 2005). However, few implementation stage-oriented measurement tools are available to support collection data on PBS implementation within early childhood settings. This study contributes to the literature by developing a program evaluation tool that collected the first set of state-wide data on implementation stage of early childhood PBS through the lens of implementation science. The newly developed measurement SIA-ECPBS (16 items, $\alpha = .920$) contributes to expanding the knowledge and application of the ISAIF and specifically the assessment of PBS implementation as an innovation. The result of this study indicates that targeting programs in the state of Kansas have a low level of PBS implementation (i.e., mean score of SIA-ECPBS below the median). However, this result needed to be interpreted with cautious because more research needs to be done to verify the construct validity and concurrent validity of SIA-ECPBS.

The level of implementation in the current study is defined as to what extent a program has carried out activities to promote sustainable implementation. As explained in the conceptual framework, an important presumption of sustainable implementation is a practice's potential for durable implementation with high fidelity (McIntosh, et al., 2009). Thus, to further verify the

validity of SIA-ECPBS, its concurrent validity should be examined by comparing SIA-ECPBS scores with the results of PBS intervention fidelity measures. Potential measures include *Preschool-Wide Evaluation Tool* (PreSET; Steed, et al., 2012), *Teaching Pyramid Observation Tool for Preschool Classrooms* (TPOT; Fox et al., 2014) and *Teaching Pyramid Infant-Toddler Observation Scale* (TPITOS; Bigelow, Carta, Irvin, & Hemmeter, 2019) that measure universal social, emotional, and behavioral support practices of teachers. *Prevent-Teach-Reinforce for Young Children* (PTR; Dunlap et al., 2013) measures tier 3 behavior intervention for individual children who have serious behavior needs.

Associations between Program Variables and Level of Implementation

Program variables related to professional development (PD) has been identified as a key to support sustained implementation fidelity (Hemmeter et al., 2016b). Several variables of promising PD approaches have been suggested in the literature. They include (1) courses, workshops, or online modules and materials that provide content knowledge and multiple exemplars of practices, (2) sustained support related to implementing practices (i.e., coaching), (3) feedback about real world implementation, and (4) data system connecting practice improvements to child outcomes (Kretlow & Bartholomew, 2010; Snyder, et al., 2015).

However, no research has examined the relationships between program variables and the level of PBS implementation via the lens of implementation stage – specifically reflected by the score of SIA-ECPBS. In this study, program variables of interest include comprehensiveness of PBS training (i.e., received training on all PBS components or some of the PBS practices), program types (i.e., HS/EHS, CC-EC, CC-Above), program size (i.e., small, medium, large), program regions, training type (i.e., in person only, online only, in person and online combined), training length (i.e., 0.5 day, 1 - 2 days, 3 - 4 days, > 4 days), and follow-up support (i.e.,

whether the program have received support or coaching after the training). The results suggest that the only program variable that has significant impact on level of PBS implementation is the comprehensiveness of the PBS training that programs have received. It is possible that programs who have received training on all PBS components tend to have better understanding of the ins and outs of implementing PBS practices thus would have carried out more PBS implementation related activities. More research needs to be done to explore and verify this result.

PBS Sustainability Factors

The ECUBS inventory was found to be highly reliable (i.e., 30 items, $\alpha = .940$). Yet, the measures of internal consistency of subscales are not consistent. The average ECUBS score ($M = 44.46$, $SD = 12.23$) is above median (i.e., 31) and suggests a high level of sustainability of the 13 programs that have completed all ECUBS items. This result needs to be interpreted with caution because the small sample size as well as the lack of other implementation measurements were conducted for those programs.

No study in ECE field has been carried out to examine PBS sustainability factors nor to establish a PBS sustainability framework as McIntosh and colleagues (2009) did for K12 for over a decade. This study attempted to explore to what extent K12 sustainability factors hold truth to ECE settings by adapting SUBSIST (McIntosh et al., 2013) items to survey targeted early childhood programs. Unfortunately, low response rate and completion rate resulted in a small sample size to prevent conducting rigorous construct validity examination (i.e., exploratory factor analysis) of the ECUBS.

Implications

The ECE field shows increasing interest and investment in implementing and scaling-up PBS in early care and education programs to improve social-emotional competence for all young

children and especially for those from low-income families who are most vulnerable to negative outcomes (Costello et al., 2001). This study attempts to document and examine real world PBS implementation and sustainability through the application of an implementation science framework. The results of this study can provide important information that can be useful for researchers, policymakers, early care and education programs, as well as those engaged in workforce development.

Implications for Researchers. First, researchers or intervention developers need to further examine what components of an intervention is most critical and needed to be implemented with maximum fidelity so that the intervention is still effective and at the same time feasible and practical to fit into the programs' contexts. Second, researchers or intervention developers should use the implementation science framework and planning tools to facilitate programs to implement interventions from the initial stage of installation. Third, researchers or intervention developers must help programs identify the associations between their existing resources and the new innovation that they plan to install in order to (a) promote confidence of the program to carry out new practice, (b) decrease resistance and increase buy-in, and (c) decrease unnecessary waste of resources while make sure the new adoption of practices is economical and efficient. Last, researchers or intervention developers must help programs to understand the similarities of interventions that serve to achieve similar outcomes; thus, they should integrate different options to best fit their needs instead of having to pick one or the other.

Implications for policymakers. The State of Kansas, as a part of the federal Child Care and Development Block Grant, supports the delivery of high-quality childcare, equal access for low-income children, and continued enhancement of the quality of the early childhood workforce. However, as is the case with many states, our understanding at a local community

and individual program level is limited. The state of Kansas does not have in place ways to assess and understand the status of PBS implementation and sustainability, professional development needs and solutions regarding challenges towards effective and durable PBS practices within ECE programs. The results of this study further confirm the current gaps existing at the state level in terms of manage resources and monitor progress of using PBS to support young children's social, emotional, and behavioral needs. This study took the initial effort to understand the issues of PBS implementation and sustainability at the state level in Kansas and thus contribute to inform policy makers' efforts towards 1) Developing statewide data system to provide on-going monitoring and evaluation of PBS implementation within ECE settings. 2) Collecting and analyzing statewide data on professional development resources and outcomes on PBS practices on a regular basis. and 3) Setting improvement goals based on knowledge of current implementation and sustainability status and outcomes.

