Coaching Parents to Use Positive Behavior Support: Function-Based Interventions for Preschool Children with Challenging Behavior

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COACHING PARENTS TO USE POSITIVE BEHAVIOR SUPPORT:
FUNCTION-BASED INTERVENTIONS FOR PRESCHOOL
CHILDREN WITH CHALLENGING BEHAVIOR

by

Lauren E. Pace

A thesis submitted in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE

in

Human Development and Family Studies

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ABSTRACT

Coaching Parents to Use Positive Behavior Support: Function-based Interventions for Preschool Children with Challenging Behavior

by

Lauren E. Pace, Master of Science
Utah State University, 2019

Major Professor: Dr. Lisa Boyce
Department: Human Development and Family Studies

Challenging behavior can have a negative impact on family and peer relationships. There are many intervention programs available to classroom teachers and families with children with special needs; however, evidence-based parent support programs for preschool children (age 3 to 5) with challenging behavior is scarce. This study examined the impact of a 6-week intervention to coach parents in their homes using Positive Behavior Support (PBS), developmental parenting, and scaffolding strategies. A multiple-baseline-across-families, single-case experimental design was used to examine changes in challenging behavior with three families who participated in the intervention. The results indicate that challenging behavior decreased, and functional communication increased among all three participating families.

(115 pages)
PUBLIC ABSTRACT

Coaching Parents to Use Positive Behavior Support:
Function-based Interventions for Preschool Children
with Challenging Behavior

Lauren E. Pace

Parents who have children with challenging behavior may feel stressed, overwhelmed and at a loss for solutions. Challenging behavior can cause problems with children’s relationships with others and their school success. There are many resources for schools and children with special needs; however, resources for parents for young children (ages 3 to 5) with challenging behavior are limited. This study examined the impact of a 6-week intervention to coach parents to use strategies that encouraged children to develop skills that helped them to express frustration and solve problems in positive ways. Parents were better able to understand what the children were communicating with their behaviors, and what supports they needed in order to get their needs met in an appropriate way. Challenging behavior decreased for the children who participated. They also were better able to communicate their needs and handle disappointment.
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To the children in my preschool class who showed me the spark that every child has, no matter how challenging or difficult their behavior can become. You pushed me to discover more about this topic and help more families. To the families who did this intervention with me, thank you for your time and inspiring efforts as parents.

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Doing research in parenting and challenging behavior, makes me thankful for great examples of parents in my life, my parents and grandparents. Thank you, Mom and Dad for always supporting my goals, and being such loving parents.

Lauren Pace
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Challenging behavior is any repeated behavior that interferes with optimal learning or engagement in prosocial interactions with peers and adults (Carr et al., 2002; Dunlap, Carr, Horner, Zarcone, & Schwartz, 2008). Approximately one-third of preschool-age children in the United States present challenging behaviors (Rescorla et al., 2011). Many parents who have children with challenging behaviors start seeking support for their child between the age of two and three, resulting in months or years of searching for a solution (Doubet & Ostrosky, 2016). Facilitating a Positive Behavior Support (PBS) intervention in the home can give parents the support they need to understand their children’s challenging behaviors and triggers. This understanding along with coaching parents to teach new replacement skills has been shown to reduce challenging behavior (Dunlap et al., 2010; L Fox, 2009b; Powell, Dunlap, & Fox, 2006).

Some challenging behavior is developmentally appropriate as children learn new skills and grow through stages of life. However, persistent challenging behavior can disrupt family functioning and have negative effects on children’s care in school settings (Dunlap et al., 2008; Gilliam, 2005; Jolstead et al., 2017). These children use challenging behavior as a way to get their needs met (Chai & Lieberman-Betz, 2016; Chai, Zhen, & Lieberman-Betz, 2018). Challenging behavior may include a wide variety of types, including aggressive behaviors, emotional outbursts, and debilitating internal states such as anxiety. Children may have different challenging behaviors (e.g., inappropriate vocalizations, non-compliance, tantrums, aggression, or meltdowns).
Providing early interventions to young children who have challenging behavior has become crucial (Blair, Fox, & Lentini, 2010; McCabe & Frede, 2007; Ritblatt, Hokoda, & Van Liew, 2017). Expulsion rates in preschool settings are higher than K-12 expulsion rates by 300-400% (Gilliam, 2005). In fact, 50% of a sample of 5,000 suspended preschoolers were suspended a second time (U.S. Department of Education Office for Civil Rights Data & Collection, 2014).

Children with challenging behavior experience increased negative interactions with family members, leading to parental stress (Dunlap et al., 2008; Jolstead et al., 2017). Parents who seek support for their children’s challenging behavior often go through multiple sources, multiple times (Doubet & Ostrosky, 2016). Parents may start with childcare professionals, and then ask their children’s doctors. In a recent study, seven parents were interviewed who had sought help for their children for an average of 16 months. They reported increasing anxiety and frustration as they moved from source to source with no answers or services for their young children (Doubet & Ostrosky, 2016). Parents who did receive services found that the strategies taught were not evidence-based, and consequently were unhelpful in supporting social-emotional competence and addressing the challenging behavior (Doubet & Ostrosky, 2016).

Children with challenging behavior may be engaging in such conduct for a variety of reasons, including attention, avoidance, escape, inability to handle disappointment, anger, powerlessness, helplessness, feeling unloved and access to preferred activities (Strickland-Cohen, Kennedy, Berg, Bateman, & Horner, 2016). Moreover, children may be unable to communicate these needs appropriately (Chai & Lieberman-Betz, 2016). Punishment and extinction are often used with challenging behavior, and while they are
successful in stopping the behavior, they do not teach the children new skills or other ways to get their needs met. Children with these needs can often get them met without engaging in challenging behavior when parents can observe their triggers and adjust the environment to prevent the need being expressed inappropriately (Dunlap et al., 2006). Using Positive Behavior Support (PBS) helps parents understand what their child is trying to communicate with their behavior. This knowledge then helps them make adjustments to their home and school environment as a way to prevent triggers and ease the emotional burdens on their children (Dunlap et al., 2006). Prevention is the first step and can take care of a lot of the challenging behavior when using a proactive plan to face difficulties. After the behavior that can be prevented is addressed, parents then teach their children new skills to replace the challenging behavior. There is a need for intervention and support for families who have children with challenging behavior to develop behavior regulation and prosocial skills.

PBS emerged in the mid-1980s for use in homes, schools, and the community to address serious problem behaviors with a set of targeted intervention strategies (Carr et al., 2002; Dunlap et al., 2010; L Fox, 2009b). Positive Behavior Support is the process of developing behavior support plans for individualized intervention, using observational assessments as a guide to understand behavior. Without effective strategies for responding to difficult behavior, parents, teachers, and caregivers of children with challenging behavior may respond to problem behaviors with painful or stigmatizing procedures (Dunlap et al., 2010). PBS is designed as a proactive approach to reduce challenging behavior and lead to a more satisfying life (Dunlap et al., 2010; L Fox, 2009b; Powell et al., 2006). Much of the literature on PBS has placed an emphasis on
children with disabilities. This study sought to add to the PBS literature by including typically developing children with disruptive challenging behaviors.

Parents reach out to medical professionals, social service agencies, child care staff, friends, family neurologists, and psychologists searching for answers to help their children (Doubet & Ostrosky, 2016). These parents are often told that they would need further evaluation or a referral for the next step (Doubet & Ostrosky, 2016). With Positive Behavior Support, the facilitator validates the parents’ expertise and assists them in understanding their children’s behavior and development. Coaching parents to use Positive Behavior Support with children who have challenging behaviors takes a behavioral approach within a developmental context.

In order to examine the relation among challenging behavior, parental stress, and parental scaffolding, a single-case research study design using multiple baselines was implemented with three families who participated in a 6-week intervention using PBS. Single-case research design fit well with this study, allowing the researcher to fully implement an intervention in a specified time and track the changes in behavior, parental stress, education, and child behavior. Furthermore, using this design allowed the researcher to gather rich data from the families without using a large sample (Kazdin, 1982; Kratochwill et al., 2013). Focusing on three families enabled the researcher to polish and individualize the intervention.

PBS on its own does not consider the complex development of the child and parent. A review of the literature showed that in addition to PBS, parents who exercise scaffolding, understand temperament, and are coached through a facilitative, strengths-based approach can reduce children’s challenging behavior, leading to better child and
family outcomes (Clark, Menna, & Manel, 2013; Fukkink, 2008; Roggman, Boyce, & Innocenti, 2008; Vitiello, Moas, Henderson, Greenfield, & Munis, 2012). The purpose of the proposed study was to develop and explore a PBS home intervention with parent coaching grounded in Bronfenbrenner’s bioecological model.
CHAPTER II

REVIEW OF THE LITERATURE

This chapter presents a summary of the research on challenging behavior, and the theoretical perspective that guides this research. First, child and parent outcomes associated with challenging behavior will be presented. Next, evidence of effective interventions followed by the theoretical lens for this study will be presented. Finally, influences of understanding child temperament and effective parenting coaching will be discussed.

Challenging Behavior Child Outcomes

Problems regulating emotions and challenging behaviors are associated with behavior problems that may result in lifelong complications and poor academic performance (Eisenberg, Spinrad, & Eggum, 2010; Van der Ende, Verhulst, & Tiemeier, 2016). Since the mid-1990’s, the majority of students in disability groups who drop out are those with emotional and behavioral disorders (Wilkins & Bost, 2014). After high school, these students also experience unemployment and poor social relationships. More than half of children with emotional and behavioral disorders are predicted to be arrested within four years of leaving high school (Newman et al., 2011).

It has been well-documented that challenging behaviors are disruptive in school settings (McCabe & Frede, 2007; Powell et al., 2006) and that similar challenges are happening in homes (Fettig & Barton, 2014; Fettig & Ostrosky, 2014; Fettig, Schultz, & Sreckovic, 2015). The peak of physical aggression between 17 and 42 months of age is normative behavior in this developmental stage (Clark et al., 2013). High levels of
opposition and hyperactivity in Kindergarten boys are childhood predictors of persistent physical aggression of boys through high school (Nagin & Tremblay, 2001). While aggression and other challenging behavior are typical, they are most often replaced when prosocial forms of conflict resolution are acquired (Clark et al., 2013; Ritblatt et al., 2017). The interactions between parents and children and the parents reaction to challenging behavior are both key components to effective interventions (Bronfenbrenner & Morris, 2006a; Fettig & Ostrosky, 2014).

**Challenging Behavior and Parental Stress**

Higher levels of problem behaviors in preschool-age children are known to predict higher levels of stress in parents (Woodman, 2014). Child behavior and stress has been observed as a reciprocal relationship. Children with internalizing behaviors are also more likely to have mothers who report high levels of maternal distress, and increased distress in mothers may predict a higher contingent of internalizing behaviors in their children (Ciciolla, Gerstein, & Crnic, 2014). In addition, children who show more externalizing behaviors often have mothers who experience distress (Ciciolla et al., 2014).

Parental stress can have negative effects on many dynamics of family well-being, and can also prevent home from being an optimal environment for children to develop and thrive (Guralnick, Hammond, Neville, & Connor, 2008). Research tells us that stress levels may be different between mothers and fathers. Fathers who have a high level of satisfaction with family climate may have stress levels significantly affected by behavior problems (Ciciolla et al., 2014). Child behavior can have an adverse effect on maternal
psychological symptoms (Ciciolla et al., 2014) and mothers have been reported to be more affected by their children’s behaviors than fathers (Woodman, 2014).

Initial levels of stress have been shown to be significantly higher for mothers without social support than those with social support (Woodman, 2014). Indeed, protective factors for parents include family resources during early childhood (Woodman, 2014). Guralnick et al. (2008) examined the differing support systems for parents. General support was provided in the form of emotional support, sharing concerns, and exchanging advice. Parenting support was found to have an emphasis on the caregiving demands, with attention to the areas that cause the most distress in families. Higher levels of parenting support predicted lower levels of parenting stress (Guralnick et al., 2008). Thus, enhancing parental support is vital in reducing parenting stress for parents of children with challenging behaviors and developmental disabilities (Guralnick et al., 2008).

**Positive Behavior Support**

The use of PBS is associated with decreased problem behavior and positive family outcomes (Fettig & Barton, 2014; Fettig et al., 2015). Positive Behavior Support evolved from applied behavior analysis, with a focus on understanding the child’s behavior, in order to make positive changes and support new skills (Carr et al., 2002). Positive Behavior Support interventions focus on building an action plan to teach the child new skills and change the child’s environment to support prosocial development and the use of desired skills (Carr et al., 2002; L Fox, 2009b)

These interventions have been implemented in homes, with entire schools, and in classrooms. There is evidence of PBS interventions implemented with children from
typically developing preschoolers to adults with development disabilities (Bellone, Dufrene, Tingstrom, Olmi, & Barry, 2014; Chu, 2015; Dufrene, Doggett, Henington, & Watson, 2007; Hinton & Buchanan, 2015). PBS consists of three primary phases using the same basic structure: (a) conducting a behavior assessment to determine the functions of problem behavior, (b) teaching alternative skills to reduce problem behavior, and (c) applying preventative strategies based on the behavior assessment to decrease problem behaviors (Carr et al., 2002; Dunlap et al., 2010; Fettig & Barton, 2014; Hemmeter, Snyder, Fox, & Algina, 2016).

Using functional assessments, PBS interventions have been shown to be associated with decreases in challenging behavior and increases in new target skills (Bellone et al., 2014; Blair et al., 2010; Fettig & Barton, 2014; Fettig & Ostrosky, 2014, 2014; Hinton & Buchanan, 2015). PBS incorporates an understanding of the relationship between challenging behavior and the contextual influences to find the function of the challenging behavior (Blair et al., 2010; Bronfenbrenner & Morris, 2006a). The function of behavior is identified through a functional behavior assessment that consists of directly observing children in their natural environments and recording antecedents to describe behaviors and maintaining consequences (ABC model; Carr et al., 2002). The functional behavior assessment may be conducted formally with an assessment sheet, or informally using observations to discuss and hypothesize potential functions. Finally, Positive Behavior Support supports parents in developing a prevent-teach-respond action plan. The action plan helps to implement prevention strategies, new skills for the children, and new responses by adults so that undesired behavior is not maintained (Stanton-Chapman, Walker, Voorhees, & Snell, 2016). The researcher and the parent analyzed and
implemented what was already working well in the home to prevent and teach new skills. Data-based action plans may use a series of resources to be effective, including child development expectations, ABC model observations, and child development professionals (Hemmeter et al., 2016). PBS using function-based interventions are widely used with school-age children in classrooms, especially to decrease challenging behavior with children in special education programs (Bellone et al., 2014; Chu, 2015; Dufrene et al., 2007; Hinton & Buchanan, 2015).

Class-wide and school-wide interventions have been implemented successfully to reduce challenging behavior and increase appropriate behavior (Hemmeter et al., 2016; Jolstead et al., 2017). Teachers participating in class-wide interventions teach social skills, group the students into teams, and reinforce the use of social skills when a timer goes off (Jolstead et al., 2017). Teachers reported fewer challenging behaviors for the children who have received function-based interventions as a class-wide intervention (Hemmeter et al., 2016). PBS and behavior analysis studies have been effective in decreasing challenging behavior and increasing students’ social skills (Öğülmüş & Vuran, 2016). Many studies in Early Head Start programs have found that teacher-implemented function analysis resulted in greater behavioral improvement compared to interventions not tied to behavior function (Bellone et al., 2014; Dufrene et al., 2007; Stanton-Chapman et al., 2016).

