EFFECTS OF THE PRACTICED ROUTINES PARENT TRAINING PROGRAM ON BEHAVIORAL STRATEGY USE, PARENTAL WELL-BEING, AND CHILD CHALLENGING BEHAVIOR IN PARENTS OF CHILDREN WITH AUTISM SPECTRUM DISORDER

by

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DISSERTATION ABSTRACT

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Title: Effects of the Practiced Routines Parent Training Program on Behavioral Strategy Use, Parental Well Being, and Child Challenging Behavior in Parents of Children with Autism Spectrum Disorder.

In this study, a concurrent randomized multiple baseline across three parent-child dyads single-case design was employed to evaluate the effects of a brief three-week parent training program, titled Practiced Routines. The Practiced Routines parent training program included positive behavior supports (PBS) and mindfulness strategies within the context of natural family routines. Three mothers and their children with autism spectrum disorder (ASD) participated. Visual analysis combined with a standardized mean difference analysis revealed mixed results with a medium effect found for increases in parent behavioral strategy use and small effects found for reductions in parent stress and child challenging behavior. All three mothers rated the social validity of the Practiced Routine program favorably. Implications for science and practice in educational and behavior health early intervention for families of children with ASD are discussed.

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Hansen, S., Frantz, R., Machalicek, W., & Raulston, T. (in press). A systematic review of advanced social skills interventions for young children with autism. *Review Journal of Autism and Developmental Disorders.*

Knowles, C., Massar, M., Raulston, T., & Machalicek, W. (2016). Telehealth consultation in a self-contained classroom for behavior: A pilot study. *Preventing School Failure: Alternative Education for Children and Youth, 0,* 1-10.

Machalicek, W., LeQuia, J., Pinkelman, S., Knowles, C., Raulston, T., Davis, T., & Alresheed, F. (2016). Behavioral telehealth consultation with families of children with autism spectrum disorder. *Behavioral Interventions, 31, 223-250.*

Carnett, A., Raulston, T., Lang, R., Toskanoski, A., Lee, A., Sigafoos, J., & Machalicek, W. (2014). Effects of a perseverative interest based token economy on challenging behavior and on-task behavior of a 7-year-old boy with autism. *Journal of Behavioral Education, 23,* 368-377.

Hansen, S.G., Blakely, A., Dolata, J., Raulston, T., & Machalicek, W. (2014). Children with autism in the inclusive preschool classroom: A systematic review of single-subject design interventions on social communication skills. *Review Journal of Autism and Developmental Disorders, 1,* 192-206.

Tostanoski, A., Lang, R., Raulston, T., Carnett, A., & Davis, T. (2014). Voices from the past: Rapid prompting method may contain facilitated communication. *Developmental Neurorehabilitation*, *17,* 219-223.

Pullen, N., Raulston, T., Lang, R., & Wendt, O. (2013). A modified preschool life skills program focused on teaching functional communication and self-control resulted in acquisition of requesting skills and the prevention of problem behavior in small groups of preschool children. *Evidence Based Communication Assessment and Intervention, 7,* 112-116. Abstract of Luczynski, K. C., & Hanley, G. P. (2013), Prevention of problem behavior by teaching functional communication and self-control skills to preschoolers. *Journal of Applied Behavior Analysis*, 46: 355–368.

Raulston, T., Carnett, A., Lang, R., Tostanoski, A., Lee, A., Machalicek, W., Sigafoos, J., Didden, R., Lancioni, G., & O'Reilly, M. (2013). Teaching individuals with autism spectrum disorder to ask questions: A systematic review. *Research in Autism Spectrum Disorders, 7*, 866-878.

Lee, A., Lang, R., Davenport, K., Moore, M., O'Reilly, M., Sigafoos, J., Lancioni, G., Carnett, A., Raulston, T., Tostanoski, A., Henry, S., & Chung, C. (2013). Comparison of teacher-implemented and iPod assisted academic instruction for students with autism spectrum disorder. *Developmental Neurorehabilitation*, *18,* 97-103.

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To my father, Charles Raulston – I miss you very much and know you have been reading every draft of this for me.

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CHAPTER I

INTRODUCTION AND LITERATURE REVIEW

The purpose of this chapter is to provide (a) an introduction outlining the importance of the current study, (b) a selective review of three key bodies of literature, and (c) a statement of the purpose of the current study and the research questions. The first body of literature that will be reviewed includes behavioral parenting training for parenting of children with autism spectrum disorder (ASD) and related developmental disabilities. Next, mindfulness literature as investigated in parents of children with ASD will be reviewed. Finally, the intervention literature that has combined behavioral and mindfulness approaches to training parents of children with disabilities will be summarized. This chapter will conclude with a summary of the limitations of the extant literature, a statement of purpose, research questions, and conceptual model of the current investigation.

Introduction

Challenging behavior in children with ASD. Children with ASD experience deficits in social-communication and repetitive patterns of behavior and interests (American Psychological Association, 2013). As a result of these hallmark characteristics, children with ASD are at a greater risk for various co-occurring challenging behaviors including aggression, non-compliance, self-injury, stereotypy, and elopement (Baghdadli, Pascal, Grisli, & Aussiloux, 2003; Hartley, Sikora, & McCoy, 2008; Kanne & Mazurek, 2011). It has been estimated that approximately 94% of children with ASD engage in at least one topography of challenging behavior (Matson, Wilkins, & Macken, 2009). Further, children with ASD exhibit a significantly higher rate

of externalizing challenging behavior than their same aged peers (Brookman-Frazee et al., 2009; Eisenhower et al., 2005; Mahan & Matson, 2011; Matson et al., 2009; Totsika, Hasting, Emerson, Lancaster, & Berridge, 2011). Externalizing challenging behaviors are associated with a number of negative child outcomes such as poor psychosocial and physical health, as well as poor academic, social, and emotional functioning (Kuhlthau et al., 2010).

Effects of challenging behavior on parental well-being. Negative outcomes of challenging behavior are not limited to the child with ASD. Their parents are at an increased risk of several deleterious psychological outcomes, including increased levels of stress, anxiety, and depressive symptoms (Lecavalier, Leone, & Wiltz, 2006 Eisenhower, Baker, & Blacher, 2005; Schieve, Blumberg, Rice, Visser, & Boyle, 2007; Totsika, Hasting, Emerson, Berridge, & Lancaster, 2011), and in fact, report higher stress levels than parents of children with other developmental disabilities (Blacher & McIntyre; Dabrowska & Pisula, 2010; Olsson & Hwant, 2003; Silva & Schalock, 2012). Moreover, the relationship between parental stress and child challenging behavior appears to be bidirectional, thus having mutually escalating, or deescalating effects over time (Herring et al., 2006; Lecavalier et al., 2006; Neece, Green, & Baker, 2012). As such, interventions targeting the reduction of child challenging behavior, as well as those aimed at improving parental well-being are important.

Although there are many treatments available to address challenging behavior in children with ASD (e.g., psychotropic medication, sensory integration), it is generally accepted that practices founded in the science of behavior analysis hold the strongest evidence base (National Autism Center, 2015; National Professional Center on ASD

2014). Applied behavior analysis (ABA) utilizes behavioral principles and experimentation to determine environmental variables responsible for behavior change in order to ultimately improve socially significant behavior (Baer, Wolf, & Risley, 1968; Cooper, Heron, & Heward, 2007). Antecedent and consequence variables within an environment are systematically manipulated in order to increase or decrease the likelihood of a behavior to occur under similar conditions in the future. The philosophical foundations of ABA are based in behaviorism theory, which is not limited to overt observable behavior, but rather a belief system that environments shape behavior including those within the skin (Baum, 2005; Skinner, 1974).

Within early childhood special education, it is recommended that practices for children with delays and disabilities are family-centered and capacity building (Division for Early Childhood, 2014). Specifically, practices should strengthen families' knowledge and skills and enhance parenting practices within natural routines. The National Autism Center conducted one of the largest, most comprehensive literature reviews identifying evidence-based practices for individuals with ASD. In their latest report, National Standards Project Phase II report (2015) parent training package is categorized as 1of 13 distinct established interventions and has shown to be effective in decreasing general autism symptoms and challenging behaviors, including restricted, repetitive patterns of behavior in several peer-reviewed studies. The National Autism Center designated an intervention as being established if it had two group designs or four single-case designs with a minimum of 12 participants for which there were no conflicting results, or at least three group designs or six single-case designs with a minimum of 18 participants with no more than 10% of the studies reporting conflicting results. Moreover, the National

Professional Development Center on ASD includes parent-implemented interventions as 1 of 27 identified evidence-based practices (Schultz, 2013). According to their latest report, "Evidence-Based Practices for Children, Youth, and Young Adults with ASD," parent-implemented interventions hold sufficient evidence for several child outcomes including behavior, for children birth to 11 years old, with 8 group design studies (e.g., Sofronoff, Jahnel, & Sanders, 2011; Whittingham, Sofronoff, Sheffield, & Sanders, 2009) and 12 single-case studies (e.g., Najdowski, et al., 2010; Tarbox, Wallace, & Tarbox, 2002) In the next section, specific exemplars of evidence-based parent-implemented interventions for the treatment of child challenging behavior and parental stress within parents of children with ASD and related developmental disabilities will be discussed.

Review of Key Literature

Behavioral parenting training. Various methods have been used to educate parents of children with ASD and related developmental disabilities on the use of behavioral strategies (National Autism Center, 2015). Training techniques include didactic methods to teach parents about behavioral principles (e.g., the four term contingency), and procedures (e.g., response prompting), as well as coaching (e.g., modeling, role-play, performance feedback). Parents have been involved in intervention by completing indirect functional behavior assessments (e.g., Marcus, Swanson, & Vollmer, 2001), and have been taught to implement function-based behavioral strategies in home settings (e.g., Kuhn, Lerman, & Vorndran, 2003; Lerman, Swiezy, Perkins-Parks, & Roan, 2000; Marcus, Swanson, Vollmer, 2001). Parents may also generalize

learned skills to target other child challenging topographies of behavior or to additional family routines (e.g., Sears, Chos Blair, Iovannone, & Crosland, 2013).

Current trends in behavioral parent training. One way to cost-effectively educate parents is to deliver manualized trainings in a group format. Group formats also have additional advantages including social support. An example of a group-based behavioral parent training for parents of challenging behavior is the manualized Incredible Years parent training program (Webster-Stratton, 2001). This program is grounded in a transactional model of parent-child interactions (Sameroff & Fiese, 2000), which includes developmental and behavioral conceptual frameworks. The program aims to reduce coercive parenting practices by increasing positive parent-child interactions and reducing negative interactions (Patterson, 1982), ultimately resulting in a reduction in child challenging behaviors. Components of the Incredible Years include didactic instruction, group discussion, video vignettes, and role-play covering topic of play, praise, rewards, limit setting, and handling consequences. McIntyre (2008) evaluated the Incredible Years parent training with developmental disability modifications (IYPT-DD), which among other adaptations included a descriptive functional behavior assessment and the creation of a function-based behavior support plan. The IYPT-DD has been shown to significantly reduce parent-reported child challenging behavior and direct observations of challenging behavior (Kleve et al., 2011, McIntyre, 2008a, McIntyre, 2008b).

It is not always possible for parents to attend group based trainings due to myriad challenges. Researchers and educational and behavioral health agencies are employing creative methods of reaching families of children with ASD. In rural areas or for families who have multiple competing demands, it can be especially challenging to receive

education in the use of behavioral interventions and supports. One way that such challenges have been addressed is through the use of telehealth models for service delivery (Hickey, 2013; Hilty et al., 2013). In a recent study, Machalicek et al., (2016) utilized telehealth consultation and successfully trained three parents of children and youth (M = 11; range 8 – 16 years old) with ASD diagnoses to complete functional behavioral assessments and behavioral treatment comparisons including antecedent-based strategies (e.g., social narrative), teaching strategies (e.g., functional communication training), and consequence-based strategies (e.g., differential reinforcement). Parents were educated using didactic instruction of the procedures, modeling, and performance feedback through video conferencing. Parent-implemented interventions resulted in decreases in challenging behavior for all three dyads.

Family based positive behavior support. Within the philosophical underpinnings of family-based positive behavior supports (PBS) are the central tenets that interventions have ecological validity, include parent-child interactions, involve family-professional collaborative partnerships, and occur within the context of natural family routines (Binnendyk et al., 2009; Lucyshyn, Blumberg, & Kayser 2000; Dunlap, Newton, Fox, Benito, & Vaughn, 2001). Fettig and Barton (2014) conducted a systematic literature review of parent-implemented interventions that utilized functional behavior assessment to intervene upon challenging behavior for children with ASD and identified 13 studies that targeted routines within the home setting. Four of these studies created behavior support plans that included proactive, teaching, and consequence strategies (Dunlap & Fox, 1999; Harding, Wacker, Berg, Lee, & Dolezal, 2009; Koegel, Stiebel, & Koegel, 1998; Lucyshyn et al., 2007).

Koegel, Stiebel, and Koegel (1998) employed a single-case multiple baseline across three families design. Two children with autism and one with mixed developmental disorder (M = 5 years old) and their infant siblings toward whom they aggressed participated in this study. A parent consultation model was utilized that included identification of stimuli associated with challenging behavior (e.g., sibling touching child's toys), and a clinician and the parent developed an intervention plan together that included strategies to minimize the occurrence or duration of stimuli associated with challenging behavior. Next, the clinician worked with the parent to create a multicomponent plan that included proactive strategies such as rearranging the environment (e.g., prepare the bulk of a meal before having children sit in their chairs), teach functionally equivalent replacement behaviors (e.g., verbal response such as "Take [sibling's name]"), and consequence strategies (e.g., contingent attention for gradually longer periods of independent play). Visual analysis of the results indicated a small decrease in level and variability for tier one, immediate and large decrease in level and variability for tier two, and immediate and gradual decrease in trend for tier three for percentage of intervals with aggression.

Dunlap and Fox (1999) trained families of six children (M = 34 months old) with autism and related disabilities (e.g., pervasive developmental delay – not otherwise specified) utilizing a family-centered application of PBS. This process involved a functional assessment of the challenging behavior and implementation of multicomponent behavior support plans. The behavior support plans included strategies for prevention (e.g., stimulus control techniques of cueing appropriate behavior), teaching replacement behavior (e.g., functionally equivalent adaptive alternative responses), and

consequence strategies (e.g., ways for parents to respond to problem behavior so that it was ineffective for the child). Parents were coached during family routines (e.g., bed time) using review of the behavior support plan, feedback, and review of the child's progress. Parents also watched the coach model strategies with the child. Data were collected on child outcomes including frequency of tantrums and percentage of intervals with problem behavior in a non-concurrent multiple baseline single-case design, and six demonstrations of immediate decrease in level of challenging behavior with minimal overlapping data was observed.

Lucyshyn and colleagues (2007) conducted a longitudinal study across a 10-year period of one child with autism who was five years old at the start of the study. A single-case multiple baseline across four settings (dinner, bed time, restaurant, grocery store) design was employed. Functional assessment procedures included descriptive observational assessments, functional analyses, and a family ecology assessment. The competing behavior analysis framework (Horner, O'Neill, & Flannery, 1993) was used to guide the creation of a behavior support plan to include proactive (e.g., provision of information to reduce anxiety), teaching (e.g., prompting and modeling of language), and consequence-based strategies (e.g., actively ignoring low intensity challenging behavior). Training and support was provided to the family for one routine at a time. Training sessions occurred between one and three times per week and included in vivo modeling, behavioral rehearsal, coaching, parent self-monitoring, problem-solving, discussion, and fading of support. Visual inspection of the data revealed an initial small decrease in level, followed by a delayed large decrease in level and variability of rate of challenging behavior for the dinner routine. For the bed time routine, an immediate modest decrease

in level and variability was observed. For restaurant and grocery store routines, an immediate and large change in level and variability occurred. Probe data were collected over the course of 10 years, and minimal overlap was observed for baseline levels of challenging behavior to follow-up (i.e., 3 to 10 years later).

Harding, Wacker, Berg, Lee, and Dolezal (2009) coached one parent to conduct a functional analysis and functional communication training procedures in her home to reduce property destruction, aggression, and noncompliance behavior of her two and a half year old son with developmental delay. During the functional assessment process the parent provided descriptive assessment data to identify patterns of challenging behavior and behavior rating scales for the parent to rate the degree of challenging behavior. Next, the mother was coached to employ functional analyses procedures (Iwata et al. 1982/1994) in the home, and results indicated that the child's challenging behavior was maintained by escape from demands. The parent was trained to implement the proactive strategy of visual cues and the creation of a designated work area (i.e., desk and chair), which was visually distinct from his play area (i.e., the floor and bed). The parent was also trained to implement a functional communication training procedure using a BIGMack™ switch. In addition to the FCT procedure, the parent was trained to employ consequence-based strategies such as redirection. The parent was trained with written instructions, video models, in vivo modeling, and performance feedback. In a single-case reversal design, the behavior support plan resulted in a delayed decrease in level and variability of destructive behavior. Upon reinstitution of baseline, destructive behavior increased with no overlapping data, and this pattern was replicated across two additional phase changes.

In their review, Fettig and Barton (2014) highlighted the importance for behavior support plans of young children with ASD to reflect family goals and improve the quality of family life. Coupled with the tendency for children with ASD to display stimulus overselectivity (i.e., attend to irrelevant features of an environmental variable) (Lovaas, Koegel, & Schreibman, 1979), it seems particularly advantageous to implement strategies and supports within common family routines that are likely to have predictable stimulus conditions (e.g., location, people present, sequence of events) in order to minimize the amount of conditional discriminations required for learning.

Lucyshyn and colleagues (2004) conducted an observational study of 10 families of children with developmental disabilities. These researchers coded parent-child interactions and used sequential analyses to test two coercive cycles, attention and escape. The findings were in line with previous research on attention-driven coercive cycles (Patterson, 1982). Specifically, results revealed significant reciprocal processes of positive and negatively reinforcement for five families in seven out of eight routines. For example, given a parent being busy in a non-child-centered task (e.g., washing dishes, preparing food), and the child engaging in challenging behavior, followed by some form of adult attention, the child's challenging behavior was terminated. However, results for the escape-driven coercive cycle were somewhat different. In the third step of the escape-driven cycle (i.e., following a parent placing a demand, and the child engaging in a challenging behavior), instead of the parent removing the demand, they tended to reduce the demand while delivering some form of attention (e.g., a negative or humorous comment) or physical assistance. The child with the developmental disability likely did not to terminate the challenging behavior if the demand was reduced or removed, but

rather complied while still engaging in challenging behavior, not comply without additional challenging behavior, or comply (i.e., not resisting physical assistance). Further, an alternative four-step pattern of parent-child interaction appeared to emerge with these parent-child interactions. Given a parent delivering a demand, followed by a child challenging behavior, even though the parent removed or reduced the demand, the child continued to engage in challenging behavior. The authors hypothesized that there may be variables inherent to the routine that were aversive; perhaps escaping the routine was additionally valuable. They noted anecdotally that during these instances, the child appeared to be in a heightened state of arousal (e.g., agitated facial expression and movements, louder and/or distressed vocalizations). Further, several mothers were observed to engage in positive parenting practices with other children whilst handling difficulties with the child with the developmental disability, and global measures did not indicate that these mothers were inept at parenting. These preliminary data point to the potential validity of creating behavioral support intervention and plans within the context of family routines, and while keeping in mind the unique characteristic of children with developmental disabilities.

In sum, parent-implemented behavioral interventions have been shown to be effective in reducing challenging behavior for children with ASD. Best practices include training parents in knowledge and skills to implement function-based positive behavioral support plans that include antecedent (proactive), teaching functional replacement behavior, and consequence (reinforcement and effective management) strategies within the context of naturally occurring routines. However, intervening upon challenging behavior alone may not be enough for some families, and in fact, it could increase

caregiver burden and exacerbate stress (Strauss et al., 2012). As such, it is also imperative that we consider factors that may protect against parent stress within this population. Fortunately, many factors are related to parent well-being including optimism (Greenburg, Seltzer, Krauss, Chou, & Hong, 2004), self efficacy (Hastings & Brown, 2002), social support (Boyd, 2002), and self compassion (Neff & Faso, 2014). Another theoretical construct receiving increased attention in the literature is mindfulness.

Mindful parenting. Mindfulness is one of a number of qualities fundamental to the path of "enlightenment" in Buddhist traditions dating back to Indian texts between the fourth and second centuries. Within Western psychology, mindfulness and theoretically related interventions, have gained exponentially increasing popularity since the 1980s (Brown, Creswell, & Ryan, 2015). Mindfulness can be defined as an open and accepting attitude cultivated by applying a purposeful, non-judgmental moment-to-moment awareness (Kabat-Zinn, 1990). This construct extends to the parent-child relationship for what is known as mindful parenting (Kabat-Zinn & Kabat-Zinn, 1997).

Mindful parenting allows parents to cultivate a focused awareness and attend to their child's needs, and respond instead of reacting or reverting to automatic parenting practices (Duncan, Coatsworth, & Greenberg, 2009). Different models of mindful parenting have been proposed, with common dimensions including (a) observing and describing internal and external stimuli during parent-child interactions, (b) non-judgmental acceptance of self and child, (c) acting with an emotional awareness, and (d) nonreactivity during parent-child interactions (Duncan, Coatsworth, & Greenberg, 2009; Jones et al., 2014). The sections to follow will review correlational and intervention research on mindfulness within parents of children with ASD. Finally, studies that have

combined mindfulness with behavior support and limitations of the existing literature base will be discussed.

Associations of mindful parenting in ASD. There is an emerging body of research examining associations of mindful parenting within samples of parents of children with ASD. Beer, Ward, and Moar (2013) investigated the relations between mindful parenting and parental stress, depression, and anxiety in 28 parents of children with ASD using the Interpersonal Mindfulness in Parenting Scale (IM-P) and found significant negative correlations between total mindful parenting and both parental stress and depressive symptoms. The compassion subscale of the IM-P scale revealed participants' mean scores for self compassion were significantly lower than their mean child compassion scores, t (27) = 8.97, $p < 0.001$. They ran exploratory first-order partial correlation analyses and found that relations between depressive symptoms ($r = 0.71$) and stress ($r = 0.77$) remained moderate–strong and statistically significant ($p < 0.001$), and therefore, concluded that mindful parenting did not mediate the relation between child behavior problems and parental outcomes. More recently, Jones, Hastings, Totsika, Keane, and Rhule (2014) developed the Bangor Mindfulness Parenting Scale (BMPS). They tested this scale in a sample of 71 mothers and 39 fathers of children with ASD and also investigated relations between mindful parenting and anxiety, stress, and depression. In mothers, they found that mindful parenting mediated the relation between child behavior problems and anxiety (β = -.42, $p = .002$; overall $R^2 = .19$), depression (β = -.38, $p = .006$; overall $R^2 = .23$), and stress (β = -.23, $p = .041$; overall $R^2 = .31$), In fathers, they found that mindful parenting meditated the relation between child behavior problems and depression (β = -.36, $p = .017$; overall $R^2 = .43$). Raulston and McIntyre (in

preparation) used the BMPS in a sample of 75 mothers of children with ASD, and found that after accounting for child conduct problems, mindful parenting had a direct effect on parenting stress (β = -.34, p = .001; overall R^2 = .32), but mindful parenting mediated the relation between child conduct problems and maternal depression (β = -.49, p < .001; overall R^2 = .33). Findings such as these indicate that mindful parenting is a promising protective factor of potential interest for intervention with parents of children with ASD.

Mindfulness parent training in developmental disabilities. There is a small, and growing, body of research that has investigated mindfulness based interventions for parents of children with developmental disabilities, including ASD. Neece (2014) conducted a group based randomized waitlist control trial of the Mindfulness Based Stress Reduction (MBSR) program with 46 parents of young children with developmental delays. The MBSR program includes didactic instruction in the concept of mindfulness, the psychology and physiology of stress and anxiety and how mindfulness can be applied in life to facilitate more adaptive responses during challenging situations. Formal practices that were taught included strategies such as body scan, sitting meditation, and mindful movement. Results indicated that parents in the treatment group reported significantly less stress and depression, and greater life satisfaction, and effect sizes for the treatment group at the second assessment were large for all parent mental health measures ranging from d = 0.70 to 0.90. Further, parents in the treatment group reported significantly fewer child attention problems (i.e., ADHD symptoms), suggesting that the MBSR could have collateral effects for children. Bazzano and her colleagues (2015) conducted a similar study training parents of children with developmental disabilities with the MBSR program and found significant reductions in stress (p <

0.0001). Reductions in stress sustained at a two-month follow-up.