Particularly, the lack of statewide data system to track PBS PD and implementation is apparent and inhibits understanding research questions thoroughly. Results of this study suggests that the PBS developers and PD providers have not been tracking how programs are implementing PBS after they have received training. No state-wide data system exists to help evaluate the current PBS implementation status. Leadership is crucial to put all the other sustainability factors in place (MitIntch et al., 2009). It is imperative for the state of Kansas to establish a state level leadership team who will take on the responsibilities to develop statewide data system, organize PD resources, and utilize the data system to track PD dissemination as well as program outcomes.

Implications for early care and education programs. Child Care and Head Start programs serve a large population of children from low-income families. However, compared

with publicly funded preschool, these programs have a much higher need of equipping their workforce with evidence-based practices such as PBS to ensure social-emotional development and reducing challenging behaviors in young children. Adding to understanding of program characteristics that may lead to quality implementation and sustainability of PBS may serve as an important resource to programs as the plan for and advocate for resources to strengthen their program's capacity for training their workforce and thus providing high quality early care and education. This study initiated the efforts to achieve an in-depth understanding of facilitators, challenges, and solutions regarding effective and sustained PBS practices in real world. Outcomes of the survey provide preliminary guidance for programs as they collaborate with state level agencies to understand the importance of 1) Raising the awareness of using implementation science to guide professional development on evidence-based practices throughout the implementation stages. 2) Developing implementation teams, building feedback loops, and enhancing infrastructure to support outcomes at program-, teacher-, and children-levels. 3) Conducting ongoing monitoring and evaluation of the implementation process in order to resolve challenges and maximize improvement. 4) Collecting and analyzing data on teacher and children outcomes and using the data to inform further improvement. and 5) Utilizing both internal and external resources to support sustained professional development opportunities for staff. For example, programs can seek resources at the initial stage of adopting PBS to their programs in order to ensure sustainable implementation in the long run. The pyramid model network provides state capacity-building services (<https://www.pyramidmodel.org/services/state-capacity-building/strategy-consulting/>) resources that help improving state level infrastructure through onsite training and both onsite and distance technical assistance.

Limitations

This study aims to investigate PBS implementation and sustainability at the state level, thus representativity of the responding programs is important to address the research questions. In order to understand PBS related professional development experience of child care and Head Start programs, in an effort to maximize representativity of the responding programs, the researcher used total population sampling method and disseminated the survey to 92.28% of the target population (i.e., 816 licensed center-based child care and Head Start programs documented by Kansas Department of Health and Environment). The responding programs (n = 103) represent all of those four geographic regions defined by statewide child care resource and referral network in Kansas, which supports the geographic representativity of the current sample. In addition, the ratio of center-based child care programs to Head Start/Early Head Start programs is approximately 12:1 (Kansas Department of Health and Environment, 2017), which closely resemble the ratio of child care programs to HS/EHS programs of the responding programs – 1:9 (i.e., 12 HS/EHS programs and 91 child care programs). However, despite the efforts exerted to promote representativity of the sampled programs as well as the evidence of geographic and compositional representativity of the sampled programs, more research should be done to further examine the generalizability of the findings and conclusions of this study.

Besides the limitation of representativity of the responding programs, several other limitations exist in this study thus the interpretation of the results need to be cautious. First, the return rate of this survey is 13.68% which is at the low end of acceptable response rate (Smith & Bost, 2007). Low response rate may compromise the statistical power of the sample, thus skew the results of statistical analyses from. Second, the data collected through this survey study only response to the research questions to a limited level since qualitative data is also needed to

provide a more in-depth and comprehensive description and explanation of the research questions. Third, additional psychometrical properties of SIA-ECPBS and ECUBS are needed to strengthen the validity and reliability of both measures, thus the results of these two assessments should be interpreted as preliminary.

Conclusion

This survey study is the first attempt to investigate PBS implementation and sustainability via the lens of implementation science at the state level for Kansas child care and Head Start/Early Head Start programs. The results of this survey suggest that the PBS professional development and application both have not achieved scale-up. Two assessment tools were developed and both found highly reliable using Cronbach α . SIA-ECPBS evaluates the level of PBS implementation that is defined by to what extent a program has carried out activities that are critical to sustained implementation. Results of SIA-ECPBS indicate that the state of Kansas has a low level of PBS implementation. ECUBS evaluate level of sustainability that is defined by to what extent sustainability factors are in place in a program. Results of ECUBS indicate that the 17 responding programs have a high level of sustainability. One-way ANOVA was used to examine the associations between program variables and level of PBS implementation and sustainability. The results found whether programs received training on all PBS components, or some PBS components significantly impacted the level of PBS implementation. The findings of this study reveal the current issues existing in the state of Kansas regarding the lack of a statewide system to support PBS dissemination, promote sustainable PBS implementation, and monitoring dissemination and implementation outcomes. Information and results of this survey study provide researchers, intervention developers, ECE programs, and policy makers firsthand information on current status of PBS implementation in

real world and expand the field's knowledge on using implementation science to guide sustainable implementation of PBS.

Appendix

Appendix A: Survey Package

Introduction

Thank you for your interests in participating in the survey! This survey is designed to contribute to our understanding of how positive behavior support (PBS) strategies can be used by early childhood educators to better support young children's (3 to 5-year-old) social and emotional learning and address their challenging behaviors. Please refer to the email you received for the definition and examples of PBS practices.

We are able to offer \$25 Amazon gift card to the first 100 participants to complete the survey. So, don't wait.