Several studies have examined the longitudinal effects of Positive Behavior Support interventions. Most studies follow up with intervention effects at 6 to 8 weeks (Bellone et al., 2014; Blair et al., 2010; Fettig & Barton, 2014; Fettig & Ostrosky, 2014; Fettig et al., 2015). However, Positive Behavior Support has been shown to be effective
over longer periods of time (Dishion et al., 2008; Dunlap et al., 2010). Dishion et al. (2008) used a Positive Behavior Support intervention over the course of 1 year with 731 mother-child dyads from Women, Infant, and Children (WIC) programs in metropolitan areas, showing a decrease in problem behaviors when compared to the control group. Dunlap et al. (2010) performed a longitudinal study over two years with 21 participants, which provided evidence of enhancements in quality of life and decreased problem behavior. These findings provide justification for the use of Positive Behavior Support to support lasting reductions in challenging behaviors.

The effectiveness of PBS has been recognized in the literature across children with and without disabilities (Chu, 2015; Fettig & Barton, 2014). In a review of interventions, Positive Behavior Support interventions focused on adult learning and family-centered practices (Fettig & Barton, 2014). In this literature review, family-based interventions using PBS were evaluated. Only three of the 13 similar studies that were evaluated focused on children without diagnosed disabilities (Fettig & Barton, 2014). It is much more common to see these studies in classrooms of students with and without disabilities or in homes with children who have diagnosed disabilities (Fettig & Barton, 2014).

Positive Behavior Support is a training model used to provide individualized support for children to decrease challenging behavior and learn new skills. For decades, researchers have examined the influence of parenting on child development, finding that the role of parenting is associated with children’s outcomes at all developmental levels (Waller et al., 2015). The efficacy of individualized family interventions have been
documented for families of young children in need of intervention for challenging behavior (Fettig & Barton, 2014; Powell et al., 2006).

Implementation fidelity refers to the implementation of specific coaching practices (e.g., video feedback, modeling, discussion questions and covering all content). Implementation fidelity is essential to positive intervention outcomes (Fettig & Barton, 2014)—when a program is implemented with high fidelity, parenting practices improve significantly (Carroll et al., 2007). High fidelity in implementation of training practices has been shown to yield high-implementation of the intervention, which results in positive child outcomes (Fettig & Barton, 2014). In addition, the implementation of the intervention could be adversely affected without quality of delivery (Carroll et al., 2007). Therefore, in this study, implementation fidelity will be measured at two levels. Researcher implementation refers to the researcher delivering the intervention as intended, while parent implementation fidelity pertains to parents’ use of practices from the intervention coaching.

**Theoretical Perspective: Bronfenbrenner’s Bioecological Model and Positive Behavior Support**

PBS grounded in Bronfenbrenner’s bioecological theory can contribute to decreased challenging behavior and positive family outcomes (Bassett et al., 2017; Bronfenbrenner & Morris, 2006a; Fettig & Barton, 2014; Fettig et al., 2015; Rosa & Tudge, 2013). The unique analysis of all the child’s microsystems in the reduction of challenging behavior and support of the child contributes to a comprehensive and individualized intervention. Families who use PBS address the challenging behavior of
their children by looking at their behavior in interchanging contexts, taking into account personal characteristics and proximal processes over time (Rosa & Tudge, 2013).

Positive Behavior Support is an intervention that is designed to analyze behavior and contextual influences across all the child’s ecological systems, and then implements the intervention at the microsystem level. PBS is an applied science used in families (and other microsystems) to make changes in the child’s environment through the process of functional analyses and behavior support plans in order to increase the child’s quality of life and reduce challenging behaviors (Blair et al., 2010; Carr et al., 2002; Dunlap et al., 2008). Families, caregivers, and teachers often work together to implement PBS interventions in a child’s life (Blair et al., 2010; Carr et al., 2002; Dishion et al., 2008; Smith & Hamon, 2017). Even if Positive Behavior Support is only being implemented by the child’s parents, they are generally aware of other environmental influences on the child’s behavior, such as school, sports teams, youth leaders, and community.

**Mesosystem: The interaction between home and school.** PBS is a unique tool to help families, as it has been developed using the observations and assessments from the child’s microsystems, which provides information about the mesosystem. The mesosystem consists of the interactions between two or more microsystems (Smith & Hamon, 2017). In order to obtain a full understanding of a child’s behavior, it is important to examine children in their multiple environments (Bronfenbrenner & Morris, 2006a; Rosa & Tudge, 2013). Studies that evaluate the children within their home, school, and neighborhood contexts using the reports of parents, teachers, and peers to make observations and assessments of needs are illustrative of this model (Bellone et al., 2014). Families using PBS also utilize information from the school, neighborhood
families, and other communities in which they are involved to assess their children’s needs (Fettig & Barton, 2014). Just as Bronfenbrenner’s Bioecological Model focuses on the development of an individual child and all factors that influence the child, Positive Behavior Support aims to do the same (Blair et al., 2010; Dishion et al., 2008; Smith & Hamon, 2017).

A key component of PBS is that the analyses and implementation are being done with a team of individuals who work or live within the child’s natural environment (Bellone et al., 2014; Carr et al., 2002). An assumption of ecological theory refers to the notion that, as social beings, humans are dependent on others (Rosa & Tudge, 2013). Children are dependent on their peers, families, and teachers. Examining these interactions can help to understand the reasons for challenging behaviors and identify new skills to teach (Blair et al., 2010). Implementation of the Positive Behavior Support plan does not work without the support of caregivers within the microsystem (Carr et al., 2002). Bellone et al. (2014) found that training teachers to implement functional analyses improved the ecological validity of the assessment. Though an early childhood professional consultant may have knowledge on the matter of Positive Behavior Support, using the child’s context is an underlying principle of ecological theory and successful Positive Behavior Support intervention (Bellone et al., 2014; Blair et al., 2010). Dishion et al. (2008) suggested that PBS interventions are successful in reducing challenging behavior because they are individualized and tailored to the child. Essentially, families and teachers using Positive Behavior Support are investigating and supporting the child with regard to genetics and their environment. Ecological theory provides insight into this empirical finding.
Understanding children within their context is the goal of Bronfenbrenner’s ecological systems theory. PBS also seeks to help families and teachers understand children within their contexts and to make adjustments to the environment to help them be successful. Lin and Bates’ (2010) examination of Head Start home visits supported the use of the ecological framework as the home visits exist within the mesosystem (the interaction between home and school). These home visits helped the teachers gain an understanding of the children’s exosystem and macrosystem to provide a more effective learning environment for their students. These teachers learned about the children and their families, and then worked with their families with a more positive perspective than before (Lin & Bates, 2010). This study demonstrated how communication among adults who care for their child between the Microsystems (using the mesosystem) can impact the learning environment and help families thrive.

**Environment’s role in prevention and teaching new skills.** Ecological theory outlines the importance of understanding children and their interactions with the environment and provides justification for the use of PBS to adjust the environment in order to prevent challenging behaviors and teach new skills (Dunlap et al., 2008). Examples of behaviors that could be addressed with this approach is a child who would jump on the bed, take toys from siblings, laugh uncontrollably, and destroy property at bedtime (Fettig & Ostrosky, 2014). One way the parents have adjusted the child’s environment was by providing a calming activity before the bedtime routine (e.g., drawing, writing, and reading books). Changing the structure and routine for the child with new expectations has been found to help the child get attention in a positive way, decreasing challenging behaviors from 51.2% occurrence at baseline to 2.7% occurrence
at the maintenance check (Fettig & Ostrosky, 2014). The child’s environment must be analyzed and understood as completely as possible, making the ecological theory an ideal theory for understanding and implementing this intervention.

Over time, Bronfenbrenner’s theory evolved from an ecological model to a bioecological model. The four elements of process, person, context, and time simultaneously influence children’s developmental outcomes (Rosa & Tudge, 2013). Context is a key strength of PBS when analyzed with the ecological model. The next section outlines how parents use of PBS fits with bioecological theory.

**Proximal processes are mechanisms for development.** Regularly occurring reciprocal interactions between children and their relationships and environments is how children’s development occurs according to the bioecological model (Bronfenbrenner & Morris, 2006a). These interactions are referred to as proximal processes, which include both parent-child and teacher-child interactions (Bassett et al., 2017; Smith & Hamon, 2017). After conducting the observation and learning the function of the children’s behavior, parents and teachers first make adjustments to the environment to prevent challenging behaviors. Next, parents and teachers help children learn new skills. New skills are taught through proximal processes. The dynamic and complex response to children’s behavior from their caregivers with regard to the environment encourages children to learn new skills.

Fettig and Ostrosky (2014) found that several families had difficulty with their children during dinnertime. Families utilized proximal processes by having complex, adaptive responses specific to each of their own children. The solution was different for all families; rather, each function-based strategy was a complex interaction between the
children, their environment, and their family (Fettig & Ostrosky, 2014). Although children exhibited similar challenging behaviors, complex responses from each family specific to their children were needed to improve challenging situations (Fettig & Ostrosky, 2014). Proximal processes take place in PBS when parents adapt their responses to their children’s behavior to match the function of their behavior.

**Role of the person in their own development.** PBS strategies guide families to recognize individual characteristics that contribute to the needs of their children (Carr et al., 2002). The person is comprised of three personal characteristics (biological and genetic) that an individual carries into each setting (Bronfenbrenner & Morris, 2006b; Smith & Hamon, 2017). These three types of personal characteristics include: (a) force, (b) resource, and (c) demand (Bronfenbrenner & Morris, 2006b; Rosa & Tudge, 2013). Force characteristics include motivation, persistence, and temperament (Bronfenbrenner & Morris, 2006b; Smith & Hamon, 2017). Disruptive force characteristics are present in many children with challenging behavior (Bronfenbrenner & Morris, 2006b; Fettig & Barton, 2014; Fettig & Ostrosky, 2014). Children with disruptive force characteristics may be more impulsive, aggressive, violent, and distracted (Bronfenbrenner & Morris, 2006b; Rosa & Tudge, 2013). Accounting for the force characteristics that are part of the child allows families (and teachers) to adjust their responses to successfully match their children’s temperament (Blair et al., 2010; Fettig & Ostrosky, 2014). It is important to understand the motivation of a child’s behavior when observing the antecedents because there are ways to get that need met appropriately before the child engages in challenging behavior ((Dunlap et al., 2006)). Temperament can affect the proximal processes and child’s social-emotional behaviors with peers (Bassett et al., 2017). Temperament can be
influenced by the environment and through its interaction with the microsystem. Bassett et al. (2017) found that when children were emotional, the children with high anxiety to new situations were more sensitive to their teacher’s reactions. Understanding children’s temperament can affect the way teachers react to behaviors—this reaction is an important feature of the PBS plan (Carr et al., 2002).

Resource characteristics refer to children’s emotional and intelligence abilities, while demand characteristics refer to children’s age, gender, personal appearance, and skin tone (Smith & Hamon, 2017). The developmental level and parents’ understanding of children influence children’s challenging behaviors and adults’ perceptions of the behaviors as challenging. For example, many preschoolers struggle with sitting still for extended periods of time. Not being able to sit still should not be considered inappropriate for this age group (Jolstead et al., 2017). The principle of understanding the developmental capacity of the child and the “person” is important in the use of PBS to be proactive and benefit the family (Carr et al., 2002; Dunlap et al., 2008).

The use of PBS grounded in Bronfenbrenner’s bioecological theory acknowledges that parents understand their children by supporting their interactions with genetics (temperament or development) and the environment. Children are dependent on their environment and primary caregivers to meet their needs in challenging situations. Families’ use of PBS allows them to make changes in the environment to meet the personal or contextual needs of the children. Empirical evidence demonstrates that environmental triggers, setting events, and personal characteristics impact children’s behavior. Similarly, parents’ interactions with those characteristics all have an impact on children’s behavior. Therefore, the bioecological model is consistent the use of PBS by
families (and other microsystems) to help children develop new skills and reduce challenging behavior.

**Child Temperament**

Child temperament is a key factor affecting children’s challenging behavior and their interaction with their environment (Bush, Lengua, & Colder, 2010). Specifically, the majority of children’s challenging behaviors can be understood by the ways in which their temperament influences how they respond to the expectations and demands placed on them by their environment and the people they interact with in that environment. The compatibility of children’s temperament with their surrounding environment and caregivers is referred to as “goodness of fit” (Chess & Thomas, 1999). The temperament or trait itself is not the problem, but the interaction will determine the “goodness of fit” or “poorness of fit” and resulting conflicts (Chess & Thomas, 1999). “Poor fit” between what parents expect from their children and their actual temperament can lead to stressful interactions and coercive parenting practices (Hughes & Shewchuk, 2012; Mendez, Loker, Fefer, Wolgemuth, & Mann, 2015). Child temperament and goodness of fit research has shown how parent and child temperament interact to affect development (Chess & Thomas, 1999). A stronger fit between children’s temperament and their environment contributes to ideal development, whereas a poor fit can lead to maladaptive performance (McClowry, Rodriguez, & Koslowitz, 2008).

Interactions between children and their parents influence each other’s actions (Chess & Thomas, 1999; McClowry et al., 2008). There is evidence that temperament is related to parenting, particularly how children respond differently to key social situations.
(Bush et al., 2010). The temperament and gender of the child, along with the caregivers’ perceptions of their children’s characteristics, may determine the quality of their relationships (Rudasill & Rimm-Kaufman, 2009). Parenting shapes children’s self-regulatory and emotional behaviors, while those same behaviors from children are shaping parenting responses and parents’ interactions with their children (Kiff, Lengua, & Zalewski, 2011).

Difficult temperament has been shown to predict externalizing symptoms, such as hyperactivity and conduct problems in later childhood, while also having an impact on parenting within the family system (Mendez et al., 2015). Temperament traits of decreased behavioral control, resilience, and externalizing behaviors may also be related to vulnerability to alcohol and substance abuse in adolescence (Trucco et al., 2016). Moreover, the development of anxiety disorders later in life has been related with children’s fearful temperament (Möller, Nikolić, Majdandžić, & Bögels, 2016).

Understanding children’s temperament is key in understanding their abilities and needs. Lisonbee, Mize, Payne, and Granger (2008) found that teachers were reporting clinginess behavior, when it was actually behavioral temperament and not a relationship characteristic. These children needed skills to be able to cope with challenges in the classroom, and were viewed as clingy, instead of noting their behavior temperament and providing support accordingly (Lisonbee, Mize, Payne, & Granger, 2008).

Temperament measures can be used as a tool to understand adjustments that can be made to improve goodness of fit, which would promote optimal development and reduce conflicts. The goodness of fit model is used in temperament-based interventions (McClowry et al., 2008). This framework offers caregivers a lens to understand an
individual with their environmental stressors. Using the goodness of fit model helps to resolve temperament and environment mismatches and is useful when implementing an individual-approach intervention (McClowry et al., 2008). For example, parents with children who had anxiety disorders and who received education on temperament reported that their children’s anxiety disorders had significantly decreased at a one-year follow-up when compared to the control group. Interventionists can build on parents’ insights of their own temperaments and their children’s temperaments to help reframe parents’ perceptions as well as improve interactions and the environmental challenges (McClowry et al., 2008).