Singh et al. (2006) employed a single-case multiple baseline design across three mothers and their children (*M* = 5 years old) with autism evaluating the effects of an intensive 12-week mindfulness parent training. The training included intensive one-on-one sessions with didactic instruction and meditation activities in knowing your mind, focused attention, focused attention on arousal states, being in the present moment, beginner's mind, being your child, nonjudgmental acceptance, letting go, loving kindness, problem solving, and using mindfulness in daily interactions. The mothers had previous training with strategies for teaching their children language, behavior management, sensory integration, and medication management, and during the training and mindfulness practice phases, they were instructed to continue to use any behavior management strategies already in place. Overall, visual inspection of the data revealed moderate decreases in trend for noncompliance and aggression for two children, and a small change in level and moderate change in variability for self-injury and aggression for the third child. Subjective units of parenting satisfaction (*M* = 25% in baseline and 80% mindfulness practice phase) and interaction satisfaction (*M* = 55% in baseline and 87% in mindfulness practice phase) increased from baseline to the final phase (i.e., mindfulness practice phase). In a similar follow-up study, Singh and colleagues (2007) extended the findings from Singh et al. (2006) and trained four mothers of children (*M* = 5 years old) with developmental disabilities in a single-case multiple baseline across dyads design. Visual analysis of the data indicated a decreasing trend and variability of aggressive behavior for all four tiers. Further, in the final mindfulness practice phase, which was 52 weeks in duration, the frequency of aggressive behaviors was low with

minimal variability and overlap when compared to baseline. All children had at least one typically developing sibling. Positive interactions with siblings increased from baseline to the final mindfulness practice phase (M = 18% increase), and negative interactions decreased as well (M = 18%). Parenting satisfaction increased from baseline (M = 45%) to the final phase (M = 90%). Mothers' self-reported stress levels also decreased significantly ($p < .01$). Of noteworthiness, during informal interviews, mothers reported that they were not disciplined in their mediation practice and mindfulness exercises, and that they found this training to be different than all previous training programs.

Mindfulness based positive behavior support. Interventions that focus on training caregivers and to implement both mindfulness and PBS are emerging including Mindfulness Based Positive Behavior Support (MBPBS) (e.g., Singh et al., 2015, Singh, Lancioni, Karazsia, & Myers, 2016). Only one study was found that incorporated both mindfulness and PBS for parents of youth with ASD. Singh et al. (2014) employed a single-case multiple baseline across three mother-adolescent dyads. Each mother reported that they had worked with behavior analysts to develop and implement behavior support plans; however they had stopped implementing the plans for at least two years because of the additive stress caused by the required consistency of the behavioral procedures. Each adolescent with ASD had a history of engaging in challenging behavior across settings since toddlerhood. In this study, Singh and colleagues trained the mothers trained in a one-to-one format, once per week for eight weeks in the content areas of the four immeasurables (loving-kindness, compassion, joy, equanimity), and three poisons (attachment, anger, and ignorance), and formal meditation practices (e.g., soles of the feet). Visual analysis of the intervention phase data indicated large, immediate decreases

in level and variability of adolescent aggression for data paths for all three tiers, as well as steady positive trend for compliance in all three tiers. Additionally, mothers' scores on the perceived stress scale decreased from baseline (M = 33) to MBPBS practice (M = 15). The mothers were also interviewed at the end of the last phase (MBPBS practice). They reported that the MBPBS program enabled them to respond to their children's behavior with calmness and apply behavioral contingencies with a mindful awareness of the environmental conditions that may have triggered the challenging behavior. These mothers also reported that previous behavioral programming had increased their stress for two reasons: (1) they viewed the behavior support plans as being too technical, procedural, and labor intensive, and (2) they found that applying strict contingencies resulted in negative interactions with their child and negatively affective their relationship.

Limitations of extant literature. A logical extension for current research is to continue to investigate the effectiveness of mindfulness infused behavior support. One limitation of Singh et al. (2014) is the lack of detail provided as to how the mindfulness and PBS content were blended together during the intervention phase. Several critical details, including dosage of PBS support and features of the behavioral support plans were unclear. Further, there were only three participants in the Singh et al. (2014) study, so there is a need for replications of mindfulness and behavioral support combined approaches for parent training across different research teams.

Another consideration of valuable inquiry is what dosage of mindfulness training is required, if child challenging behavior is also intervened upon. Previous research has examined the effects of mindfulness training that is 8-12 weeks in duration. Due to the

aforementioned challenges families often experience, including difficulty traveling to community centers, and the current waitlist barriers for children with ASD to receive behavior analytic services (Lindgren et al., 2016), it is necessary to evaluate the efficacy of brief parent training programs that target educating parents in skills to address their stress as well as their child's challenging behavior. A final gap in the literature is the need for more direct behavioral observations of the effects of mindfulness infused behavioral interventions on parent and child outcomes. Such data would compliment and extend the extant findings.

Summary

Children with ASD are at an increased risk for developing maladaptive co-occurring challenging behavior, and their parents are at an increased risk for additive stressors. The relationship between child challenging behavior and parental stress appears to be bidirectional (Neece, 2012). Keeping in line with best practices for early childhood special education, PBS should be family centered and routines-based to the extent possible (Dunlap, et al., 2001). Interventions that aim to improve parental well-being and child behavior are warranted, and investigations of combined approaches are timely.

Statement of Study Purpose

The purpose of the current study is to build upon the evidence-base of interventions that aim to train parents of children with ASD in both PBS and mindful parenting practices within the context of family-based routines. The current investigation will evaluate a three-week parent education program titled Practiced Routines. Practiced Routines is a product currently being developed by IRIS Educational Media that includes manualized parent education sessions, an online learning management system that houses

modules including videos and interactive homework forms, and a mobile application titled Practiced Mind™ with 18 guided sound meditations. In the current study, the parent educator will deliver the Practiced Routines Program face-to-face to each participating parent and evaluate the effects of the intervention on parent and child outcomes in a concurrent multiple baselines across parent-child dyads design.

Research questions.

Three main research questions will be tested with in the experimental single-case design.

1. Is there a functional relation between the Practiced Routines parent training program and an increase in level of behavioral strategy use in parents of children with ASD?
2. Is there a functional relation between the Practiced Routines parent training program and a decrease in parent-reported subjective units of distress in parents of children with ASD?
3. Is there a functional relation between the Practiced Routines parent training program and a decrease in level of child challenging behavior in children with ASD?

Non-experimental secondary research questions of interest for social validity include:

1. Will there be a socially significant change in reported mindful parenting state?
2. Will there be a socially significant change in reported stress and/or depressive symptoms?
3. How will parents rate the acceptability and social validity of the goals, procedures and outcomes of the Practiced Routines parent training program?

4. Will follow-up coaching be required in order to reach criterion level of reduction in child challenging behavior?

Conceptual Model

The figure below illustrates the conceptual model for the current study.

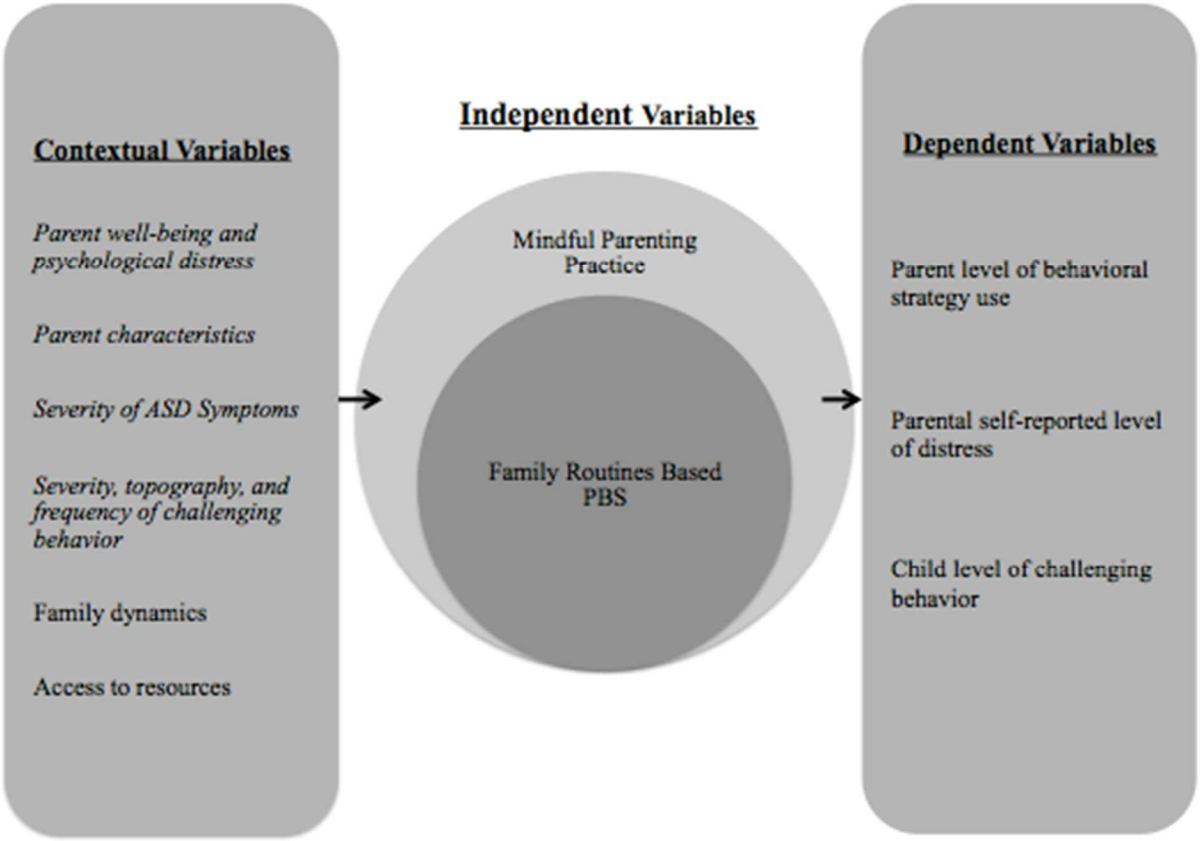

Figure 1. Conceptual model

In the model above, it is hypothesized that contextual variables such as parental well-being and distress, severity of ASD symptoms and co-occurring challenging behavior will impact the extent to which the intervention Practiced Routines will affect the outcome variables of interest including an increase in level of behavioral use strategies, a decrease in level of distress experienced by the parent, and a decrease in level of child challenging behavior. The hypothesized active ingredients of the

independent variable (i.e., Practiced Routines) include mindful parent practice as the protective factor of interest that enables parents to more effective adopt and sustain routines based PBS within family life.

CHAPTER II

METHODS

The purpose of this chapter is to present the methodology. Information regarding the participants, setting, and materials will be provided. The screening process will be presented. Indirect and direct measurement tools and procedures will be described. Next, baseline, training, and coaching phases will be discussed. Finally, data analysis methods will be reviewed.

Participant Inclusion Criteria

This study included three parent-child dyads. The children were between the ages of 2 and 10 years old and had either a documented medical diagnosis of ASD or qualify for early intervention or special education services under the eligibility category of autism.

Recruitment Procedures

Brochures explaining the purpose of the study, requirements, and other basic information were distributed by two autism specialists from Early Childhood Cares (EC CARES), distributed at several local Early Education Program (EEP) classrooms, provided to local clinics serving children with ASD (e.g., The Child Center, Connect the Dots), and mailed to 78 participants from the Oregon Early Autism Project. Ten interested parents contacted the lead researcher by phone or email. From those ten, the lead researcher screened seven parent-child dyads due to a tight timeline. Only one dyad met the initial screening criteria; thus, four dyads that most closely met the screening criteria were invited to participate in the study.

Four primary mothers and their children with ASD were initially invited to participate in this study. All parents were biological parents. Teen parents (i.e., younger than 18 years old), and parents who were unable to read and write or type in English were excluded from participation, although no referred parents met this exclusion criteria during screening. Child challenging behavior included various topographies (e.g., non-compliance, verbal protesting). If it were to become evident during the screening or interview processes that the child's challenging behavior placed him or herself or other family members at an imminent danger for physical harm, the lead researcher would have suggested a more intensive level of behavioral assistance. In such instances, parents would have been referred to Pearl Duck Autism Center (PDAC) for a face-to-face functional analysis and development of a behavior support plan; however, this was not necessary. If during the study, challenging behavior worsened or increased in intensity to be considered imminent danger to self or others, the researcher would have (a) referred the family to their child's pediatrician to rule out a medical or health condition and (b) referred the family to PDAC for more intensive supports than available through participation in the current study. The faculty advisor would have managed continuation of care.

Screening Procedures

Once a parent contacted the lead researcher, a phone screener was conducted. The following eight screening questions were asked: (a) Are you at least 18 years of age?, (b) Are you able to read and write or type in English for the purpose of completing a training that includes written homework?, (c) Do you have daily access to the Internet and either a personal desk- or laptop computer?, (d) Is your child between 2 and 10 years old?, (e) Is

your child on the autism spectrum as indicated by either a medical diagnosis or educational classification?, (f) Does your child engage in challenging behavior on a daily basis that interferes with the quality of one or more family routines?, (g) Does this challenging behavior cause additional stress to your parenting?, (h) Are you willing to participate in training that involves meditation? All seven parents answered "yes" to all eight screening questions, thus advancing to the next stage of the recruitment process. If s/he indicated "no" to any of the aforementioned screening questions, h/she would not have been eligible to participate in this study. An exception to this would have been if the child qualified under the eligibility category of developmental disability, but his or her IFSP/IEP team suspected ASD, the participant would have been allowed to enter the next phase of screening. This was not the case for any of the children. Following this phone screener, the researcher scheduled appointments with the seven potential participants to obtain informed consent and continue with the subsequent screening phase. This next screening phase included four tools: (a) Childhood Autism Rating Scale – 2nd Edition (CARS II; Schopler, Van Bourgondien, Wellman, Love, 2010); (b) The externalizing subscale from the Child Behavior Checklist (CBCL; Achenbach & Rescorla, 2000/2001); (c) the PSI-3rd Edition – Short Form (PSI-SF; Abidin, 2012); and (d) the Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977).

Children with a Childhood Autism Rating Scale – 2nd Edition (CARS II; Schopler, Van Bourgondien, Wellman, Love, 2010) raw score of 30 (i.e., "mildly autistic") or higher were considered for the study pending the results from the subsequent tools. In addition to the CARS II, this screening phase also involved the externalizing problem behavior subscales from the Child Behavior Checklist (CBCL; Achenbach &

Rescorla, 2000/2001). The participating child must have displayed clinically significant challenging behavior, which was determined by the child engaging in aberrant aggressive behavior for his or her age range as measured by the CBCL aggressive behavior subscale. If the child met the criteria for autism symptomatology and aberrant challenging behavior, then the parent who would have potentially been participating in the study as the implementer of the intervention completed the PSI-SF and the CES-D. Originally, the requirement for a parent's score on the PSI-SF was to fall within the clinically significant range, at or above the 90th percentile (raw score $\geq$ 85, range = 36 to 180). In contrast, potential participants who scored in the major depressive symptoms range (i.e., a raw score of 27 or higher; Zich, Attkisson, & Greenfield, 1990) on the CES-D were going to be screened out of the current study and offered a flyer for the University of Oregon's Child and Family Center Clinic. However, only one of the seven parents who were screened met these criteria. Thus, the lead researcher included three additional parents, one of whom had a score in the normal range on the PSI-SF, yet in the clinically significant range on the CES-D, and the other two parents scored in the clinically significant range for both parenting stress and depressive symptoms.

Screening Measures

The following are descriptions of the aforementioned screening measures. Descriptions include information such as: the number and types of items, approximate amount of required time, psychometric properties, administration procedure, and the rationale for using it within the current study.

Childhood Autism Rating Scale – 2nd Edition. The CARS-II is a widely used rating scale designed to be administered by trained clinicians using direct observation of

the child and parent report. Because, in the current study, this measure is not being used to make diagnostic decisions, direct observation was not required. The CARS-II has 15-items: relating to people; imitation; emotional response; body use; object use; adaptation to change; listening response; adaptation to change; taste, smell, and touch response and use; fear or nervousness; verbal communication; nonverbal communication; activity level; level and consistency of intellectual response; and general impressions. The child is rated on a 7-point Likert scale (1 = *age appropriate*; 2 = *mildly abnormal*; 3 = *moderately abnormal*; 4 = *severely abnormal;* scores of 1.5, 2.5, and 3.5 are also possible) for each item. Administration will require approximately 30 minutes. A total score is computed from the sum of the 15 items. Scores of 30 or higher fall in the "autistic" range. The CARS has good internal consistency (α = .94), interrater reliability of .71, coefficient kappa of .64 for test retest reliability, and high criterion related validity (r = .84) (Schopler et al., 1988). It will be utilized as a screener for the current study as we will not have access to medical and/or educational records, thus, this measure will allow us to have more confidence that the child has autism spectrum disorder.

Child Behavior Checklist. One of two versions of The CBCL (Achenbach & Rescorla, 2000/2001) will be administered depending on the child's age. Both indicate child problems for different developmental levels. The CBCL for ages 1 ½-5 is a 99-item checklist (e.g. 'cries a lot,' 'hurts animals or people without meaning to,' 'physically attacks people') and the CBCL for ages 6-18 has 112 items (e.g., 'doesn't get along with other kids,' 'stubborn, sullen, or irritable,' 'steals at home'). The parent will report on a 3-point Likert scale (0 = not true; 1 = somewhat or sometimes true; 2 = very true or often true) for each item keeping in mind the child's behavior now or within now or within the

past two months. The CBCL has strong validity and reliability and has been used with children and youth with ASD (e.g., Pandolfi, Magyar, & Dill, 2012). The child's aggressive behavior subscale score was calculated and charted on the age-appropriate chart to determine if the score fell in the clinically or borderline clinically significant range.

Parent Stress Index – 3rd Edition Short Form. The PSI-SF is a 36-item self-report questionnaire comprised of multiple choice questions and 5-point Likert scale items (1 = *strongly disagree*; 2 = *disagree*; 3 = *not sure*; 4 = *agree*; 5 = *strongly agree*). It is associated with parenting children younger than 12 years of age and has been used with parents of children with ASD (Tomanik, Harris, & Hawkins, 2004; Zaidman-Zait et al., 2010). The PSI-SF has three subscales: parental distress, parent-child dysfunctional interaction, and difficult child. The parental distress subscale measures parents' sense of competence, lack of social support, depression, marital conflict, and role-restriction (e.g., 'I feel trapped by my responsibilities as a parent'). The parent-child dysfunctional interaction measures parent-child interactions and expectations (e.g., 'My child rarely does things that make me feel good'). The difficult child subscale measures perceptions about child's compliance, temperament, and demandingness (e.g., 'My child makes more demands on me than most children') (Abidin, 1995). The PSI-SF has strong reliability and validity with parents of typically developing children (Abidin, 1995), and has emerging, promising psychometric properties for parents of children with ASD (Tomanik, Harris, & Hawkins, 2004; Zaidman-Zait et al., 2010). The approximate time required to complete the PSI-SF is 10 minutes. It is being used as a screening and pre-test measure for the current study in order to (a) ensure that parents have at least borderline

clinically significant stress levels (i.e., raw score $\geq$ 85), and thus need intervention and (b) for comparison post intervention.

Center for Epidemiological Studies Depression Scale. The CES-D is a 20-item scale self-report measure that addresses depressive symptoms across four domains: depressed affect, positive affect, somatic activity, and interpersonal relations. Respondents rate the frequency of occurrence of depressive symptoms during the preceding week using a 4-point Likert scale (1 = *rarely or none of the time, less than one day*; 2 = *some or a little of the time, one to two days*; 3 = *occasionally or a moderate amount of time, three to four days*; 4 = *all of the time, five to seven days*). Example items include statements such as: 'I felt lonely' and 'I could not get going'. Time required to complete is approximately five minutes. The CES-D is a well-established and robust instrument across racial, gender, and age categories (Radloff, 1977; Shafer, 2006). High internal consistency has been reported with Cronbach's alpha coefficients ranging from .85 to .90 (Radloff, 1977). The purpose for use as an instrument for the current study is to screen out participants who have may have major depressive symptoms (i.e., raw score of 27 or higher) (Zich, Attkisson, & Greenfield, 1990). When coupled with elevated stress levels, such participants would most likely be in need of a more intensive treatment than the one being evaluated in the current study. Two of the parents included in the study did have clinically significant levels of depressive symptoms, and they were included in the study and offered a flyer to the Child and Family Center and other research studies focused on family well-being.

Pre-Baseline Procedures

Four parent-child dyads advanced to the next phase (i.e., pre-baseline), which included administration of the Bangor Mindful Parenting Scale (BMPS; Jones et al., 2014), a partial Functional Assessment Interview – Young Child (FAI-YC, O'Neill, 1997), the Questions About Behavior Function (QABF; Matson & Vollmer, 1995) and a modified version of The Routines Based Interview (McWilliam, 2009). These tools allowed the researcher and parent to identify a routine that is problematic for the family due to the target child's challenging behavior. Additionally, operational definitions for each child's challenging behavior was developed for measurement during both baseline and intervention phases. Individualized target child challenging behavior does not pose an internal validity risk in the current study, as the participant is the unit of analysis in single-case research. Following this pre-baseline phase, one parent dropped out of the study (i.e., did not start baseline), due to physical health problems. Three primary caregivers, who were all biological mothers and their child with ASD, participated in all experimental phases of the current study, and one dyad participated in the C coaching phase.

Bangor Mindful Parenting Scale. Jones et al. (2014) developed the BMPS from the Five Facet Mindfulness Questionnaire (FFMQ; Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006), which has five underlying constructs related to mindfulness, as identified by Baer et al. (2006): observing and noticing experiences, describing or labeling experiences in words, acting with moment-to-moment awareness, being nonreactive to one's inner experience, and accepting without judgment. The BMPS is a 15-item instrument designed to measure mindfulness within the parent-child relationship and is comprised of three items per each of the five mindfulness domains: observing,

describing, acting with awareness, nonreactivity, and nonjudgement. Respondents rate statements on a 4-point Likert scale (0 = *never true*; 1 = *sometimes true*; 2 = *often true*; 3 = *always true*). An example item from the *observing* domain is 'I pay attention to how my feelings react toward my child'. An example statement from the *describing* domain is 'I have trouble thinking of the right words to express how I feel about my child' (reversed scored). For the *acting with awareness* domain, an example items is 'I rush through activities with my child without being really attentive to him/her' (reversed scored). For the *nonreactivity* domain, an example statement is 'When I have upsetting thoughts about my child, I am able to just notice them and let them go'. An example item from the final domain, *nonjudgment*, is 'I think some of my emotions towards my child are bad and I shouldn't be feeling them' (reversed scored). Jones and her colleagues (2014) found encouraging results for the reliability (Chronach's alpha = .79 for mothers and .78 for fathers) and the validity, with strong correlations between the BMPS and FFMQ for mothers (r = .75) and for fathers (r = .77), in this instrument. After parents completed the BMPS, they were asked about their past and current use of stress reduction strategies or programs.

Functional Assessment Interview – Young Child. The FAI-YC is interview form often utilized with the context of functional behavior assessment (FBA) for young children (Alter, Conroy, Mancil, & Haydon, 2008). The FBA process usually consists of indirect interviews and direct observation of a target problem behavior (Cooper, Heron, & Heward, 2007). One of the purposes of an FBA is to operationally define the behavior of interest for change and form a hypothesis of the operant function, or maintaining consequence, in order to develop a behavior support plan that is effective in preventing,

teaching functionally equivalent replacement behavior(s), consequating both desired and undesired behaviors, and ultimately reduce the future likelihood of the problem behavior to continue to occur. For the purpose of the current study, the lead researcher administered a partial version of the FAI-YC during the pre-baseline phase. The main difference included the focus on one family routine.