If you believe there is another person who would be better able to complete the survey in terms of the use of PBS approach in your program, please forward this link to them. This person could be the program administrator, the program PBS team member, an internal coach, or an external coach.

Thank you for providing your unique perspective on this important issue!

Q1 Your program is a: (Click all appropriate answers)

- Child care program
- Head Start/Early Head Start program
- Preschool
- Other, please specify

Q2 What is the age range of children in your program? (Click all appropriate answers)

- Birth to 3
- 3 to 5
- School age (K12)
- Other, please specify

Q3 How many children are enrolled in your program?

- 0-30
- 31-60
- 61-90
- 91-120
- 121-150
- 151-180
- 181 and above
- Other, please specify

Q4 How many preschool age (3 to 5) children are enrolled in your program?

- 0-30
- 31-60
- 61-90
- 91-120
- 121-150
- 151-180
- 181 and above
- Other, please specify

Q5 Please enter your program zip code. (This information will help us to understand the type of community in which your program is located.)

- Please click and type

Q6 What is your role in your program(s)? (Click all appropriate answers)

- Administrator
- Teacher
- Assistant teacher/ Paraprofessional
- Internal consultant (e.g., internal PBS coach, behavior specialist, curriculum coordinator, instructional coach)
- External consultant (e.g., external behavior specialist, external PBS coach)
- Mental health specialist/ Social worker/ Therapist/SLP
- Early childhood special education teacher
- Early interventionist (birth to 3)
- Other, please specify

Q7 What approaches does your program use to promote social-emotional learning and address challenging behaviors in children? (Click all appropriate answers)

PBS as a program-wide approach. Note. A program that use PBS as a program-wide approach prioritize PBS as the primary approach to support social-emotional learning and address challenging behaviors. The program usually has a leadership team that has specifically been charged with leading the program-wide implementation of the PBS approach.

Definition of PBS:

PBS is a multi-tiered system that is built on a foundation of promoting social-emotional development and preventing challenging behavior. This multi-tiered system is organized into three levels.

The first tier involves universal practices to promote responsive caregiving relationships and high-quality supportive environments for all children (Fox, Hemmeter, & Snyder, 2014). Some strategies that are used in the first tier include providing visual prompts to support transition, and classroom-wide rules and expectations.

The second tier refers to targeted supports for children who require more systematic and focused social-emotional instruction. Some strategies that are used in the second tier include teaching emotional literacy, peer conflict solutions, and turtle techniques (i.e., anger management).

The third tier includes practices to provide individualized positive behavior support for children with persistent challenging behaviors that are not responsive to interventions at other tiers (Dunlap, Wilson, Strain, & Lee, 2013). Some strategies that are used in the

second tier include conducting function behavior assessment for children who engage in more serious forms of challenging behaviors.

- We are using components of PBS practices. Note. Choose this answer if you are using any one of the PBS practices as described above.
- Curriculum or program that focuses on social emotional learning (SEL) and behavioral management (e.g., Incredible Years; Second Step), please specify
- Other practices (e.g., trauma-informed teaching, mental health consultation, conscious discipline), please specify
- I don't know
- None

The remaining of the survey focuses on the nature of the PBS training your program might have received. Please indicate below whether or not your program has received PBS-related training.

Q8 Has your program received PBS related training?

- Yes, we have received training on all components of PBS as a program-wide approach
- Yes, we have received training on some components of PBS approach
- No
- Not sure, please contact [785-727-3784](tel:785-727-3784) or aijunaj@ku.edu if you want to confirm whether the training you or your program has received is PBS related training.
- Not sure, but I'd like to refer this survey to someone who might be a better informant. Please provide their email address for us to send the survey to them.

Q9 Please describe the nature of the PBS related training:

(Q9_1) Was the training(s) a part of a conference (e.g., pre- or post- conference workshop, conference presentation)?

- Yes
- No
- I don't know

(Q9_2) Was the training(s) a standalone workshop(s)?

- Yes
- No
- I don't know

(Q9_3) Was the training(s) a webinar?

- Yes
- No
- I don't know

(Q9_4) Was the training(s) an online model?

- Yes
- No
- I don't know

(Q9_5) What was the length of the training (s)? (Please sum up all trainings your program had received)

- half day
- 1 to 2 days
- 3 to 4 days
- more than 4 days

(Q9_6) Was follow-up support or coaching provided?

- Yes
- No

- I don't know
- (Q9_7) What is the frequency of follow-up support or coaching?
- Once a week
 - Once two weeks
 - Once a month
 - Less than once a month
 - NA

Q10 Which agency(s) did you receive your PBS related training from? (Click all appropriate answers)

- Kansas Inservice Training System (KITS) from Kansas University Center on Developmental Disabilities
- Kansas Institute for Positive Behavior Support: Online Modules
- The Southeast Kansas Community Action Program (SEK-CAP)
- Kansas Head Start Association (KHSA)
- Kansas Child Care Training Opportunities (KCCTO)
- Kansas Technical Assistance System Network (TASN)
- Juniper Gardens Children's Project, University of Kansas
- National Training Institute on Effective Practice: Addressing Challenging Behavior Workshop examples: Prevent-Teach-Reinforce for Young Children (PTR-YC): A Model for Addressing Serious Challenging Behaviors Prevent-Teach-Reinforce for Families (PTR-F): A Model of Individualized Positive Behavior Support for Home and Community The Teaching Pyramid Infant-Toddler Observation Scale (TPITOS) Reliability Training Teaching Pyramid Observation Tool (TPOT) for Pre-School Classrooms Reliability Training
- Other, please specify

Q11 When did you or your program receive the first PBS related training?

- Please type the date (yyyy/mm/dd)

Q12 When did you or your program receive the last PBS related training?