**Parent Coaching**

Often, parents focus on the consequences of misbehavior rather than the reason for the behavior or rationale for prosocial behavior (Clark et al., 2013). Group education offered to parents has been shown to successfully decrease challenging behavior (Fettig & Ostrosky, 2014; Powell et al., 2006). Parent-individualized coaching helps parents to be able to use new skills when challenging behaviors occur. This type of coaching is focused on problem solving with scaffolding emphasizing three areas, including cognitive support, emotional support, and autonomy support. The present study used the developmental parenting framework (Roggman et al., 2008) to facilitate parent coaching through means of video feedback and discussion.
Developmental Parenting

A parenting model implemented with a facilititive approach uses four guidelines. First, there is emphasis on child development. The researcher in this study uses her knowledge and other resources to expand parents’ understanding of their children’s developmental levels. Second, the model focuses on parent-child interactions to support development. Instead of going into a situation and interacting only with the child or the parent, the researcher assists the parents in their interactions with their children. Third, strategies are used to expand on family strengths to support early development. Strategies may include assignments, videos, and other feedback. Lastly, the model’s emphasis, focus, and strategies make developmental parenting easier.

Instead of sitting down with the parent and teaching them everything about child development or what to do with their child, Roggman et al. (2008) recommended a collaborative partnership. The parents do not need to be experts in child development; rather, they only need to be experts in the development of their own child. Instead of a standard or traditional curriculum, facilitating developmental parenting requires practitioners to help parents identify their own resources, think through ideas to solve problems, and work together to assess the strengths, needs, and resources of the family (Roggman et al., 2008). In the intervention, the researcher collaborated with parents by observing to see what they are already doing well. This entailed implementation of strategies that parents already found successful into the action plans. The researcher used open-ended questions, implemented parent ideas, and asked the parents for feedback throughout each visit.
**Parental Scaffolding**

As children are developing and participating in new tasks, there are tasks that are beyond their knowledge and capabilities. Scaffolding refers to the adults’ control over these elements in tasks outside of the child’s capabilities, while the child manages what they are capable of handling (Vygotsky, 1978). Like Bronfenbrenner, Vygotsky took a contextualistic perspective. Scaffolding is the process of asking questions, introducing new information, and facilitating the child’s learning. When the task is mastered by the child, the child will be able to complete the task without scaffolding (Vygotsky, 1978). There are three forms of supportive practices in scaffolding: (a) cognitive, (b) emotional, and (c) autonomy (Clark et al., 2013).

High-quality parenting uses scaffolding (Thompson, Foster, & Kapinos, 2016). In a comparison of parenting strategies, the mothers of securely attached children used scaffolding in challenging situations, while mothers of insecurely attached children responded to challenging behavior with long explanations that the child may or not understand (Cakic & Marjanovic-Umek, 2015). The use of monologue is a popular strategy by parents when their child misbehaves; however, the developmentally appropriate response to challenging behavior would likely involve scaffolding and teaching problem solving skills prior to the occurrence of challenging behavior.

**Cognitive support.** In order to provide, cognitive support, the adult must facilitate information regarding the child’s thought process (Clark et al., 2013). Cognitive support may include suggestions about the child’s strategy or questions to inform the child’s problem solving. Mind-related comments help children understand how their behaviors are guided by mental thought processes (Lundy & Fyfe, 2016). The
balance of children leading the activities and hearing their parents’ scaffolding may help them to understand that other people have different viewpoints (Lundy & Fyfe, 2016). Cognitive support helps children to think about new strategies, review problem solving steps, and begin to understand rationale underlying decision making (Clark et al., 2013).

**Emotional support.** Emotional support fosters the child’s ability to regulate emotions (Clark et al., 2013). Parents who scaffold with emotional support use positive reinforcement and verbal and non-verbal communication to reassure and comfort their child. In a challenging situation, children may need support to regulate emotions and handle disappointment, parents can support them in working through emotions. Mothers who explained emotions to their children tended to have children who engaged in more prosocial behavior, while mothers’ inattention the child’s emotional triggers was related to higher aggressive behavior (Garner, Dunsmore, & Southam-Gerrow, 2008).

**Autonomy support.** Parents’ autonomy-promoting questions help children reflect on their own thought processes (Lundy & Fyfe, 2016). In the instance of challenging behavior between peers, autonomy-promoting questions may be very useful in helping the child develop appropriate social responses. Autonomy-promoting questions may include, “how do you think we should take care of this?” and “what do you think we should do to help her feel better?” Instead of the adult saying, “say sorry,” the child takes time to articulate the feelings they are having and how they think it can be made better. By asking the child questions such as, “how do you think they are feeling?” “how are you feeling?” and “when this happens to you what do you wish would happen?” problem-solving skills, empathy, compassion, and prosocial behaviors are all taught in the interaction. Autonomy support refers to the parents’ abilities to support their
children, while also encouraging them to be active in their own problem solving (Clark et al., 2013).

**Video Feedback**

As suggested in *Developmental Parenting: A Guide for Early Childhood Practitioners*, parenting-focused models should use strategies to expand on families’ strengths to support development. Video feedback has been shown to be effective in coaching parents (Fukkink, 2008). Allowing parents an opportunity to review their parenting through video, promotes them to confidently identify intervention-targeted behaviors (Meade, Dozier, & Bernard, 2014). Video feedback gave the researcher a resource to point out and build on the parenting strengths, including labeled praises, behavior descriptions, and reflections (Barnett, Niec, & Acevedo-Polakovich, 2014). Responsive coaching has been shown to be more effective in parent coaching than directive coaching. Parents are more receptive to responsive coaching and are able to develop new skills (Barnett et al., 2014).

**Summary**

Challenging behavior is common for many children, yet there are few curricula that successfully provide individualized interventions and support. The majority of the research on challenging behaviors has a decided emphasis on children with disabilities. If a child does not know how to spell or dribble a basketball, they are taught by teachers and coaches. If a child does not know how to behave, society often uses punishment instead of teaching. This may be because people do not understand the reasons why this
child is acting this way and need more information and resources to understand the triggers, patterns of behavior and maintaining consequences.

Effective interventions for children with challenging behaviors include the use of PBS. In addition, research has shown positive changes in families who are coached through the intervention using a developmental parenting model (Boyce et al., 2017). The developmental parenting model in this intervention aimed to facilitate parent development of scaffolding and support their understanding of temperament and behavior functions. Weekly discussions including child development information were used as tools for learning. This model of intervention also intended to encourage parent ideas to introduce new skills and new responses to their children’s behavior.

While research has shown how effective PBS models are in implementing high-quality function-based interventions, there is lack of clear procedures offered to parents and families to make this intervention possible (Wood, Cho Blair, & Ferro, 2009). PBS does not consider the complex development of child and parent or the powerful emotions embedded in parent-child relationships context. In light of this, the current study sought to extend the PBS literature and parent interventions by providing demonstrations of comprehensive PBS interventions conducted in home settings with parent coaching.

**Research Questions**

Providing coaching and feedback during PBS intervention has been emphasized to ensure teacher implementation fidelity. Providing weekly parent coaching, feedback, and discussions should lead to strong treatment fidelity.
Based on what is known about the role of parenting on children’s outcomes (Waller et al., 2015) and the success of using PBS in classrooms (Bellone et al., 2014; Chu, 2015; Dufrene et al., 2007; Hemmeter et al., 2016; Hinton & Buchanan, 2015; Jolstead et al., 2017), it is expected to see success in decreasing problem behavior and increasing social skills when parents are coached through PBS interventions. The research questions are stated as follows:

1. Is there high implementation fidelity from the researcher and the parents?
2. Do parents who participate in a PBS intervention increase the use of parental scaffolding?
3. Does coaching parents in PBS decrease the frequency of challenging behaviors in their children?
4. Do parents who participate in a PBS intervention report a decrease in parenting stress?
CHAPTER III

METHODS

Participants and Setting

Three families were selected as part of a purposive sample. Participants were selected from Cache County, Utah that followed IRB protocol. The researcher sent out brief details and qualifications to participate in the study to childcare centers, family support centers and Facebook. Eight families responded within the week, four of families were from Utah County, UT and one from SLC, UT. The three remaining families were from Cache County, UT. Criteria for participation in this study included the following: (a) the child was 3 to 5 years of age; (b) the child’s challenging behavior had been reported as a serious concern in the home setting, and (c) the participating parents were present for all coaching sessions. The first three families that met all the requirements were asked to participate and accepted.

Table 1

Demographics of Study Participant Families

<table>
<thead>
<tr>
<th>Demographics</th>
<th>Family 1</th>
<th>Family 2</th>
<th>Family 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child age in months</td>
<td>53</td>
<td>63</td>
<td>50</td>
</tr>
<tr>
<td>Child gender</td>
<td>Female</td>
<td>Male</td>
<td>Male</td>
</tr>
<tr>
<td>Sibling Order</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Mother age in years</td>
<td>34</td>
<td>26</td>
<td>26</td>
</tr>
<tr>
<td>Father age in years</td>
<td>34</td>
<td>29</td>
<td>36</td>
</tr>
<tr>
<td>Marital Status</td>
<td>Married</td>
<td>Married</td>
<td>Married</td>
</tr>
<tr>
<td>Gross family income</td>
<td>$21,600</td>
<td>$9,600</td>
<td>$30,000</td>
</tr>
<tr>
<td>Family members per household</td>
<td>6</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Mother’s Education</td>
<td>College Degree</td>
<td>College Degree</td>
<td>College Degree</td>
</tr>
<tr>
<td>Father’s Education</td>
<td>Associates Degree</td>
<td>College Degree</td>
<td>High School</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>White / White</td>
<td>White / White</td>
<td>Black / White</td>
</tr>
</tbody>
</table>
For the purposes of this study, challenging behavior consisted of behavior that disrupts the functioning of the family, including aggression, noncompliance, emotional outbursts, tantrums, withdrawal, and inappropriate vocalizations and lying. Other challenging behaviors were considered and defined as they appeared. Three families who met the criteria were selected to participate in the study (see Table 1). Mothers and fathers were both asked to participate so that changes would be made to the whole family unit.

Two other families who met the criteria participated in the study as a pilot family and no-intervention family. The pilot family was included to fine-tune the weekly curriculum and gather information needed on effective tracking procedures. The no-intervention family was included to demonstrate intervention effect.

**Intervention Procedures**

The 6-week intervention consisted of adapting the PBS intervention developed for preschool classrooms, incorporating Developmental Parenting, and building on the use of cognitive scaffolding strategies for problem-solving (L Fox, 2009a; Roggman et al., 2008). All coaching sessions were individualized for each family and were held in participants’ homes. Families met with the researcher 5 of the 6 weeks; the 5th week was a check-in through email. A schedule of the intervention procedures is included in Table A1 (see Appendix A).

**Baseline Visit**

The researcher visited the home before the 6-week intervention for three purposes: (a) get signed consent to participate, (b) drop off the packet of questionnaires
for the mothers and fathers to complete, and (c) record a baseline scaffolding task video for each parent separately. The packet of questionnaires included questions to assess child behavior, child temperament, and parental stress. The researcher reviewed the scaffolding task before beginning the first week.

Because we are doing a multiple baseline design, the distance between the baseline visit and the start of the intervention were different for each family. As soon as the baseline visit happened, families began collecting challenging behavior data. Our design required a little bit of flexibility with the families start dates. Families chose dates that work for them over a few months, and the researcher contacted them the week prior to beginning their 6-week intervention.

Each week, the child was present for half of the visit, and within a safe distance playing during the other half. The visits were no longer than one hour. The researcher used the time that the child was present to support the parents’ interaction with the child, observe strategies and behavior, and learn about the child’s temperament, development, and home environment.

**Week 1: Focus on the Behavior Patterns**

The coaching began with a discussion about the children as well as their behavior patterns. The purpose of using a home visit style for this intervention, was to have discussions with the parent and not just lecture at them. In order to effectively help families to reduce challenging behaviors, the home visitor needed to learn a lot about the child from the parent. Instead of just telling parents what to do, the researcher asked questions, discussed scenarios, and used the parents’ expertise to learn more about the child. Parents discussed the setting events, behavior, and maintaining consequences (see
Appendix B). The patterns helped to explain what the child was communicating with their behaviors. The researcher used the temperament questionnaire to lead the discussion on temperament (see Appendix C). The temperament of the child and parents was analyzed and discussed to identify the similarities and differences. Using the temperament continuum, the parents discussed with the researcher the adjustments to make a “good fit.” To inform intervention and prevention strategies, the researcher used the child temperament measure to discuss the goodness of fit with the child and his environment (L Fox, 2009a).

Physical symptoms of the stressors and potential triggers were also discussed. In this conversation, parents and researcher determined potential functions of behavior. Using the scaffolding task video, the researcher pointed out strengths and encouraged more of what was done well throughout the video, by noticing the positive interactions and the body language of the child. The researcher watched the videos prior to week one visit and wrote down all the positive interactions between parent and child including dialogue, expressions of positivity, physical contact and positive body language. The researcher then watched back the videos with the family and asked them to point out what they noticed went well with their child. The researched then added anything else positive that was in the interaction that they did not mention or notice.

The assignment for week one was to focus on positive reinforcement, encourage more of the positive behavior, observe the child’s temperament and better times of day for the child, and prevent behaviors using what was discussed in the first meeting (see Appendix B). Throughout the week, parents continued to collect data on their children’s challenging behavior.
Week 2: Reflection and Hypothesis

After a week practicing prevention and positive reinforcement, behaviors of high concern sometimes shifted. Parents and the researcher discussed how the week went, reevaluated the challenging behaviors, and noted what changed as a result of preventing and providing positive reinforcement (see Appendix B). In an open discussion, the parents and researcher hypothesized functions of behavior, strategies that worked and did not work, and the skills that the child needed. The researcher facilitated a discussion, probing for parent ideas to determine how they could teach their children the skill. The researcher framed their ideas in the context of scaffolding, developmental expectations, and the children’s temperament.

The researcher discussed appropriate times with the parents to teach new skills using a curve and arrow graphic representing the escalation of the challenging behavior (see Appendix B). The researcher asked what happened when the child plays appropriately (green arrow) versus when they are triggered (yellow arrow) or exhibit challenging behavior (red arrow). In this discussion, the researcher asked the parents when they think the teaching was best received. The parents would identify some moments that may be ideal for teaching in the upcoming week. Following this visit, parents were advised to continue to record challenging behavior data and find times to work with their child on the new skills each day.

Week 3: Problem Solve

Parents reflected on previous weeks with the researcher and discussed the function of the child’s behavior. Having identified all components of the PBS plan
throughout the visits, the parents were ready to build an action plan (see Appendix B). The researcher guided them through developing a PBS plan including the function of behavior and new skills that were appropriate to meet that function. The PBS plan included new responses from parents to the challenging behavior and to the use of the new skill. The action plan was organized, including how it would be implemented, needs specific to each parent, specific times of concern, and planned times for teaching. Parents continued to record behavior and fully implement the PBS intervention.