Questions About Behavior Function. The QABF is a 25-item measure that assesses a particular topography of challenging behavior across five target behavior functions: attention, escape, tangible, non-social, and physical. The respondent rates the frequency of a targeted challenging behavior (i.e., determined in the previous FAI assessment) using a 4-point Likert scale (0 = *never*; 1 = *rarely*; 2 = *some*; 3 = *often;* or *does not apply*). This assessment is designed to glean information about why a behavior occurs. An example item from the attention subscale is: 'Engages in the behavior to try to get a reaction from you.' From the escape subscale, an example item is: 'Engages in the behavior to escape work or learning situations.' An example item from the tangible subscale is: 'Does he/she seem to be saying, "give me that (toy item, food item)" when engaging in the behavior?' From the non-social subscale, an example item is: 'Does he/she seem to enjoy the behavior, even if no one is around?' An example item from the physical subscale is: 'Does he/she seem to indicate to you that he/she is not feeling well?' Based on the frequency ratings for each subscale, a hypothesized function(s) of the targeted challenging behavior is determined. The QABF is one of the most widely used instruments with the field of behavior support for individuals with developmental disabilities, and it has been found to be highly correlated with the Motivational Assessment Scale (MAS; Durand & Crimmins, 1988; Paclawskyj, Matson, Rush, Smalls,

& Vollmer, 2001; Shogren & Rojahn, 2003; Freeman, Walker, & Kaufman, 2007). Moderate to strong internal consistencies, Cronbach's alpha ranging from 0.90 to 0.92 for the subscales and 0.62 for the overall score have been reported (Paclawskyj et al., 2000). Matson & Bosjolie (2007) found that reliability is higher for behaviors with a single maintaining function compared to those with multiple maintaining functions. The lead researcher will ask the parent to complete the QABF on the topography of behavior that is the most disruptive to chosen family routine. The purpose of using the QABF for the current study is to gather information for the behavior support plan that will co-developed by the researcher and parent during the second week of the training (B phase). Parents completed the QABF on the behavioral topography that is the most disruptive to the chosen routine.

Routines-Based Interview. The RBI (McWilliam, 2010) is a family-centered, semi-structured interview tool used by early interventionists to develop a list of functional outcomes, assess child and family functioning, and establish a positive relationship with a family. This interview asks about multiple family routines. Examples of questions are: 'What does this [routine] look like?', 'Where is everyone?', 'What does the child's communication look like?', as well as rating the routine on a 1-5 *terrible to fantastic* scale. This tool is designed to inform the researcher about each family routine. Additionally, this interview tool is designed to take approximately two hours, and there is overlap in the information gleaned from it and the FAI. As such, for the current study, a modified version will be utilized. Specifically, this tool was only utilized for the one, chosen family routine.

Participant Demographics

Dyad one: Angela and Jonathan. Angela was a White/Caucasian, Christian, 34-year old female. Her education level was partial college, and her employment status was disabled. The family's annual household income was between $40,000 - $49,000, and they received Supplemental Security Income (SSI), Medicaid, food stamps, and Developmental Disabilities Services. She reported that her family had *just enough money to get by* on an income-to-need scale. Angela had a history of mental health conditions including antisocial disorder, depression, social anxiety, and panic attacks. Her raw score on the PSI-SF was a 76, which was elevated, yet in the normal range (16-80). Her raw score on the CES-D was a 22, which was in the mid depressive range. She lived at home with her partner, who was the biological father of their two children, the target child and his brother, a 2 year, 5 month old boy with a communication delay. The target child, Jonathan, was a 4-year, 4 month-old male with an educational special education eligibility of autism. Jonathan's score on the CBCL Attention Problems subscale was a 6, which was in the borderline clinical range, on the Aggressive Behavior subscale he scored a 29, which was in the clinically significant range. His CBCL Externalizing Problems raw score was a 35. Jonathan's raw score on the CARS-2 was a 40.5, which was in the "severely autistic" range. During the duration of the study, Jonathan attended a half-day special education classroom four days per week and speech therapy services. Jonathan spoke in 3-4 utterances and displayed significant articulation difficulties.

Angela chose playtime routine with brother as the targeted family routine. The playtime routine occurred in the main living/sleeping area of the house during the afternoons. During the pre-baseline RBI assessment Angela rated this routine as a 2 on

the terrible to fantastic scale (*1* = terrible; *5* = fantastic). Angela reported that Jonathan engaged in the following challenging behavior: hitting, throwing objects, pulling clothing, grabbing others, tripping others (e.g., his brother), screaming, crying/whimpering, spitting, and kicking. Hitting was defined as using an open or closed fist makes forceful contact with another person's body. Throwing objects was defined as making an object (that is not meant to) by lifting and extending with force fly through the air. Pulling clothing was defined as at least part of his hand grabbing and holding onto another's clothing for at least 1 s. Grabbing was defined as part of his hand touching an item that another person is holding or a part of another person with force and pulling back toward himself. Tripping was defined as placing foot out in front of another person's legs while that person is walking or running. Screaming was defined as making a loud vocal noise above inside room volume either words or non words. Crying/whimpering was defined as using a high-pitched vocalization of broken/varying sound. Spitting was defined as saliva exiting mouth with force. Kicking was defined as extending his leg and foot and making contact with another person with force.

The results of the pre-baseline FBA suggested that Jonathan's hitting, which Angela indicated was the most concerning, was maintained by multiple functions including: attention, escape, and access to tangibles. These operant functions had the highest scores on the QABF (attention = 7; escape = 9; and tangible = 8). Given that during the playtime routine few demands were placed on Jonathan, the lead researcher hypothesized that Jonathan's challenging behavior was maintained by his mother's attention and access to preferred tangibles. Angela reported that the current behavioral strategy she used was using a calm voice. Her score on the Bangor Mindful Parenting

Scale was a 1.53 (*0* = never true; *3* = always true). Angela reported utilizing several strategies to reduce her stress including breathing exercises, counting to five and backward from five, taking momentary breaks, talking calmly, and playing games on her iPad™. During the pre-baseline assessment, Angela reported that she would like Jonathan to learn to share items with his brother.

Dyad two: Samantha and Tabitha. Samantha was a White/Caucasian, Catholic, 31-year old female. Her education level was bachelor's degree, and her employment status was part time. The family's annual household income was between $30,000 - $39,000. She reported that her family had *just enough money to get by* on an income-to-needs scale. Samantha reported the family received an informal support of after school childcare with their grandparents. Samantha had a history of mental health conditions including postpartum anxiety and depression. Her raw score on the PSI-SF was a 116, which was in the clinically significant range. Her raw score on the CES-D was a 27, which was in the major depressive range. Her score on the BMPS was a 1.60. She lived at home with her husband, who was the biological father of their two children, the target child and her twin sister, who had Attention Deficit and Hyperactivity Disorder.

The target child, Tabitha, was a 4-year, 9 month-old female with an educational special education eligibility of autism. Tabitha's score on the CBCL Aggressive Behavior subscale was a 33, which was in the clinically significant range.. Tabitha's raw score on the CARS-2 was a 33, which was in the "mild-moderately autistic" range. During the duration of the study, Tabitha attended half-day preschool 4 days per week and private occupational therapy. She spoke in full sentences and displayed mild articulation difficulties.

Samantha chose clean-up routine as the targeted family routine. The clean-up routine occurred throughout the house, mostly in the living room and children's shared bedroom, and occasionally in the bathroom (i.e., where the laundry hamper was located) during the late afternoon before the father returned home. During the pre-baseline RBI assessment Samantha rated this routine as a 1 on the terrible to fantastic scale (*1* = terrible; *5* = fantastic).

Samantha reported that Tabitha engaged in the following challenging behavior: being off-task, verbal protesting, screaming, crying, whining, and kicking. Off task was defined as actively ignoring her mother by not picking up items or not being in the designated area. Verbal protesting was defined as saying "no" or indicating verbally that she did not want to pick up items. Screaming was defined as producing a loud vocal noise above inside room volume with either words or non-word sounds. Crying was defined as emitting tears with or without whining. Whining was defined as producing a high-pitched vocalization of broken/varying sound with or without words. Kicking was defined as extending her leg and foot and making contact with another person with force. The results of the pre-baseline FBA suggested that Tabitha's off-task behavior, which Samantha indicated was the most concerning for the clean-up routine, was maintained by escape. The operant functions with the highest score on the QABF were escape and automatically maintained (escape = 14; non-social = 8; and physical = 8).

Samantha reported that the current behavioral strategy she used was breaking tasks down into small steps. Her score on the Bangor Mindful Parenting Scale was a 1.60 (*0* = never true; *3* = always true). Samantha reported utilizing several strategies to reduce

her stress including medication, therapy, seeking out special programs, having things organized, and utilizing advice from service providers (e.g., occupational therapists).

Dyad three: Laura and Richie. Laura was a White/Caucasian, Mormon, 34-year old female. Her education level was associate's degree, and her employment status was part time. The family's annual household income was between $60,000 - $69,000. She reported that her family *we only have to worry about money for fun or extras* on an income-to-needs scale. Samantha did not have a history of mental health conditions. Her raw score on the PSI-SF was a 100, which was in the clinically significant range. Her raw score on the CES-D was a 7, which is in the normal range. She lived at home with her husband, who was the biological father of their four children. The target child, Richie, was an 8-year, 7 month-old male with an educational special education eligibility of autism. The other three children were all male, ages 2, 4, and 6 years old with no learning or behavioral challenges. Richie's score on the CBCL Rule Breaking Behavior subscale was a 2, which was in the normal range, and on the Aggressive Behavior subscale he scored a 15, which was in the borderline clinical range. Richie's raw score on the CARS-2 was a 33.5, which was in the "mild-moderately autistic" range. During the duration of the study, Richie attended school full time in a general education inclusive setting five days per week with special education support three times per week. He received funded swim lessons from Developmental Disabilities Services. He spoke in full intelligible sentences.

Laura chose dinnertime as the targeted family routine. The dinnertime routine occurred in the dining room in the early evening with all four children, the mother, and the father, depending on when he arrived home from work. During the pre-baseline RBI

assessment Samantha rated this routine as a 2 on the terrible to fantastic scale (*1* = terrible; *5* = fantastic). Laura reported that because Richie was the oldest sibling, when he engaged in challenging behavior, his brothers would sometimes emulate his behavior, which caused her more distress. Laura reported that Richie engaged in the following challenging behavior: negative commenting, whining, screaming, crying, and spitting out food. Negative commenting was defined as verbally saying negative things about dinner such as "This food will make me die" or "I'm going to throw up" or indicating that he doesn't want to eat dinner in a whiny tone of voice. Whining was defined as using a high pitched vocalization of broken/varying sound with or without words. Screaming was defined as a loud vocal noise above inside room volume with or without words. Crying was defined as emitting tears with or without whining. Spitting was defined as food exiting his mouth after it had entered his mouth. The operant functions with the highest score on the QABF were escape, non-social, and tangible (escape= 11; physical = 10; tangible = 9). The results of the pre-baseline FBA suggested that Richie's negative commenting behavior, which Samantha indicated was the most concerning for the dinnertime routine, was maintained by escape and access to parent attention. Laura reported that the current behavioral strategy she used was setting a timer and requiring that Richie ate the remaining food for breakfast. Her score on the Bangor Mindful Parenting Scale was a 1.87 (*0* = never true; *3* = always true). Laura reported utilizing several strategies to reduce her stress including one hour per day of independent reading time, having predictable routines, "Mommy and Me" time, planning out the day, and attending girls' night once or twice per month. She reported that she would like Richie to try new foods, eat vegetables, and have a conversation during dinnertime.

Table 1

Parent Demographics

	Age	Sex	Educational Level	Income	Employment status	PSI-SF	CES-D	Mental Health Conditions	Number of Children Supporting
Angela (Dyad 1)	34	Female	Partial college	$40,000 - $49,000 Just enough to get by	Disabled	76 Normal range	22 Clinically significant	Antisocial disorder Depression Social anxiety Panic attacks	2
Samantha (Dyad 2)	31	Female	Bachelor's degree	$30,000 - $39,000 Just enough to get by	Part time	116 Clinically significant	27 Clinically significant	Postpartum anxiety and depression	2
Laura (Dyad 3)	34	Female	Associate's degree	$60,000 - $69,000 We only have to worry about money for fun or extras	Part time	100 Clinically significant	7 Normal range	None	4

Note. Age is reported in years. Income is reported in US dollars and perceived income-to-needs ratio. PSI-SF and CES-D are reported as raw scores.

Table 2

Child Demographics

	Age	Sex	CBCL Aggressive Behavior Subscale	CARS-2	Challenging Behavior
Jonathan (Dyad 1)	4:4	Male	29 Clinical range	40.5 Severe autism symptoms	Hitting Throwing Objects Pulling Clothing Grabbing Others Tripping Others Screaming Crying/whimpering Spitting Kicking
Tabitha (Dyad 2)	4:9	Female	33 Clinical range	33 Mild-moderate autism symptoms	Off-task Verbal protesting Screaming Crying Whining Kicking
Richie (Dyad 3)	8:9	Male	15 Borderline clinical range	33.5 Mild-moderate autism symptoms	Negative commenting Whining Screaming Crying Spitting out food

Note. Age is reported in years and months. CBCL and CARS-2 are reported as raw scores.

Table 3

Targeted Family Routine Information

	Routine	Routines-based Interview Rating	Most Concerning Challenging Behavior	Hypothesized Function(s) of Challenging Behavior	Adaptive Alternative Behavior	Other Family Members Present
Angela and Jonathan (Dyad 1)	Playtime with Brother	2	Hitting	Attention Tangible	Sharing toys/items with his brother	2:5 year-old brother
Tabitha (Dyad 2)	Clean-up	1	Off-task	Escape	Putting items away in the correct location	4:9 year-old sister
Richie (Dyad 3)	Dinnertime	2	Negative commenting	Escape Attention	Eating food	6:4 year-old brother 4:7 year-old brother 2 year-old brother Father (sometimes)

Note. Routines-based interview rating used a scale of 1-5 (*1* = terrible; *5* = fantastic). Age is reported in years and months.

Setting

Initial screening, pre-baseline sessions, baseline, training, and intervention observations all occurred in the family home. Research assistants provided childcare to the target child and/or siblings who were at home (e.g., not at school) while the lead researcher is conducted the parent training sessions.

Study Design

A single-case concurrent multiple baseline across three parent-child tiers design was employed (Gast & Ledford, 2014) with a within-case randomization-test procedure employed to control for Type 1 error. For each tier, there were at least two phases (A and B). The A phase was baseline, and the B phase occurred during the intervention (i.e., parent training phase). Rather than utilization of a response guided procedure to determine when to intervene on each tier, which is commonplace for single-case research (Gast & Ledford, 2014), start times for the B phase were randomized using the Koehler-Levin regulated randomization procedure (Koehler & Levin, 1998; Levin, Ferron, & Gafurov, 2016), which employs the Marascuilo-Busk procedure (i.e., random intervention start point) and allows for the random selection of a restricted range of intervention start times. The Koehler-Levin procedure was carried out using a macro in the *ExPRT* software's intervention start-point randomizer (Levin, Evmenova, & Gafurov, 2014). To randomize the order of the tiers, the lead researcher placed four pieces of crumbled paper, with the parent-child dyad code of each tier written on each, into a jar and shook the jar. The researcher drew the pieces of paper out of the jar, one at a time. The first participant code drawn was assigned to tier one, the second to tier two, and so on. The lead researcher specified the design characteristics including the earliest possible

intervention start point for each case (e.g., session six for tier one) and a possible range of three start points (e.g., sessions 6-9 for tier one) in the ExPRT software, and a range of three data points was chosen (i.e., sessions six through nine for tier one). The software specified the start times (i.e., which session to begin intervention). This process was replicated for each of the four tiers with an increasing number of baseline data points selected for the range of data points to be chosen from by the ExPRT software to allow for staggered introduction of the intervention. Following the three-week training, one additional week of data was collected before the optional coaching phase was considered. This means that there was between eight to twelve sessions (i.e., four weeks total) for the parent to improve on use of behavioral strategies and child challenging behavior to be reduced. If the child's challenging behavior reduced to socially significant levels, which was arbitrarily determined to be below 20% of intervals for three consecutive sessions and the topography of the challenging behavior is not intolerably aggressive, the B phase would have been the final phase. In contrast, if the child's challenging behavior did not meet this predetermined criterion, a third C phase was employed that involves three weeks of individualized coaching.

This model depicts the design of the study including: screening, pre-baseline/pre-test, baseline (A phase), training (B phase), and optional coaching (C phase).

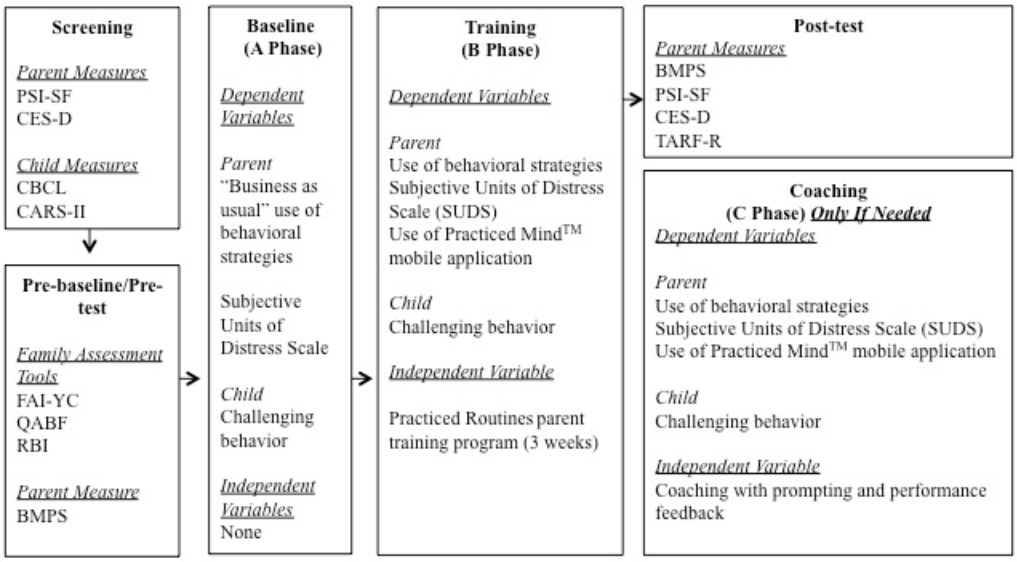

Figure 2. Study Design Model

Data collection

Data were collected during experimental sessions for a minimum of 10 minutes and a maximum of 20 minutes, depending on the chosen family routine, during baseline and training phases. During the single-case experiment, data were collected on (a) the parent's use of behavioral support strategies, (b) parent's self-reported subjective units of distress, (c) child's target challenging behavior, (d) parent's use of the Practiced Mind™ mobile application, and (e) parent's use of resources on the learning management system (e.g., instructional videos, interactive data collection forms). Prior to and after the single-case experiment, indirect data were collected on perceived (a) mindful parenting state (b) parental stress level, and (c) depressive symptoms using the same measures that were used during screening and pre-baseline.

Behavioral support strategies. Inherent to the 3-week Practiced Routines parent training program is the development of a plan including behavioral support strategies. Parents were not trained until the B phase (training); thus, the A phase was a "business as usual" uncontrolled baseline. Data were collected on common behavioral support strategies, some of which parents were already using including antecedent-based (i.e., proactive strategies) and consequence-based strategies. Ten-second, partial-interval data were collected on the strategies that were able to be observed during the family routine and were covered in the Practiced Routines program. In other words, during the chosen family routine, the data collector used a paper and pencil method and recorded the strategies the parent implemented within each 10 s interval of the routine. The data sheet included operational definitions, examples, and non-examples for each strategy. The terminal metric is percentage of 10-s intervals with parent use of behavioral strategy. Data were collected, so that total use strategies can be collapsed and graphed, and/or each category (i.e., antecedent, teaching, and consequence) can be displayed with individually.

Antecedent-based, proactive strategies. Data were collected on the following parent behavior related to appropriate behavior support strategies for preventing and engaging in proactive strategies with regard to social negatively and positively maintained challenging behavior: (b) a verbal statement of clarification indicating when attention, when and/or what tangibles, and when escape (e.g., a break or termination of an activity) will be available, (c) provision of an independent activity for the child while the parent is busy, (d) delivery of a prompt for the child to request attention, tangible(s), or a break/escape in a more socially appropriate way, (e) environmental arrangement removal of "off limit" items from area, (f) offer of alternative items. For automatically-maintained

(i.e., sensory seeking or avoiding) behavior, data would have been collected on the strategy of provision of an appropriate, alternative means of accessing sensory stimulation. However, from the results of the partial FAI-YC and QABF, no children were hypothesized to have automatically-maintained challenging behavior; thus, this was never coded.

Consequence-based, management strategies. Data were collected on the following consequence-based reinforcement strategies that address attention and tangibly maintained behavior: (a) positive attention (e.g., verbal praise, eye contact with smiles, tickles) following a desired behavior or the absence of an identified challenging behavior (i.e., at least 5 s passes without the target challenging behavior occurring, differential reinforcement of other behavior); (b) reinforcing appropriate requests for items/activities by delivering access within 5 s; and (c) reinforcing, at least temporarily (i.e., 10 s to 1 min) socially appropriate mean of requesting escape. Data on the following management (i.e., punishment) strategies were collected (a) extinction strategy (e.g., ignoring or turning head away for at least 5 s, walking away following a challenging behavior withholding access to tangible items for at least 5 s following challenging behavior; (b) redirection efforts to minimize the child escaping an activity (e.g., guiding the child back to the dinner table); and (c) response blocking of access to sensory (i.e., automatically maintained) behavior.

Subjective Units of Distress Scale. Parents self-reported their level of distress at the end of each session (in baseline and training sessions) using The Subjective Units of Distress Scale (SUDS). The SUDS (Singh et al., 2007) was adapted from the Subjective Units of Discomfort Scale (SUDS; Stanley & Averill, 1998), which has a history of being

used to quantify subjective experience of discomfort. Parents rated their level of distress on a scale of 0-100 with the following anchors: 0 = totally relaxed; 10 = alert and awake, concentrating well; 20 = minimal anxiety/distress; 30 = mild/anxiety/distress, no interference with performance; 50 = moderate anxiety/distress, uncomfortable but can continue to perform; 70 = quite anxious/distressed, interfering with performance; 80 = very anxious/distressed, can't concentrate; 90 = extremely anxious/distressed; 100 = highest distress/fear/anxiety/discomfort that you have ever felt. A copy is located in Appendix D.

Child challenging behavior. Operational definitions of child's challenging behavior was developed following the pre-baseline artial FAI-YC and QABF interview. Data on the unique topography of challenging behavior that occurred during the chosen family routine was collected using paper and pencil 10 s partial interval recording. Those data were divided by the total number of intervals (i.e., duration of routine) and multiplied by 100 to obtain a percentage of intervals with child challenging behavior. Parent and child behavior were recorded on the same data collection sheet. Copies of combined parent behavioral strategy use and child challenging behavior for all three dyads are located in Appendix A – C.

Measurement during intervention phases. Parent use of behavioral strategies and child challenging behavior were collected during training and coaching sessions using the same methods described for baseline sessions. In addition to parent use of behavioral strategies and child challenging behavior data, data were also collected on: (a) parent self-report subjective units of distress, (c) use of the sound meditations on the

Practiced Mind™ mobile application, and (c) parent use resources on the learning management system.

Practiced Mind™ mobile application. The Practiced Mind™ mobile application was introduced during the training phase. Data were collected from the application database, available to IRIS Educational Media web applications staff, on (a) frequency of use on specific sound meditations (i.e., each time the parent starts the sound meditation) and (b) percentage of playtime of the sound meditations (i.e., total seconds played per meditation). These data were collected by IRIS Educational Media using back end data analytics, which the lead researcher accessed and reported descriptively in the results section.

Procedures

Following screening procedures, four parent-child dyads that most closely met the original criteria for the study (i.e., parent met clinically significant stress levels, child displayed clinically significant challenging behavior and met at minimum "mildly autistic" score on CARS II), advanced to the pre-baseline phase of the study. Due to physical health problems, the dyad randomly assigned to the fourth tier did not continue to the baseline phase.

Baseline. Baseline sessions were conducted two to three times per week during the family's chosen routine. The lead researcher explicitly stated to the parent prior to the start of baseline, that she would not be able to provide any feedback on the routine. If a parent asked questions during any part of baseline, the lead researcher stated that she could not provide feedback. The lead researcher sat or stood in the most possible unobtrusive place to code both parent and child data (e.g., on the stairs or corner of

room). Baseline sessions were between 10-20 minutes (*M* = 17 min; range = 10 – 20 min). Data were collected for at least 10 minutes and, if after 20 minutes the routine was not completed (e.g., the child had not completed dinner), data collection ceased. If the routine ended before 10 minutes, the researcher continued to collect data on both the parent use of strategies and child challenging behavior. This was only the case for one session for tier two.

Training. For the purposes of the current study, The Practiced Routines program was delivered to each parent individually in-person. As such, some of the activities of the Practiced Routines program were slightly modified to be more appropriate for a one-to-one format (e.g., the "Introducing Yourself" activity was omitted).

The training consisted of three sessions on three consecutive weeks with homework in between each session. The parent and trainer met once per week, approximately one week apart in each family's home. Research assistants joined the lead researcher (i.e., parent trainer) to play with the target child and/or siblings while training occurred. Research assistants did not provide intervention while providing child care. Training sessions were approximately 1.5 hours in duration (*M* = 1.35 hr; range = 1 – 1.63 hr). This allowed time for review of materials via the Practiced Routines PowerPoint presentations, to watch and discuss video clips, problem solve and develop a routines-based behavior support plan, practice meditations, and review homework.

