EFFECTS OF BEHAVIOR SPECIALISTS' USE OF COACHING AND PERFORMANCE FEEDBACK VIA TELEHEALTH TO TRAIN PARENTS OF CHILDREN WITH CHALLENGING BEHAVIOR

by

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DISSERTATION ABSTRACT

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Title: Effects of Behavior Specialists' use of Coaching and Performance Feedback Via Telehealth to Train Parents of Children with Challenging Behavior

This study used a concurrent multiple-probe across three mother-child dyads with a non-concurrent addition of a fourth mother-child dyad to assess the extent to which behavior specialists' use of coaching and performance feedback via telehealth effects the degree to which the parent implements the multi-component behavior support plan (BSP) strategies with fidelity in their home to decrease their child's challenging behavior. Four behavior specialists and four mothers with their children who exhibit mild to moderate behavior participated in this study. The research question examined if a functional relation exists between implementation of coaching and performance feedback from the behavior specialists via the telehealth model on the parents' level of implementation fidelity of the strategies in the BSP and the improvement in the level of child's target challenging behavior and adaptive behavior. Results indicate the efficacy of coaching and performance feedback via telehealth in improving parent treatment fidelity. These results support the use of telehealth to deliver training on multi-component interventions. Additionally, participating behavior specialists and parents indicated that they found the procedures used to be both acceptable and effective. Further implications for practice and directions for future research are discussed.

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CHAPTER I

STATEMENT OF PURPOSE AND LITERATURE REVIEW

This chapter provides (a) a statement of the purpose of the study; (b) a broad overview of the literature; and (c) an in-depth review of the literature in three bodies of research. The first body of research is related to the critical features of functional behavioral assessment (FBA) and behavior support plans (BSP). The second body of research is related to training parents to address challenging behavior of their children with developmental disabilities. The third body of research is related to the use of the telehealth service delivery model. The chapter concludes with the study's purpose and research questions.

Statement of Purpose

The current study examined the extent to which behavior specialists' use of coaching and performance feedback to train behavior support plan (BSP) strategies via telehealth behavioral consultation effects the degree to which the parent implements the BSPs with fidelity in their home to decrease their child's challenging behavior. Families struggle to find expert parent education to support their child's development and to address the challenging behavior that prevent participation in educational or community settings (Koegel, Symon, & Koegel, 2002). Addressing the needs of underserved families of children with intellectual and developmental disabilities (IDD) is a pressing social

issue and potentially a costly oversight. As children with IDD age, those children without sufficient early intervention may later require more intensive, and more intrusive interventions (Murphy, Beadle-Brown, Wing, Gould, Shah, & Holmes, 2005). Given emerging web-based technology such as telecommunication (i.e., video conferencing), the current gap between evidence-based expertise clustered in urban area and the rural families and communities who have limited access to them is unacceptable. A growing number of studies have evaluated and supported the use of telehealth to deliver parent education and coaching in evidence-based intervention to parents of children with ASD (McDuffie et al., 2013; Suess et al., 2014; Wacker et al., 2013b). Now that telehealth has been demonstrated to be effective in delivering socially-valid, low-cost, and clinically efficacious parent education, training other behavior specialist to implement family-centered behavioral consultation via telehealth broadens the focus of the existing research base. The current study assessed the extent to which a behavior specialist use of targeted performance feedback and coaching strategies increased the parents implementation fidelity of the BSP strategies in their home to decrease their child's challenging behavior. Behavior specialist learned how to collaborate with and train parents using performance feedback on strategies to decrease their child's challenging behavior in the home from a distance using the telehealth model. The research effort evaluated the effects of (a) a behavior specialist's ability to train parents in the use of BSP strategies through telehealth coaching and performance feedback, and (b) their perceived feasibility and acceptability of the telehealth model for families of children with IDD.