**Week 4: Maintenance**

The researcher met with the family to check in and make any necessary adjustments. Together, the parents and researcher problem solved and adjusted any parts of the PBS plan that needed a change. Parents continued to record behavior and follow the intervention plan.

**Week 5: Check-In**

The researcher contacted the family to see how their week was going and guide them in moving forward to another week. The researcher asked how the use of new skills were going and if the challenging behavior was slowing down. If parents were still having problems, new strategies and responses would have been put into the action plan; however, this was not the case. Parents continued to record behavior and follow the intervention plan.

**Week 6: Final Visit**

The sixth week was a final visit to correct anything necessary on the PBS plan with the researcher. The scaffolding video task observation was recorded. The
researcher dropped off the post-intervention packet that included a program evaluation form. Parents collected the final week of challenging behavior data.

**Procedures**

The researcher visited each family’s home twice to collect data. The first visit took place before the 6-week intervention. This visit included the baseline measurement of parental scaffolding and packet of questionnaires. Each parent was given a scaffolding task to complete with the child that was likely too difficult for the child to complete on his or her own.

The scaffolding task and parent order (mother or father) of completing the task with the child were randomly assigned. One randomly assigned scaffolding tasks was a marble task, while the other randomly assigned scaffolding task was a puzzle task. After the parent was randomly assigned a task and an order, they were given the materials and the researcher recorded the interaction.

For the marble task, the researcher told the parent to help the child build a marble tower with two entry points and two exit points. The researcher remained silent and recorded the parent and child complete the task. For the puzzle task, the researcher told the parent and child to complete the puzzle. The researcher recorded the task and remained silent.

During the baseline visit, the researcher left a packet of questionnaires, including the signed consent form; The Behavior Assessment System for Children (BASC-2); Child Temperament Continuum; Early Intervention Parenting Self-Efficacy Scale (EIPSES); Behavior Support Plan Knowledge Assessment (BSP Knowledge
Assessment); and Parenting Stress Index: Short-Form (PSI-SF). Each parent completed a BASC-2 and a PSI-SF separately and completed the Child Temperament Continuum worksheet together. The parents had one week to complete the forms prior to the start of the intervention.

The parents were given a tracking sheet to record any challenging behavior that occurred each day during a 3-hour gap when they would both be home (see Appendix D). Each day, parents reported the challenging behavior with an “X” for each occurrence and a number indicating the duration. If a day had no behaviors, this was marked with a “0.” The researcher took a picture of the data form each week.

At the end of each visit, the researcher went over the implementation fidelity checklist with the parents. The parents checked all topics covered during the visit and signed the form (see Appendix E).

At the conclusion of the intervention, the researcher delivered a second packet of questionnaires, including the BASC-2, EIPSES, BSP Knowledge Assessment, PSI-SF, and a Social Validity measure of the intervention. For the second scaffolding visit, the parents kept the same order and task that were randomly assigned at the baseline visit. Keeping the same order and task controlled for threats to internal validity—for example, if the child had more difficulty with attention or preferred one task over the other. The same task was given to each parent by the researcher. The researcher gave a new prompt to encourage new conversations and challenges. Then, it was recorded for each parent-child dyad.
Logic Model

Figure 1 illustrates the hypothesized relationship between the intervention resources (PBS, Developmental Parenting, Scaffolding, and Utah State University Researcher and Child Development Expectations); activities/outcomes (weekly trainings, awareness of child, and PBS action plan development); short-term effects of those activities; and the long-term impact. Predicted short-term effects included parents’ use of scaffolding strategies, appropriate responses from the child to parents and from parents to child, and parents’ valuing autonomy and problem solving. Predicted long-term outcomes included decreased challenging behavior, improved parent-child relationships and improved child emotional regulations, problem solving, and prosocial behaviors. The intervention process was evaluated by the scaffolding observation, parent report of challenging behavior frequency, parent evaluation of child temperament (Temperament Continuum), assessment of internalizing/externalizing behaviors (BASC-2), PBS Intervention Guide, the implementation fidelity checklist, and the social validity ratings. The impact of the intervention was measured by the pre-post comparison of the scaffolding observations, BASC-2, EIPSES, PSI-SF, and the BSP Knowledge Assessment. Additionally, the social validity ratings and challenging behavior trends provided an evaluation of the impact.
Figure 1. Logic model.

**Resources**
- Positive Behavior Support (PBS)
- Developmental Parenting
- Evidence Based Strategies
- USU Researcher
- Child Development Expectations

**Activities**
1. Provide training and coaching to enhance parent knowledge & facilitate problem solving
2. Promote parent awareness of child development, child temperament and physical symptoms of child stressors.
3. Facilitate the development of a PBS action plan.

**Outputs**
- Observations of parent-child interaction
- Attendance at weekly coaching
- Parent data collection
- PBS Action Plan
- Implementation Fidelity checklist

**Short-Term (process) Outcomes**
- Parent effective use of scaffolding strategies and PBS strategies
- Parent responding appropriately to child
- Child responding appropriately to parent
- Parents value children’s autonomy and problem solving

**Long-term (impact) Outcomes**
- Decreased internalizing and externalizing behaviors
- Improved parent-child relationships
- Improved child emotional regulation, problem solving and prosocial behaviors

**Evaluation Plan**

<table>
<thead>
<tr>
<th>Process</th>
<th>Impact</th>
</tr>
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<tbody>
<tr>
<td>1. Observation of parent-child interaction (scaffolding observation)</td>
<td>1. Observation of parent-child interaction (scaffolding observation)</td>
</tr>
<tr>
<td>4. PBS Intervention Guide &amp; Implementation fidelity checklist</td>
<td>4. Assessment of parent’s PBS knowledge (PBSP)</td>
</tr>
<tr>
<td>5. Social Validity ratings of training</td>
<td></td>
</tr>
</tbody>
</table>
Measurements

Implementation Fidelity

In order to increase reliability of drawing casual inferences between children’s challenging behavior and the PBS intervention, it was essential to ensure the training and intervention was implemented with high fidelity (see Appendix E). Information on the fidelity checklist was used to determine to what capacity the researcher implemented the intervention (Jolstead et al., 2017). Implementation fidelity was measured at two levels: the researcher’s implementation fidelity and the parent’s implementation fidelity.

**Researcher Implementation Fidelity.** The researcher’s implementation fidelity was measured with a weekly fidelity checklist. The parents and the researcher checked each box on the checklist that was covered that week to ensure procedural integrity (Fettig & Ostrosky, 2014). Implementation fidelity included documentation of the researcher asking open-ended questions, implementing parent ideas, and asking for feedback from parents. Implementation fidelity percentages were calculated by dividing the number of checked boxes by the total number of boxes.

**Parent Implementation Fidelity.** Parent implementation fidelity (parents’ use of the PBS intervention) was measured using a pencil and paper tracking chart. Parents recorded a daily log of their child’s behavior (in addition to frequency of challenging behavior data). For each challenging behavior, the parents marked an “X.” Each minute the child engaged in the challenging behavior was recorded next to each behavior occurrence. In the notes section, parents recorded any use of prevention for the specific behavior, response, or reinforcement of new skills. All data entries made by parents were
divided by total data entries possible during the 6-week baseline and intervention period to determine the implementation fidelity score for parents.

**Parental Scaffolding**

Parental scaffolding was assessed using a revised version of an observational coding system used by Clark et al. (2013). Scaffolding was separated into three forms of support: (a) cognitive, (b) emotional, and (c) autonomy. Each form of scaffolding was rated using a five-point scale from one (low) to five (high) during the video recorded puzzle/marble tasks.

Cognitive support was measured by parents’ use of metacognitive information, regulating task management and reviewing the steps of tasks and progress to reach goal. Cognitive support involves communicating task management and strategies, while also regulating the task difficulty. Cognitive support was coded when parents showed task management techniques, talked about how tasks work, or provided rationale for strategies (Clark et al., 2013). A cognitive support composite score was calculated by summing the three variables.

Emotional support was rated through positive support and rejection. Positive emotional support includes “encouraging comments, supportive gestures, facial expressions, and general warmth” (Clark et al., 2013). Parents were also assessed on their judgment and rejection of their child’s problem-solving tasks, including a critical or dismissive response. Rejection was reverse coded. An emotional support composite score was calculated by summing the two ratings.

Autonomy support measures the parents’ ability to use positive control, while also encouraging the child’s active use of problem solving (Clark et al., 2013). Control was
rated by parents’ recognition of their children’s abilities and needs (Clark et al., 2013). Encouragement of active involvement was measured by “hints, prompts, and questions rather than demands or directives” (Clark et al., 2013). An autonomy support composite score was calculated by summing the two ratings.

Two student researchers, blind to the study hypotheses, coded the scaffolding behaviors from the video record of parent-child interactions. Students were provided a coding manual and received instructions on the scaffolding variables described. Students were also provided an example video with a coding key. Each student coded the videos separately, then met together with the researcher to discuss discrepancies and reach a consensus (Clark et al., 2013). Raters were unaware of participants’ scores on other measures. Scores not in agreement were reviewed until a rating was decided upon (Doubet & Ostrosky, 2015, 2016). The coders reached 100% consensus for all codes for the mothers and fathers scaffolding support.

**Frequency of Challenging Behavior**

Frequency of challenging behavior (FCB) was collected in the home and family settings throughout the course of the study. Challenging behavior is considered as any disruptive behavior that interferes with optimal family function and social interactions (Clarke et al., 2013). Specific challenging behavior was interpreted for each child by the parents and researcher.

Challenging behavior was recorded daily by both parents. Challenging behavior was recorded each day during a 3-hour window chosen by the family to ensure that both parents were with the child for at least 20% of the data points. Parents used the paper to
record the frequency and duration of challenging behavior, as well as note the setting event, trigger, and response after the behavior.

In studies using a single-case research design, the primary focus of assessment is on the “target behavior,” or the behavior that is going to be changed (Kazdin, 1982). Frequency measures are used when the observer tallies the behavior each time it occurs in a given time frame. When the target is discrete, such as hitting or slamming doors, this measure is particularly useful. In cases where it is difficult to measure the start and end of a behavior, there are some threats to validity and reliability of the measure. For example, if a child has internalizing problems (e.g., anxiety) when they are going to school, it is unclear as to whether this should be tallied as one event or consistently marked throughout the entire day. A significant amount of information can be lost merely by tallying the behavior when it differs in duration (Kazdin, 1982).

A few actions can be taken to address the threat of internal consistency. The frequency measure can include an additional requirement that the behavior be observed and recorded for a constant amount of time. If a tantrum happens for 30 minutes one day and 5 minutes the next, the behavior is different. A tally would not reveal this information, although including a duration of the behavior would allow the rate of response to be obtained (Kazdin, 1982). This was all recorded on a tracking sheet. The rate of response was calculated by dividing the frequency of responses by the number of minutes observed each day, which was 180 minutes. This gives a frequency per minute or rate of response, which is comparable across days and differing durations (Kazdin, 1982).
Child Behavior: BASC-2

Developed by Reynolds and Kamphaus (2004), The BASC-2 was used to measure child behavior. The BASC-2 is a multidimensional system to evaluate behavior of children and young adults (ages 2 to 25), using a series of rating scales to measure children’s behavior. For young children (2 to 5 years old), behavior was measured using the Parent Rating Scale-Preschool (PRS-P).

Although inferential statistics was not used, BASC-2 was used descriptively to examine any changes in scores within each child. BASC-2 scores were used to establish concurrent validity with the frequency measure.

The BASC-2 is ideal for use in identifying behavior problems when developing function-based assessments (Reynolds & Kamphaus, 2004). The child behavior scale includes positive and adaptive behaviors, as well as problematic and maladaptive behaviors (Stein, 2007). The authors report high internal consistency ($\alpha = .80$ to $.90$), strong test-retest reliability ($r = .77$ to $.90$), construct validity, scale intercorrelations, and concurrent validity with other well-established behavioral systems (Reynolds & Kamphaus, 2004). The scale intercorrelations revealed expected relations between scales on each measure (Stein, 2007). In the two instruments to assess the behavior of preschool children, there are validity checks to guard against biased responding, misunderstanding or carelessness and other potential threats to validity (Stein, 2007).

The dimensions measured in the PRS-P of the BASC-2 include externalizing problems (aggression, hyperactivity); internalizing problems (anxiety, depression, and somatization); adaptive skills (adaptability, social skills, activities of daily living, and functional communication); behavior symptoms index; attention problems; atypicality;
withdrawal; and control scales (anger control, bullying, developmental social disorders, emotional self-control, executive functioning, negative emotionality, and resiliency). While internalizing problems and attention problems, for example, are very different from each other, Reynolds and Kamphaus (2004) suggested that understanding a child from all these dimensions can provide a more complete understanding of child behavior.

Parental Stress

The PSI-SF was used to measure parental stress (Abidin, 1995). The PSI-SF contains 36 items and three sub scales (parental distress, parent-child dysfunctional interaction, and difficult child). The combined parent and child domains complete the total stress scale. It is commonly used in setting priorities for an intervention and for follow-up evaluation (Abidin, 1995). The measure has been shown to have adequate test-retest reliability. There is evidence of strong internal consistency; reliability coefficients for the two domains and total stress were .96 or greater (Abidin, 1995).

Parent Efficacy

An adapted version of the EIPSES Items was used to measure the parents’ self-efficacy before and after the 6-week intervention (Guimond, Wilcox, & Lamorey, 2008). Items are measured on a 7-point Likert scale ranging from “Strongly Disagree” to “Strongly Agree.” This instrument measures how confident and competent parents feel with their skills, knowledge, and abilities to make an impact on the lives of their children. There is evidence of strong internal consistency; the reliability coefficient was .80 (Guimond et al., 2008). Higher scores on the EIPSES reflect greater perceived self-
efficacy. For scoring, items 3, 5, 6, 8, 12, 16, 17, 19, and 20 were reverse coded. Scores were computed by taking an average of responses.

The use of the word “early interventionist” was adapted to “child development specialist” for the use of this study. Question 10 was removed because it was not applicable to the intervention. Statements include: “Children will make the most progress if a teacher/child development specialist works with them rather than if the parents work with the children,” “No matter how hard I try, it seems that I just cannot find a way to get the services that my child and my family needs,” and “If my child is having problems, I would be able to think of some ways to help my child.”

Parents’ Knowledge of PBS

The BSP Knowledge Assessment was adapted from Strickland-Cohen (2011) to measure the effectiveness of PBS training given to parents. The original assessment was modified to (a) assess the knowledge level of parents entering training, and (b) assess the knowledge level of parents who completed training. Specifically, it measures parents’ understanding of how to develop child behavior support plans using PBS strategies and determining the function of the child’s problem behavior. The adapted BSP Knowledge Assessment takes approximately 10 minutes to complete.

To assess the knowledge of participants related to PBS, each parent completed the BSP Knowledge Assessment pre-intervention and post-intervention. There are two different versions of the same assessment in the same format and covering the same content (Strickland-Cohen, 2011). Both versions consist of 21 items: 2 open-ended questions related to critical components of the PBS training 5 items), and two test
scenarios of mock preschool child case examples (16 items), each including behavior support strategies that participants were asked to rate as Function Based (FB) or Non-function Based (N). For the purpose of this study, the researcher used the term “non-function” to replace the term “contraindicated,” as used in the Strickland-Cohen (2011) assessment. The scores can range from 0 to 21.