- Please type the date (yyyy/mm/dd)

Q13 Who in your program has received PBS related training? (Please click all appropriate answers)

- Administrator
- Internal consultant(s)
- Teachers
- Assistant teacher/ Paraprofessional
- Mental health specialist/ Social worker/ Therapist
- Early childhood special education teacher
- Early interventionist (birth to 3)
- Staff (e.g., receptionist, bus driver, kitchen staff)
- Family (e.g., parent, primary care giver)
- Other, please specify

The following questions are designed to gather information on the implementation and continued use of the PBS approach in early care and education settings in Kansas.

Item 1. We have formed an implementation team for PBS.

Note. An implementation team has specifically been charged with leading the program-wide implementation of PBS approach. The implementation team should include at least one team leader (e.g., internal coach, or administrator) and one direct service provider (e.g., teacher, special education teacher). Other team members may include internal coaches, external coaches,

parents, social worker, mental health specialist, early interventionist, therapist and other program staff.

- Not true
- Partially true
- True
- Don't know

Item 2. We have engaged in discussions and reviews about PBS implementation related activities, timeline, benefits, and risks, and communicate activities to administrators, teachers, staff, and families.

- Not true
- Partially true
- True
- Don't know

Item 3. We have conducted needs assessments around PBS practices (e.g., PBS Self Assessment Survey).

- Not true
- Partially true
- True
- Don't know

Item 4. We have selected targeted areas to address the needs of children, teacher, and family regarding social emotional learning and challenging behaviors.

- Not true
- Partially true
- True
- Don't know

Item 5. We have developed methods to assess "buy-in" of PBS for administrators, teachers, staff, and families.

- Not true
- Partially true
- True
- Don't know

Item 6. We have developed protocols for identifying barriers and challenges and problem-solving for the use of PBS approach. For example, we have weekly implementation team

meetings to identify issues, create plans, review results of past problem-solving efforts, forward issues to next level as appropriate.

- Not true
- Partially true
- True
- Don't know

Item 7. We have identified structural and functional changes needed for continued use (i.e., sustainable implementation) of PBS. Changes may relate to policies, schedules, space, time, materials, reallocation of roles and responsibilities, and new positions needed.

- Not true
- Partially true
- True
- Don't know

Item 8. We have developed plans for preparing additional staff including new coming teacher to use PBS approach.

- Not true
- Partially true
- True
- Don't know

Item 9. The program team who is implementing PBS are knowledgeable and skilled in PBS.

- Not true
- Partially true
- True
- Don't know

Item 10. All program personnel have a basic understanding of PBS, which means that they know the critical features and practices.

- Not true
- Partially true
- True
- Don't know

Item 11. The program team implementing PBS is well organized and operates efficiently.

- Not true
- Partially true
- True
- Don't know

Item 12. The program team implementing PBS meets at least once a month.

- Not true, please specify how many times they meet a year (1)
- True (3)
- Don't know (4)

Item 13. The program team has regular access to external PBS experts (e.g., community/state level coaches or consultants).

- Not true
- Partially true
- True
- Don't know

Item 14. The program team members and new personnel are provided with professional development in PBS at least once a year.

- Not true
- Partially true
- True
- Don't know

Item 15. The program team is connected to a "community of practice" (e.g., network of other PBS programs in the community).

- Not true
- Partially true
- True
- Don't know

Item 16. There is regular assessment of whether program staff are implementing PBS components as how they have been trained to. Such measurements may include Teaching Pyramid Observation Tool (TPOT), Prevent-Teach-Reinforce for Young Children (PTR-YC),

Prevent-Teach-Reinforce for Families (PTR-F), Teaching Pyramid Infant-Toddler Observation Scale (TPITOS), and Teaching Pyramid Observation Tool (TPOT).

- Not true
- Partially true
- True
- Don't know

Item 17. There is regular assessment of child social emotional outcomes.

Such measurement may include office discipline referrals, achievement data, program safety surveys, child/parent satisfaction surveys.

- Not true
- Partially true
- True
- Don't know

Item 18. PBS related data are reviewed regularly at team meetings.

- Not true
- Partially true
- True
- Don't know

Item 19. PBS related data are presented to all program personnel regularly.

- Not true
- Partially true
- True
- Don't know

Item 20. Data are used for problem solving, decision making, and action planning to make PBS more effective or efficient.

- Not true
- Partially true
- True
- Don't know

Item 21. We have identified training resources for PBS.

- Not true
- Partially true
- True
- Don't know

Item 22. We have developed support plans for teachers regarding their implementation of PBS practices.

- Not true
- Partially true
- True
- Don't know

Item 23. PBS serves a critical need for the program.

- Not true
- Partially true
- True
- Don't know

Item 24. PBS addresses outcomes that are highly valued by program personnel.

- Not true
- Partially true
- True
- Don't know

Item 25. A majority of program personnel (80% or more) support PBS.

- Not true (less than 50% of the program personnel support PBS)
- Partially true (50% to 80% of the program personnel support PBS)
- True (80% or more of the program personnel support PBS)
- Don't know

Item 26. Parents are actively involved in the PBS effort (e.g., as part of PBS team or community committee).

- Not true
- Partially true
- True
- Don't know

Item 27. The program administrators describe PBS as one of the top priorities for the program.

- Not true
- Partially true
- True
- Don't know

Item 28. The program administrators protect staff from competing demands to allow PBS to occur. For example, the program administrators don't require teachers to use additional assessments to track social emotional learning.

- Not true
- Partially true
- True
- Don't know

Item 29. A program administrator regularly attends and participates in PBS team meetings.

- Not true
- Partially true
- True
- Don't know

Item 30. There is published research supporting the effectiveness of the PBS practices used in the program.

- Not true
- Partially true
- True
- Don't know

Item 31. Program personnel believe that PBS is effective in helping them achieve desired outcomes.

- Not true
- Partially true
- True
- Don't know

Item 32. PBS has a "crossover effect" in other areas of children development. For example, PBS not only improves social emotional development but also improves child engagement and developmental and academic gains.