Literature Review

Challenging behaviors such as tantrums, self-injury, and aggression are common among children with intellectual and developmental disabilities (IDD; Durand, Hieneman, Clarke, Wang, & Rinaldi, 2013; Einfeld & Tonge, 1996; Emerson et al., 2001a; Hemmeter, Ostrosky, & Fox, 2006) and cause direct harm to an individual, to other people, or reduce an individual's access to community resources (Emerson, 1995). Serious forms of these behaviors are estimated to be present in 10% to 15% of this population (Gore & Umizawa, 2011; Holden, & Gitlesen, 2006; Lowe et al., 2007). Challenging behaviors interfere with efforts to help these individuals live more independently by disrupting educational and vocational efforts as well as home life (Fox, Vaughn, Wyatte, & Dunlap, 2002). Challenging behaviors may include self-injury, physical aggression, disruption, property damage, or non-compliance (Emerson et al., 2001b). Although some research has shown that challenging behavior decreases over time, without intervention, challenging behavior tends to persist and may increase in frequency and intensity as a child enters adulthood. The severity and chronicity of these behaviors interfere and impact the child's and others' physical well-being, social and educational life (Gore & Umizawa, 2011). Consequences of challenging behaviors for those who support a child can be debilitating. For parents, when children with developmental disorders engage in challenging behaviors, they are also likely to report more stress and related psychological symptoms such as anxiety and depression (Hastings, 2002; Hastings & Johnson, 2001; Lecavalier, Leone, & Wiltz, 2006; Seltzer et al., 2010).

Most externalizing challenging behaviors exhibited by children with IDD are maintained and shaped through the environment (Bandura, 1977; Skinner, 1953), so the use of applied behavior analysis (ABA) to treat children with an IDD who engage in challenging behavior is not a new concept. ABA is routinely used in attempts to teach new skills and decrease challenging behaviors (Boutot & Hume, 2012). Studies have found that using the principles of ABA with children with an IDD is not only effective, but considered an evidence-based strategy and recommended for use (e.g., Eikeseth, Smith, Jahr, & Eldevik, 2007; Foxx, 2008; see National Autism Center's National Standards Project [NSP, 2009] for a review of the literature; Odom, Collet-Klingenberg, Rogers, & Hatton, 2010). Two national centers (National Professional Development Center (NPDC) and NSP) completed independent reviews of the intervention literature and identified standards for determining research quality, evaluating research designs, and categorizing evidence-based practices. Both reports identified numerous established and/or evidence-based practices based on the science of ABA. In fact, the NSP (2009) reported that two-thirds of the Established Treatments were developed exclusively from the behavioral literature, and 75% of the evidence for the additional one-third of Established Treatments was gleaned from the behavioral literature. NSP identified 11 treatments as Established (i.e., several well-controlled studies have shown the intervention to produce beneficial effects): (a) antecedent package (i.e., behavioral momentum, choice, prompting, etc.); (b) behavioral package (i.e., chaining, differential reinforcement, functional communication training, etc.); (c) comprehensive behavioral treatment for young children (i.e., ABA programs, early intensive behavioral intervention); (d) joint attention intervention; (e) modeling; (f) naturalistic teaching

strategies; (g) peer training package; (h) pivotal response treatment; (i) schedules; (j) self-management; and (k) story-based intervention package.

Research indicates that persistent challenging behaviors can be prevented and decreased with individualized function-based interventions and supports based on a prior functional behavioral assessment (Conroy, Dunlap, Clarke, & Alter, 2005; Ingram, Lewis-Palmer, & Sugai, 2005; Marquis et al., 2000; Newcomer & Lewis; 2004). These approaches recognize the reason or operant function that challenging behaviors serve and develop alternative, socially accepted ways to meet an individual's needs (Gore & Umizawa, 2011).

In 1994, Carr proposed a functional assessment technology that would utilize direct observations of behavior along with its antecedents and consequences in natural settings to develop hypotheses related to function and design interventions based on those hypotheses. A functional behavioral assessment evaluates the behavior of an individual within the context of the environment and uses the identification of behavior, its antecedents, and consequences to design effective behavior change interventions based on the hypothesized function of the challenging behavior (Gresham et al., 2001). When enough data have been collected for an FBA, the information is summarized into a competing behaviors pathway to facilitate intervention decisions (Crone & Horner, 2003; O'Neill et al., 1997; Sugai, Horner, & Sprague, 1999).