The content validity of the BSP Knowledge Assessment was evaluated by two content experts, who were professors of special education with relevant publications and five special education doctoral students with FBA/BSP experience (Strickland-Cohen et al., 2016). Content experts and doctoral students all scored around 90% on both versions of the test. In a pilot study with 14 school-based professionals, pilot participant scores averaged 61% (range = 43 to 80%) prior to training, and 88% (range = 80 to 96%) after training (Strickland-Cohen et al., 2016). Both versions of the test were given to 21 graduate students in special education at 1-day intervals, resulting in an intraclass correlation coefficient of .97. This suggested that the measure demonstrates strong test-retest reliability (Strickland-Cohen et al., 2016).

**Child Temperament**

Temperament goodness of fit was evaluated through a worksheet adapted from the Center on the Social and Emotional Foundations for Early Learning (CSEFEL) called the Temperament Continuum (see Appendix C; Fox, 2009a; Thomas, Chess, Birch, Hertzig, & Korn, 1963)(Fox, 2009a).

The Temperament Continuum worksheet encourages parents to evaluate the nine temperament traits for themselves and their children. The parents look at activity level,
distractibility, intensity, regularity, sensory threshold, approach/withdrawal, adaptability, persistence, and mood. For each trait, the parents initial where they personally fall on the trait continuum, and initial where they believe their child falls. All traits have a high level to a low level, with examples of the behavior at each level indicated. For example, activity level ranges from very active (wiggle, squirm, or difficulty sitting still) to not active (sit back quietly or prefer quiet sedentary activities), with these examples of the behavior included on both ends of the continuum (L Fox, 2009a).

Social Validity

At the conclusion of the study, participants were given a paper and pencil rating scale to rate perceptions of the intervention. Participants’ responses were measured using a Likert scale from 1 (strongly disagree) to 5 (strongly agree). Items in this measure included, “I will continue to use the strategies and tools from this intervention with my child/children,” “I believe this intervention strengthened my parenting skills,” “I believe I can identify triggers of my child’s challenging behavior” and “This intervention improved my relationship with my child” (see Appendix F).

Design

Dependent Variables

The dependent variable of primary concern was challenging behavior. Each individual may have different challenging behaviors (e.g., inappropriate vocalizations, noncompliance, tantrums, aggression, and meltdowns). Challenging behavior is any repeated behavior that interferes with optimal learning or engagement in prosocial
interactions with peers and adults (Fox & Smith, 2007). Other dependent variables were parental scaffolding and parental stress.

**Single-Subject Design**

Single-subject intervention research design should satisfy the four criteria used to determine whether the study’s designs met the design standards, as outlined in the single-case design (SCD) standards (Kratochwill et al., 2013). The first protocol to minimize threats to internal validity requires that the intervention is systematically manipulated rather than some naturally occurring event (Kratochwill et al., 2013). Therefore, the researcher had to determine when and how the changes in the independent variable would occur (Kratochwill et al., 2013). This standard was met in the design of the study, as the families systematically received the intervention after baseline data had been collected. The intervention was implemented through individualized coaching using PBS and meeting individual needs and expectations during week one through three. The family was supported in the intervention during week four through six. Follow-up data were collected at the completion of the 6-week intervention.

Second, each outcome variable had to be measured over time by more than one assessor (Kratochwill et al., 2013). Both parents measured their child’s challenging behavior as well as the duration the behavior occurred. Challenging behavior data were recorded between three chosen hours each day, serving as a reliability measure and ensuring that 20% of the data points were observed by both parents.

Third, the study had to include three attempts to demonstrate an intervention effect, each at a different point in time. Lastly, for the phase to show the effect, it required at least three data points (Kratochwill et al., 2013). The intervention used a
minimum of seven data points for baseline and each of the 6 weeks after the start of the intervention, and then data for each day for more than 50 days.

We used a multiple-baseline design, introducing the intervention at different times to establish experimental control (Byiers, Reichle, & Symons, 2012). The first family recorded one week of challenging behavior as their baseline data, then the researcher began the intervention. The second family’s visits started when the challenging behavior data drop for the first family. The third family’s visits started when the challenging behavior data dropped for the second family. As the researcher saw successful reduction in challenging behavior, they repeated the changes in the intervention for the next family. Because the intervention cannot be removed once it was started, this design allowed for us to see that the effects happen at different times and allow us to make causal inferences (Byiers et al., 2012; Wolery, Dunlap, & Ledford, 2011).

The challenging behavior frequency measure represented the best measure for single-case research design, for several reasons. Theory and empirical studies dictate that to understand behavior, it is crucial to observe the behavior as it normally occurs, in context (Bronfenbrenner & Morris, 2006a). In the review by Dufrene et al. (2007) and Stein (2007) of the BASC-2, it strongly specified the importance of ongoing observation in the child’s context to understand the child’s behavior. Dufrene et al. (2007) specifically noted that behavioral diagnostics and classification should include observation of the child’s reaction to intervention. If nothing has been done to improve challenging behavior, it is unfair to diagnose children with a behavioral disorder. Knowing about their behavior from one-instance is not enough information to help
children. With the intention of improving the challenging behavior through intervention, the ongoing frequency measure was the most adequate for this research study.

FCB should be coded by two observers (parents, teachers, specialists, or researchers); this was documented by percentage agreement. SCD Standards acknowledge inter-assessor agreement for each variable must be based on at least 20% of data points within each condition (Kratochwill et al., 2013). In order to meet all the standards, both parents had to code at least 20% of the data during 3 weeks of the intervention, baseline, mid-point, and the final week.

SCD Standards also require seven data points be included for each participant in order to demonstrate experimental control. FCB should be collected across a minimum of seven intervals. To see the result of an intervention, this data should be recorded over days and weeks, even months. In a 6-week intervention, frequency measures were collected everyday by the parents, while the mean for each week was calculated and represented for a total of seven data points: baseline and each week of the intervention. Providing these data points also ensures meeting SCD Standard 4 and seeing the functional relationship which exists between the intervention and the frequency of challenging behavior (Kratochwill et al., 2013).

Piloting the Intervention

To ensure that measures and intervention procedures were adequate, the researcher selected a family who was not in the research sample to pilot the intervention. The researcher worked out potential problem areas and practiced implementing the coaching with a family. The pilot family informed the researcher of the most effective
tracking format given the options. The researcher was able to facilitate the weekly discussions with 100% fidelity. The child’s behavior decreased after the first week of the intervention. All adjustments that were needed before implementing the intervention with the sample were considered.

**Data Analysis**

Data were analyzed using Microsoft Excel.
CHAPTER IV

RESULTS

In this chapter, the data used to address the research questions are reported.

Research Question 1

The first research question was as follows: Does the intervention have high implementation fidelity from the researcher and the parents? Treatment fidelity was measured for the parent and researcher to see if the intervention was implemented adequately before looking at any other results. Results based on this research question are detailed below.

Researcher Implementation

During the intervention sessions, the researcher followed the program guidelines that had been developed to work with the families. In each session, the families indicated if the researcher covered all topics, included their input in the discussion, and asked open-ended questions. The implementation checklist was high for all families using the implementation fidelity checklist, social validity questionnaire, and the BSP Knowledge Assessment. The implementation percentages were above 90%, the quality of implementation was above 75%, and there was an increase in PBS knowledge as measured by the BSP Knowledge Assessment for each family (see Table 3).

Implementation was scored using the implementation fidelity checklist. To be labeled high, the scores had to be between 90 and 100%. Family one has an implementation fidelity score of 91% using the weekly checklist, while family two and
family three scored 100%. All families received 100% on the weekly checklist according to the researcher, family one just interpreted the discussion differently and did not check the boxes, still resulting in a score of high implementation fidelity.

The social validity questionnaire average of certain questions (3, 4, and 7 to 9; see Table 3) needed to be between 3.75 and 5.00 to be considered high, so that parents all agreed with the statements provided and agreed that the intervention was useful in these specified areas. For family one, scores averaged 4.4, while family two scores averaged 4.2 and family three scores averaged 4.4. Parents agreed that the researcher provided opportunities for practice and questions. All parents also agreed that the intervention would help them implement appropriate ways to respond to challenging behavior, help them accurately identify function of behavior, and identify the triggers of their child as a result of the intervention (see Table 3).

Finally, there was an evidence of increased knowledge of PBS as measured by the BSP Knowledge Assessment. Family one’s scores increased from an average of 1.5 to an average of 9.5 questions answered correctly. Family two’s scores went from an average of 5.5 to 12. Family three’s scores went from an average of 7.5 to 9.5.

Table 2

<table>
<thead>
<tr>
<th>Researcher Implementation Fidelity</th>
<th>Implementation Fidelity</th>
<th>Implementation Checklist</th>
<th>Quality from Social Validity</th>
<th>BSP Knowledge Pre / Post</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family 1</td>
<td>high</td>
<td>100%</td>
<td>4.4</td>
<td>1.5 9.5</td>
</tr>
<tr>
<td>Family 2</td>
<td>high</td>
<td>100%</td>
<td>4.2</td>
<td>5.5 12</td>
</tr>
<tr>
<td>Family 3</td>
<td>high</td>
<td>100%</td>
<td>4.4</td>
<td>7.5 9.5</td>
</tr>
</tbody>
</table>
Table 3

Social Validity Questionnaire Results

<table>
<thead>
<tr>
<th></th>
<th>Family 1</th>
<th>Family 2</th>
<th>Family 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I will continue to use the strategies and tools from this intervention with my child/children.</td>
<td>Strongly Agree</td>
<td>Strongly Agree</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>2. I was pleased with the outcomes for my child as a result of this intervention.</td>
<td>Strongly Agree</td>
<td>Agree</td>
<td>Neutral</td>
</tr>
<tr>
<td>3. The facilitator provided enough opportunities for practice and/or to ask questions.</td>
<td>Strongly Agree</td>
<td>Strongly Agree</td>
<td>Agree</td>
</tr>
<tr>
<td>4. After this intervention, I am able to implement appropriate ways to respond to challenging behavior.</td>
<td>Strongly Agree</td>
<td>Agree</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>5. I believe this intervention strengthened my parenting skills.</td>
<td>Strongly Agree</td>
<td>Agree</td>
<td>Agree</td>
</tr>
<tr>
<td>6. This intervention improved my relationship with my child</td>
<td>Strongly Agree</td>
<td>Agree</td>
<td>Neutral</td>
</tr>
<tr>
<td>7. I believe I can accurately identify function of my child’s behavior as a result of this intervention.</td>
<td>Agree</td>
<td>Agree</td>
<td>Agree</td>
</tr>
<tr>
<td>8. I can accurately identify helpful strategies to prevent my child’s challenging behavior as a result of this intervention.</td>
<td>Strongly Agree</td>
<td>Agree</td>
<td>Agree</td>
</tr>
<tr>
<td>9. I believe I can identify triggers of my child’s challenging behavior as a result of this intervention.</td>
<td>Agree</td>
<td>Agree</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>10. I would recommend this intervention to other parents.</td>
<td>Strongly Agree</td>
<td>Strongly Agree</td>
<td>Agree</td>
</tr>
</tbody>
</table>

Open Ended Questions:

1. What did you like about this intervention?
   
   Family 1  
   **Mom:** “The facilitator seemed to know what she was talking about and her suggestions really helped a lot”  
   **Dad:** “Good Information”  
   
   Family 2: “Lauren is fabulous! She was very clear about everything and opened our eyes to the roots of behavior!”
   
   Family 3: N/A

2. What would you change about this intervention?
   
   Family 1: **Mom:** “The intervention was good, but there was a lot of paperwork”  
   **Dad:** “Nothing”  
   
   Family 2: “Maybe less paperwork. But honestly everything was great”
   
   Family 3: N/A
Parent Implementation

Treatment fidelity was determined by the daily tracking sheets, with consideration to the parent self-efficacy scores using EIPSES before and after the intervention (see Table 4). Treatment fidelity scores ranging from 70 to 100% were labeled as high. Family one had eight days of missing data of the 49 days that they were tracking behavior. Their percentage for treatment fidelity was within the high range at 83.7%. There was also an improvement in self-efficacy scores for the mother and father.

Treatment fidelity was high for family two and three; they both tracked behavior for 100% of the days in the intervention. Pictures were taken of the tracking form each week. All of the mothers’ self-efficacy scores increased or remained the same. The fathers’ parenting self-efficacy scores in family two and three decreased.

Three of the six parents had an increase in self-efficacy scores, one parent’s self-efficacy scores remained the same, and two of the parents decreased in parenting self-efficacy scores after the intervention. The intervention did not seem to have a consistent pattern in parenting self-efficacy scores as measured by the EIPSES. However, all parents reported a greater understanding of their child’s challenging behavior in the Social Validity Questionnaire (see Table 3). All families strongly agreed that they would continue to use the strategies and tools in this intervention. All families agreed that they would be able to respond to challenging behavior appropriately after the intervention, that their parenting was strengthened, that they can identify the function of their child’s behavior, accurately identify strategies to prevent challenges and identify triggers of their
child’s challenging behavior. All families also agreed that they would recommend this intervention to other parents.

Table 4

<table>
<thead>
<tr>
<th>Parent Implementation Fidelity Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>Implementation Fidelity</td>
</tr>
<tr>
<td>--------------------------</td>
</tr>
<tr>
<td>Family 1</td>
</tr>
<tr>
<td>Family 2</td>
</tr>
<tr>
<td>Family 3</td>
</tr>
</tbody>
</table>

Research Question 2

The second research question was as follows: Do parents who participated in a PBS intervention increase the use of parental scaffolding? Results based on this research question are detailed below.

Scaffolding was separated into three forms of support: cognitive, emotional, and autonomy. Each form of scaffolding was rated using a 5-point scale from 1 (low) to 5 (high), with items seven and nine reverse coded (see Table 5). The cognitive support composite score was calculated by summing the three cognitive support items: metacognitive information, regulating task management, and reviewing the steps of tasks and progress to reach goal. An emotional support composite score was calculated by summing the two emotional support items: positive support and rejection. An autonomy support composite score was calculated by summing the two autonomy support items: positive control and child’s active involvement. These three forms of support at each interaction are represented for each parent in Table 5 and Figure 2.
In family one, cognitive support increased from 11.5 to 13 for the mother and stayed the same for the father at 11. Emotional support increased from 6 to 7 for the mother and decreased from 4 to 2 for the father. Autonomy support remained the same for the mother and the father. Overall, family one had an increase in scaffolding scores for the mother, from 21.5 to 24. The father showed a decrease in scaffolding from 21 to 19.

![Figure 2. Scaffolding Support Overall Scores.](image)

Family two had a decrease in cognitive support scores for the mother from 22 to 16. The father’s scaffolding scores remained the same at 15. Both parents’ scaffolding scores decreased in emotional support. Scores went from 10 to 9 for the mother and 9 to 6 for the father. Autonomy support scores also decreased for both parents. The scores went from 10 to 9 for the mother and 6 to 3 for the father. Overall the mother’s scaffolding scores decreased from 42 to 34. The father’s scaffolding scores decreased from 30 to 24.