- Not true
- Partially true
- True
- Don't know

Item 33. The program staff are implementing PBS as how they were trained to do.

- Not true
- Partially true
- True
- Don't know

Item 34. PBS is considered to be a typical operating procedure of the program (it has become "what we do here/what we've always done").

- Not true
- Partially true
- True
- Don't know

Item 35. PBS is cost-effective (in terms of money and effort).

- Not true
- Partially true
- True
- Don't know

Item 36. Data collected for PBS are easy to collect and do not interfere with teaching.

- Not true
- Partially true
- True
- Don't know

Item 37. Materials related to PBS (e.g., handbook, posters) can be used or adapted with ease.

- Not true
- Partially true
- True
- Don't know

Item 38. There are adequate external resources (e.g., funding and time) allocated for PBS.

- Not true
- Partially true
- True
- Don't know

Item 39. The community- or state- level administration actively supports PBS (e.g., describes PBS as one of the top priorities, provides clear direction, promotion, publicity, providing infrastructure).

- Not true
- Partially true
- True
- Don't know

Item 40. PBS is promoted and visible to important groups (e.g., program board, community agencies, businesses, parent groups).

- Not true
- Partially true
- True
- Don't know

Item 41. PBS is embedded into program and/or state-wide policy (e.g., program mission/vision statements).

- Not true
- Partially true
- True
- Don't know

Thank you for completing the survey!

Please provide your email address for us to send you the \$25 Amazon gift card.

Email (Email is required to be eligible for the gift card)

Mailing address (optional)

Appendix B: Stages of Implementation Analysis (SIA) tool (Blase et al., 2013)



Stages of Implementation Analysis: Where Are We?

Adapted with permission by
The State Implementation & Scaling-up of Evidence-based Practices Center (SISEP)

Based on the work of
The National Implementation Research Network (NIRN)

Frank Porter Graham Child Development Institute
UNIVERSITY OF NORTH CAROLINA CHAPEL HILL



State Implementation
& Scaling-up
of Evidence-based Practices



nirn National
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email: sisep@unc.edu

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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.



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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.



This planning tool provides an Implementation Team the opportunity to assess, plan and track stage-based activities and improve the success of implementation efforts for Evidence-Based Programs (EBPs) or Evidence-Informed Innovations (EIIIs).

Background

Paying attention to implementation stages can help transform a good idea into great outcomes for students. The Stages of Implementation Analysis planning tool is used by Leadership and Implementation Teams to assess, plan and track implementation capacity building efforts across implementation stages. The scoring within the tool can also be used to demonstrate and explain progress to other administrators, School Boards, and stakeholders. The value lies in being able to anticipate stage-based work ahead, create meaningful action plans, communicate it and make it happen.

We invite your Leadership and Implementation Team to use this planning tool to guide the planning and tracking of your implementation process. Please note that, while the stages and the tool look linear, they are not. One stage does not crisply end as another begins. Teams might find themselves ‘toggling’ back and forth between stages. Teams might also find themselves returning to earlier stages as circumstances change (e.g., with new teachers and administrators). The overarching goal is to produce stage-based action plans for your initiative and improve access and outcomes for all students. Doing the right work at the right time with the right people can make a difference.

Stages of Implementation Analysis: Where Are We?

Date: _____
State, Region, District or School: _____

If known at this time, the Evidenced-Based Program(s) or Evidence-Informed Innovation(s) selected or under consideration:

Implementation Team Members Completing this Analysis:

The tool can be used to assess current stage activities (e.g. “We are in the midst of Exploration”) or past efforts related to a stage (e.g. “We just completed most of Installation. How did we do? What did we miss?). It also can be used to anticipate the upcoming stage and get ready for the upcoming stage-based activities.

For activities scored as “Not Yet In Place or as “Initiated or Partially In Place” the Implementation Team may wish to:

- a. Examine the importance of the activity in relationship to achieving success
- b. Identify and address barriers to completion of the activity
- c. Ensure that an action plan related to the item(s) is developed (sub-activities, accountable person(s) identified, timeline, evidence of completion) and monitored

Scoring Key

A ‘strength of stage score’ can be computed for each stage to help guide action planning.

- Each element identified as **In Place = 2 Points**
- Each element identified as **Initiated or Partially In Place = 1 Points**
- Each element identified as **Not Yet In Place = 0 Points**

Documentation

For each element that is identified as “In Place” or “Initiated or Partially In Place” please briefly describe or reference the evidence and/or data sources that demonstrate that that element is observable or measureable (e.g. needs assessment document, fidelity reports, training plan). One data source may serve to document several items.

Stages of Implementation Analysis: Where Are We?

Stage-Related Activities for: Exploration	In Place (2)	Initiated or Partially In Place (1)	Not Yet in Place (0)	Evidence for “In Place” or “Initiated or Partially In Place” Components
1. Form “Implementation Team” or Re-Purpose/Expand a Current Group				
2. Develop communication plan to describe the exploration process (e.g. activities, participants, timeline, benefits, risks) to key stakeholder groups				
3. Analyze Data to determine need and prevalence of need				
4. Select Targeted Areas to address Need (e.g. student, teacher, family outcomes)				
5. Review and identify programs, practices, interventions that match target area and address need				
6. Review and discuss “eligible” programs and practices (i.e. use the Hexagon tool or a Delphi Process) in relation to:				
a) Need				
b) Fit				
c) Resources – Sustainability				
d) Strength of Evidence				
e) Readiness for Replication				
f) Capacity to Implement				
7. Select programs/practices for continued exploration based on assessment results from above				
8. Develop methods to promote exploration and assess “buy-in” for range of impacted stakeholders				
9. Analyze information and results of exploration activities				
10. Implementation Team makes final selection or makes recommendation to appropriate level (e.g., next leadership level team, best practices groups, local partners, alliance, District leadership) for final selection				
Total				
Average % in Each Category - Strength of Exploration Score:				
Overall Score: (15 items X 2 = MAX: 30)				

EXPLORATION STAGE ACTION PLANNING

What should we do to further strengthen our Exploration Process? Are there Exploration Activities we need to revisit? What are the “next right steps”?