Qualifications of trainer. The Practiced Routines program was designed to be implemented by behavior specialists, early childhood special educators, or other related educational and/or behavioral health professionals. It was designed to meet the criteria to be a billable applied behavior analysis therapeutic parent training program. The trainer in

the current study was a Board Certified Behavior Analyst, dually certified special education (early childhood through 12th grade) and early childhood generalist (early childhood through 4th grade) teacher, and had worked with families of children with ASD for approximately 12 years. Additionally, she completed the eight-week manualized Mindfulness-Based Stress Reduction program (MBSR; Khoury, Sharma, Rush, & Fournier, 2015) and utilized mindfulness practices including sitting meditation and *vinyāsa* yoga.

Practiced Routines training schedule. This figure outlines the schedule of the three-week training. Following preparing for the course, there were three in-person training sessions with homework in between. Resources for homework, presentation materials to review as desired, and videos were available to parents via IRIS Educational Media's Learning Management System (LMS) once baseline was complete.

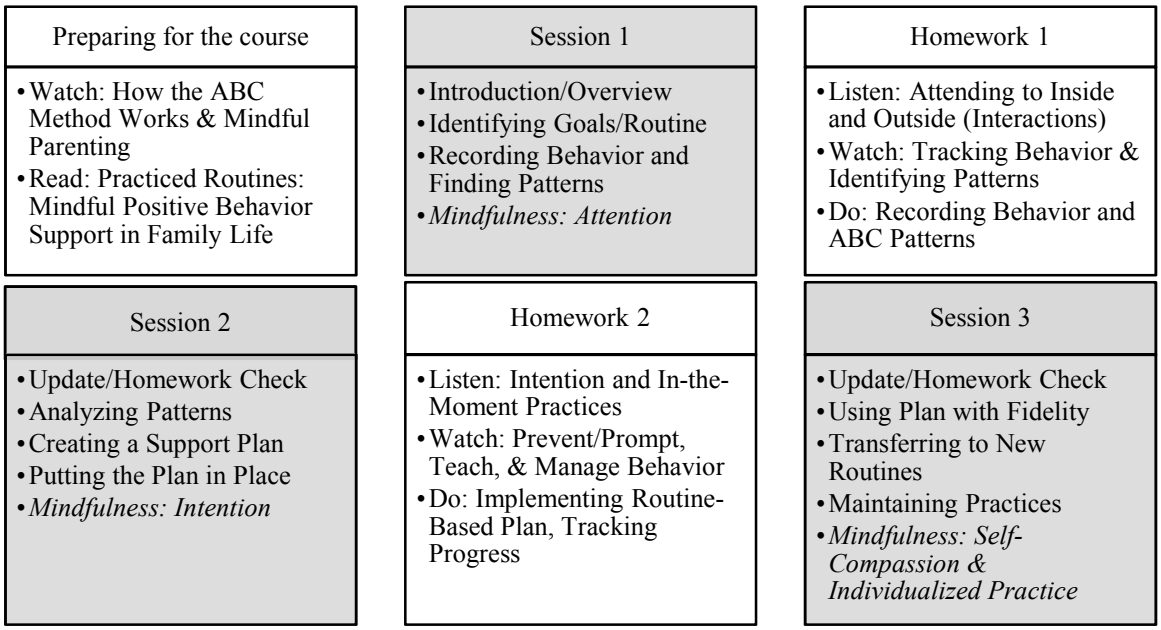

Figure 3. Practiced Routines Training Schedule

Preparing for the course. Prior to the first training session, the trainer scheduled an appointment with each parent and helped them create a login access the Practiced Routines course, download the PracticedMind^{TM} mobile application, and answered any questions. The trainer explained the activities needed for the "Preparing for the Course" section. These activities included: (1) reading Practiced Routines: Mindful Positive Behavior Support in Family Life, (2) watching "How the ABC Method Works," (3) reading the "How the ABC Method Works" summary page, (4) watching the "What is Mindful Parenting?" video, and (5) reading the "What is Mindful Parenting?" summary page. The parent trainer printed copies of these resources for each parent as well.

Session one. Sessions were comprised of guided PowerPoint presentations with embedded videos clips, audio sound meditations, and other activities. During the first training session, the following behavioral content was covered: (a) overview of PBS within the context of family routines; (b) reviewing the behaviors of concern as previously identified via the partial FAI-YC, QABF, and modified RBI; and (c) practice in collecting behavioral data. The mindfulness content included actively bringing a non-judgmental awareness or attention to internal and external experiences. Internal experiences include body sensations (e.g., tingling, tightness, itches), breath (i.e., noticing sensations involved in inhales and exhales), emotions and thoughts (i.e., beginning to make associations between the body sensations that are associated with one's emotions and thoughts). External, or outside, experiences included noticing sensory experiences (e.g., sounds, smells) and specifically within parent-child interactions. The first mindfulness activity involved the parent bringing to her imagination a difficult situation with her child and listening to the "Reflecting on Difficult Situations" sound meditation.

The model below illustrates how both attention and intention are important to mindful parenting.

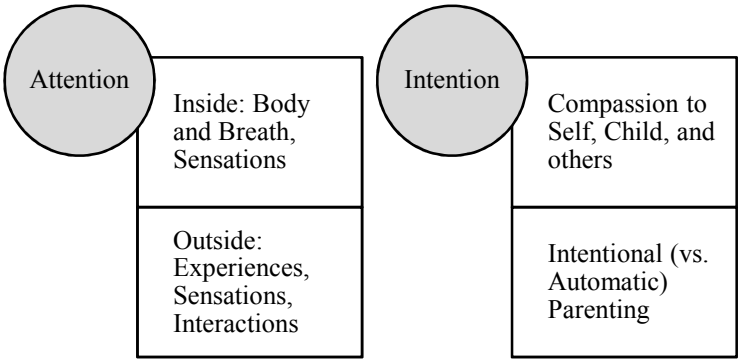

Figure 4. Mindful Parenting Model

In the next activity, the trainer discussed the chosen family routine, and then the parent and trainer listened to the "Identifying Valued Routines" sound meditation, and afterward shared her body sensations, emotions, and thoughts that occurred during or after the meditation. Next, the conversation shifted to defining behavior. The problem behavior of the chosen routine had already been identified, so the trainer asked the parent how she would like the child's behavior to be like instead of the current problem behavior. This discussion was the starting point of developing the replacement behavior(s). Next, the parent practiced three methods of data collection: (a) frequency, or counting; (b) duration, or timing; and (c) intensity rating. These data collection procedures were practiced using two short video clips of the same child engaging in desirable (requesting with word approximations) and undesirable behavior (screaming). The trainer facilitated a discussion about why some behaviors (i.e., discrete) would be better suited for a counting methods, while other behaviors (i.e., continuous) are be better suited for timing methods (Cooper, Heron, & Heward, 2007). Then, the trainer introduced the "Tracking Progress" from by showing this to the parent via the LMS. The

"Tracking Progress" is a form.io, an interactive web-based form. After the parent completes an entry, the data were forwarded to the trainer via a comma separated values (CSV) spreadsheet file. Parents entered the name of the routine (e.g., dinnertime), the date and time, people present, level of success (0 = *unable to complete the routine*; 1 = *completed few steps/full guidance*; 2 = *completed some steps/partially guided*; 3 = *completed most steps/minimal help*; 4 = *completed all steps successfully*), rate their child's behavior (1 = *poor, complete refusal, serious challenges*; 2 = *fair, lots of resistance, moderate challenges*; 3 = *good, some resistance, minor challenges*; 4 = *great; cooperative and appropriate*), and the mindfulness strategies used via open field entry. After the parent completed an entry, a graph was created with a color-coded histogram indicating the level of success and a line graph indicating the child's behavior. Next, the ABC method (antecedent-behavior-consequence) was shown with discussion about how patterns of behavior develop and strengthen overtime and how we can analyze these patterns with data collection. The model below was used to illustrate this concept.

Antecedent	**Behavior**	**Consequences**
What happens before behavior	**What the child says or does**	**What happens after behavior**
Who What Where When	Positive behavior, as well as problem behavior	Gets (e.g., items, attention)? Avoids (e.g., demands)?
Setting Events: Circumstances (e.g., health, relationships, activity schedule) that affect the probability of behavior		

Figure 5. ABC Method Model

The trainer showed the parent the ABC recording tool in the LMS. Printed copies were also available and provided to the parent if she desired copies. Then, the trainer

facilitated a discussion about how parent's states of being (i.e., sensations, thoughts, emotions, and impulses) also affect the ABCs within the parent-child interaction. The model below illustrated this concept.

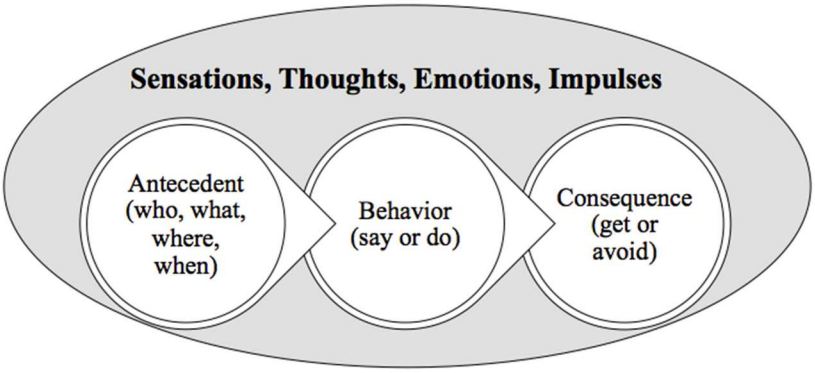

Figure 6. Parent Stress and ABC Model

Finally, in the last activity, the parent practiced recording ABCs of a video displaying a parent-child interaction. The trainer facilitated a discussion about how the parent reacted to the child and what mind and body states may have been present during this interaction. This activity set the stage for the first homework session, which included the parent recording ABC data with their child in the chosen routine.

Homework one. During the following week parents were asked to: (a) listen to at least three mindfulness sound meditations ("Scanning My Body," "Appreciating My Child," and one other of her choice), (b) watch the "Watching and Recording Behavior" and "Tracking Behavior and Identifying Patterns" videos, (c) review the summary pages for both videos, (d) use the "Tracking Progress" form.io, and (e) complete the "ABC Recording" form (that included a place for the parent to enter their thoughts, feelings, and body sensations) on the chosen family routine. The "ABC Recording Form" uploaded entries to Qualtrics that were then forwarded by email to the parent trainer. Parents were given the option to record ABC data using paper pencil/pen method or to enter into the

fillable forms online via the LMS. The sound meditations were available to parents via the PracticedMind™ application. The videos were available on the LMS.

Dyad one. Following session one, Angela completed 11 entries using the tracking progress form.io and two ABC recording entries. Angela's average rating Jonathan's level of success during playtime routines was 1.72 (*0* = unable to complete routine; *4* = completed all the steps successfully). Angela's average rating for Jonathan's behavior was 2.72 (*1* = poor, complete refusal, serious challenges; *4* = great, cooperative and appropriate). Examples of the mindfulness strategies she used include: "focus on my breathing" and "stopping to acknowledge my emotions without judging them." The ABC data entries she inputted suggested that when Jonathan wanted a toy that his brother had and he was unable to have it, he would physically aggress toward his brother (e.g., hit him), which resulted in attention from his brother and Angela. Angela also reported feelings of being overwhelmed, frustrated, tired, and helpless during these situations.

Dyad two. Following session one, Samantha completed 6 entries using the tracking progress form.io and three ABC recording entries. Samantha's average rating of Tabitha's level of success during clean up routine was 1.67 (*0* = unable to complete routine; *4* = completed all the steps successfully). Samantha's average rating for Tabitha's behavior was 0.38 (*1* = poor, complete refusal, serious challenges; *4* = great, cooperative and appropriate). One of the ABC data entries was related to a clean up routine at one of Tabitha's occupational therapy sessions. This entry suggested that after Tabitha engaged in challenging behavior, she was offered choices of sitting in her mother's lap and eating crackers. Samantha also reported feelings of panic and humiliation when Tabitha engaged in challenging behavior in public settings.

Dyad three. Following session one, Laura completed 5 entries using the tracking progress form.io and three ABC recording entries. Laura's average rating of Richie's level of success during clean up routine was 2.6 (*0* = unable to complete routine; *4* = completed all the steps successfully). Laura's average rating for Tabitha's behavior was 3.0 (*1* = poor, complete refusal, serious challenges; *4* = great, cooperative and appropriate). The ABC data entries suggested that when a green vegetable wad served for dinner, Richie was likely to whine and verbally say negative comments, which resulted in his parents setting a timer and some adult attention.

Session two. The content covered in session two included: (a) analyzing patterns of challenging behavior, (b) choosing function-based behavioral support strategies, (c) creation of a routines-based behavior support plan, (d) how to put the plan into place, and (e) mindful parenting intention(s). The session began with a review of homework (i.e., behavioral data and mindfulness strategies); then, the trainer facilitated a discussion about the ABCs surrounding the child's problem behavior during the routine and presented the "Summary of Patterns Surrounding my Child's Behavior" worksheet; which was also a fillable PDF in the LMS. Together, the trainer and parent summarized the ABC patterns and identified common body sensations, thoughts, and emotions that are experienced during the routine. This conversation was the starting point for introducing the routines-based behavior support plan that included: proactive (antecedent), teaching (behavior), consequence (management), mindfulness, and setting event strategies. The figure on the next page illustrated the introduction of this concept.

Antecedent	Behavior	Consequence
Being Proactive	Teaching Skills	Management
Changing the environment to prompt positive behavior and make problem behavior unnecessary or less likely	Teaching skills to replace the problem behavior or allow the individual	Responding to behavior to reinforce positive and not negative behavior
Supporting caregivers to implement interventions consistently, *including mindfulness practices*.		
Modifying setting events and enhancing lifestyle to improve behavior.		

Figure 7. Routines-based Support Plan Visual

The next topic covered was function-based strategies. Common operant functions of behavior, including challenging behavior were presented in a parent-friendly manner. These included: access to attention; obtaining items or activities; escaping, avoiding, or delaying situations; and access to or avoidance from sensory stimulation. The "Function-based Strategies" handout was available on the LMS and a printed copy was provided to the parent. This handout outlined common strategies for each behavioral function by proactive, teaching, and consequence/management. Two videos were shown that demonstrate examples of some strategies (visual schedule, prompting, and praise), and the trainer and parent discussed impressions and which categories the strategies illustrated. Next, the trainer shifted the discussion to include manipulation of setting events and supports, maintaining a realistic approach. These suggestions and examples included practices such as preventative, rejuvenating mindfulness, meditative practices, rearranging the daily schedule, and adding recreational/leisure activities that could

improve routines (e.g., exercise or manipulation of physical activity level). Example routines-based plans were available in the LMS. Next, the trainer and parent brainstormed ideas for the routines-based plan together.

The final part of session two addressed mindful parenting. First, the automatic parenting cycle was introduced using the model below.

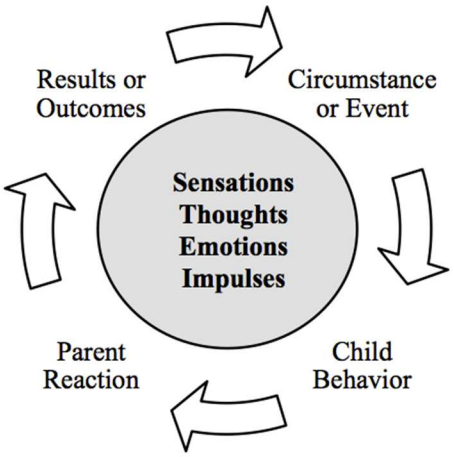

Figure 8. Automatic Parenting Cycle Visual

The trainer facilitated a conversation about how stress affects internal states, which can impact how we perceive circumstances and behavior. In turn, we might "react" or "go through the motions" of a routine in an automatic fashion instead of responding in more productive ways. The trainer explained how mindfulness strategies may help us pause in stressful moment and follow through with a plan. In the next activity, the trainer asked the parent to bring to mind a difficult time she had with her child, and to think about what happened (i.e., what the child did and said, what the parent did and said), and to attend to her body sensations, thoughts, and emotions. Then, the following audio meditation exercises were practiced: "Creating Breathing Space," which focused on deep breathing, and "Detaching From Thoughts," which focused on labeling and letting thoughts go (i.e., defusion). The session ended with a review of the homework.

Homework two. During the following week the parent was asked to: (a) listen to at least three mindfulness sound meditations ("Parenting with Intention," "Riding the Waves," and one other of her choice); (b) watch the "Proactive Strategies," "Teaching Skills," and "Managing Consequences" videos, (c) review the summary pages for each; (d) develop a behavior support plan using the "Routines Based Plan" using a form.io, and (e) continue to use the "Tracking Progress" form.io each day.

Dyad one. Following session two, Angela inputted 11 additional entries to the tracking progress form.io. Angela's average rating Jonathan's level of success during playtime routines was 2.45 (*0* = unable to complete routine; *4* = completed all the steps successfully). Angela's average rating for Jonathan's behavior was 3.36 (*1* = poor, complete refusal, serious challenges; *4* = great, cooperative and appropriate). Examples of the mindfulness strategies she used include: "Practicing on being aware of my emotions and not judging them, taking slow, deep breaths…and…being aware of my children's reactions and emotions." Angela created a routines-based behavior support plan in the LMS to address Jonathan and his brother's behavior. Once created, this plan was forwarded to the researcher in a CSV file. Below is the routines-based plan form Angela created.

Table 4

Angela's Routines-based Plan

Being Proactive (Prevention and Prompting)	Teaching Skills (Replacing Behavior)	Managing Consequences (Responding to Behavior)
What will we do to prevent problems and prompt positive behavior in this routine?	***What will we teach our child to do instead of the problem behavior to get his/her needs met?***	***How will we provide reinforcement for positive behavior in this routine?***
Avoid difficult	Clear positive verbal	***Provide praise and other forms of attention***

circumstances Try to make sure both children are acknowledged, give attention, praise for good behavior, label and explain things clearly Try to ignore outbursts and not give attention for negative behaviors like yelling, throwing or hitting	communication and gentle hand gestures or physical contact	High fives, hugs, telling them they are doing a good job, verbally expressing what they did well
Make the situation better Encourage both children to speak to each other and express themselves verbally	***What will we encourage our child to do to participate more fully in the routine and/or tolerate difficult situations?*** Praise, high fives, acknowledging good communication attempts	***Provide items or activities following the behavior*** Providing toys that are off limits most of the time or unreadable as a reward for good behaviors
Prompt positive behavior Praise good communication efforts and sharing	***How will we know when we are successful (how often/long will the behavior occur)?*** When communication is used more often than resorting to hitting or screaming or throwing things at one another, preferably only once or twice a day	***Allow breaks, delays, or provide assistance with the activity/task*** Use time outs and removal of items that can be returned later, such as turning off the TV, taking away a toy or food item when it used improperly, or offering a suggestion of an appropriate behavior
What strategies will we use to support ourselves and out family so we can be consistent with this plan? Taking time to acknowledge my frustrations and emotions, label them, try to come up		***Provide sensory reinforcers*** Hugs, verbal praise, cuddles, time to sit on moms lap, attention in exchange for good behavior or proper use of toys with each other

with a positive way to resolve them and the issue at hand

How will we withhold or minimize reinforcement following problem behavior?

Attempt to ignore or not verbally acknowledge hitting, by silently separating the children or removing a desired object or telling them once, "I'm not going to talk to you until you speak to me calmly/stop hitting/etc."

Mindfulness Practices to Support Routine. What practices will I use to increase my awareness during this routine?

Focus on my breathing, acknowledge and label my emotions and impulses, acknowledge what my children are feeling and the circumstances that lead to the negative behaviors before reacting.

Changing Settings and Creating Supports. What broader changes will we make such as enlisting others, restructuring the environment or daily activities, and supporting relationships?

Offer opportunities to go outside and play or go for walks to use up energy as the weather progresses towards summer and there is less rain.

Dyad two. Following session two, Samantha inputted 8 additional entries to the tracking progress form.io. Samantha's average rating of Tabitha's level of success during clean up routines was 0.38 (*0* = unable to complete routine; *4* = completed all the steps successfully). Samantha's average rating for Tabitha's behavior was 1.25 (*1* = poor, complete refusal, serious challenges; *4* = great, cooperative and appropriate). Examples of the mindfulness strategies she used include: "Dissociating behavior from child and self

– “Tabitha” may be acting aggressively but that does not make her "bad" or mean that I am a bad parent.” Samantha created a routines-based behavior support plan in the LMS. Once created, this plan was forwarded to the researcher in a CSV file. Table 5 displays the routines-based plan Samantha created.

Table 5

Samantha’s Routines-based Plan

Being Proactive (Prevention and Prompting)	Teaching Skills (Replacing Behavior)	Managing Consequences (Responding to Behavior)
What will we do to prevent problems and prompt positive behavior in this routine?	***What will we teach our child to do instead of the problem behavior to get his/her needs met?***	***How will we provide reinforcement for positive behavior in this routine?***
Avoid difficult circumstances	Offer to take a break (2 minutes) after picking up 5 items. Put toy bin where Emily is running so she can run back and forth to put items in bin.	Praise, snuggles in chair
Clean up as close to when the mess is made as possible to minimize the task and make cleaning up a part of each activity.		
Make the situation better	***What will we encourage our child to do to participate more fully in the routine and/or tolerate difficult situations?***	***Provide items or activities following the behavior***
Try to clean up more frequently so that the mess isn’t too big and the situation isn’t as overwhelming.	Be specific about where things go (toys go in the bins) and what needs to be picked up. Praise cooperative behavior. Consistently put things away so it is a clear expectation.	Watch a show or play game on tablet for short time after clean up routine
Prompt positive behavior	***How will we know when we are successful (how often/long will the behavior***	***Allow breaks, delays, or provide assistance with the activity/task***
Model putting our own		

things away so we know where to find them when we want them. Mention that we know where to find things because we put them away	***occur)?*** Emily will put 5 things away each time we do "clean up" for 5 days in a row.	After Emily puts away 5 things Mom or Dad will help as long as she keeps putting things away.
What strategies will we use to support ourselves and out family so we can be consistent with this plan? Build clean up time into our day - make time for cleaning up at the end of an activity or before we leave the house.		***Provide sensory reinforcers*** Jumping on trampoline or jumping holding hands after putting things away. Allow running/skipping back and forth as part of clean up as long as she is carrying items to put in toy bins. ***Other:*** Try to promote clean up routine at Grandma's house so it's clear that toys don't put themselves away.
		How will we withhold or minimize reinforcement following problem behavior? No show/tablet game for a specific period of time (an hour?) if Emily doesn't participate in clean up routine. Toys that are consistently not picked up will go in garage for (a day?) so she knows toys have to be cleaned up.

Mindfulness Practices to Support Routine. What practices will I use to increase my awareness during this routine?

Deep breaths, be present for clean up routine (not be trying to get anything else done for at least 5 minutes), try to minimize reaction to avoid reinforcing undesirable behavior.

Changing Settings and Creating Supports. What broader changes will we make such as enlisting others, restructuring the environment or daily activities, and supporting

relationships?
Creating a few different cleanup routines (one for quick cleanups following an activity - counting items, one for cleaning up at the end of the day - 10 minute tidy, and one for each room weekly - 25 minutes of cleaning). Use timer to model desired behavior. Use laundry basket to quickly gather items and practice getting them off the floor so the area is visibly clean. Minimize number of items that can be accessed on a regular basis so toys don't become overwhelming and containers are sufficient to hold their assigned items.
Teach cleanup routine to Grandma and allow time for cleanup when I arrive to pick the girls up so desired behavior can be reinforced. Find article to show her about why this is important?
Use index cards as visual reminder to show Emily and have her read steps of routine before we start (this has been effective with other routines such as tooth brushing and using the potty).

Dyad three. Following session two, Laura inputted 10 additional entries to the tracking progress form.io. Laura's mean rating of Richie's level of success during dinnertime was 2.29 (*0* = unable to complete routine; *4* = completed all the steps successfully). Samantha's average rating for Richie's behavior was 3.1 (*1* = poor, complete refusal, serious challenges; *4* = great, cooperative and appropriate). Examples of the mindfulness strategies she used include: "Deep breathing, positive visualization," which she reported she did while cooking dinner. Laura created a routines-based behavior support plan in the LMS. Once created, this plan was forwarded to the researcher in a CSV file. Table 6 displays the routines-based plan Laura created.