In the third family, there was also a decrease in scaffolding scores. In cognitive support, the mother’s scores remained the same at 18, and the father’s decreased from 24 to 22. Emotional support scores decreased from 8 to 7 for the mother and from 10 to 8
for the father. Finally, autonomy scores decreased from 8 to 5 for the mother and 9 to 8 for the father. Overall, the mother’s scaffolding scores decreased from 34 to 30. The father’s scaffolding scores decreased from 43 to 38.

Visual analysis of the scaffolding scores showed that total scaffolding scores decreased for all participants postintervention, except for the mother in family one.

Table 5

*Scaffolding Support*

<table>
<thead>
<tr>
<th></th>
<th>Family One</th>
<th>Family Two</th>
<th>Family Three</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cognitive Support</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Content of Instruction</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advance Organizers</td>
<td>2.5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Metacognitive Information</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td><strong>Manner of Instruction</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reduction of Task in Steps</td>
<td>3</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Monitoring and Review of the Task</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Pacing of Instruction</td>
<td>2</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td><strong>Emotional Support</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Encouragement</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Rejection of Child’s Efforts</td>
<td>4</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td><strong>Promotion of Autonomy / Transfer of Responsibility</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recruiting Child’s Active Cognitive Involvement</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Parents’ Control of the Interaction</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td>21.5</td>
<td>24</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>19</td>
<td>42</td>
<td>30</td>
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<td></td>
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<tr>
<td></td>
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</table>
Research Question 3

The third research question was: Does coaching parents in PBS decrease the frequency of challenging behaviors in their children? Results based on this research question are detailed in the following paragraphs.

The functional relationship between the intervention and the frequency of challenging behavior was analyzed through visual inspection and descriptive statistics of graphed data for each family (Kazdin, 1982; Kratochwill et al., 2013).

Frequency of Challenging Behavior

The results from the study are presented in Figures 3 through 7. Figure 3 displays the change in trend from baseline to the intervention. Figure 4 displays the frequency of challenging behavior during observation times. During baseline, the percent of challenging behavior was variable across participants; following the treatment, challenging behavior decreased for all three children.

To ensure frequency of challenging behavior data was gathered without treatment fatigue, the researcher also selected a family who was not participating in the intervention to track their child’s challenging behavior for 6 weeks. For the no-intervention family, the behavior stayed consistent, leading to the assumption that without an intervention, the challenging behavior would stay consistent. The no-intervention family was used as a comparison to the trends of the three families who did complete the intervention. With single-subject design in a home setting, there is minimal control over the environment and potential influences on behavior. Because there is large variability in this design structure, visual inspection is more difficult to inspect across subjects than in a well-
controlled setting (Kazdin, 1982). The no-intervention family is used to develop experimental control and aid in visual inspection of trends.

To be sure that challenging behavior was identified and recorded by two observers, parents chose a three-hour stretch when they would both be present each day throughout the 6 weeks of observation. Parents were both present for at least 60% of the time, which meets the standard for single-subject designs (Kratochwill et al., 2013).

Together, the parents tracked the frequency and duration of challenging behavior by marking an “X” for each occurrence and notating the number of minutes that challenging behavior occurred.

For each family, the baseline data was clearly distinguished with a dashed line, along with a no-intervention family that did not receive the intervention. With multiple baseline design, the families all had different lengths of baselines. Family one tracked behavior for 8 days before the intervention, family two tracked behavior for 10 days, and family three tracked behavior for 13 days. There was a decrease in behavior for each family upon implementation of the intervention, followed by a spike in challenging behavior.

The change in means of FCB was calculated by using the averages of challenging behavior each week of the intervention (see Table 6 and Figure 5). There were consistent patterns of a decrease in the average rate of challenging behavior, especially in family two and three. Family one had a decrease in challenging behavior, but the changes were slight. Visual inspection of level of change (Figure 3) shows a decrease in challenging behavior for all families from baseline to the intervention. There were a few increases throughout the intervention that may be explained by extinction bursts and environmental
changes. FCB rose for family one when support from the researcher faded but stayed below baseline. FCB for family two and three continued to decrease for week four and five of the intervention.

Figure 3. Change in Trend.

Latency of change was inspected for all families following the implementation of the intervention (see Figure 3). In family one, the FCB was 20 minutes on the first day after baseline, then dropped to ten minutes on day two and zero minutes on day three. During baseline family one’s lowest day of challenging behavior logged was 5 minutes. In family two and three, the challenging behavior dropped to zero minutes for 3 days after baseline. The effect of the initial implementation of the intervention was immediate across all subjects.
Figure 4. Frequency of Challenging Behavior.
Table 6

*Changes in FCB*

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>Week 1</th>
<th>Week 2</th>
<th>Week 3</th>
<th>Week 4</th>
<th>Week 5</th>
<th>Average First 14 days</th>
<th>Last 14 days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family one</td>
<td>21.50</td>
<td>14.16</td>
<td>10.71</td>
<td>6.43</td>
<td>17.86</td>
<td>17.50</td>
<td>14.80</td>
<td>18.50</td>
</tr>
<tr>
<td>Family two</td>
<td>7.40</td>
<td>20.00</td>
<td>9.28</td>
<td>8.71</td>
<td>5.63</td>
<td>4.50</td>
<td>9.00</td>
<td>13.86</td>
</tr>
<tr>
<td>Family three</td>
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<td>2.50</td>
<td>0.00</td>
<td>1.88</td>
<td>3.57</td>
<td>0.00</td>
<td>3.33</td>
<td>7.86</td>
</tr>
<tr>
<td>No Intervention</td>
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<td>13.29</td>
<td>12.83</td>
<td>13.17</td>
<td>1.80</td>
<td>9.91</td>
<td>7.36</td>
</tr>
</tbody>
</table>

Immediacy of intervention effect was measured after initial implementation of the intervention. The behavior decreased for 2 to 3 days in each family before rising for expected extinction bursts (see Figure 4). Averages were affected by the extinction burst, so a sustained intervention effect was visually inspected by using the first 14 days of the intervention, compared with the final 14 days of the intervention. In family one, two, and three, the behavior average was greater in the first 14 days than the final 14 days. In the no-intervention family, the behavior increased.

In the first family comparison from the first 14 days to the last 14 days, the challenging behavior average decreased from 18.50 to 17.50 minutes on average. In family two, the challenging behavior average decreased from 13.86 to 3.92 minutes on average. Family three’s challenging behavior average decreased from 7.86 to 1.79 minutes on average. The family that did not participate in the intervention increased in challenging behavior from 7.36 to 8.50 minutes on average.
Figure 5. Average Percentage of Challenging Behavior.
Figure 6. Challenging Behavior Comparison from Beginning to End.

Consistency of data in similar phases between participants was analyzed in comparison to the no-intervention family (Kratochwill et al., 2013). As described above there was great consistency in changes across all intervention families (see Figure 4). There was consistency in changes in the means, levels, and trends. Immediacy of effect and latency of change was consistent across all subjects. Visual analysis of the slope of the best fitting line illustrates the trend (see Figure 3).

Even though the slope shows a subtle decrease across participants, the combination of other criteria from single-subject design standards provide evidence of an effect from the intervention. There is a consistency across all participants of a decrease in behavior, followed by a few peaks of challenging behavior during extinction bursts (Lerman & Iwata, 1995). Though expected, the extinction bursts increase the overall average of challenging behavior throughout the 6 weeks. Therefore, to demonstrate an effect with multiple-baselines design, all four criteria must be met.

The first criterion to minimize threats to internal validity requires that intervention is systematically introduced rather than a naturally occurring event. This was met when
the researcher started the intervention at different times with each family. With multiple baseline design, the families are required to have different lengths of baseline data collection, based on when there is an effect of the intervention for the prior family. The baseline of eight days for the first family was selected to ensure there was a full week of data collection, so both weekdays and weekends were represented. A 10-day baseline was selected for family two because it took two days to see the effect of the intervention for family one after their baseline data collection of 8 days. A 13-day baseline was selected for family three because it took 3 days to see the effect of the intervention for family two after a 10-day baseline.

The second criterion was met by having challenging behavior measured over time by both parents during the 3-hour window they were both consistently home each day. The third criterion requires the intervention to demonstrate an effect at different points in time (Kratochwill et al., 2013). This was shown with the level of change decreasing from baseline and extinction burst weeks in Figure 5, while the no-intervention family did not follow the same trend with a decrease in averages. This is also demonstrated with the immediacy of effect shown in Figure 6 comparing the first 14 days of the intervention to the last 14 days. There was a clear decrease in challenging behaviors reported by intervention families and an increase in challenging behaviors reported by the no-intervention family. The fourth criterion of having at least three data points is met by the 50 or more data points included in Figure 4 and the six data points included in Figure 4. All four criteria were met; therefore, an inference could be made that the intervention is functionally related to a decrease in challenging behaviors (Kratochwill et al., 2013).
Effect size is used to quantify the visual analysis of single-subject design (Parker & Vannest, 2009). For this study, the effect size was calculated using Non-overlap of All Pairs (NAP; Parker & Vannest, 2009). NAP technique compares each data point from baseline with each of the data points from intervention. A NAP value of one indicates perfect improvement in behavior from baseline, while 0.5 indicates no change (Chen, Hyppa-Martin, Reichle, & Symons, 2016; Parker & Vannest, 2009). If the NAP value is zero, this indicates that behavior increased completely after the intervention. Ranges of effect magnitude are taken from 200 published AB designs: weak effects: 0-.65; medium effects: .66-.92; strong effects from .93-1.0 (Parker & Vannest, 2009). For family one, the effect size is medium; 66% of the intervention data do not overlap with baseline data. For family two, the effect size is weak; 58% of the intervention data do not overlap with baseline data. For family three, the effect size is medium; 70% of the intervention data do not overlap with baseline data.

**BASC-2**

Challenging behavior was also analyzed with the mother and fathers’ ratings of their children’s behavior using the BASC-2 Parent Rating Scales Form (see Table 7). The scores that fell in a clinically significant range are represented with two asterisks, while scores that were within the at-risk range are represented with one asterisk. The trend was analyzed visually (see Figure 7), with attention paid to the descriptive statistics for sub-domains and the overall scores (see Table 7 and Figure 7). The scale classifications in this section are based on the T-scores obtained using norms. All scores are reported for both mothers and fathers in Table 7 and illustrated in Figure 7. However, only those scores that moved from one scale classification category to another (normal,
at-risk, clinically significant) will be reported in this section. Scores of 70 and above are considered clinically significant. The BASC-2 manual recommends further follow-up for children with scores of 70 and above (Reynolds & Kamphaus, 1992). Scores between 60 and 69 are considered at-risk. Scores in the at-risk range suggest a significant problem that might not be severe enough for treatment and will need to be monitored. However, on the adaptive skills, higher scores indicate more positive behaviors. Scores ranging from 31 to 40 are considered at-risk, and scores of 30 and below are considered clinically significant (Reynolds & Kamphaus, 1992).

Table 7

BASC-2 Scores

<table>
<thead>
<tr>
<th>Sub-Domains</th>
<th>Family One</th>
<th></th>
<th>Family Two</th>
<th></th>
<th>Family Three</th>
<th></th>
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</thead>
<tbody>
<tr>
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<td>Mom</td>
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<td>Mom</td>
<td>Dad</td>
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<td></td>
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<td>58</td>
<td>66*</td>
<td>58</td>
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<td>62*</td>
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<td>Pre</td>
<td>Post</td>
<td>Pre</td>
<td>Post</td>
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<td>57</td>
<td>63*</td>
<td>57</td>
<td>75**</td>
<td>61*</td>
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<td>Post</td>
<td>Pre</td>
<td>Post</td>
<td>Pre</td>
<td>Post</td>
</tr>
<tr>
<td></td>
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<td>72**</td>
</tr>
<tr>
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<td>Post</td>
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<td>Post</td>
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<td>Internalizing%</td>
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<td>BSI%</td>
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<tr>
<td>Adaptability</td>
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<tr>
<td>Activities</td>
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</tr>
<tr>
<td>Function Comm.</td>
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<tr>
<td>Adaptive</td>
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</tr>
<tr>
<td>Adaptive%</td>
<td></td>
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</table>

*indicates at-risk range, **indicates clinically significant range
Figure 7. BASC-2 Overall Scores.

For family one, the mother’s T-score for the child’s behavior on the Externalizing Problems scale was 67 (94th percentile) at baseline, in the at-risk range. Following the intervention, the mother’s Externalizing Problems T-score of 58 (82nd percentile) improved to the normal range. The mother’s T-score for the child’s behavior on the Behavior Symptoms Index was 70 (96th percentile) at baseline, in the clinically
significant range. Following the intervention, the mother’s Behavior Symptoms Index T-score of 67 (94th percentile) improved to the at-risk range. Additionally, the father’s T-score for the child’s behavior on the Behavior Symptoms Index was 72 (97th percentile) at baseline, in the clinically significant range. Following the intervention, the father’s Behavior Symptoms Index T-score of 63 (90th percentile) improved to the at-risk range. Finally, the father’s rating of child behavior on the Adaptive Skills scale yielded a T-score of 22 (1st percentile) at baseline, in the clinically significant range. Follow the intervention, the father’s Adaptive Skills T-score of 34 (6th percentile) improved to the at-risk range. Overall, challenging behavior decreased, and adaptive behavior increased.

For family two, the mother’s T-score for the child’s behavior on the Externalizing Problems scale was 76 (98th percentile) at baseline, in the clinically significant range. Following the intervention, the mother’s Externalizing Problems T-score of 57 (80th percentile) improved to the normal range. The father’s T-score for the child’s behavior on the Externalizing Problems scale was 72 (97th percentile) at baseline, in the clinically significant range. Following the intervention, the Externalizing Problems T-score of 58 (82nd percentile) improved to the normal range. The mother’s T-score for the child’s behavior on the Behavior Symptoms Index was 62 (88th percentile) at baseline, in the at-risk range. Following the intervention, the Behavior Symptoms Index T-score of 49 (52nd percentile) improved to the normal range. Additionally, the father’s T-score for the child’s behavior on Behavior Symptoms Index was 62 (64th percentile) at baseline, in the at-risk range. Following the intervention, the Behavior Symptoms Index T-score of 50 (55th percentile) improved to the normal range. Finally, the father’s rating of child behavior on the Adaptive Skills scale yielded a T-score of 29 (2nd percentile) at baseline,
in the clinically significant range. Follow the intervention, the father’s reported the Adaptive Skills T-score of 47 (38th percentile) improved to the normal range. Overall, challenging behavior decreased, and adaptive behavior increased.

The third family’s reported scores remained within the normal range at baseline and following the intervention.

Research Question 4

The fourth research question was as follows: Do parents who participate in a PBS intervention report a decrease in parenting stress?

All scores for each mother and father on the total stress survey are presented in Table 8. Scores are also graphed for all fathers and all mothers in Figure 8. In this section, percentile scores that move from one range to another (normal, high, and clinical) after the intervention will be reported. The normal range for scores is from the 15th to the 80th percentile. Scores in the 85th percentile and above are considered high with scores that fall above the 90th percentile considered to be clinically significant (Abidin, 1995).