A competing behaviors pathway (a) links behavioral intervention procedures to FBA data; (b) matches the values, skills, and capacity of the people who will implement the intervention plan; (c) enhances treatment integrity; and (d) increases the logical consistency among different procedures in the comprehensive intervention plan (Sprague

et al., 1998). The pathway has five components: (a) conditions or situations leading to the challenging behavior (i.e., antecedents, setting events, establishing operations); (b) specification of the desired behavior; (c) specification of the problem behavior; (d) specification of the alternative behavior; and (e) analysis of the consequences maintaining the desired, problem, and alternative behaviors (Gresham et al., 2001). Once the competing behaviors pathway is complete, behavior support strategies are identified (a) to neutralize or eliminate identified setting events and antecedents, (b) for systematically and explicitly teaching alternative and desired behaviors that will enable the child to access desired consequences in more socially acceptable ways, and (c) for consequence that both minimize reinforcement following challenging behavior and maximize rewards for appropriate behavior (Benazzi et al., 2006; Crone & Horner, 2003; Horner & Carr, 1997; O'Neill et al., 1997). The competing behavior pathway and the behavior support strategies together make up the behavior support plan (see Appendix A). When BSPs are developed based on the results of a FBA, the effects on decreased challenging behavior are enhanced compared to plans that are not based on a prior FBA information (Ingram et al., 2005). Many of these aforementioned deleterious effects of challenging behavior on the child him/herself and family members can be prevented/decreased through the use of functional behavior assessment and subsequent development of a function-based behavior intervention plan (Crone, Hawken, & Bergstrom, 2007; Crone & Horner, 2003; Ingram et al., 2005; Wood, Ferro, Umbreit, & Liaupsin, 2010).

Parents have been trained to effectively implement FBAs and function-based interventions (Buschbacher, Fox, & Clarke, 2004; Durand et al., 2013; Feldman &

Werner, 2002; Frea & Hepburn, 1999; McIntyre, 2008; Sanders & James, 1983; Sanders, Mazzucchelli, & Studman, 2004; Sharry, Guerin, Griffin, & Drumm, 2005; Stokes & Luiselli, 2008). Teaching parents to conduct a functional assessment to identify the antecedents and consequences of problem behavior and come to a conclusion about possible functions for the behavior could be beneficial because parents would learn how to choose functionally appropriate treatment for challenging behaviors (Shayne & Miltenberger, 2013).

Within the literature, various techniques to train parents have been tried with success. Such techniques include behavioral consultation with competency-based parent training procedures (Rotto & Kratochwill, 1994), self-administered materials (i.e., parent training manuals; Anesko & O'Leary, 1982), videotape modeling (Webster-Stratton, Reid, & Hammond, 2001), and performance feedback delivered by an expert parent/teacher educator (Cavenaugh, 2013; Hagermoser Sanetti, Fallon. & Collier-Meek, 2013; Kuhn et al., 2003; Stokes & Luiselli, 2008). The core components of adult training programs have included (a) didactic methods that rely on information transmitted through oral or written means, (b) didactic methods that use visual input such as video modeling or role play, and (c) interactive models that use direct shaping through practice and immediate feedback (i.e., performance feedback) (Kaminski et al., 2008; Rotto & Kratochwill, 1994). The most common package used to train parents is behavioral parent training (Serketich & Dumas, 1996; Van Camp et al., 2008) and it typically involves describing behavioral procedures, modeling of the procedures, involving parents in role plays, and providing corrective feedback while the parent practices targeted intervention strategies with their child. Past research suggests that performance feedback is integral to

improving adult use of evidence-based strategies (Barton & Fettig, 2013; Hattie & Timperley, 2007; Sprick, Knight, Reinke, Skyles, & Barnes, 2010). Common elements in performance feedback protocols include: (a) positive feedback for strategies implemented correctly, (b) corrective feedback for strategies not implemented correctly, and (c) ensuring understanding of corrective feedback by asking questions or asking the individual to repeat corrective feedback (O'Reilly et al., 1992; Parsons & Reid, 1995). Performance feedback receives the most attention as an effective strategy for modifying staff and parent behavior (Alvero, Bucklin, & Austin, 2001; Fixsen, Naoom, Blase, Friedman, & Wallace, 2005; Joyce and Showers, 2002). However, delivery of performance feedback can be expensive and burdensome with the physical distance between the client and service provider, especially if there is a shortage of services for families who offer intervention programs.