Table 6

Laura's Routines-based Plan

Being Proactive (Prevention and Prompting)	Teaching Skills (Replacing Behavior)	Managing Consequences (Responding to Behavior)
What will we do to prevent problems and prompt positive behavior in this	***What will we teach our child to do instead of the problem behavior to get***	***How will we provide reinforcement for positive behavior in this routine?***

routine? ***Make the situation better*** Let him be more involved in the dinner making process.	***his/her needs met?*** Say positive things about what he likes about dinner.	Ignore negative comments, praise taking bites of undesired foods. Provide positive feed back and gratitude when "Richie" tells us about his day.
	What will we encourage our child to do to participate more fully in the routine and/or tolerate difficult situations? Model between ourselves and the other children conversation about what we did today. Remind "Richie" about the sticker rewards.	***Provide items or activities following the behavior*** Stickers for the chart.
Prompt positive behavior Remind him that he gets to earn 3 stickers if he eats dinner without complaining.	***How will we know when we are successful (how often/long will the behavior occur)?*** Dinner will happen without negative comments and we'll be able to discuss our day.	***Allow breaks, delays, or provide assistance with the activity/task*** Minimal assistance using the utensils, with the end goal of total appropriate self feeding.
What strategies will we use to support ourselves and out family so we can be consistent with this plan? Make a weekly meal plan so there aren't surprises and less last minute stress.		***How will we withhold or minimize reinforcement following problem behavior?*** Less stickers for negativity.

Mindfulness Practices to Support Routine. What practices will I use to increase my awareness during this routine?

Positive imagery of dinner during the prep time, along with deep breathing.

Changing Settings and Creating Supports. What broader changes will we make such as

enlisting others, restructuring the environment or daily activities, and supporting relationships?

Get information from "Richie's" teacher on what they're studying in school to provide conversation material.

Session three. Session three began with a homework share and discussion, including the successes and/or struggles of implementation of the behavior support plan and mindfulness strategies. Topics covered included parental self-compassion and application of behavioral strategies to another routine (i.e., generalization). The "Using Your Plan: Check Yourself" fidelity tool was also introduced. The parent and trainer completed it together, and the trainer guided a discussion about possible barriers to implementation. It was also available on the LMS. Next, the "Parenting with Self-Compassion" was practiced with reflection. Then, the cycle of behavioral support was introduced and illustrated using the model below.

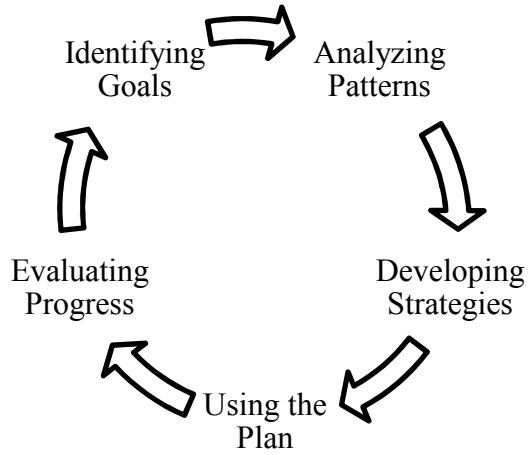

Figure 9. Cycle of Behavior Support

This model was used to facilitate a discussion about the importance of continuing to collect data as necessary and to adapt plans to contexts, while revisiting behavioral

principles. Next, the trainer facilitated a discussion about improving quality of life including: heath and safety, social relationships, self-advocacy, productive activity, and community participation. Both PBS and mindfulness practices are designed to increase one's ability to maintain these over time. The "Becoming a Family Tree" was practiced. Finally, a discussion was lead to generalizing strategies to an additional family routine, and an action plan was completed.

Course usage data. Below are the usage data for each participant. These data include percentage of completion for both required and optional course materials, amount of time spent interacting with the course on the LMS, number of audio sound meditations completed, and amount of time spent playing the sound meditations.

Dyad one. Angela used her iPad™ to view the Practiced Routines course materials. She completed a total of 72% of the Practiced Routines course on the LMS, spending 2 hours and 13 minutes. She completed 100% of instructional videos. The items that she did not complete include opening the PowerPoint presentations, which were optional and not available on her iPad™. Angela completed one audio sound meditation, "Practicing Mindfulness," listening to it for a total of 306 s.

Dyad three. Samantha used a laptop computer to view the Practiced Routines course materials. She completed a total of 57% of the Practiced Routines course on the LMS, spending 5 hours and 6 minutes. She completed 100% of instructional videos. The items that she did not complete include opening the PowerPoint presentations, which were optional. Samantha completed one audio sound meditation, "Detaching from Thoughts," listening to it for 359 s. She played another sound meditation, "Appreciating My Child" for a total of 8 s.

Dyad three. Laura used a laptop computer to view the Practiced Routines course materials. She completed a total of 68% of the Practiced Routines course on the LMS, spending 2 hours and 27 minutes. She completed 100% of instructional videos. The items that she did not complete include opening the PowerPoint presentations, which were optional. Laura completed five sound meditations. She played "Breathing Full and Slow" for 229 s, "Practicing Mindfulness" for 279 s, "Appreciating My Child" for 265 s, "Creating Breathing Space" for 378 s, and "Scanning My Body" for 512 s.

Coaching. A coaching C phase was instituted (not randomized), if the child's challenging behavior did not reduce to at or below 20% of intervals for three consecutive sessions following the last week of the training, which occurred for Tabitha. The coach (i.e., lead researcher) revised Samantha's routines-based behavior support plan before the first coaching session. It is located in Appendix J.

Coaching sessions involved the coach providing prompting, modeling, praise, and error correction during sessions. Specifically, before the routine began, the coach reviewed the chosen strategies and verbally explained them. During the routine, the coach verbally prompted, praised, and corrected errors throughout the routine at an appropriate rate that was not disruptive to the routine utilizing a graduated guidance approach. Each different type of error was corrected at least once during the session. After the session, the coach reviewed the plan and provided performance feedback. Next, the parent and coach developed at least two goals, and the coach asked the parent is she had questions or needed any clarification. An independent observer collected fidelity for 30% of coaching sessions. Treatment fidelity was 100%. A copy of the Coaching Fidelity Checklist is located in appendix G.

Missing data. Sessions in the family home were conducted two to three days per week. If more than five consecutive days elapsed without a session, a break in line was added to the y-axis. This occurred for Angela and Jonathan during the B phase and for Samantha and Tabitha during the C phase due to rescheduling.

Treatment fidelity. An independent observer, who was an advanced doctoral student in school psychology, watched and listened to screencasts, which were captured with QuickTime software across the three sessions and the three dyads (i.e., session three for dyad one, session two for dyad two, and session three for one for dyad three) to assess treatment fidelity. The treatment fidelity checklist included items pertaining to the topics covered, practice of skills, sound meditations, and collaborative reflection. Treatment fidelity was 100% for all sessions. A copy of the treatment fidelity checklist is located in Appendix F.

Interobserver agreement. The lead researcher trained IOA data collectors using video clips of parent-child interactions from a previous investigation. Data collectors received three hours of training and reached 90% agreement with the lead researcher on occurrence and nonoccurrence for parent and child observations. IOA data were collected for a mean of 46.29% of baseline sessions (range = 44.44% to 50%) and 29.17% (range = 25.00% to 50%) of intervention sessions across the three dyads, and 33.33% of coaching sessions for dyad two. This large range was due to rescheduling needs. IOA were collected for proactive, reinforcement, and management strategies, and child challenging behavior. The lead researcher collected the primary data on the direct behavioral observations (i.e., parent use of behavioral strategies and child challenging behavior), with the exception of coaching sessions. A secondary independent observer collected data

reliability data either in vivo (for tiers one and two) or via video (for tier three). Interval-by-interval IOA scores were calculated by dividing the number of agreements by the total agreements plus disagreements and multiplying by 100 to obtain a percent of agreement for both occurrences and nonoccurrences (Gast & Ledford, 2014).

For dyad one, IOA for Angela's use of proactive strategies was a mean of 93.83% of in (range = 91.67% – 99.17%), reinforcement strategies was a mean of 98.67% (range = 97.50% - 100%), and for management strategies was a mean of 99.67% (range = 99.17% -100%). For dyad one, IOA for Jonathan's challenging behavior was a mean of 97.50% (range = 95.67% – 100%). For dyad two, IOA for Samantha's use of proactive strategies was a mean of 96.18% (range = 90.53 – 100%), reinforcement strategies was a mean of 96.91% (range = 84.42% – 100%), and for management strategies was a mean of 100%. For dyad two, IOA for Tabitha's challenging behavior was a mean of 95.33% (range = 85.26% – 100%). For dyad three, Laura's use of proactive strategies was *M* = 92.00% (range = 90% - 95.71%), reinforcement strategies was *M* = 98.54 (range = 97.14% – 100%), and for management strategies was *M* = 99.29% (range = 98.15% - 100%). For dyad three, IOA for Richie's challenging behavior was *M* = 93.16% (range = 87.69% - 100%).

Social validity. Following the intervention phase, parents completed a 15-item questionnaire that assessed the acceptability and feasibility of the Practiced Routines program modified from the Treatment Acceptability Rating Form Revised (TARF-R; Reimers & Wacker, 1988; see appendix H). The TARF-R questions were adapted to reflect the goals of the current study, including assessing the addition of mindfulness content. Items were rated on a 5-point Likert scale with varying anchors. Example items

include: “To what extent did the Practiced Routines program train me to implement behavioral and mindfulness strategies at home with my child?” and “How much time will be needed each week for you to carry out these strategies with your child?” A 5-point Likert scale provided numerical ratings with various anchors specific to the item. For example, a rating of a 1 was associated with anchors such as “not clear at all” and “not acceptable at all” and a rating of 5 was associated with anchors such as “very clear,” and “very acceptable.” Each parent completed the social validity questionnaire and ranked the intervention moderately positively with mean ratings of 4.52 (range = 4.33 – 4.80), 4.77 (range = 4.50 – 5), and 3.42 (range = 2.75 – 3.75), for the acceptability of interventions, effectiveness of interventions, and disadvantages of strategies, respectively. The items for questions under disadvantages of the intervention were negatively keyed (i.e., phrased in such a way that an agreement with the item reflected a low score). As such, they were reversed-scored (e.g., 1=5, 2=4) to align with the other scores.

Table 7

Social Validity Ratings

	Angela	Samantha	Laura
Item category			
Acceptability	4.42	4.8	4.33
Effectiveness	4.50	5	4.8
Disadvantages	2.75	3.75	3.75

Note. Scores in the disadvantages of strategies category were reversed scored. Higher scores represent fewer disadvantages.

Caregiver and family demographics questionnaire. Upon completion of the program parents were asked to complete a demographics questionnaire that gathered

information on various variables related to stress and depression (e.g., education level, income, number of other children in household). A copy is located in Appendix H.

Data analysis. Standard visual analysis procedures were employed including visual inspection of change in level, trend, variability, consistency across similar phases, and degree of overlap. Additionally, because this was a multiple baseline design, a vertical analysis was conducted. However, start times for the B phase (intervention) were not determined by visual analysis, but rather randomly selected by the ExPRT 2.1 (Excel Package of Randomization Tests) software from a range of three possible start points. The potential start points and three potential start times were entered into the software. Utilizing randomization techniques increased the power for statistical analyses as well as improved internal validity due to controlling for Type 1 error. Due to the type of training and no coaching during the B phase, an immediacy effect was not hypothesized; the lead researcher suspected that it would take a parent at least two weeks (i.e., four to six data points) for a behavior change pattern in parent and child behavior to emerge. One reason for this is because strategies were not introduced until the second session of the Practiced Routines program.

A between-cases standardized mean difference analysis was run using the DHPS SPSS macro to calculate a Hedges' *g*, a proxy for a Cohen's *d* effect size (Hedges, Pustejovsky, & Shadish, 2012). This analysis is appropriate for the data set of the current study because there were at least three cases, and the AB comparisons are mostly concerned with the mean difference of both parent use of behavioral and mindfulness strategies and child challenging behavior. The calculated Hedge's g took into account the (a) number of cases, (b) number of measurements per case, (c) autocorrelation, (d) and

intraclass correlation measuring the ratio of between-case variance to the sum of between and within case variance (Shadish et al., 2014). No statistical analyses were run on the C phase (coaching); instead standard visual analysis procedures including change in level, trend, variability, and immediacy effect were evaluated and reported.

CHAPTER III

RESULTS

Dyad One: Angela and Jonathan

During baseline, Angela's mean use of total behavioral strategies was 5.54% of intervals (range = 0% - 3.33%). During the intervention phase (i.e., B phase), Angela's mean use of total behavioral strategies was 13.02% of intervals (range = 0% - 24.17%). During baseline, Angela used proactive strategies a mean of 5.12% of intervals (range = 0% - 15.00%), reinforcement strategies a mean of 2.09% of intervals (range = 0% to 3.33%), and management strategies a mean of 0.16% (range = 0% - 0.90%). During the intervention phase, Angela used proactive strategies a mean of 7.71% of intervals (range = 1.67% - 16.67%), reinforcement strategies a mean of 4.90% of intervals (range = 0.83% - 12.50%), and management strategies a mean of 1.04% of intervals (range = 0% - 2.5%). During baseline, Angela's mean use of behavioral strategies she selected (i.e., reinforcement and extinction) in her routines-based behavior support plan was 2.25% of intervals (range = 0% - 5.00%). During the intervention phase Angela's mean use of behavioral strategies she selected in her routines-based behavior support plan was 5.94% of intervals (range = 2.50% - 13.33%). Angela did choose one proactive strategy (i.e., "Encourage both children to speak to each other and express themselves verbally") in her routines-based behavior support plan; however, this was not a prompt that she used in baseline or intervention. The prompts she used included directives of how to play with toys and materials (e.g., play-dough). Thus, only reinforcement and management strategies are presented here for her selected strategies.

During baseline Angela's mean self-reported stress score was 36.67 (range = 20 - 80). During the intervention phase Angela's mean self-reported stress score was 46.25 (range = 30 - 60). During baseline, Jonathan engaged in challenging behavior a mean of 3.33% of intervals (range = 0% - 5.80%). During the intervention phase Jonathan engaged in challenging behavior a mean of 2.29% of intervals (range = 0% - 3.33%). During baseline Jonathan shared a mean of 0.5 items (range = 0 - 3). During intervention, Jonathan shared a mean of 0.38 items (range = 0 - 2) with his brother.

Dyad Two: Samantha and Tabitha

Samantha selected proactive, reinforcement, and management strategies for her routines-based plan; thus, her selected strategies are the same as total behavior strategy use. During baseline, Samantha's mean use of total behavioral strategies was 2.22% of intervals (range = 0% - 6.67%). Samantha's used proactive strategies a mean of 2.13% of intervals (range = 0% - 6.67%), reinforcement strategies a mean of 0.09% of intervals (range = 0% - 0.85%), and management strategies a mean of 0% of intervals. During the intervention phase (i.e., B phase), Samantha's mean use of total behavioral strategies was 19.49% of intervals (range = 0.88% - 42.42%). Samantha's mean use of proactive strategies was 13.22% of intervals (range = 0.88% - 33.33%), reinforcement strategies was 10.36% (range = 0% to 20.78%), and management strategies was 0.45% (range = 0% - 1.85%). During the coaching phase, Samantha's mean use of total behavioral strategies was 36.40% of intervals (range = 22.50% - 57.38%). Samantha's used proactive strategies a mean of 17.09% of intervals (range = 12.0% - 32.79%), reinforcement strategies a mean of 23.34% of intervals (range = 13.08% - 30.67), and management strategies a mean of 0% of intervals.

During baseline Samantha's mean self-reported stress score was 73.33 (range = 60 - 90). During the intervention phase Samantha's mean self-reported stress score was 60.63 (range = 50 - 70). During the coaching phase, Samantha's mean self-reported stress score was 57.50 (range = 50 - 80). During baseline, Tabitha engaged in challenging behavior a mean of 98.89% of intervals (range = 91.67% - 100%). During the intervention phase Tabitha engaged in challenging behavior a mean of 64.20% of intervals (range = 0% - 100%). During the coaching phase, Tabitha engaged in challenging behavior a mean of 53.72% of intervals (range = 0% - 88.79%). During baseline Tabitha put away a mean of 0.44 items (range = 0 - 3) into their correct locations. During the intervention phase Tabitha put away a mean of 15 items (range = 0 - 52) into their correct locations. During the coaching phase, Tabitha put away a mean of 23 items (range = 10 - 53) into their correct location.

Dyad Three: Laura and Richie

During baseline, Laura's mean use of total behavioral strategies was 17.31% of intervals (range = 8.50% - 27.50%). During the intervention phase (i.e., B phase), Laura's mean use of total behavioral strategies was 19.92% of intervals (range = 13.92% - 26.23%). During baseline, Laura used proactive strategies a mean of 13.52% of intervals (range = 2.68% - 25.83%), reinforcement strategies a mean of 3.95% of intervals (range = 0% - 7.92%), and management strategies a mean of 0.10% (range = 0% - 1.22%). During the intervention phase, Laura used proactive strategies a mean of 10.85% of intervals (range = 2.5% - 19.35%), reinforcement strategies a mean of 7.72% of intervals (range = 5.06% to 11.48%), and management strategies a mean of 2.93% of intervals (range = 0% - 7.53%). Laura selected one proactive strategy, "Remind him that he gets to

earn 3 stickers if he eats dinner without complaining" to use in her routines-based behavior support plan. This strategy was employed before the dinnertime routine began, and therefore, was not captured in the direct behavior observations. The strategies she selected for use during the dinnertime routine included reinforcement and extinction. During baseline, Laura's mean use of selected behavior strategies was 4.05% of intervals (range = 0% - 5.26%). During the intervention phase, Laura's mean use of selected behavior strategies was 10.67% of intervals (range = 6.45% - 17.21%).

During baseline Laura's mean self-reported stress score was 45.83 (range = 30 - 60). During the intervention phase Laura's mean self-reported stress score was 24 (range = 10 - 40). During baseline, Richie engaged in challenging behavior a mean of 23.30% of intervals (range = 5.75% - 64.49%). During the intervention phase Richie engaged in challenging behavior a mean of 5.34% of intervals (range = 0% - 20.25%). During baseline Richie ate food a mean of 45.51% of intervals (range = 21.50% - 77.01%). During intervention, Richie ate food a mean of 45.51% of intervals (range = 32.67% - 52.46%).

Visual analysis. The three figures displayed below represent parent use of selected behavioral strategies, parent self-reported distress scores, and child challenging behavior.

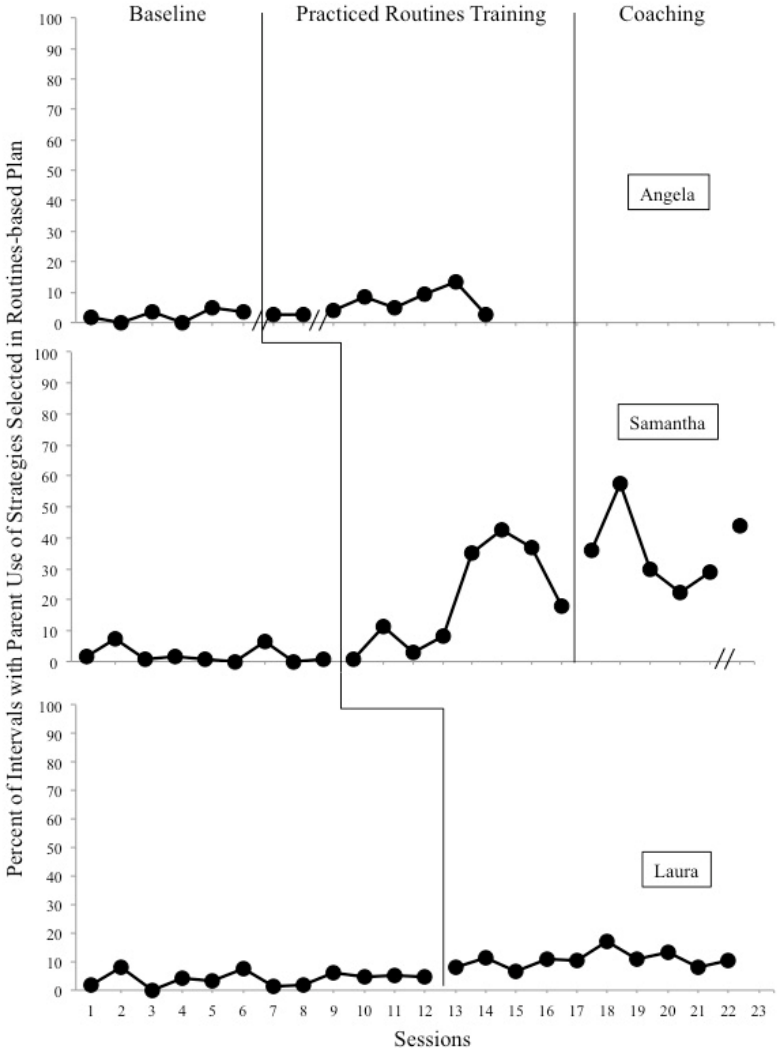

Figure 10. This graph represents parents' use of strategies selected in the routines-based support plan. Only independent (i.e., no prompted) parent responses are displayed in the coaching phase for tier two.

Parent strategy use. For dyad one, Angela displayed low levels of selected behavioral strategy use in baseline (*M* = 2.25%; range = 0% - 5.00%.). Upon implementation of the Practiced Routines Training phase, there was no immediate change in Angela's strategy use. A slight increasing trend was observed during the second week of intervention with a decreasing trend during week three. Overall, a small change in level was observed (*M* = 5.94%; range = 0% - 13.33%). A high degree of overlap and minimal variability was observed. Upon implementation of the intervention phase, a vertical visual analysis revealed that no significant changes occurred in the data paths for tiers two or three.

For dyad two, Samantha displayed low levels of selected behavioral strategy use in baseline with minimal variability (*M* = 2.22%; range = 0% - 6.67%). Upon implementation of the Practiced Routines Training phase, no immediate change was observed. Overall, the data path in the intervention phase showed a change in level and variability (*M* = 19.49; range = 0.88% – 42.42%) and an increasing trend was observed during the third week (i.e., data points 14 and 15). No overlap is observed for data collected during the third and fourth weeks of data collection. Upon implementation of the intervention phase, a vertical visual analysis revealed that no significant changes occurred in the baseline data path of tier three. Upon implementation of the C phase (i.e., coaching), an immediate change in level with a high degree of overlapping data was observed (*M* = 36.40%; range = 22.50% – 57.38%).

For dyad three, Laura displayed low levels of selected behavioral strategy use in baseline with minimal variability (*M* = 4.05%; range = 0% - 7.92%). Upon implementation of the intervention phase, no immediate change was observed. Overall,

the data path remained low in level (M = 10.67%; range = 6.45 - 17.21) with minimal overlapping data.

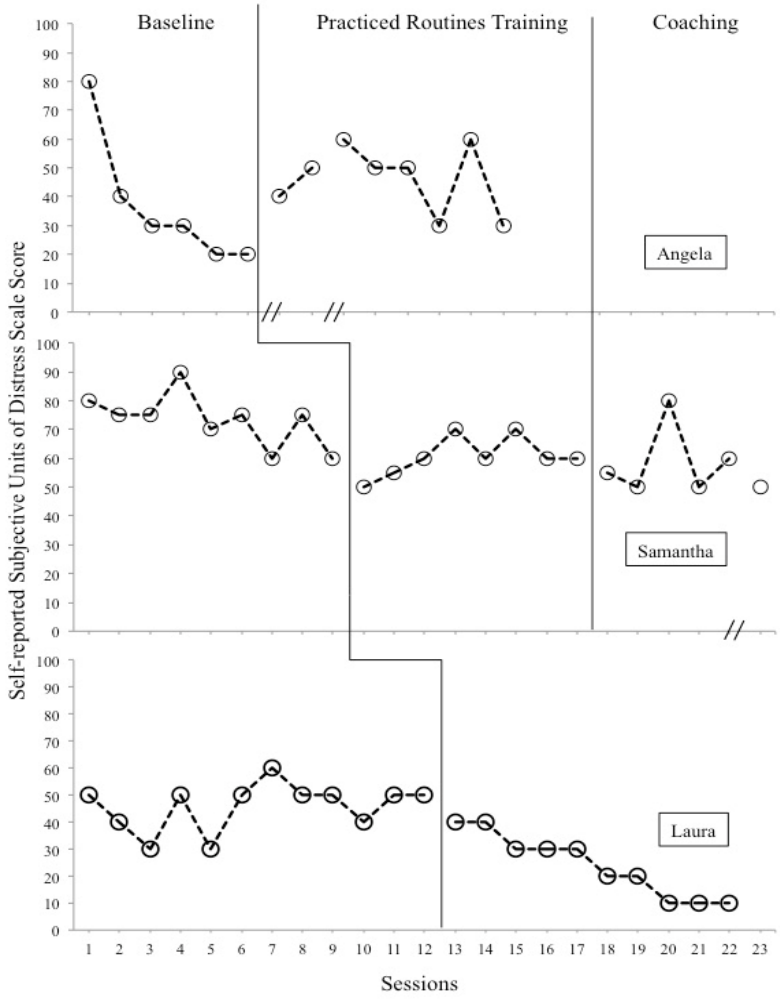

Figure 11. This graph represents parents' self reported subjective units of distress. Parents rated their stress at the beginning of the targeted family routine.