In family one, the mother’s Parent-Child Dysfunctional Interaction score decreased from the 96th percentile (clinically significant range) to the 86th percentile (high range). The father’s Parent-Child Dysfunctional Interaction score decreased from the 94th percentile (clinically significant range) to the 62nd percentile (normal range). The mother’s Difficult Child score increased from the 40th percentile (normal range) to the 90th percentile (clinically significant range). The mother’s Total Stress score increased from the 78th percentile (normal range) to the 86th percentile (high range).
In family two, the father’s Difficult Child score decreased from the 88th percentile (high range) to the 80th percentile (normal range). In family three, the father’s Difficult Child score increased from the 70th percentile (normal range) to the 90th percentile (clinically significant range).
Figure 8. Parent Stress Index Percentiles.
Table 8

Parent Stress Index Percentile Scores

<table>
<thead>
<tr>
<th></th>
<th>Family One</th>
<th>Family Two</th>
<th>Family Three</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mom</td>
<td>Dad</td>
<td>Mom</td>
</tr>
<tr>
<td></td>
<td>Pre</td>
<td>Post</td>
<td>Pre</td>
</tr>
<tr>
<td>PD</td>
<td>86*</td>
<td>86*</td>
<td>66</td>
</tr>
<tr>
<td>P-C DI</td>
<td>96**</td>
<td>86*</td>
<td>94**</td>
</tr>
<tr>
<td>DC</td>
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</tr>
<tr>
<td>Total Stress</td>
<td>78</td>
<td>86*</td>
<td>82</td>
</tr>
</tbody>
</table>

*indicates high range, **indicates clinically significant range

Across all mother and fathers, Parent Distress scores remained in the same range at baseline and postintervention (see Table 8 and Figure 8). All mothers’ and fathers’ scores stayed within the normal range, except the mother in family one who stayed within the high range. Parent-Child Dysfunctional Interaction scores remained consistent in the normal range for the mothers and fathers in family two and three. The mother in family one’s Parent-Child Dysfunctional Interaction score moved from the clinically significant range to the high range. The father in family one’s Parent-Child Dysfunctional Interaction improved from the clinically significant range to the normal range. Difficult Child scores remained the same for the father in family one, and the mothers in families two and three. Difficult Child scores increased for the mother in family one and the father in family three from a normal to clinically significant range. Difficult Child scores decreased from a high to a normal range for the father in family two (see Table 8 and Figure 8).
CHAPTER V
DISCUSSION

Research Questions

As expected, families who participated in this PBS individualized intervention saw results at home in decreased challenging behavior and increased appropriate engagement with new skills. These results support previous research indicating that teaching parents PBS can decrease challenging behavior (Fettig & Barton, 2014; Fettig & Ostrosky, 2014).

Fidelity

The intervention had high implementation fidelity from the researcher and parents. The researcher implemented the intervention at it was designed and piloted, with coverage of all topics and open-ended questions for parent feedback. Parents also implemented the intervention with high implementation fidelity. Parents took notes on their children’s behavior over the weeks and implemented the new strategies and teaching ideas each week. The majority of parenting self-efficacy scores improved after the intervention. The challenging behavior decreased more for the parents who had 100% of the tracking data, which strengthened other findings. These results support previous research documenting the importance of high levels of parent treatment fidelity and the effectiveness of ongoing parenting training to reduce challenging behaviors (Strauss et al., 2012).
Scaffolding

Scaffolding was predicted to improve from the baseline visit to the final visit; however, the scaffolding scores decreased for the majority of parents. It may be that giving the parents the same type of task to complete with their children made them less likely to repeat the scaffolding steps and encourage problem solving because the children already seemed to know how to manipulate the task materials. The second time the children performed the task, it may have seemed less challenging and needed less scaffolding. This task completion may also be a result of the new skills children were taught throughout the intervention in problem solving and self-regulating their disappointment. Vygotsky defined this difference in what the child can do with help and what they can achieve with support as the Zone of Proximal Development (ZPD; Vygotsky, 1978). From a Vygotskian perspective, the children are helped through these cognitive processes with parent support (cognitive support), and then may internalize this involvement with problem-solving (autonomy support) to later regulate their own decision making (Clark et al., 2013; Vygotsky, 1978). As children learned skills to better handle disappointment, they may be better able to regulate their frustration during scaffolding tasks (emotional support). In this study, the ZPD range may have moved as the children developed more skills; thus, scaffolding decreased (Vygotsky, 1978).

Challenging Behavior

Coaching parents in PBS decreased the frequency of challenging behaviors in their children and increased prosocial behaviors. The intervention did not only decrease challenging behavior, it helped the children develop new skills including functional communication, social skills and adaptability. Concurrent validity was also established
as the decrease in challenging behaviors matched the parent’s assessment of children’s challenging behavior assessments.

Because of the nature of extinguishing behavior, a rise was seen in some of the behaviors, as parents responded to the behaviors in new ways (Lerman & Iwata, 1995). In the first family, the child would often cry until she received what she asked for. For example, the child would usually start throwing a tantrum and then ask for treat. The tantrum would extend for ten minutes, then the parents would give into the request for a treat to stop the tantrum. In one of the instances of increased challenging behavior, the parents were holding firm to what they asked and did not give in to the request. Because the child was so used to throwing a tantrum, then getting the item, she continued with the tantrum for 35 minutes. Her parents were able to add in prevention strategies and supports for new skills, such as a calm down area in the child’s room, a mad chart with choices to encourage their child to respond to frustration in appropriate ways and providing a snack before her nap time. As shown in the results chapter, the challenges decreased and the adaptability, social skills and functional communication skills increased. With the help of understanding what the child needed, and preventing common triggers, the child was better able to transition to nap time.

Frequency of behavior fluctuated somewhat during the 6 weeks for the first family. These fluctuations may be due to changes in the environment. In the first family, overall behavior improved (see Figure 3 and 4). The child’s scores decreased in all areas of externalizing and internalizing behaviors and increased in prosocial behaviors and communication, as rated through a parent questionnaire (see Table 7 and Figure 7). Challenging behaviors continued to rise at the end of the intervention possibly due to
environmental stressors related to the holidays. It is noteworthy that the day of negative behavior that lasted 45 minutes was on Christmas Day. Consistency in routines and responses are essential for a functioning PBS plan, which is why changes to the routine can cause an increase in behaviors (Powell et al., 2006).

In the second family, challenging behavior spiked drastically on day 14 (see Figure 4). On this day, the parents were out of town and the grandparents were watching the boys. Compared to parents, grandparents may be less empathetic to their grandchildren’s needs (Kaminski, Hayslip, Wilson, & Casto, 2008). It seemed that the child was testing boundaries with the grandparents, and the grandparents were responding to the behavior in a new way for the child. Escalation of challenging behaviors in response to changes in expectations and responses is common when the child does not have an alternative way to get his need met (Borgmeier, Loman, Hara, & Rodriguez, 2015; Dunlap & Fox, 2009). According to the parents, the situation seemed to escalate greater than what was typical for the child because of the change in care.

In the third family, the child’s challenging behavior did increase for 15 minutes after a few weeks of no negative behaviors. The mother indicated that this increase was because she was enforcing a rule she had previously overlooked (see Figure 4). PBS is a proactive approach, which was helpful for many challenging behaviors (Chai et al., 2018). When these parents discussed preventing the behavior and using PBS as a proactive approach to reduce challenging behavior, the entire scenario changed. The preventative approach allowed them to implement all the skills they were trying when the child was in a neutral mood and prepare for the disappointment with the child (Carr et al., 2002). The child was able to learn problem-solving skills and self-regulate negative
emotions when needed. Practicing the recurring routines allowed the family to not only stop the behavior from happening, but also have the child learn functional communication skills and prepare for a disappointing situation. These results support previous research documenting the benefit of embedding preventative strategies into everyday routines is an effective intervention approach (Woods & Goldstein, 2003).

Additional information obtained from this reported 15-minute increase of challenging behavior for family three is informative in light of Bronfenbrenner’s bioecological model. In this instance, the mother reported that the child usually would not clean up his toys and would leave the grandmother’s house having a meltdown. This would also lead to his grandmother stepping in and cleaning up for him. The pattern was that he would make a mess, act like he could not clean it up, and then his grandmother would step in to finish. The function of his behavior was to escape the clean-up. The mother prepared the grandmother to follow the PBS approach and have the child clean up his mess. Her response of cleaning up for him contributed to his refusal to clean-up and helped maintain this challenging behavior. The mother reported that the child communicated frustration when he was reminded of his responsibility, but his reaction was much less pronounced than usual. Although this interaction showed up as a 15-minute negative behavior, it was actually a significant milestone in the implementation of PBS with the child. After this occurrence, the child left his grandparents’ house without challenging behaviors.

In this family’s culture, the goodbye ritual was important to them. Having a conflict with clean up each time he left his grandmother’s home was frustrating to the child, parents and grandparents. With this knowledge and understanding of the
environment, the expectation, and the culture, the researcher was better able to understand and facilitate prevention to promote a willingness to participate in the clean up process and goodbye ritual at his grandmother’s home.

Bronfenbrenner’s model emphasizes the importance of understanding the relationships in all the child’s microsystems, including teachers, parents, home-visitors, church, and extended-family (Bronfenbrenner & Morris, 2006b). Building a relationship with the family and being aware of behaviors in other microsystems was essential in developing an effective action plan. The discussion during home visits always pertained to behaviors, attitudes, and events that happened in all the children’s various settings, including church, preschool, grandparents’ house, neighborhood interactions, playdates, and more. Addressing negative behaviors with preventative steps, prompting the new skills, and responding in a way that does not reinforce the challenging behaviors are all part of the PBS action plan.

**Parental Stress**

Three of the six parents who participated in the PBS intervention had a decrease in reported parenting stress, two of the six parents reported the same amount of stress, and one parent reported an increase. These inconsistent results are somewhat surprising as a decrease in all parental stress scores was expected. These findings may be explained by a lack of social support as previous research suggests that mothers without social support have high initial levels of stress (Woodman, 2014). In our study two of the three mothers reported a decrease in overall stress, and one of the fathers reported a decrease in overall stress. A second explanation may be that high levels of problem behaviors predicted high levels of parenting stress (Guralnick et al., 2008). In the current study,
parents whose children had higher frequency of challenging behavior and clinically significant externalizing and internalizing scores had higher initial stress scores than the other participating parents (see Table 7 and Figure 8). Scores for four of the six sub-domains for mothers decreased, while only two of the six sub-domain scores for fathers decreased (see Table 8). One study with similar results speculated that the fathers’ stress was higher than the mothers’ following an intervention, possibly because of heightened awareness of the child and associated challenging behavior or a greater role the fathers were encouraged to take on as part of the intervention (Keen, Couzens, Muspratt, & Rodger, 2010). In our study, the father is the one who reported overall higher stress. Initially, it was surprising to find that stress stayed the same or increased in some sub-domains after challenging behavior decreased. However, this result is consistent with other studies, namely that low-intensity treatments decrease parenting stress, while intensive treatments may increase parental stress (Keen et al., 2010; Strauss et al., 2012).

**Future Research and Limitations**

The results of this study demonstrate that parents can effectively implement PBS strategies of identifying the function of challenging behaviors and working proactively to teach new skills to decrease challenging behavior at home. Understanding the impact of PBS coaching for families creates opportunities for practitioners, researchers, and educators to consider PBS and function-based interventions by adding to parents’ toolboxes for dealing with challenging behaviors. PBS interventions can be implemented in homes through a variety of means including mental health services, Head Start home visits, well-child visits, private-parent coaching or other individualized services. It is
common knowledge among behavior specialists and teachers of children with special needs that function-based interventions can be helpful in the classroom to decrease problem behaviors that lead to challenging behavior. However, parents without these resources need access to PBS function-based interventions to be able to decrease challenging behaviors in their homes. This study provides evidence for the effectiveness of this intervention with parents of typically developing children with challenging behavior. The detailed implementation procedures presented in this study provide much needed information for practitioners to coach parents to successfully implement the PBS intervention.

This study has several limitations. First, the small sample limits the generalizability of the findings. While the nature of single-subject design includes detailed descriptions of participants, generalization is limited to children and families in similar circumstances. Additional research conducted with a greater number and more diverse families than were included in the current study could provide additional information regarding the effectiveness of the intervention. Second, the study did not follow up with families after the 6-week intervention. Future research should follow up to see how well the families were able to continue to implement the PBS intervention strategies over time. Third, this study needs a more sensitive measure of change in parent-child interaction to better understand the effectiveness of the intervention for parent-child relationships.

Researchers and practitioners could expand this sample and use the PBS curriculum in Head Start home visits, mental health visits, well-child visits and other parent coaching opportunities. Researchers may want to evaluate the use of group
discussions as an additional support in this PBS intervention. Having parents grouped together for some of the discussions could help them interact to identify behavior trends and patterns together, identify innovative ways to teach new skills and consider prevention strategies. Discussing parenting difficulties together could serve as a support resource and normalize challenging behavior. Future researchers may investigate how the addition of group discussions affects their parenting self-efficacy, understanding of PBS and parent stress. Researchers may also use these procedures, adapt them and implement them with other caregivers (e.g. grandparents, siblings), and across multiple systems.

This research further validates PBS interventions as a means of decreasing challenging behavior in preschool-age children. Additionally, this study adds a unique combination of evidence-based practices to PBS that can facilitate improvement in children’s challenging behavior, parents’ stress and parents’ understanding of children’s temperament. These additional evidence-based strategies included a strengths-based approach with developmental parenting and scaffolding. PBS parent coaching grounded in Bronfenbrenner’s bioecological model considers the complex development of children and parents and improves child and family outcomes.
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APPENDICES
Appendix A

Schedule of Intervention Procedures
<table>
<thead>
<tr>
<th>Pre Visit</th>
<th>Week One</th>
<th>Week 2</th>
<th>Week 3</th>
<th>Week 4</th>
<th>Week 5</th>
<th>Week 6</th>
<th>Post Visit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>Focus on Child</td>
<td>Reflection &amp; Hypothesis</td>
<td>Problem Solve</td>
<td>Maintenance</td>
<td>Check in</td>
<td>Final Visit</td>
<td>Collect Questionnaires</td>
</tr>
<tr>
<td>Drop-off packet &amp; what to expect</td>
<td>Identify form / Maintaining Consequences - List Setting Events Physical symptoms of and triggers Temperament discussion (Handout 23 - Appendix B) Video as teaching, point out positives, look for strengths, what we want more of Identify possible functions Recommendations: appropriate general response to behavior</td>
<td>Reflect on the work and re-evaluate the challenging behaviors What changed as a result of preventing/positive reinforcement? Hypothesis List functions, strategies that work and don't work, skills needed What scaffolding needs to happen in order for the child to learn these skills? How can we teach them this skill? (New parent ideas) Support autonomy, scaffolding, developmental expectations &amp; temperament</td>
<td>One-on-one plan! Identify function New skills New responses -to challenging behavior, -to use of new skill Create action plan -how will we implement it? -who will do what? -daily timeline matrix -least to most prompting -monitor outcomes</td>
<td>Check in</td>
<td>Make adjustments Problem solve and tweak things</td>
<td>Check in through email</td>
<td></td>
</tr>
<tr>
<td>Challenging behavior frequency for seven weeks</td>
<td>Getting to Know Family Discussion Recommendations for behavior Weekly Reminder</td>
<td>Reflect and Hypothesize Weekly Reminder</td>
<td>Positive Behavior Support Action Plan Weekly Reminder</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Researcher</td>
<td>Researcher</td>
<td>Researcher</td>
<td>Researcher</td>
<td>Researcher</td>
<td>Researcher</td>
<td>Researcher</td>
<td>Researcher</td>
</tr>
<tr>
<td>Review scaffolding task</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Collect Questionnaires</td>
</tr>
<tr>
<td>Assignments</td>
<td>Assignments</td>
<td>Assignments</td>
<td>Assignments</td>
<td>Assignments</td>
<td>Assignments</td>
<td>Assignments</td>
<td>Assignments</td>
</tr>
<tr>
<td>Collect Challenge Behavior Frequency*</td>
<td>Collect Challenge Behavior Frequency*</td>
<td>Collect Challenge Behavior Frequency*</td>
<td>Collect Challenge Behavior Frequency*</td>
<td>Collect Challenge Behavior Frequency*</td>
<td>Collect Challenge Behavior Frequency*</td>
<td>Collect Challenge Behavior Frequency*</td>
<td>Collect Challenge Behavior Frequency*</td>
</tr>
<tr>
<td>Fill out all forms</td>
<td>Observe temperament Positive reinforcement Encourage of what’s going well? Prevent challenging behavior</td>
<td>Teach skills in green moments</td>
<td>Intervention, focus on function and new responses</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*log behavior daily</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix B

Intervention Guide
Brainstorm together common behavior challenges, responses, triggers & setting events

<table>
<thead>
<tr>
<th>BEFORE BEHAVIOR</th>
<th>WHAT IS THE BEHAVIOR?</th>
<th>HOW DO YOU TYPICALLY RESPOND?</th>
<th>POSSIBLE FUNCTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Describe triggers, setting, time and other environmental considerations</td>
<td>(form) What did the child specifically say or do?</td>
<td>(maintaining consequence) What happens immediately after the behavior?</td>
<td>What is the child attempting to communicate or accomplish? Reason for challenging behavior?</td>
</tr>
</tbody>
</table>

**Video**
What did you notice about your child as you watched the interaction? What did they respond to best?

What part of the interaction did they seem engaged? upset? triggered? motivated? pleased?