Use additional pages as necessary.

Stages of Implementation Analysis: Where Are We?

Stage-Related Activities for: Installation	In Place (2)	Initiated or Partially In Place (1)	Not Yet in Place (0)	Evidence for “In Place” or “Initiated or Partially In Place” Components
1. Identify structural and functional changes needed (e.g. policies, schedules, space, time, materials, re-allocation of roles and responsibilities, new positions needed)				
a) Within the classroom/building level				
b) Across the district level (e.g. collaborative teams, behavior teams, literacy teams)				
c) Outside the district level (e.g. community, mental health centers etc.)				
2. Make structural and functional changes needed to initiate the new program, practice, framework				
a) Within the classroom/building level				
b) Across the district level (e.g. collaborative teams, behavior teams, literacy teams)				
c) Outside the district level (e.g. community, mental health centers etc.)				
3. Development of selection protocols for “first practitioners” (e.g., administrators, teachers or staff)				
a) Within the classroom/building level				
b) Across the district level (e.g. collaborative teams, behavior teams, literacy teams)				
c) Outside the district level (e.g. community, mental health centers etc.)				
4. Selection of “first practitioners”				
a) Building administrators				
b) Teachers/Staff				
c) Other:				
5. Identification of Training Resources, logistics				
6. Training of first cohort of implementers				
a) Teachers				
b) Building administrators				
c) Trainers:				
d) Coaches:				
e) Other:				
7. Develop coaching and support plans for Teachers				
8. Evaluate “readiness” and sustainability of fidelity data system				
9. Analyze and problem-solve around the sustainability of training, coaching, data systems				
10. Establish communication links to report barriers and facilitators to next leadership level and/or policymakers during next stage (e.g. Initial Implementation)				

Stages of Implementation Analysis: Where Are We?

Total				
Average % in Each Category - Strength of Installation Score:				
Overall Score: (22 items X 2 = MAX: 44)				

INSTALLATION STAGE ACTION PLANNING

What might we do to further strengthen our Installation Process? Are there Installation Activities we need to revisit? And what are the “next right steps” to engage in or revisit Installation Activities?

Use additional pages as necessary.

Stages of Implementation Analysis: Where Are We?

Stage-Related Activities for: Initial Implementation	In Place (2)	Initiated or Partially In Place (1)	Not Yet In Place (0)	Evidence for fully "In Place" Components
1. Communication plan(s) developed to inform stakeholders of "launch dates", activities, and convey support				
2. Communication protocols developed for identifying barriers and adaptive challenges and problem-solving at each "level" (e.g. weekly implementation team meetings to identify issues, create plans, review results of past problem-solving efforts, forward issues to next "level" as appropriate)				
3. Leadership develops support plan to promote ongoing efforts				
4. Written coaching plan developed at relevant levels (e.g. unit/site; Teacher; grade-level, building)				
5. Coaching system in place (see Best Practices for Coaching Systems)				
6. Data systems functioning for measuring and reporting outcomes				
7. Data systems functioning for measuring and reporting fidelity				
8. Document that reviews initial implementation challenges and facilitators.				
9. Revision recommended for Implementation Drivers based on review of challenges and with sustainability considerations				
a) Recruitment and Selection				
b) Training and Booster Training				
c) Coaching processes and data				
d) Fidelity measures and reporting processes				
e) Outcome data measures and reporting process				
f) Building and/or District Administrative policies and practices (Facilitative Administration)				
g) Other Levels of Administrative policies and practices (Systems Intervention)				
h) Leadership support strategies				
10. If appropriate, plan for next cohort of practitioners				
Total				
Average % in Each Category - Strength of Initial Implementation				
Overall Score: (17 items X 2 = MAX: 34)				

INITIAL IMPLEMENTATION STAGE ACTION PLANNING

What might we do to further strengthen our Installation Process? Are there Installation Activities we need to revisit? And what are the “next right steps” to engage in or revisit Installation Activities?

Use additional pages as necessary.

Stages of Implementation Analysis: Where Are We?

Stage-Related Activities for: Full Implementation	In Place (2)	Initiated or Partially In Place (1)	Not Yet In Place (0)	Evidence for "In Place" or "Initiated or Partially In Place" Components
1. Monitoring and support systems are in place for each Implementation Driver:				
a) Recruitment and Selection				
b) Training and Booster Training				
c) Coaching processes and data				
d) Fidelity measures and reporting processes				
e) Outcome data measures and reporting process				
f) Building and/or District Administrative policies and practices (Facilitative Administration)				
g) Other Levels of Administrative policies and practices (Systems Intervention)				
h) Leadership support strategies				
2. Feedback process from Teachers to Building and/or District administrators is in place and functional (e.g. Teacher participation on Leadership and Implementation Teams, changes in administrative supports and policies occur to facilitate best practices)				
3. Feedback process from Schools to next levels of administration in place and functional (e.g. School Leadership to District)				
4. Feedback process to State or Regional/Intermediate District support is in place and functional. (e.g. system in place for Districts and Schools to feed information and feedback to appropriate State and/or Regional/Intermediate Districts)				
5. Leadership and Implementation Teams use data (e.g. student outcomes, behavior, and fidelity) to make decisions				
6. Improvement processes are employed to address issues through the use of data to identify challenges, development of plans, monitoring of plan execution and assessment of results (PDSA cycles) until improvement occurs or functional processes are embedded and routinized.				
Total				
Average % in Each Category - Strength of Initial Implementation				
Overall Score: (MAX: 13 Items X 2 = 26)				

FULL IMPLEMENTATION STAGE ACTION PLANNING

What might we do to further strengthen and maintain Full Implementation? Are there Activities we need to revisit? And what are the “next right steps” to engage in or revisit Full Implementation Activities?