***Parent Stress*.** For dyad one, a decreasing trend and high variability was observed for Angela's self-reported distress in baseline (*M* = 36.37, range = 20 - 80). Upon implementation of the Practiced Routines Training program, an immediate increase in level was observed (*M* = 46.25; range = 30 - 60) with minimal variability and 100% overlapping data with the baseline phase. A vertical visual analysis revealed that upon implementation of the intervention phase in tier one, a slight decreasing trend in tier two and no significant change in tier three was observed. For dyad two, high levels of distress, decreasing trend and minimal variability was observed for Samantha's self reported distress in baseline (*M* = 73.33; range = 60 - 90). Upon implementation of the Practiced Routines Training phase, an immediate decrease in level followed by an increasing trend for the first two weeks of training was observed (*M* = 60.63; range = 50 - 70). A vertical visual analysis showed no significant changes in tiers one or three upon implementation of the intervention phase. During the coaching phase, Samantha's self-report distress remained in the moderate to high range with moderate variability (*M* = 57.50; range = 50 - 80). For dyad three, Laura's self-reported distress was in the moderate range with variability (*M* = 45.83; range = 30 - 60) during baseline. Upon implementation of the intervention phase, a decreasing trend was observed, with the last two weeks of data in the low range (*M* = 24.00; range = 10 - 40). A vertical visual analysis revealed no significant changes in the data paths for tiers one and two upon implementation of the intervention phase in tier three.

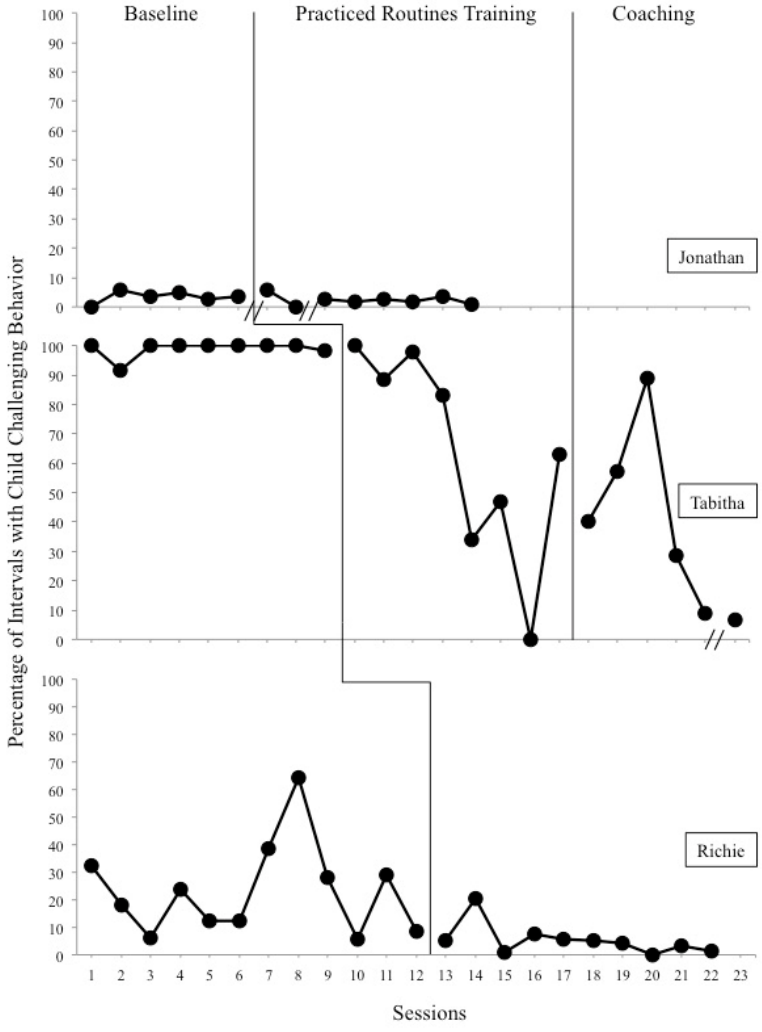

Figure 12. This graph represents child challenging behavior.

Child challenging behavior. For dyad one, Jonathan displayed low levels of challenging behavior with minimal variability (*M* = 3.33%; range = 0% - 5.8%) in baseline. Upon implementation of the Practiced Routines Training phase, challenging behavior did not change in level, trend or variability (*M* = 2.29%; range = 0% - 3.33%). A vertical visual analysis revealed no changes in the data path for tier two and an increase

in level and variability in tier three. For dyad two, Tabitha displayed high, ceiling levels and minimal variability (*M* = 98.89%; range = 91.67% - 100%). Upon implementation of the Practiced Routines Training phase, no immediate change in level was observed. A decreasing trend and overall change in level throughout the phase was observed with a high degree of variability and moderate amount of overlapping data (*M* = 64.20%; range = 0 – 100%). A vertical visual analysis revealed no significant change in the data paths for tiers one or three upon implementation of the intervention phase in tier two. Upon implementation of the coaching phase, the data path remained highly variable with no overlap with the baseline phase and 100% overlap with the training phase (*M* = 53.72%; range = 0% - 88.79%). For dyad three, Richie displayed low to moderate levels of challenging behavior in baseline with a high degree of variability (*M* = 23.30%; range = 5.75% – 64.49%). Upon implementation of the Practiced Routines Training phase, no immediate change was observed. A gradual decreasing trend, minimal variability, and low levels of challenging behavior were observed (*M* = 5.34; range = 0% - 20.25%). A vertical visual analysis revealed no significant changes in tiers one or two upon implementation of the intervention phase in tier three.

Standardized mean difference analysis. A Hedges' *g* (Hedges, 1981) was calculated for parent selected behavioral strategy use, parent self-reported subjective units of distress, and child challenging behavior. Hedges' g is comparable to Cohen's *d*, but allowed for the small sample size in this study (Hedges, Pustejovsky, & Shadish, 2013). The Hedges g effect size was calculated similarly to a standard Cohen's *d* effect size, wherein control means were subtracted from treatment means and divided by standard error. The effect size equation showed the difference between the unweighted

means for all baseline and treatment divided by the pooled standard deviation for both phases of data. For parent selected behavioral strategy use Hedges' $g = 1.02$. For parent stress Hedges' $g = 0.32$. Lastly, for child challenging behavior, Hedges' $g = 0.24$.

Non-experimental results. After the last data point in each respective tier, parents completed the PSI-SF, CES-D, BMPS, and rated the routine on a 1-5 *terrible to fantastic* scale. Below is a table that presents these scores pre-intervention and post-intervention.

Table 8

Non-Experimental Pre and Post Test Scores

	Angela		Samantha		Laura	
	Pre	Post	Pre	Post	Pre	Post
Parenting stress[a]	76	93	116	100	100	83
Depression[b]	22	18	27	23	7	2
Mindful parenting[c]	1.53	1.53	1.6	1.47	1.87	2.20
Routine rating[d]	2	4	1	3.5	2	4

Note. [a]Parenting stress scores range from 36 to 180. [b]Caregiver depression scores range from 0 to 37. Scores are represented as total raw scores. [c]Mindful parenting was rated on a 0 (never true) to 3 (always true) scale. [d]Routine ratings were rated on a 1 (terrible) to 5 (fantastic scale).

CHAPTER IV

DISCUSSION

The purpose of this study was to evaluate the effects of a brief three-week parent training program, titled Practiced Routines, that included PBS and mindfulness strategies on parent behavioral strategy use, parent well-being, and child challenging behavior in families of children with ASD. In this chapter, findings of the current study are summarized and interpreted. Next, limitations, implications for science, future directions for research, and implications for practice are discussed.

Summary and Interpretation of Results

This study aimed to answer several research questions. To answer the first three experimental research questions a concurrent randomized multiple baseline design was employed across three parent-child dyads.

Research question one. *Is there a functional relation between the Practiced Routines parent training program and an increase in level of behavioral strategy use in parents of children with ASD?* To test this research question, data were collected on five antecedent-based and six consequence-based strategies. The strategies that the parent chose (i.e., selected strategies) for use in her routines-based support plan were graphed and analyzed. Visual analysis revealed mixed results across the three tiers. For Angela, minimal change was observed in strategy use. For Samantha, a delayed change in level was observed, and for Laura, although there was minimal overlap was observed in the data path, the magnitude of the change was small. Although one clear basic effect was observed for Samantha and minimal overlap for Laura, taken as a whole, these results

indicate that there is not a functional relation between the Practiced Routines parent training program and increase in level of parent strategy use.

Research question two. *Is there a functional relation between the Practiced Routines parent training program and a decrease in parent-reported subjective units of distress in parents of children with ASD?* To test this research question, parents self-reported on their level of distress at the beginning of the targeted routine. Mean stress scores decreased for two of three participants. For Angela, there was a steep decreasing trend in baseline, and upon implementation of the training phase, her stress levels increased in level and remained in the moderate range. Anecdotally, Angela reported physical pain as a possible reason for her stress increase. In contrast to Angela, Laura showed a steady decreasing trend in distress in the training phase. Overall, due to the contraindicated results for Angela and the high degree of overlap for Samantha, there is not a functional relation between the Practiced Routines program and a decrease in parent level of self-reported distress.

Research question three. *Is there a functional relation between the Practiced Routines parent training program and a decrease in level of child challenging behavior in children with ASD?* To test the third experimental research question, individualized topographies of child challenging behavior were measured. Assessing the functional relation was limited due to the floor effects of challenging behavior for Jonathan. Tabitha engaged in challenging behavior nearly all intervals in baseline. Although there was overlap between the baseline data path and the first three data points of the training phase, after the routines-based plan was developed in week two of the training, no overlapping data was observed. Also of noteworthy mention is Tabitha's increase in her

adaptive, desired behavior. In baseline Tabitha put away a mean of 0.44 items and during the training phase, she put away a mean of 15 items into their correct location. Richie's challenging behavior decreased in level, trend, and variability during the training phase. Due to the floor effect observed for Jonathan, only two basic effects were observed (i.e., Tabitha and Richie); thus according to What Works Clearinghouse standards, there was not a functional relation between the Practiced Routines program and a decrease in child challenging behavior.

Overall, these results indicate that with a brief, three-week mindfulness infused behavioral parent training program, two of three parents demonstrated increases in the amount and type of behavioral strategies they used within a chosen family routine. One of three parents showed clinically significant reductions in self-reported distress, and all three children showed decreases in challenging behavior. Although during the sessions, we did not directly observe clinically significant levels of challenging behavior, Angela reported that Jonathan's challenging behavior was a mean of 2.72 (*1* = poor, complete refusal, serious challenges; *4* = great, cooperative and appropriate) during the first week of the training (i.e., before the routines-based plan was developed). After the routines-based plan was developed Angela's mean score was Jonathan's behavior increased to 3.36. (*1* = poor, complete refusal, serious challenges; *4* = great, cooperative and appropriate). Tabitha's challenging behavior remained at moderate levels with a high degree of variability, and Richie's challenging behavior reduced to near zero levels during the last three weeks of the study. Given the non-serious nature of the topographies of challenging behavior (e.g., off-task, whining), and the young ages of these children, it

might be socially acceptable to have some challenging behavior in the training phase, as was the case for Tabitha.

Social validity. Four non-experimental secondary research questions were also of interest to the current study. Post-test data on parenting stress, depression, and mindful parenting were collected and a social validity questionnaire was administered.

Social validity question one. *Will there be a socially significant change in stress, depressive symptoms or reported mindful parenting state?* To assess this question, parents completed the PSI-SF, CES-D, and BMPS after the last data point in the training phase (i.e., fourth week of intervention). Results indicate decreases in parenting stress for Samantha and Laura, and increases for Angela. All three parents reported lower post-test depressive symptoms. Angela and Laura reported improvements in mindful parenting, while Samantha reported slight lower post-test mindful parenting. These results are interesting for several reasons. First, the Practiced Routines program did not directly target depression; however, all three parents reported lower depressive symptoms. Second, Angela reported much higher post-test parenting stress (i.e., a 17-point raw score increase), putting her in the clinically significant range post intervention. This result is surprising as this was a short study aimed to improve parenting stress. However, it may be that Angela experienced iatrogenic effects during participation in the Practiced Routines training program. During the duration of this study, Angela also participated in another parent training research study that taught language and behavioral strategies. Due to multiple mental health conditions reported, it is difficult to disentangle which variables contributed to her increase in parenting stress.

Social validity question two. *How will parents rate the acceptability and social validity of the goals, procedures and outcomes of the Practiced Routines parent training program?* To answer this question, parents completed a modified TARF-R. All three parents rated the acceptability and effectiveness of the Practiced Routines program favorably. Parents rated the disadvantages of the strategies minimally positively. These results indicate that all three parents perceived the program to include acceptable strategies, be effective in reducing their child's challenging behavior, and to cause minimal disadvantages. Additionally, all three parents rated their targeted routines as having improved following the training phase. Laura wrote, "This project has changed our family. Dinnertime is so much better now. It isn't something I dread anymore. 'Richie' is eating veggies without total meltdowns! I'm very happy we participated in it."

Social validity question three. *Will follow-up coaching be required in order to reach criterion level of reduction in child challenging behavior?* The decision for the coaching phase was arbitrarily based on the child challenging behavior not reducing to below 20 percent of intervals for three consecutive sessions in the training phase. Due to the floor levels of challenging behavior for Jonathan and the clinically significant improvements for Richie, Samantha was the only parent who qualified for coaching. These results indicate that for one parent, the brief Practiced Routines program was sufficient to produce clinically significant reductions in child challenging behavior, while for another parent, coaching with performance feedback was necessary. Samantha's use of behavioral strategies increased in level from a mean of 19.49% of intervals in the training phase to 36.40% of intervals during the coaching phase. During the coaching phase, Tabitha continued to engage in challenging behavior for a mean of 53.72% of

intervals. These results are perhaps not surprising. Given that Tabitha was 4:9 years old, being off-task during a clean up routine is likely not that aberrant. Furthermore, anecdotally, it appeared that Tabitha engaged in less off-task behavior than her twin sister during the coaching phase of the study.

Key findings. Overall, the results of this study are mixed. It appears that the Practiced Routines program produced clinically significant effects in the intended direction on all outcome measures for Laura, for some of the outcome measures for Samantha, while mixed and contraindicated results were found for Angela. These results suggest that the Practiced Routines program might be an effective intervention for some parents. Laura was the only parent who met the original screening criteria (i.e., clinically significant parenting stress without major depressive symptoms). This intervention was relatively a low intensity intervention compared to other parent training programs and did not involve performance feedback. It could be that there are certain parental characteristics (e.g., no depression) that enable a parent to be successful with a low-dose training with no feedback. Another possible explanation is at the child level. Specifically, Tabitha engaged in challenging behavior at near ceiling levels throughout the baseline phase. Thus, there may be cases in which a child's behavior is aberrant to a level that warrants immediate coaching. A final interesting finding was the inconsistency of the observed challenging behavior for Jonathan compared to the challenging behavior reported by Angela. This could have been due to observer reactivity (i.e., data collectors present in the home) or incongruence between the directly observed behavior and Angela's perception of his challenging behavior. Several barriers were present regarding changing the selected routine including the Individualized Family Service Plan team

requesting that mealtime not be targeted and a limited area for intervention including one room for sleeping, leisure, and meals.

There were differences found between the visual analysis and standardized mean difference analyses. Because there were not three visual basic effects for any of the experimental outcome variables, there were no functional relations found. However, some notable standardized effects were found with the Hedge's *g* analysis. The DHPS macro calculated a Hedge's *g* that is directly comparable to the standardized mean difference between groups at post-test (Cohen's *d*-index) effect size (Hedges, Pustejovsky, & Shadish, 2013). For parent selected behavioral strategy use, Hedge's g = 1.02, suggesting a large effect. For parent stress Hedge's $g = 0.32$, suggesting a small-moderate effect, and for child challenging behavior Hedge's $g = 0.24$, suggesting a small effect. These results follow the logic of the study (i.e., larger effects on parent outcomes that child outcomes); however, they do not align with the visual analysis conclusion. There are several possibilities. First, for parent behavioral strategy use, overlap was observed for Angela; however, there was a mean difference between her use of selected strategies in baseline compared to the training phase. Further, Laura's data paths showed a smalll mean difference, yet minimal overlapping data. Another difference is in the child challenging behavior. Visually, this graph shows the most improvement, with decreases in level of challenging behavior and minimal overlap for Tabitha and Richie, and a decreasing trend and minimal variability in the training phase for Richie. Although visually two basic effects were observed, which did not occur in the parent outcome variables, child challenging behavior had the smallest Hedge's *g* effect size. This could be due to the high degree of within- and between-case variance (Hedges, Pustejovsky, &

Shadish, 2013). Additionally, in this study the treatment was assigned to time randomly (i.e., start point and case randomization was employed). This design feature is methodologically desirable, reduces the likelihood of a Type I error, and adds to the confidence of the standardized effect size findings (Kratochwill & Levin, 2010). Taken as a whole, the standardized mean difference analysis combined with traditional visual analysis suggests that there were medium effects on parent strategy use, and small-moderate effects on parenting stress and child challenging behavior at the study level (Hedges, Pustejovsky, & Shadish, 2013).

Limitations

Several limitations are worth noting. First, due to the nature of this training, parents created their own routines-based plans. As such, some of the strategies were (a) entered into the wrong section of the plan, suggesting a lack of understanding of the operant behavior model. For example, Angela entered "praise good communication efforts and sharing" in the "prompt positive behavior" cell within the routines-based form.io. During session three, the trainer provided feedback and facilitated the creation of an action plan that included a note card to remind Angela to provide praise for desired behaviors. This note card was never observed during the subsequent data collection sessions, nor did Angela's praise behavior increase. It is unclear if, with coaching, Angela would have increased her behavioral strategy use and perhaps her parental stress as well.

In this study, generalization (e.g., across settings, routines, siblings) was not assessed. All three dyads also had siblings present during every session. Anecdotally, it appeared Laura generalized some behavioral strategies to her other three sons during the

dinnertime routine, while Samantha did not generalize strategies to her other daughter until the coaching phase. Given that family dynamics and competing reinforcement contingencies (e.g., another child seeks attention during the routine), it would be useful to assess for a parent's generalization across additional routines, other children, and time (i.e., sustained use of strategies). Further, in this study parents were educated on PBS and mindfulness principles and were not instructed to implement an strict plan scored on a treatment fidelity checklist as is common in ASD parent training literature (Brookman-Frazee, Stahmer, Baker-Ericzen, & Tsai, 2006). As such, the routines-based plans were flexible and parents were encouraged to change and adapt the plan based on data. Although this may be viewed as a strength for practice, it might be that level of behavioral strategy use was not the best metric to capture parenting behaviors. Additionally, the measurement procedures in this study did not did not include strategy use before the routines began. For instance, Laura's routines-based plan included a reminder of Richie's sticker chart before dinner, and she took deep breaths and engaged in positive imagery while preparing dinner. Because data collection began once dinner was on the table, these strategies were not included for any sessions. Further, it is inherently difficult to collect data on private events (i.e., positive imagery). It appears that only a minimal change in level of Laura's use of consequence-based (i.e., praise and planned ignoring) were required for a clinically significant change in Richie's behavior. Future research should aim to measure the quality of praise using affect scales or other methods. A final limitation is related to the naturalistic nature of several of the study variables. Several stimuli were not controlled for in this study, including the play materials in tier one, the type or size of items put away in tier two, and the type or

amount of food in tier three. While this limits the internal validity of this study, it may improve the external validity as it is more closely aligned with "real world" practices.

Implications for Science

The current study contributes to the small literature base on mindfulness-based behavioral parent training. Although parents of children with ASD are at an increased risk for stress and depression, limited attention has been given to systematically addressing parental mental health within parent training programs for this population, especially as compared to parents of children with emotional behavior disorders (Brookman-Frazee, Stahmer, Baker-Ericzen, & Tsai, 2006). There is an emerging body of literature that has incorporated therapeutic strategies such as cognitive behavior optimistic parenting skills (e.g., Durand, Hieneman, Clarke, Wang, & Rinaldi, 2012), and mindfulness training (e.g, Singh et al., 2006) within behavioral parent training for parents of children with developmental disabilities including ASD. These studies have yielded promising outcomes on parenting satisfaction and reductions in child challenging behavior; however, these studies have implemented dosages of 8-12 weeks of parent training. In the current study, we aimed to evaluate if a brief three-week program would produce changes in parenting behaviors and reductions in child challenging behavior. Our results on child behavior are in line with Singh and colleagues (2006), wherein mixed small effects were found without a clear visual functional relation (i.e., lack of three basic effects).

Given the small amount of literature, more research is needed to uncover several phenomena. First, it would be interesting for future research to examine dosage needs for behavioral and mindfulness parent training. As a field, we do not know much training is

enough to produce durable parenting behavior change that results in sustainable reductions in child challenging behavior. Further, it is unclear when or for whom coaching (i.e., performance feedback) is necessitated. Phaneuf and McIntrye (2011) employed a three-tiered approach to parent education and found that four out of eight parents of young children with developmental delays were in need of video performance feedback in order to meet a desired positive-to-negative strategies ratio. More research is needed to uncover what characteristics at the family, parent, and child level would be more amenable to traditional behavioral parent training versus those who would benefit from performance feedback. Another interesting area of inquiry would be to assess the possible advantages and limitations of coaching. Too much modeling, prompting, and performance feedback may jeopardize parent empowerment or ability to generalize and adapt strategies. On the other hand, some parents may necessitate an errorless approach to education, and training without feedback could potentially cause more parental distress. Uncovering family dynamics (e.g., number of children, co-parenting structure), parent (e.g., mental health risk), and child characteristics (e.g., ASD symptoms, topography of challenging behavior) that would inform parent education decision-making processes is a useful area of future research.

Another important area of future research is to investigate the potential additive benefits of adding mindfulness to existing behavioral parent training programs. Future research should compare behavioral-only parent training to behavioral plus mindfulness training and examine the longitudinal outcomes of these types of treatments. Specifically, it would be useful to know if over time, the addition of mindfulness enables a parent to sustain use of behavioral strategies and perhaps be in a more aware state to be able to

adapt strategies across contexts and time. Further, assessing for a parent's generalization of mindfulness skills to their child or including parents and children together during mediation would be of interest.

There are also other protective factors such as self-compassion and social support that deserve more investigation. While self-compassion is a component of mindfulness, it may be that when training parents in interpersonal mindfulness specific to their parenting role, even more compassion toward themselves is needed due to feelings of guilt they might be experiencing (Neef & Faso, 2014). In reviewing the related literature, the mindfulness-based PBS single-case studies (e.g., Singh, 2006) administered intervention in an individualized format, whereas the MBSR group studies (e.g., Neece, 2014) trained parents in a group format. More research is needed to understand more about the potential benefits of social support elements of a group-based format. A final area of future research would be to identify behavioral indicators of mindfulness. Finally, testing possible correlates such as parent affect, tone of voice, and latency between child and parent responses with self-reported mindful parenting state might help elucidate a greater understanding of the observable behaviors of mindful parenting.

Implications for Practice

The current study has several considerations for practice. First, the setting and stimuli utilized in this study mirror best practices in early intervention and behavioral health parent training. The procedures we outline would likely be easy to replicate in practice. However, it should be noted that specialized training would be required for service providers. Specifically, practitioners would need to be qualified in PBS and mindfulness. Current recommended practices for early intervention and early childhood

special education require that practitioners implement family-capacity building interventions and use functional assessment and strategies to prevent and address challenging behavior (Division for Early Childhood, 2014). Indeed, practitioners should be implementing PBS within natural family routines; however, they may not be equipped to educate parents in stress reduction strategies. We believe that given the bidirectional relationship between parent stress and child challenging behavior, it would behoove practitioners to learn research-based stress-reduction strategies that are easy to implement in a family-centered approach. Raulston and Hansen (in press) outline methods practitioners can use to incorporate mindful parenting training into behavioral consultation work. These include proactive and in-the-moment techniques to help parents increase their non-judgmental awareness of body sensations, thoughts, and emotions that could be impeding their implementation of PBS. In addition to educational early intervention and early childhood special education delivery systems, 46 states offer medical and/or behavioral health services children with ASD through private of publically-funded insurance (National Conference of State Legislatures, 2017). These behavioral health services are often delivered by way of ABA services implemented or supervised by a BCBA, and many insurance companies cover parent training in addition to therapist-implemented ABA treatment (e.g., Michigan Department of Insurance and Financial Services, 2013). The Practiced Routines parent training program might be a viable program for educational and behavioral health service providers to offer.