**Temperament Fit**

<table>
<thead>
<tr>
<th>Biggest Discrepancies</th>
<th>Closest Temperament</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dad &amp; Child</td>
<td></td>
</tr>
<tr>
<td>Mom &amp; Child</td>
<td></td>
</tr>
</tbody>
</table>

**Positive Behavior & Preventing:**

What’s going well? Encourage MORE of it.
90-10 Praise and reinforce

Take note of the things that we we can prepare for and prevent **Write on REMINDER**

**Temporary Ideas for some responses to challenging behavior**

Lauren Pace 2019
WEEK ONE DISCUSSION NOTES:

- Brainstorm and take note of common behavior challenges
  - What happens before the behavior?
  - What does the behavior look like?
  - How do you typically respond?
  - Possible Functions

- Watch videos
  - What do you notice about your child?
  - What do they respond best to?
  - What part of the interaction did they seem engaged? upset? triggered? motivated? pleased?

-Temperament Fit

<table>
<thead>
<tr>
<th>Biggest Discrepancies</th>
<th>Closest Temperament</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dad &amp; Child</td>
<td></td>
</tr>
<tr>
<td>Mom &amp; Child</td>
<td></td>
</tr>
</tbody>
</table>

Temporary Ideas for some responses to challenging behavior

WEEK ONE HOMEWORK

<table>
<thead>
<tr>
<th>POSITIVE REINFORCEMENT</th>
<th>PREVENTION</th>
<th>RECORD BEHAVIOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>What’s going well?</td>
<td>Collect Challenging Behavior</td>
<td></td>
</tr>
<tr>
<td>Encourage MORE of it.</td>
<td>Frequency every day between</td>
<td></td>
</tr>
<tr>
<td>90-10</td>
<td>_____ and _______</td>
<td></td>
</tr>
<tr>
<td>Praise and reinforce</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Next Visit _____________________________

Lauren Pace 2019
WEEK TWO: REFLECT & HYPOTHESIZE

What changed as a result of preventing/positive reinforcement?

Reflect on the week and reevaluate the challenging behaviors

<table>
<thead>
<tr>
<th>BEFORE BEHAVIOR</th>
<th>WHAT IS THE BEHAVIOR?</th>
<th>HOW DO YOU TYPICALLY RESPOND?</th>
<th>POSSIBLE FUNCTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Describe triggers, setting, time and other environmental considerations</td>
<td>(form) What did the child specifically say or do?</td>
<td>(maintaining consequence) What happens immediately after the behavior?</td>
<td>What is the child attempting to communicate or accomplish? Reason for challenging behavior?</td>
</tr>
</tbody>
</table>

Teaching in the green arrow moments

<table>
<thead>
<tr>
<th>Skills needed</th>
<th>What support is needed to teach the new skill?</th>
<th>How can we teach the new skill?</th>
</tr>
</thead>
<tbody>
<tr>
<td>What skill do you think we need?</td>
<td>Scaffolding that needs to happen to teach new skills</td>
<td>Parent ideas</td>
</tr>
</tbody>
</table>

Lauren Pace 2019
FAMILY COPY

WEEK TWO DISCUSSION NOTES

What changed as a result of preventing/positive reinforcement?

Teaching in the green arrow moments

<table>
<thead>
<tr>
<th>Possible Function</th>
<th>Skills needed</th>
<th>What support is needed to teach the new skill?</th>
<th>How can we teach the new skill?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
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<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

WEEK TWO HOMEWORK

<table>
<thead>
<tr>
<th>NEW SKILLS TO TEACH</th>
<th>WHEN TO TEACH</th>
<th>RECORD BEHAVIOR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Collect Challenging Behavior</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Frequency every day between</td>
</tr>
<tr>
<td></td>
<td></td>
<td>_____ and _____</td>
</tr>
</tbody>
</table>

Next Visit ____________________________

Lauren Pace 2019
RESEARCHER COPY

POSITIVE BEHAVIOR SUPPORT ACTION PLAN
We look at challenging behavior as an opportunity to TEACH. Our Goal is to
Prevent - Teach - Reinforce

Information we need:

<table>
<thead>
<tr>
<th>TRIGGERS</th>
<th>CHALLENGING BEHAVIOR</th>
<th>MAINTAINING CONSEQUENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

FUNCTION: What is the child attempting to communicate or accomplish? Reason or purpose of challenging behavior?

Our Plan:

<table>
<thead>
<tr>
<th>FOCUS ON POSITIVE</th>
<th>PREVENTION</th>
<th>NEW SKILLS</th>
<th>WHEN TO TEACH</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Prevent, Teach & Praise  Prevent  Teach  Teach

<table>
<thead>
<tr>
<th>NEW SKILL USED</th>
<th>RESPONSE</th>
<th>NEGATIVE BEHAVIOR</th>
<th>RESPONSE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Teach & Praise  Teach  Teach

Additional Notes/Needs:
POSITIVE BEHAVIOR SUPPORT ACTION PLAN

We look at challenging behavior as an opportunity to TEACH.
Our Goal is to Prevent - Teach - Reinforce

FUNCTION OF BEHAVIOR:

Additional Notes/Needs:

<table>
<thead>
<tr>
<th>FOCUS ON POSITIVE</th>
<th>PREVENTION</th>
<th>NEW SKILLS</th>
<th>WHEN TO TEACH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prevent, Teach &amp; Praise</td>
<td>Prevent</td>
<td>Teach</td>
<td>Teach</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NEW SKILL USED</th>
<th>RESPONSE</th>
<th>NEGATIVE BEHAVIOR</th>
<th>RESPONSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teach &amp; Praise</td>
<td>Teach</td>
<td>Teach</td>
<td>Teach</td>
</tr>
</tbody>
</table>

Lauren Pace 2019
Appendix C

Temperament Continuum
## Temperament Continuum

Place the initials of each of the children in your care on the continuum for each trait based on your observations and discussions with the child’s family. Then, write your initials where you feel you fall on each trait in the continuum. Use this tool to analyze where your temperament is similar and different to the children you care for. Then, knowing that it is the adult who must adjust to make the “fit” good, use the suggestions above to create care strategies that provide the best possible experience for each child.

<table>
<thead>
<tr>
<th><strong>Activity Level:</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Very Active</em></td>
<td><em>Not Active</em></td>
</tr>
<tr>
<td>wiggle and squirm, difficulty sitting still</td>
<td>sit back quietly, prefer quiet sedentary activities</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Distractibility:</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Very Distractible</em></td>
<td><em>Not Distractible</em></td>
</tr>
<tr>
<td>Difficulty concentrating</td>
<td>High degree of concentration</td>
</tr>
<tr>
<td>Easily distracted by sounds or sights during activities</td>
<td>Not easily distracted by sounds or sights during activities</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Intensity:</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Very Intense</em></td>
<td><em>Not Intense</em></td>
</tr>
<tr>
<td>Intense positive and negative emotions</td>
<td>Muted emotional reactions</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Regularity:</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Very Regular</em></td>
<td><em>Not Regular</em></td>
</tr>
<tr>
<td>Predictable appetite, sleep patterns, elimination</td>
<td>Unpredictable appetite, sleep patterns, elimination</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Sensory Threshold:</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><em>High Threshold</em></td>
<td><em>Low Threshold</em></td>
</tr>
<tr>
<td>Not sensitive to physical stimuli including sounds, tastes, touch, temperature changes</td>
<td>Sensitive to physical stimuli including sounds, tastes, touch, temperature changes</td>
</tr>
<tr>
<td>Falls asleep anywhere, tries new foods, wears new clothing easily</td>
<td>Picky eater, difficulty sleeping in strange crib/bed</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Approach/Withdrawal:</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Tendency to Approach</em></td>
<td><em>Tendency to Withdraw</em></td>
</tr>
<tr>
<td>Eagerly approaches new situations or people</td>
<td>Hesitant and resistant when faced with new situations, people, or things</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Adaptability:</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Very Adaptable</em></td>
<td><em>Difficulty Adapting</em></td>
</tr>
<tr>
<td>Transitions easily to new activities and situations</td>
<td>Has difficulty transitioning to new activities or situations</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Persistence:</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Persistent</em></td>
<td><em>Easily Frustrated</em></td>
</tr>
<tr>
<td>Continues with a task or activity in the face of obstacles</td>
<td>Moves on to a new task or activity when faced with obstacles. Gets frustrated easily</td>
</tr>
<tr>
<td>Doesn’t become frustrated easily</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Mood:</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Positive Mood</em></td>
<td><em>Serious Mood</em></td>
</tr>
<tr>
<td>Reacts to the world in a positive way, generally cheerful</td>
<td>Reacts to situations negatively, mood is generally serious</td>
</tr>
</tbody>
</table>

---

1. ZERO TO THREE. Retrieved from worldwideweb http://www.zerotothree.org/site/PageServer?pagename=Key_Temp June 11, 2009
2. Dimensions of temperament (found in several places and merged/adapted).
Center on the Social and Emotional Foundations for Early Learning

We welcome your feedback on this What Works Brief. Please go to the CSEFEL Web site (http://www.vanderbilt.edu/csefel) or call us at (866) 433-1966 to offer suggestions.

Where Do I Find More Information on Temperament?
See the CSEFEL Web site (http://www.vanderbilt.edu/csefel) for additional resources.


This What Works Brief is part of a continuing series of short, easy-to-read, “how to” information packets on a variety of evidence-based practices, strategies, and intervention procedures. The Briefs are designed to help teachers and other caregivers support young children’s social and emotional development. In-service providers and others who conduct staff development activities should find them especially useful in sharing information with professionals and parents. The Briefs include examples and vignettes that illustrate how practical strategies might be used in a variety of early childhood settings and home environments.

This material was developed by the Center on the Social and Emotional Foundations for Early Learning with federal funds from the U.S. Department of Health and Human Services, Administration for Children and Families (Cooperative Agreement N. PHS 90Y000215). The contents of this publication do not necessarily reflect the views or policies of the U.S. Department of Health and Human Services, nor does mention of trade names, commercial projects, or organizations imply endorsement by the U.S. Government. You may reproduce this material for training and information purposes. 10/2010

Newsletter constructed by the Graphics Core of the Vanderbilt Kennedy Center, Vanderbilt University, kc.vanderbilt.edu
Appendix D

Behavior Tracking
Mark an X for each time a challenging behavior occurred
Record the # of minutes it lasted next to it.

You only need to track between _______ and ______ each day
(3 hours that both parents are with child consistently)

If no negative behavior occurs, please put a 0 in the box to record for that day.

<table>
<thead>
<tr>
<th>Week</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
<th>Saturday</th>
<th>Sunday</th>
<th>Monday</th>
<th>Tuesday</th>
</tr>
</thead>
<tbody>
<tr>
<td>Example</td>
<td>X 10</td>
<td>X 40</td>
<td>X 40 X 5</td>
<td>X 20 X 1</td>
<td>X 40</td>
<td>X 1</td>
<td>X 4</td>
</tr>
</tbody>
</table>

B

1

2

3

4

5

6
Appendix E

Implementation Fidelity Checklist
Week One

- Discuss common behaviors
- Video Replay
- Temperament Fit Review
- Positive Behavior
- Prevention
- Ideas for Appropriate Responses for Challenging Behavior
- Asked the parents input in all above topic areas
- Asked open-ended questions throughout the discussion
- Considered parent feedback

Parent Signature & Date

Week Two

- Discussed: What changed by preventing?
- Reflect on Challenging Behaviors
- Green Arrow Moments
- Discuss how to best teach the missing skill
- Asked the parents input in all above topic areas
- Asked open-ended questions throughout the discussion
- Considered parent feedback

Parent Signature & Date

Week Three

- determined function of behavior
- developed action plan
- determined responses to new skills
- determined responses to negative behavior
- Asked the parents input in all above topic areas
- Asked open-ended questions throughout the discussion
- Considered parent feedback

Parent Signature & Date

Implementation Fidelity Score ____ / 23   Implementation Fidelity Score _____
Appendix F

Social Validity Measure
Please circle your answer.

1. I will continue to use the strategies and tools from this intervention with my child/children.
   
<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
</table>

2. I was pleased with the outcomes for my child as a result of this intervention.
   
<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
</table>

3. The researcher provided enough opportunities for practice and/or to ask questions.
   
<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
</table>

4. After this intervention, I am able to implement appropriate ways to respond to challenging behavior.
   
<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
</table>

5. I believe this intervention strengthened my parenting skills.
   
<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
</table>

6. This intervention improved my relationship with my child.
   
<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
</table>

7. I believe I can accurately identify function of my child’s behavior as a result of this intervention.
   
<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
</table>

8. I can effectively implement helpful strategies to prevent my child’s challenging behavior as a result of this intervention.
   
<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
</table>

9. I believe I can identify triggers of my child’s challenging behavior as a result of this intervention.
   
<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
</table>

10. I would recommend this intervention to other parents.
    
    | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
    |-------------------|---------|---------|-------|---------------|

All items scored 1 (strongly disagree) to 5 (strongly agree).

Please write in your answer.

What did you like about this intervention?

What would you change about this intervention?