Use additional pages as necessary.

Summary Table Template

	Exploration	Installation	Initial Implementation	Full implementation
Total number of items by Stage	15	22	17	13
% "In Place" = Number scored as "In Place"/Total # of Items in that Stage				
Score for "In Place" = # of items scored as "in place" X 2				
% "Initiated or Partially in Place" = Number of items scored as "Initiated or Partially In Place"/Total # of items in that Stage				
Score for "Initiated or Partially in Place" = # of items scored as "initiated or partially in place" X 1				
% "Not Yet In Place" = Number of Items scored as "Not Yet In Place"/Total # of Items in that Stage				
Score for "Not Yet in Place" items is zero				
Average Score by Stage : 1. Calculate Total Score by adding the Total Scores for "in Place" + Total Score for "Initiated or Partially in Place" = Total Score for Stage				
Average Score by Stage = Total Score for Stage/Number of relevant items				
Overall Maximum Score: (Max 134 if all stages are being evaluated and all items are "In Place")				

**Appendix C: School-Wide Universal Behavior Sustainability Index- School Teams
(SUBSIST; McIntosh et al., 2009)**

Default Question Block

Introduction

You are being asked to continue participation in a research study about implementation of School-wide Positive Behavioral Interventions and Supports (PBIS) by completing a shortened version of a survey that you or another staff member completed last year.

Purpose of Study

The purpose of this study is to determine what factors influence implementation and sustainability of PBIS. Your school is one of more than 800 participating schools. Funding for this research is provided by the U.S. Department of Education's Institute of Education Sciences.

Measure

The School-wide Universal Behavior Sustainability Index - School Teams 2.0 (SUBSIST 2.0) is a tool used to document district support provided to and accessed by each school participating in the project. The survey is completed to identify factors that enhance or impede implementation and sustainability.

Please answer for one particular school when you complete this survey. If you would like to complete the survey for another school, please click on the link (from your invitation) again when you have finished.

This survey should take approximately 10 minutes to complete.

To view and print the full consent form, please visit:

<http://kentmcintosh.files.wordpress.com/2012/09/pbis-sustainability-study-subsist-consent-form-2012-08-08.pdf>

By clicking on the button to the bottom right, you are providing your informed consent to participate in the study.

Thank you for providing your unique perspective on this important issue!

Please answer the following questions:

Your Name

Select the one role that BEST describes your current or most recent work with the school listed above

- School Administrator
- School PBIS Team Leader/Facilitator/Internal Coach
- School Faculty or Staff Member (not administrator or PBIS team leader/facilitator/internal coach)
- External/District/Regional Coach (outside of the school)
- Other (please provide):

Each page includes a number of statements (for example, 1.1. SW-PBIS (aka School-wide PBS, PBIS, EBS) serves a critical need for the school).

For each statement, you will be asked whether the statement is true for your school right now.

1.1. SW-PBIS (aka School-wide PBS, PBIS, EBS) serves a critical need for the school.

Not true Partially true Mostly true Very true Don't know/NA

1.2. SW-PBIS addresses outcomes that are highly valued by school personnel.

Not true Partially true Mostly true Very true Don't know/NA

1.3. A vast majority of school personnel (80% or more) support SW-PBIS.

Not true Partially true Mostly true Very true Don't know/NA

1.4. SW-PBIS has been integrated into new school or district initiatives (e.g., renamed to meet new needs, shown how it can meet the goals of the new initiatives as well).

Not true Partially true Mostly true Very true Don't know/NA

1.5. Parents are actively involved in the SW-PBIS effort (e.g., as part of SW-PBIS team or district committee)

Not true Partially true Mostly true Very true Don't know/NA

1.6. The school administrators describe SW-PBIS as a top priority for the school.

Not true Partially true Mostly true Very true Don't know/NA

1.7. The school administrators actively support school personnel when implementing and aligning initiatives (e.g., shield staff from competing demands, change language to align SW-PBIS with new initiatives) to allow SW-PBIS to occur.

Not true Partially true Mostly true Very true Don't know/NA

1.8. A school administrator regularly attends and participates in SW-PBIS team meetings.

Not true Partially true Mostly true Very true Don't know/NA

1.9. The practices and strategies of SW-PBIS are evidence-based (i.e., there is published research documenting their effectiveness).

Not true Partially true Mostly true Very true Don't know/NA

1.10. School personnel perceive SW-PBIS as effective in helping them achieve desired outcomes.

Not True Partially true Mostly true Very true Don't know

1.11. School personnel celebrate the positive effects of SW-PBIS at least yearly.

Not true Partially true Mostly true Very true Don't know/NA

1.12. SW-PBIS has a "crossover effect" in other areas (e.g., improved academic achievement scores, attendance).

Not true Partially true Mostly true Very true Don't Know/NA

1.13. SW-PBIS is effective for a large proportion of students.

Not true Partially true Mostly true Very true Don't Know/NA

1.14. SW-PBIS has been expanded to other areas (e.g., classrooms, buses, students with intensive needs, parenting workshops).

Not true Partially true Mostly true Very true Don't Know/NA

1.15. SW-PBIS is implemented with fidelity (i.e., it is used as intended).

Not true Partially true Mostly true Very true Don't Know/NA

1.16. SW-PBIS becomes easier to use with continued experience.

Not true Partially true Mostly true Very true Don't Know/NA

1.17. SW-PBIS is considered to be a typical operating procedure of the school (it has become "what we do here/what we've always done")

Not true Partially true Mostly true Very true Don't Know/NA

1.18. SW-PBIS is cost-effective (in terms of money and effort).

Not true Partially true Mostly true Very true Don't Know/NA

1.19. Data collected for SW-PBIS are easy to collect and do not interfere with teaching.

Not true Partially true Mostly true Very true Don't Know/NA

1.20. Materials related to SW-PBIS (e.g., handbook, posters) can be used or adapted with ease across years.

Not true Partially true Mostly true Very true Don't Know/NA

1.21. There is an immediate (within 6 months) effect of SW-PBIS (e.g., reduction in referrals/suspensions, improved school climate, improved student success) after implementation.