Concluding Remarks

In sum, this study evaluated the effects of a brief parent training program, titled Practiced Routines on parent use of behavioral strategies, parent well-being, and child

challenging behavior in a concurrent randomized multiple baseline across three parent-child dyads design. Visual analysis combined with a standardized mean difference analysis revealed mixed results with a medium effect found for parent behavioral strategy use and small effects found for parent stress and child challenging behavior. Given the brevity of the Practiced Routines program and alignment with best practices in early intervention, these results hold promise for informing future research and practice.

APPENDIX A

DYAD ONE DATA SHEET

RD01/Tier 1 Routine: Playtime with brother Date: Session #: DC: P/R

10s	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext
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50s	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext
Child CB	H TO PC G Trp S C/W Sp K	H TO PC G Trp S C/W Sp K	H TO PC G Trp S C/W Sp K	H TO PC G Trp S C/W Sp K	H TO PC G Trp S C/W Sp K	H TO PC G Trp S C/W Sp K	H TO PC G Trp S C/W Sp K	H TO PC G Trp S C/W Sp K	H TO PC G Trp S C/W Sp K	H TO PC G Trp S C/W Sp K
60s	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext
Child CB	H TO PC G Trp S C/W Sp K	H TO PC G Trp S C/W Sp K	H TO PC G Trp S C/W Sp K	H TO PC G Trp S C/W Sp K	H TO PC G Trp S C/W Sp K	H TO PC G Trp S C/W Sp K	H TO PC G Trp S C/W Sp K	H TO PC G Trp S C/W Sp K	H TO PC G Trp S C/W Sp K	H TO PC G Trp S C/W Sp K
	1 min	2 min	3 min	4 min	5 min	6 min	7 min	8 min	9 min	10 min

Strategy Use Key: VC: Verbal clarification IA: Independent activity Prmt: Prompt Sen: Sensory access EA: Envionmental arrange

SR+A: Positive Attention SR+T: Tangible access SR-: Negative reinforcement RB: Response blocking Rd: Redirection Ext: Extinction

Adaptive Behavior - frequency (tallies)

Sharing: Hands or gives brother brother an item (even if prompted)

Items shared

Challenging Behavior Key Operational Definitions:

H: hit An open or closed fist makes forceful contact with another person's body

TO: throws object Makes an object (that is not meant to) by lifiting and extending with force fly through the air

PC: pulls clothing Part of hand grabs and holds onto another's clothing for at least 1 sec

G: grab Part of hand touches an item that another person is holding or a part of another person with force and pulls back toward him

Trp: trips Places foot out in front of another person's legs while that person is walking or running

S : scream A loud vocal noise above inside room volume either words or non words

C/W: cry/whimper A high pitiched vocalization of broken/varying sound

Sp: spit Saliva exits mouth with force

K: kick Leg extends and foot makes contact with another person with force

APPENDIX B

DYAD TWO DATA SHEET

RD07/Tier 2 Routine: Clean up Date: Session #: DC: P/R

10s	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext
Child CB	OT VP S C W K	OT VP S C W K	OT VP S C W K	OT VP S C W K	OT VP S C W K	OT VP S C W K	OT VP S C W K	OT VP S C W K	OT VP S C W K	OT VP S C W K
20s	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext
Child CB	OT VP S C W K	OT VP S C W K	OT VP S C W K	OT VP S C W K	OT VP S C W K	OT VP S C W K	OT VP S C W K	OT VP S C W K	OT VP S C W K	OT VP S C W K
30s	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext
Child CB	OT VP S C W K	OT VP S C W K	OT VP S C W K	OT VP S C W K	OT VP S C W K	OT VP S C W K	OT VP S C W K	OT VP S C W K	OT VP S C W K	OT VP S C W K
40s	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext
Child CB	OT VP S C W K	OT VP S C W K	OT VP S C W K	OT VP S C W K	OT VP S C W K	OT VP S C W K	OT VP S C W K	OT VP S C W K	OT VP S C W K	OT VP S C W K
50s	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext
Child CB	OT VP S C W K	OT VP S C W K	OT VP S C W K	OT VP S C W K	OT VP S C W K	OT VP S C W K	OT VP S C W K	OT VP S C W K	OT VP S C W K	OT VP S C W K
60s	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext
Child CB	OT VP S C W K	OT VP S C W K	OT VP S C W K	OT VP S C W K	OT VP S C W K	OT VP S C W K	OT VP S C W K	OT VP S C W K	OT VP S C W K	OT VP S C W K
	1 min	**2 min**	**3 min**	**4 min**	**5 min**	**6 min**	**7 min**	**8 min**	**9 min**	**10 min**

Strategy Use Key: VC: Verbal clarification IA: Independent activity Prmt: Prompt Sen: Sensory access EA: Enviornmental arrange

SR+A: Positive Attention SR+T: Tangible access SR-: Negative reinforcement RB: Response blocking Rd: Redirection Ext: Extinction

Adaptive Behavior - frequency (tallies)

Directions given	Directions followed	Put away item

Challenging Behavior Key **Operational Definitions:**

OT: off task	actively ignoring mom, not picking up items or not in designated area
VP: verbal protest	verbally saying "no" or indicating that she does not want to pick up items
S: scream	a loud vocal noise above inside room volume either words or non words
C: cry	emitting tears with or without whining
W: whine	a high pitiched vocalization of broken/varying sound with or without words
K: kick	Leg extends and foot makes contact with another person with force

Followed direction

Child complies with mom's request with in 5 s

Puts away item:

Places item in appropriate place (bin)

APPENDIX C

DYAD THREE DATA SHEET

RD03/Tier 3 Routine: Dinner Date: Session #: DC: P/R

10s	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext
Child CB Adaptive	NC W C Sp Sc Eat	NC W C Sp Sc Eat	NC W C Sp Sc Eat	NC W C Sp Sc Eat	NC W C Sp Sc Eat	NC W C Sp Sc Eat	NC W C Sp Sc Eat	NC W C Sp Sc Eat	NC W C Sp Sc Eat	NC W C Sp Sc Eat
20s	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext
Child CB Adaptive	NC W C Sp Sc Eat	NC W C Sp Sc Eat	NC W C Sp Sc Eat	NC W C Sp Sc Eat	NC W C Sp Sc Eat	NC W C Sp Sc Eat	NC W C Sp Sc Eat	NC W C Sp Sc Eat	NC W C Sp Sc Eat	NC W C Sp Sc Eat
30s	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext
Child CB Adaptive	NC W Sc C Sp Eat	NC W Sc C Sp Eat	NC W Sc C Sp Eat	NC W Sc C Sp Eat	NC W Sc C Sp Eat	NC W Sc C Sp Eat	NC W Sc C Sp Eat	NC W Sc C Sp Eat	NC W Sc C Sp Eat	NC W Sc C Sp Eat
40s	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext
Child CB Adaptive	NC W Sc C Sp Eat	NC W Sc C Sp Eat	NC W Sc C Sp Eat	NC W Sc C Sp Eat	NC W Sc C Sp Eat	NC W Sc C Sp Eat	NC W Sc C Sp Eat	NC W Sc C Sp Eat	NC W Sc C Sp Eat	NC W Sc C Sp Eat
50s	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext
Child CB Adaptive	NC W Sc C Sp Eat	NC W Sc C Sp Eat	NC W Sc C Sp Eat	NC W Sc C Sp Eat	NC W Sc C Sp Eat	NC W Sc C Sp Eat	NC W Sc C Sp Eat	NC W Sc C Sp Eat	NC W Sc C Sp Eat	NC W Sc C Sp Eat
60s	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext	VC IA Prmt Sen EA $S^{R+}A$ $S^{R+}T$ S^{R-} RB Rd Ext
Child CB Adaptive	NC W Sc C Sp Eat	NC W Sc C Sp Eat	NC W Sc C Sp Eat	NC W Sc C Sp Eat	NC W Sc C Sp Eat	NC W Sc C Sp Eat	NC W Sc C Sp Eat	NC W Sc C Sp Eat	NC W Sc C Sp Eat	NC W Sc C Sp Eat
	1 min	**2 min**	**3 min**	**4 min**	**5 min**	**6 min**	**7 min**	**8 min**	**9 min**	**10 min**

<u>Strategy Use Key:</u> VC: Verbal clarification IA: Independent activity Prmt: Prompt Sen: Sensory access EA: Enviornmental arrange

SR+A: Positive Attention SR+T: Tangible access SR-: Negative reinforcement RB: Response blocking Rd: Redirection Ext: Extinction

Challenging Behavior Key Operational Definitions:

NC: negative comment verbally saying negative things like "This food will make me die." or "I hate this" or verbally indicating that he doesn't want to eat or like the food in a whiny tone of voice

W: whine a high pitched vocalization of broken/varying sound with or without words

Sc: scream a loud vocal noise above inside room volume either words or non words

C: cry emitting tears with or without whining

Sp: Spit spitting out food after it has entered his mouth

Adaptive Bx: Eat = food touches mouth, enters mouth, chewing, or swallowing

APPENDIX D

PARENT BEHAVIORAL STRATEGY USE CODES

Antecedent Strategy Code	**Definition**	**Examples and Non Examples**
VC: Verbal Clarification	Parent verbally states (also can use pictures in conjunction) of when attention, when/what items are available, or when a break will be available.	*Examples:* Parent says, "After I put Sally to bed, we will read a story together." or "You can have the iPad after we finish bath." "The TV is unavailable, but you can have the fish puzzle or the blocks." *Nonexamples:* "Not now," "I'm busy." "No."
IA: Provision of Independent Activity	Parent directs child to engage in an activity while s/he does something else.	*Examples*: Parent hands child a book or a tablet before putting away dishes. *Nonexamples*: Parent does chore while child sits at table with no items.
P: Prompt	Parent delivers a prompt (vocal, gestural, physical) for the child the engage in a desired behavior related to the routine. This includes verbal directives (e.g., S^{Ds} related to the routine such as "take a bite"). *No Questions	*Examples*: Child is screaming and reaching for apple, parent says, "Say 'apple.', uses a sign to model to the child, or physically guides the child use a picture exchange. Parent gestures for the child to use a break card. *Nonexamples*: Parent hands communication device to child without providing any support or looks the other way (not attending) or gives apple after child screams.
Sen: Provision of sensory access	Parent gives child access to sensory stimulation.	*Examples*: Parent gives child a fidget or something on which to chew (e.g., instead of body or clothing). *Nonexamples*: Parent says, "Stop chewing" and doesn't provide an alternative.
EA: Environmental arrangement	Parent removes "off limit" items from area in which the routine is occurring.	*Examples:* Before bedtime routine, parent puts iPad on shelf above child's reach. *Nonexamples:* Preferred items are scattered on floor in bedroom during bedtime routine,
Consequence Strategy	**Definition**	**Examples and Nonexamples**

Code		
$S^{R+}A$: Positive attention	Parent delivers positive attention in the form of verbal behavior including vocal praise statements, overt smiling, physical attention (e.g., tickles, thumbs up, or smiling) following a desired behavior or the absence of (**at least 5 seconds passes**) the target challenging behavior.	*Examples:* "Nice sitting!", "Good job!", overt smile with teeth showing or corners of mouth turned up in an obvious manner, giving child a high five. *Nonexamples:* Doing any of the above behaviors within 5 sec of the target challenging behavior occurring. Not attending to a desired behavior.
$S^{R+}T$: Positive reinforcement tangible	Parent delivers access to an item or activity **within 5 sec** of the child requesting it via a desired behavior or an approximation, even if the response is prompted, or parent gives preferred items to the child after s/he follows a direction.	*Examples:* After the child says, "cheese" or "ch" the parent delivers a small piece of cheese. Parent gives child access to short video between bites of vegetables during a meal. *Nonexamples:* Child says, "cheese" and parent says, "Nice talking" and gives no cheese.
S^{R-}: Negative reinforcement	Parent (at least temporarily; **minimum of 10 seconds**) allows child to escape an activity or item (e.g., unwanted food) following the child rejecting appropriately or with an appropriate approximation, even if the response is prompted. No more than 10 intervals (1.5 min)	*Examples:* Child hands over a break card, and parent allow him/her out of a work task for 10+ seconds before redirecting back to the table. *Nonexamples:* Child hands over a break card, and parent says, "You have to finish your homework."
RB: Response blocking	Parent blocks access.	*Examples:* If child is biting her hand, parent puts barrier between her mouth and hand. *Nonexamples:* When child is biting her hand, parent repeats "No biting" or "Don't do that. You are hurting yourself" and does not block.
RD: Redirection	Parent verbally and/or physically redirects child back to the activity.	*Examples:* Parent physically and/or verbally guides the child back to the dinner table or bathroom sink. If child is flapping her hands repetitively, parent redirects by saying, "Clap your hands. Touch your head. Let's brush teeth!" *Nonexample:* Child runs away from the dinner table or bathroom sink, and parent sits at table or doesn't make an effort for the child

		to come back to the sink.
Ext: Extinction	Parent ignores challenging behavior, turns head or walks away, and does not deliver a tangible item, for **at least 5 sec** following the target challenging behavior.	*Examples:* When child hits, parent walks away providing no eye-contact. Child screams (toy is unavailable), and after parent states that the toy is unavailable once, no other attention is delivered. *Nonexamples:* Parent yells "There's no hitting" or says, "Hitting isn't safe." and continues to talk/reason with the child while she is screaming.

APPENDIX E

SUBJECTIVE UNITS OF DISTRESS SCALE

The distress thermometer – Subjective Units of Distress Scale (SUDS)

Try to get used to rating your distress, fear, anxiety or discomfort on a scale of 0-100. Imagine you have a 'distress thermometer' to measure your feelings according to the following scale. Notice how your level of distress and fear changes over time and in different situations.

100	Highest distress/fear/anxiety/discomfort that you have ever felt
90	Extremely anxious/distressed
80	Very anxious/distressed, can't concentrate
70	Quite anxious/distressed, interfering with performance
60	
50	Moderate anxiety/distress, uncomfortable but can continue to perform
40	
30	Mild anxiety/distress, no interference with performance
20	Minimal anxiety/distress
10	Alert and awake, concentrating well
0	Totally relaxed

APPENDIX F

TRAINING TREATMENT FIDELITY CHECKLIST

Raulston Dissertation – Practiced Routines Parent Training Program

Date: _____ Duration: _____

Participant code: _____

Week 1

Session Content/Activities	Completed?	
1. Reviewed goals for the session, within overall program	□ Yes	□ No
2. Reviewed positive behavior support process and beliefs about behavior	□ Yes	□ No
3. Guided participants through Observing Difficult Situation meditation and reflections on external and internal experiences:	□ Yes	□ No
4. Provided overview of mindfulness in positive behavior support	□ Yes	□ No
5. Guided participant through Identifying Valued Routines meditation.	□ Yes	□ No
6. Reviewed defining behaviors to increase/decrease, and brainstormed behaviors to address during routines	□ Yes	□ No
7. Introduced recording behavior and guided practice in different methods: Counting: Timing: Rating:	 □ Yes □ Yes □ Yes	 □ No □ No □ No
8. Reviewed tracking progress form, explaining how to use in program	□ Yes	□ No
9. Reviewed A-B-C patterns (and setting events), providing examples	□ Yes	□ No
10. Guided participants to observe ABCs in video and report patterns:	□ Yes	□ No
11. Reminded of role sensations, thoughts, feelings, and impulses in ABCs	□ Yes	□ No
12. Reviewed homework assignment, directing to LMS for resources	□ Yes	□ No

Treatment Fidelity: _____/13 X100 = _____

Date: _____ Duration of session: _____
Participant code: _____

Week 2

Session Content/Activities	Completed?	
1. Reviewed goals for the session, within overall program	□ Yes	□ No
2. Facilitated sharing on homework assignments (i.e., goals, tracking, ABC recording, mindfulness practices), getting input from parent	□ Yes	□ No
3. Reviewed framework for analyzing patterns surrounding behavior	□ Yes	□ No
4. Guided parent to summarize patterns, as well as perceptions	□ Yes	□ No
5. Provided overview of features of a routine-based plan, function-based interventions and relevant strategies, and broader supports	□ Yes	□ No
6. Shared videotaped examples of strategies to include in a plan	□ Yes	□ No
7. Guided parent to develop strategies for their routine-based plan (i.e., proactive, teaching, management, support)	□ Yes	□ No
8. Discussed overcoming habits associated with automatic parenting through mindfulness practices	□ Yes	□ No
9. Guided parent through the practice of Creating Breathing Space, offering an opportunity for reflection	□ Yes	□ No
10. Guided parent through the practice of Detaching from Thoughts, offering an opportunity for reflection	□ Yes	□ No
11. Discussed issues for putting plans in place related to contextual fit	□ Yes	□ No
12. Reviewed homework assignment, directing to LMS for resources	□ Yes	□ No

Treatment Fidelity: _____/12 X100 = _____

Date: _____ Duration: _____

Participant code: _____

Week 3

Session Content/Activities	Completed?	
1. Reviewed goals for the session, within overall program	□ Yes	□ No
2. Facilitated sharing on practice assignments (i.e., routine-based plans, tracking progress, mindfulness practices), gathering input from participant	□ Yes	□ No
3. Guided participants to assess the fidelity of their plan implementation	□ Yes	□ No
4. Guided participants through self-compassion practice, encouraging the participants to share their reflections:	□ Yes	□ No
5. Discussed the cycle of positive behavior support, emphasizing that the goal of PBS is to enhance quality of life	□ Yes	□ No
6. Guided parent to develop a plan for another routine, sharing ideas	□ Yes	□ No
7. Guided parent to reflect on the program, identifying practices to continue related to PBS and mindfulness and supports for the practices.	□ Yes	□ No
8. Guided parent through the grounding meditation, encouraging reflections on their experience	□ Yes	□ No
9. Provided a closing for the program	□ Yes	□ No

Treatment Fidelity: _____/9 X100 = _____

APPENDIX G

COACHING FIDELITY CHECKLIST

Participant Code_____
D.C _____ **Session #:** _____ **Date:** _____

	Coaching Content	
1.	Reviewed the routines-based strategies with the parent prior to the routine beginning. • Proactive strategies • Teaching strategies • Consequence-based strategies	Y N Y N Y N
2.	Provided models/prompts to the parent throughout the routine at an appropriate rate that was not disruptive to the routine in a graduated guidance approach.	Y N
3.	Provided praise to the parent throughout the routine at an appropriate rate that was not disruptive to the routine, and at least the first time after the parent implemented a strategy correctly following a previous error.	Y N
4.	Provided error correction at an appropriate rate that was not disruptive to the routine. Corrected each different type of error at least once if it occurred.	Y N
5.	Reviewed what went well and identified at least 2 goals with the parent after the routine was complete.	Y N
6.	Asked if the parent had any questions and provided answers/clarification to strategies.	Y N
	TF Score = Steps marked Y/6	_____%

Revised

APPENDIX H

SOCIAL VALIDITY QUESTIONNAIRE

Adapted Treatment Acceptability Rating Form

Please score each item by circling the number that best indicates how you feel about the Practiced Routines Parent Training Program.

1. How clear is your understanding of the routines-based behavioral support plan strategies?

1 2 3 4 5

Not at all clear — Neutral — Very clear

2. How acceptable do you find the routines-based behavioral support plan strategies?

1 2 3 4 5

Not at all acceptable — Neutral — Very acceptable

3. How willing are you to carry out these strategies/procedures?

1 2 3 4 5

Not at all willing — Neutral — Very willing

4. To what extent did the Practiced Routines program train me to implement the behavioral and mindfulness strategies at home with my child?

1 2 3 4 5

Not at all — Neutral — Very much

5. To what extent do you think there might be disadvantages in following these strategies/procedures?

1 2 3 4 5

None likely — Neutral — Many likely

6. How much time will be needed each week for you to carry out these strategies with your child?

1 2 3 4 5

Little time will be needed — Neutral — Much time will be needed

7. How confident are you that the Practiced Routines program will provide effective interventions for decreasing your child's challenging behavior?

1 2 3 4 5

Not at all confident — Neutral — Very

8. How likely are these strategies to make permanent improvements in your child's behavior?

1 2 3 4 5

Unlikely likely — Neutral — Very

9. How disruptive will it be to carry out these strategies/procedures?

1 2 3 4 5

Not at all disruptive — Neutral — Very disruptive

10. How much do you like the behavioral strategies used in the intervention?

1 2 3 4 5

Do not like them at all — Neutral — Like them very much

11. How much do you like the mindfulness strategies used in the intervention?

1 2 3 4 5

Do not like them at all — Neutral — Like them

12. How willing would you be to suggest the Practiced Routines program to other parents needing to assistance decreasing their child's challenging behavior at home?

1 2 3 4 5

Not at all willing — Neutral — Very willing

13. How much discomfort is your child likely to experience during this intervention?

1 2 3 4 5

No discomfort — Neutral — Very much

at all
discomfort

14. How well will carrying out these strategies fit into your existing routine?

1 2 3 4 5

Not at all well — Neutral — Very well

15. How effective will the intervention be in teaching and supporting your child?

1 2 3 4 5

Not at all effective — Neutral — Very effective

16. Please let us know any thoughts or feeling you have about your experience with the Practiced Routines Program.

APPENDIX I

CAREGIVER AND FAMILY DEMOGRAPHICS QUESTIONNAIRE

Participant code: _____ Date: _____

A Little About You

What is your Date of Birth? Please write in using numbers.

___ ___ - ___ ___ - ___ ___ ___ ___
Month Day Year

What is your gender? Circle ***one.*** Male Female

How are you related to your child (*the target child in this study*)? Select ***one***.

- ❍ Birth parent
- ❍ Step parent
- ❍ Adoptive parent
- ❍ Foster parent
- ❍ Grandparent
- ❍ Sibling

- ❍ Other relative
- ❍ Live-in partner of his/her parent
- ❍ Other (describe): _____

What is your race/ethnicity? Select ***all*** that apply.

- ❑ White/Caucasian
- ❑ Black/African American
- ❑ Hispanic/Latino
- ❑ Asian
- ❑ Native American
- ❑ Pacific Islander

- ❑ Other: _____

Do you have religious or spiritual beliefs? Circle ***one***. Yes No

If Yes, how would you describe your religious or spiritual orientation? Select ***one***.

- ❍ Catholic
- ❍ Christian
- ❍ Eastern (Buddhist or Hindu)
- ❍ Jehovah's Witnesses
- ❍ Mormon
- ❍ Muslim
- ❍ Jewish
- ❍ Protestant
- ❍ Other organized religion (specify): _____
- ❍ Personal spiritual (unorganized) (specify): _____
  _____

What is the last level of formal education you completed? Select ***one***.

- ❍ No formal schooling
- ❍ 7th grade or less
- ❍ Junior high completed
- ❍ Partial high school (at least one year)
- ❍ High school graduate/GED certificate
- ❍ Partial college (at least one year)
- ❍ Specialized training

- ❍ Junior college/Associates degree (2 years)
- ❍ Standard college or university graduation (4 years)
- ❍ Graduate professional training, graduate degree

What is your employment status? Select ***one***.

- ❍ Self-employed
- ❍ Full time employment
- ❍ Part time employment
- ❍ Seasonal
- ❍ Unemployed
- ❍ Disabled
- ❍ Temporary layoff
- ❍ Full time homemaker
- ❍ Student (not working)
- ❍ Other (describe): _____

Do you have a history of a diagnosed mental health condition? Circle ***one***.

Yes No

If Yes, describe: _____

_____

Circle ***one*** for each.

Do you live with a spouse or partner? Yes No

Are you currently married? Yes No

How is your partner related to your child? Select ***one***.

- ❍ Birth parent
- ❍ Step parent
- ❍ Adoptive parent
- ❍ Foster parent
- ❍ Grandparent
- ❍ Sibling
- ❍ Other relative
- ❍ Live-in partner of his/her parent
- ❍ Other (describe): _____

Household Income Information

What is your annual household income (including all sources) ? Select ***one***.

- ❍ $4,999 or less
- ❍ $5,000 to $9,999
- ❍ $10,000 to $14,999
- ❍ $15,000 to $19,999
- ❍ $20,000 to $24,999
- ❍ $25,000 to $29,999
- ❍ $30,000 to $39,999
- ❍ $40,000 to $49,999
- ❍ $50,000 to $59,999
- ❍ $60,000 to $69,999
- ❍ $70,000 to $79,999
- ❍ $80,000 to $89,999
- ❍ $90,000 or more

How much money does your family have? Select ***one***.