Not true Partially true Mostly true Very true Don't know/NA

2.1. The school team implementing SW-PBIS is knowledgeable and skilled in SW-PBIS.

Not true Partially true Mostly true Very true Don't Know/NA

2.2. The school team implementing SW-PBIS is well organized and operates efficiently.

Not true Partially true Mostly true Very true Don't Know/NA

2.3. The school team implementing SW-PBIS meets at least monthly.

Not true Partially true Mostly true Very true Don't Know/NA

2.4. Needs assessments (e.g., EBS/PBIS Self Assessment Survey) are conducted.

Not true Partially true Mostly true Very true Don't Know/NA

2.5. There is regular measurement of fidelity of implementation (e.g., Team Implementation Checklist, School-wide Evaluation Tool, Benchmarks of Quality).

Not true Partially true Mostly true Very true Don't Know/NA

2.6. There is regular measurement of student outcomes (e.g., ODRs, achievement data, school safety surveys, student/parent satisfaction surveys).

Not true Partially true Mostly true Very true Don't Know/NA

2.7. Data are reviewed regularly at team meetings.

Not true Partially true Mostly true Very true Don't Know/NA

2.8. Data are presented to all school personnel at least four times per year.

Not true Partially true Mostly true Very true Don't Know/NA

2.9. Data are presented at least once per year to key stakeholders outside of the school (e.g., district officials, school boards, community agencies/groups).

Not true Partially true Mostly true Very true Don't Know/NA

2.10. Data are used for problem solving, decision making, and action planning (to make SW-PBIS more effective &/or efficient).

Not true Partially true Mostly true Very true Don't Know/NA

2.11. All school personnel have a basic understanding of SW-PBIS (i.e., know the critical features and practices).

Not true Partially true Mostly true Very true Don't Know/NA

D1.1. There are adequate district resources (funding and time) allocated for SW-PBIS.

Not true Partially true Mostly true Very true Don't know/NA

D1.2. The district administration actively supports SW-PBIS (e.g., describes SW-PBIS as a top priority, provides clear direction).

Not true Partially true Mostly true Very true Don't know/NA

D1.3. State/provincial officials actively support SW-PBIS (e.g., promotion, publicity, providing infrastructure).

Not true Partially true Mostly true Very true Don't know/NA

D1.4. SW-PBIS is promoted and visible to important organizations (e.g., school board, community agencies, businesses, parent groups).

Not true Partially true Mostly true Very true Don't know/NA

D1.5. SW-PBIS is embedded into school and/or district policy (e.g., school improvement plans, mission/vision statements).

Not true Partially true Mostly true Very true Don't know/NA

D2.1. The school team has regular access to district SW-PBIS expertise (e.g., external/district coaches or consultants).

Not true Partially true Mostly true Very true Don't Know/NA

D2.2. School teams and new personnel are provided with professional development in SW-PBIS at least yearly.

Not true Partially true Mostly true Very true Don't Know/NA

D2.3. The school team is connected to a "community of practice" (e.g., network of other SW-PBIS schools in district, local/regional conferences).

Not true Partially true Mostly true Very true Don't Know/NA

B1.1. School personnel are opposed to SW-PBIS because it goes against their personal values (e.g., "rewarding" students, teaching "compliance").

Not true Partially true Mostly true Very true Don't Know/NA

B1.2. Other school/district initiatives (e.g., academic, behavior) are present that compete (for time, resources or content) with SW-PBIS.

Not true Partially true Mostly true Very true Don't Know/NA

B1.3. There are high levels of turnover of school administrators (i.e., yearly).

Not true Partially true Mostly true Very true Don't Know/NA

B1.4. There are high levels of turnover of school personnel who served as key leaders ("champions") of SW-PBIS (i.e., within three years).

Not true Partially true Mostly true Very true Don't Know/NA

B1.5. There are high levels of general school personnel turnover (i.e., 50% of staff).

Not true Partially true Mostly true Very true Don't Know/NA

How often does your school SW-PBIS team currently meet (during the school year)?

Weekly Every other week Monthly Every 6 weeks Every other month Other (please specify):

How often are data presented to all school personnel?

Weekly Every other week Monthly Every 6 weeks Every other month 4 times per year 3 times per year 2 times per year once per year less than once per year

Does this school have an external coach/facilitator/consultant with official work hours (FTE) dedicated to supporting SW-PBIS?

Yes No

If you would like to receive a gift card for participation, please enter your name and street address where you would like it sent. If you would like your answers to remain anonymous, please leave the boxes blank.

Name

Street Address (including City, State, & zip)

Last year, someone at your school (most likely you!) tallied and provided information regarding the number of trainings attended, coaching access, and peer networking events for the year. Would you like to complete the ADEPT (coaching and training log) again this year for an additional \$50 gift card?

Yes No

If so, please provide your e-mail address here:

If not, please suggest other (e.g., coach, other team members) who may be interested in tallying coaching and

Appendix D: List of Umbrella Organizations

1. Southeast Kansas Community Action Program (SEK-CAP)
2. East Central Kansas Economic Opportunity Corporation (ECKAN)
3. Northeast Kansas Community Action Program (NEK-CAP)
4. Northwest Kansas Educational Service Center (NKESC)
5. Kansas Children's Service League
6. Kansas Head Start Associations (KHSA)
7. Child Start
8. Clay county Child Care Center
9. Community Action
10. Early Childhood Connections
11. The Family Conservancy
12. Future Unlimited
13. La Petite Academy
14. KinderCare Learning Center
15. Goddard School
16. Montessori Unlimited
17. Kiddi Kollege Inc
18. Kids R Kids
19. Primrose School

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