- ❍ Not enough to get by
- ❍ Just enough to get by
- ❍ We only have to worry about money for fun or extras
- ❍ We never have to worry about money

How many children are you supporting? _____

Do you receive any of the following? Select ***all*** that apply.

- ❑ Temporary Assistance for Needy Families (TANF/Welfare)
- ❑ Social Security
- ❑ SSI (Supplemental Security Income)
- ❑ Medicaid
- ❑ Food Stamps
- ❑ Heating and Electric bill assistance
- ❑ Unemployment
- ❑ Child support
- ❑ Oregon Health Plan (OHP)
- ❑ Food for Lane County
- ❑ Developmental Disability Services
- ❑ Tribal Insurance
- ❑ Respite Services

Do you receive any informal, free supports from family or friends such as childcare or respite? Circle ***one***.

Yes No

If Yes, briefly describe: _____

_____

A Little more about Your Child

Please list any other educational/behavioral support services your child has received during this study (including any other research studies):

_____

_____

A Little about the Siblings Living in the Home

1. Sibling initials: _____

   DOB: ___ ___ - ___ ___ - ___ ___ ___ ___
   Month Day Year

   Sibling's gender (circle ***one***): Male Female

   Does s/he have autism spectrum disorder? Yes No

   Does s/he have behavior or learning challenges? Yes No

   If yes, please describe: _____

   _____

2. Sibling initials: _____

   DOB: ___ ___ - ___ ___ - ___ ___ ___ ___
   Month Day Year

   Sibling's gender (circle ***one***): Male Female

   Does s/he have autism spectrum disorder? Yes No

Does s/he have behavior or learning challenges? Yes No

If yes, please describe: _____

_____

3. Sibling initials: _____

DOB: ___ ___ - ___ ___ - ___ ___ ___ ___
Month Day Year

Sibling's gender (circle ***one***): Male Female

Does s/he have autism spectrum disorder? Yes No

Does s/he have behavior or learning challenges? Yes No

If yes, please describe: _____

_____

APPENDIX J

SAMANTHA'S COACHING ROUTINES-BASED PLAN

PracticedRoutines

Routine-Based Plan

Name of Routine Clean Up

Being Proactive (Prevention and Prompting)	**Teaching Skills** (Replacing Behavior)	**Managing Consequences** (Responding to Behavior)
What will we do to prevent problems and prompt positive behavior in this routine? ■ Avoid difficult circumstances Clean up as you go throughout the day ■ Make the situation better 1. Brown bin for small toys 2. Give a warning before clean up routine (e.g., "In 2 mintues, it will be time to clean up toys.") ■ Prompt positive behavior Model putting things away and use "Where" questions to have E. practice matching items to the correct bin/container What strategies will we use to support ourselves and our family so we can be consistent with this plan?	What will we teach our child to do instead of the problem behavior to get his/her needs met? Prompt E. to say "I need a break" or "All done." Prompt E. to say, "I'm still playing with XXX" (toy). What will we encourage our child to do to participate more fully in the routine and/or tolerate difficult situations? At the very beginning of the routine, establish a reward E. can have when she is finished, offering a choice if possible, and make sure the expectations are very clear. How will we know when we are successful (how often/long will the behavior occur? When everything you asked her to pick up/all items in the bin are put away in the correct containers.	How will we provide reinforcement for positive behavior in this routine? ■ Provide praise and other forms of attention Praise putting things away ■ Provide items or activities following the behavior Give E. her reward after items are put away and tell/show her why she earned the reward ■ Allow breaks, delays, or provide assistance with the activity/task Give short break when requested (e.g., one minute) ☐ Provide sensory reinforcers ☐ Other: How will we withhold or minimize reinforcement following problem behavior Minimize attention/walk away when she is not cooperating. Provide clarification/redirection statements in a neutral tone of voice. If she is taking a break, minimize attention during that time.

Changing Settings and Creating Supports. What broader changes will we make such as enlisting others, restructuring the environment or daily activities, and supporting relationships?

Practice putting things away at grandmother's house.

Mindfulness Practices to Support Routine. What practices will I use to increase my awareness and intention during this routine? Practice being fully present during homework time, taking deep breaths when frustrated.

Take 3 deep breaths before the routine starts.

REFERENCES CITED

Abidin, R. R. (2012). *Parenting stress index* (4th ed.). Lutz, FL: PAR.

Achenbach, T.M., & Rescorla, L.A. (2000). *Manual for the ASEBA Preschool forms and Profiles.* Burlington, VT: University of Vermont Department of Psychiatry.

Achenbach, T.M., & Rescorla, L. A. (2001). *Manual for the ASEBA School-Age Forms and Profiles.* Burlington, VT: University of Vermont, Research Center for Children, Youth, and Families.

American Psychiatric Association. (2013). *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.). Arlington, VA: American Psychiatric Publishing.

Baum, W. (2015). *Understanding Behaviorism: Behavior, Culture, and Evolution*. (2nd Ed.) Blackwell Publishing, MA: Blackwell Publishing.

Baer, Wolf, & Risley (1968). Some current dimensions of applied behavior analysis. *Journal of Applied Behavior Analysis, 1*, 91-97.

Baghdadli, A., Pascal, C., Grisli, S., & Aussilloux, C. (2003). Risk factors for self-injurious behaviours among 222 young children with autistic disorders. *Journal of Intellectual Disabilities Research, 47(8)*, 622–627.

Bazzano A., Wolfe C., Zylovska L., Wang S., Schuster E., Barrett C. & Lehrer D. (2010) Stress-reduction and improved well-being following a pilot community-based participatory mindfulness-based stress-reduction (MBSR) program for parents/caregivers of children with developmental disabilities. *Disability and Health Journal,* 3, e6–e7.

Beer, M., Ward, L., & Moar, K. (2013). The relationship between mindful parenting and distress in parents of children with autism spectrum disorder. *Mindfulness, 4*, 102-112.

Binnendyk, L., & Lucyshyn, J.M. (2009). A family-centered positive behavior support approach to the amelioration of food refusal: An empirical case study. *Journal of Positive Behavior Interventions*, 11, 47-62.

Blacher, J., & McIntyre, L.L. (2006) Syndrome specificity and behavioural disorders in young adults with intellectual disability: Cultural differences in family impact. *Journal of Intellectual Disability Research, 50*, 184-198.

Boyd, B.A. (2002). Examining the relationship between stress and lack of social support in mothers of children with autism. *Focus on Autism and Other Developmental Disabilities*, 17, 208-215.

Brookman-Frazee, L., Stahmer, A., Baker-Ericzen, M.J., & Tsai, K. (2006). Parenting interventions for children with autism spectrum and disruptive behavior disorders: Opportunities for cross-fertilization. *Clinical Child and Family Psychology Review, 9*, 181- 200.

Brookman-Frazee, L. I., Taylor, R., & Garland, A. F. (2010). Characterizing community-based mental health services for children with autism spectrum disorders and disruptive behavior problems. *Journal of Autism and Developmental Disorders, 40*, 1188–1201.

Brown, K.W., Creswell, J.D., Ryan, R.M. (2015). Handbook of Mindfulness: Theory, Research, and Practice. New York, NY: The Guilford Press.

Cooper J.O, Heron T.E, Heward W.L. (2007). *Applied behavior analysis* (2nd ed.) Upper Saddle River, NJ: Pearson.

Dabrowska, A., & Pisula, E. (2010). Parenting stress and coping styles in mothers and fathers of pre-school children with autism and Down syndrome. *Journal of Intellectual Disability Research, 54*, 266–280.

Division for Early Childhood (2014). *DEC recommended practices in early intervention/early childhood special education 2014*. Retrieved from http://www.dec-sped.org/recommended practices.

Duncan, L. G., Coatsworth, J. D., & Greenberg, M. T. (2009). A model of mindful parenting: Implications for parent-child relationships and prevention research. *Clinical Child and Family Psychology Review, 12*, 255–270.

Dunlap, G., & Fox, L. (1999). A demonstration of behavioral support for young children with autism. *Journal of Positive Behavior Interventions*, *1*, 77–87.

Dunlap, G., Newton, S.J., Fox, L., Benito, N., Vaughn, B. (2001). Family involvement in functional assessment and positive behavior support. *Focus on Autism and Other Developmental Disabilities, 16*, 215-217.

Durand V.M.., & Crimmins D. B. (1988) Identifying the variables maintaining self-injurious behavior. *Journal of Autism and Developmental Disorders 18*, 99–117.

Durand, V.M., Hieneman, M., Clarke, S., Wang, M., Rinaldi, M.L. (2012). Positive family intervention for severe challenging behavior I: A Multisite randomized clinical trial. *Journal of Positive Behavior Interventions, 15*, 133-143.

Eisenhower, A. S., Baker, B. L., & Blacher, J. (2005). Preschool children with intellectual disability: Syndrome specificity, behaviour problems, and maternal

well-being. *Journal of Intellectual Disability Research, 49*, 657–671.

Fettig, A., Barton, E.E. (2014). Parent implementation of function-based intervention to reduce children's challenging behavior: A literature review. *Topics in Early Childhood Special Education, 34*, 49-61.

Freeman K., Walker K. & Kaufman J. (2007) Psychometric properties of the Questions About Behavioral Function scale in a child sample. *American Journal on Mental Retardation 112*, 122– 129.

Gast, D. L., & Ledford, J. R. (Eds.). (2014). *Single-subject research methodology: Applications in special education and behavioral sciences* (2nd ed.). Routledge.

Greenberg, J.S., Seltzer, M.M., Krauss, M.W., Chou, R.J., Hong, J. (2004). The effect of quality of the relationship between mothers and adult children with schizophrenia, autism, or down syndrome on maternal well-being: The mediating role of optimism. *American Journal of Orthopsychiatry*, 74, 14-25.

Hartley, S. L., Sikora, D. M., & McCoy, R. (2008). Prevalence and risk factors of maladaptive

behaviour in young children with autistic disorder. *Journal of Intellectual Disability Research*, *52*, 1–11.

Hastings, R.P., & Brown, T. (2002). Behavior problems of children with autism, parental self-efficacy, and mental health, *American Journal of Mental Retardation, 107*, 222-232.

Hedges, L. G., Pustejovsky, J. E., & Shadish, W. R. (2012). A standardized mean difference effect size for single-case designs. *Research Synthesis Methods, 3*, 224–239.

Hedges, L. G., Pustejovsky, J. E., & Shadish, W. R. (2012). A standardized mean difference effect size for multiple baseline designs across individuals. *Research Synthesis Methods, 4*, 324–341.

Herring, S., Gray, K., Taffe, J., Tonge, B., Sweeney, D., Einfeld, S. (2006). Behavior and emotional problems in toddlers with pervasive developmental disorders and developmental delay: Associations with parental mental health and family functioning. *Journal of Intellectual Disability Research, 50*, 874–882.

Hickey, L. (2013). Review of Telemedicine Technologies: Information Technologies in Medicine and Telehealth by Bernard Fong, ACM Fong, and CK Li. *Telemedicine and e-Health*, *19*, 146-147.

Hilty, D. M., Ferrer, D. C., Parish, M. B., Johnston, B., Callahan, E. J., & Yellowlees, P. M. (2013). The Effectiveness of Telemental Health: A 2013 Review. *Telemedicine and e-Health*, *19*, 444-454.

Jones, L., Hastings, R.P., Totsika, V., Keane, L., & Rhule, N. (2014). Child behavior problems and parental well-being in families of children with autism: The mediating role of mindfulness and acceptance. *American Journal on Intellectual and Developmental Disabilities, 119*, 171-185.

Kabat-Zinn, J. (1990). *Full catastrophe living*. New York: Bantam Doubleday Dell.

Kabat-Zinn, M., & Kabat-Zinn, J. (1997). *Everyday blessings: The inner work of mindful parenting*. New York: Hyperion.

Kanne, S. M., & Mazurek, M. O. (2011). Aggression in children and adolescents with ASD: prevalence and risk factors. *Journal of Autism and Developmental Disorders*, *41*, 926-937.

Kleve, L., Crimlisk, S., Shoebridge, P., Greenwood, R., Baker, B., Mead, B. (2010). Is the incredible years programme effective for children with neurodevelopmental disorders and for families with social services involvement in the "real world" of community CAMHS? *Clinical Child Psychology and Psychiatry, 16*, 253-264.

Kratochwill, T. R., Hitchcock, J., Horner, R. H., Levin, J. R., Odom, S. L., Rindskopf, D. M., & Shadish, W. R. (2010). *Single-case designs technical documentation*. Retrieved from What Works Clearinghouse website: http://ies.ed.gov/ncee/wwc/pdf/wwc_scd.pdf

Kuhlthau, K. A., Bloom, S., Van Cleave, J., Knapp, A. A., Romm, D., Klatka, K., . . . Perrin, J. M. (2011). Evidence for family-centered care for children with special health care needs: A systematic review. *Academic Pediatrics, 11*, 136–143.

Kuhn, S. A., Lerman, D. C., & Vorndran, C. M. (2003). Pyramidal training for families of children with problem behavior. *Journal of Applied Behavior Analysis*, *36*, 77-88.

Lecavalier, L., Leone, S., & Wiltz, J. (2006). The impact of behaviour problems on caregiver stress in young people with autism spectrum disorders. *Journal of Intellectual Disability Research, 50*, 172–183.

Lerman, D. C., Swiezy, N., Perkins–Parks, S., & Roane, H. S. (2000). Skill acquisition in parents of children with developmental disabilities: Interaction between skill type and instructional format. *Research in Developmental Disabilities, 21*, 183-196.

Lewinsohn, P.M., Seeley, J.R., Roberts, R.E., & Allen, N.B. (1997). Center for Epidemiological Studies-Depression Scale (CES-D) as a screening instrument for

depression among community-residing older adults. *Psychology and Aging,* 12, 277- 287.

Levin, J. R., Evmenova, A. S., & Gafurov, B. S. (2014). The single-case data-analysis ExPRT (Excel Package of Randomization Tests). In T. R. Kratochwill & J. R. Levin (Eds.), *Single-case intervention research: Methodological and statistical advances* (pp. 185-219). Washington, DC: American Psychological Association.

Levin, J.R., Ferron, J.M., & Gafurov, B.S. (2016-online first). Comparison of randomization-test procedures for single-case multiple-baseline designs. *Developmental Neurorehabilitation*.

Lindgren, S., Wacker, D., Suess, A., (2016). Telehealth and autism: Treating challenging behavior at lower cost. *Pediatrics,* 137, 167-175.

Lovaas, O. Ivar; Koegel, Robert L.; Schreibman, Laura. (1979). Stimulus overselectivity in autism: A review of research. *Psychological Bulletin, 86*, 1236-1254.

Lucyshyn, J. M., Irvin, L. K., Blumberg, E. R., Laverty, R., Horner, R. H., & Sprague, J. R. (2004). Validating the construct of coercion in family routines: Expanding the unit of analysis in behavioral assessment with families with children with developmental disabilities. *Research & Practices for Persons with Severe Disabilities, 29,* 104–121.

Marcus, B. A., Swanson, V., & Vollmer, T. R. (2001). Effects of parent training on parent and child behavior using procedures based on functional analyses. *Behavioral Interventions, 16*, 87-104.

Machalicek, W., Lequia, J., Pinkelman, S., Knowles, C., Raulston, T., Davis, T., Alresheed, F. (2016). Behavioral telehealth consultation with families of children with autism spectrum disorder. *Behavioral Interventions, 31*, 223-250.

Matson, J.L., Mahan, S.S., Fodstad, J.C., Worley, J.A., Neal, D.D., & Sipes, M.M. (2011). Effects of symptoms of co-morbid psychopathology on challenging behaviours among infants and toddlers with Autistic Disorder and PDD-NOS as assessed with the Baby and Infant Screen for Children with aUtIsm Traits (BISCUIT), *Developmental Neurorehabilitation, 14*, 129–139.

Matson J. L., & Vollmer T. R. (1995). *The Questions about Behavioral Function (QABF) User's Guide*. Scientific Publishers, Baton Rouge, LA.

Matson, J. L., Wilkins, J., & Macken, J. (2009). The relationship of challenging behaviors to severity and symptoms of autism spectrum disorders. *Journal of Mental Health Research in Intellectual Disabilities*, *2*, 29-44.

McIntrye, L.L. (2008a). Adapting Webster-Stratton's incredible years parent training for children with developmental delay: Findings for a treatment group only study. Journal of Intellectual Disability Research, 52, 1176-1192.

McIntrye, L.L. (2008b). Parent training for young children with developmental disabilities: Randomized controlled trial. *American Journal on Mental Retardation, 113*, 356-368.

McWilliam, R.A. (2009). *Routines Based Early Intervention*. Baltimore, MD: Brookes Publishing.

Michigan Department of Insurance and Financial Services. (2013). Autism coverage reimbursement program standard billing codes and descriptions for ABA.

Retrieved from https://www.michigan.gov/documents/difs/Autism_Fund_MI_ABA_Standard_Billing_Codes_415943_7.pdf.

Najdowski, A. C., Wallace, M. D., Reagon, K., Penrod, B., Higbee, T. S., & Tarbox, J. (2010). Utilizing a homebased parent training approach in the treatment of food selectivity. Behavioral Interventions, 25, 89-107.

National Autism Center (2015). Findings and conclusions: National standards project, phase 2. Retrieved from http://www.nationalautismcenter.org/resources.

National Conference of State Legislators. (2017, June 7). Autism and insurance coverage: State laws. Retrieved from http://www.ncsl.org/research/health/autism-and-insurance-coverage-state-laws.aspx.

National Professional Development Center on Autism Spectrum Disorders (2014). Evidence-based practices for children, youth, and young adults with autism spectrum disorder. Retrieved from http://autismpdc.fpg.unc.edu.

Neece, C.L. (2014). Mindfulness based stress reduction for parents of young children with developmental delays: Implications for parental mental health and child behavior problems. *Journal of Applied Research in Intellectual Disabilities, 27*, 174 – 186.

Neece, C. L., Green, S.A., & Baker, B. L. (2012). Parenting stress and child behavior problems: A transactional relationship across time. *American Journal on Intellectual and Developmental Disabilities, 117*, 48–66.

Neff, K.D., & Faso, D. J. (2015). Self-compassion and well-being in parents of children with autism. *Mindfulness, 6*, 938–947.

Olsson, M. B., & Hwang, P. C. (2003). Influence of macrostructure of society on the life situation of families with a child with intellectual disability: Sweden as an example. *Journal of Intellectual Disability Research, 47*, 328– 341.

O'Neill, R.E., Horner, R.H., Albin, R.W., Sprague, J.R., Storey, K., &Newton, J.S. (1997). *Functional Assessment and Program Development for Problem Behavior*. Pacific Grove, CA: Brooks/Cole Publishing.

Paclawskyj T. R., Matson J. L., Rush K. S., Smalls Y. & Vollmer T. R. (2001) Assessment of the convergent validity of the Questions About Behavioral Function scale with analogue functional analysis and the Motivation Assessment Scale. *Journal of Intellectual Disability Research 45*, 484–494.

Patterson, G. (1982). *Coercive family process*. Eugene, OR: Castilia.

Phaneuf, L., & McIntyre, L.L. (2007). Effects of individualized video feedback combined with group parent training on inappropriate maternal behavior. *Journal of Applied Behavior Analysis, 40*, 737-741.

Radloff, L.S. (1977). The CES-D scale: a self-report depression scale for research in the general population. *Applied Psychology Measure, 1*, 385– 401.

Raulston, T.J. & Hansen, S.G. (in press). Mindful parenting for everyday routines: How practitioners can help parents reduce stress and be more present. *Division for Early Childhood Recommended Practices Monograph Series - Families.*

Raulston, T.J., & McIntyre, L.L. (in preparation). The role of mindful parenting for caregiver psychological well-being in parents of children with autism spectrum disorder.

Reimers, T. M., & Wacker, D. P. (1988). Parents' ratings of the acceptability of behavioral treatment recommendations made in an outpatient clinic: A preliminary analysis of the influence of treatment effectiveness. *Behavioral Disorders, 14,* 7–15.

Sameroff, A. J., & Fiese, B. H. (2000). Transactional regulation: The developmental ecology of early intervention. In J. P. Shonkoff & S. J. Meisels (Eds.), *Handbook of early childhood intervention* (2nd ed., pp. 135-159). Cambridge, UK: Cambridge University Press.

Schieve, L. A., Blumberg, S. J., Rice, C., Visser, S. N., & Boyle, C. (2007). The relationship between autism and parenting stress. *Pediatrics, 119*, S114–S121.

Schopler, E.,Van Bourgondien, M.E., Wellman, G.J., Love, S.R. (2010). *Childhood Autism Rating Scale-2nd Edition*. Los Angeles: Western Psychological Services.

Schultz, T. R. (2013). Parent-implemented intervention (PII) fact sheet. Chapel Hill: The University of North Carolina, Frank Porter Graham Child Development Institute, The National Professional Development Center on Autism Spectrum Disorders.

Sears, K.M., Cho Blair, K., Iovannone, R., & Crosland, K. (2013). Using the prevent-teach-reinforce model with families of young children with autism. *Journal of Autism and Developmental Disorders*, *43*, 1005-1016.

Sofronoff, K., Jahnel, D., & Sanders, M. (2011). Stepping Stones Triple P seminars for parents of a child witha disability: A randomized controlled trial. *Research in Developmental Disabilities, 32*, 2253-2262.

Silva, L.M.T. & Schalock, M. (2012). Autism Parenting Stress Index: Initial Psychometric Evidence. *Journal Autism and Developmental Disorders, 42*, 566-574.

Singh, N.N., Lancioni, G.E., Karazsia, B.T., & Myers, R.E. (2016). Caregiver training in mindfulness-based positive behavior support (MBPS): Effects on caregivers and adult with intellectual and developmental disabilities. *Frontiers in Psychology, 7*, 1-11.

Singh, N.N., Lancioni, G., E., Karazsia, B.T., Myers, R.E., Winton, A.S.W., Latham, L.L., Nugent, K. (2015). Effects of training staff in MBPBS on the use of physical restraint, staff stress and turnover, staff and peer injuries, and cost effectiveness in developmental disabilities. *Mindfulness, 6*, 926-937.

Singh, N. N., Lancioni, G. E., Winton, A. S. W., Fisher, B. C., Wahler, R. G., McAleavey, K., Singh, J., & Sabaawi, M. (2006). Mindful parenting decreases aggression, noncompliance and self-injury in children with autism. *Journal of Emotional and Behavioral Disorders, 14,* 169–177.

Singh, N. N., Lancioni, G. E.,Winton,A. S.W., Karazsia, B.T., Myers, R. E., Latham, L. L., & Singh, J. (2014). Mindfulness-based positive behavior support (MBPBS) for mothers of adolescents with Autism Spectrum Disorder: Effects on adolescents' behavior and parental stress. *Mindfulness*, *5*, 646–657.

Skinner, B.F. (1974). *About Behaviorism*. New York, NY: Vintage Books.

Stanley, M. A., & Averill, P. M. (1998). Psychosocial treatments for obsessive–compulsive disorder: Clinical applications. In R. P. Swinson, M. M. Antony, S.

Rachman, & M. A. Richter (Eds.), *Obsessive–compulsive behavior: Theory, research and treatment* (pp. 277-297). New York: Guilford.

Tarbox, J., Wallace, M. D., & Tarbox, R. S. (2002). Successful generalized parent training and failed schedule thinning of response blocking for automatically maintained object mouthing. *Behavioral Interventions, 17*, 169-178.

Totsika, R.P. Hastings, E. Emerson, G.A. Lancaster, D.M. Berridge (2011). A population-based investigation of behavioural and emotional problems and maternal mental health: associations with autism spectrum disorder and intellectual disability, *Journal of Child Psychology and Psychiatry, 52*, 91–9.

Webster-Stratton, C., Reid, M. J., & Hammond, M. (2001). Preventing conduct problems, promoting social competence: A parent and teacher training partnership in Head Start. *Journal of Clinical Child Psychology, 30*, 283–302.

Whittingham, K., Sofronoff, K., Sheffield, J., & Sanders, M. R. (2009). Stepping Stones Triple P: An RCT of a parenting program with parents of a child diagnosed with an autism spectrum disorder. *Journal of Abnormal Child Psychology, 37*, 469-480.

Zich, J. M., Attkisson, C. C., & Greenfield, T. K. (1990). Screening for depression in primary care clinics: The CES-D and the BDI. *International Journal of Psychiatry in Medicine, 20*, 259-277.