Given these logistical barriers, research has evaluated the use of telecommunication technologies to deliver professional consultation with performance feedback more efficiently now that there is an increased consumer availability and decreased costs associated with telecommunication technologies. The research on telehealth consultation has been supported to be a suitable solution in bridging this gap in service delivery by demonstrating that parents can be trained to implement interventions with their children in the home environment when coached via telehealth consultation by a professional service provider (Baharav and Reiser, 2010; Barretto, Wacker, Harding, Lee, & Berg, 2006; Machalicek, O'Reilly, Rispoli, Davis, Lang, Franco, & Chan, 2010; Wacker et al., 2013a; Wacker et al., 2013b; Suess et al., 2014). To further the existing research base, professional service providers need to be trained to implement behavioral

consultation with performance feedback for multi-component interventions via the telehealth model.

The purpose of the current study was to evaluate behavior specialists' ability to use performance feedback via telehealth to train parents to use behavioral support strategies with their child with an IDD in the home environment. Participating behavior specialists already had knowledge of basic behavioral theory, and the FBA and BSP development process, but were taught to collaborate with parents to develop contextually sound behavior strategies for home routines in the BSP and then train parents using performance feedback on how to implement those strategies in the home environment during the specified routines.

More specifically, this study examined if, after completing a two-part training on how to collaborate with parents via telehealth on the implementation of indirect functional behavior assessments, and development and use of behavior support plans across environments, behavior specialists could (a) collaborate with parents via telehealth to develop a behavior support plan, and then (b) train parents using performance feedback via telehealth on those strategies to decrease their child's challenging behavior in the home.

FBA and BSPs: Review and Critical Features

Functional behavior assessment has long been recognized as a vital component in designing interventions to change behavior (Carr, 1977; Frea & Hepburn, 1999; Iwata, Dorsey, Slifer, Bauman, & Richman, 1982/1994). Functional behavioral assessment is a

process designed to maximize the effectiveness and efficiency of behavioral support by identifying the antecedents and consequences that influence the occurrence of challenging behavior (O'Neill et al., 1997). The FBA process identifies (a) an operational definition of the challenging behavior(s); (b) antecedent conditions under which the challenging behavior is most and least likely to occur; (c) consequence(s) that are most likely maintaining that behavior; and (d) a function-based behavior support plan for minimizing reinforcement for challenging behavior and increasing appropriate behavior (Gresham, Watson, & Skinner, 2001; O'Neill et al., 1997). The assumption underlying FBA is that to change challenging behavior, one must first understand the behavior's operant or communicative function in meeting a specific need for the individual (e.g., gaining attention, escaping a demand, getting access to a tangible item or activity, automatic reinforcement) (Frea & Hepburn, 1999). When that need is identified through the FBA interview and systematic observation, an adaptive, alternative means of satisfying the need can be taught. By teaching a functionally equivalent alternative response, the problematic behavior can be reduced (Horner & Carr, 1997). The primary purpose of the FBA process is to develop effective behavior support plans that directly address the function of an individual's challenging behavior. Function-based interventions and supports designed based on FBA information are the most effective method for supporting children who exhibit challenging behaviors (Carr, Langdon, & Yarbrough, 1999; Didden, Duker, & Korzilius, 1997; Heckaman et al., 2000). Intervention strategies that are not derived from FBA findings are less effective at decreasing challenging behavior and may inadvertently reinforce the target behavior,

resulting in an increase in challenging behavior (Ingram et al., 2005; Newcomer & Lewis, 2004).

There are two distinct types of the FBA process, the indirect and the direct process. Both processes include an assessment and development of a plan. The direct FBA process is a comprehensive assessment process that is appropriate when the target behavior is severe in duration, frequency, and intensity (Gresham et al., 2001). The process is also appropriate when critical decisions are being made in regard to verifying a disability, making placement decisions, or choosing intervention methods that are intensive or intrusive. Direct FBA uses interviews and other documented information, direct observation of the behavior, and an experimental design (e.g., functional analysis [FA; Iwata et al., 1982/1994] or structured descriptive assessment [SDA; Freeman, Anderson, & Scotti, 2000]). Experimental functional assessments (i.e., FA, brief FA, SDA), which involve manipulation of one or more environmental variables, are typically conducted in a systematic fashion using a single-subject design and therefore allow for demonstration of a causal relation between environmental events and challenging behavior (Anderson, English, & Hedrick, 2006). Making a strong statement regarding behavioral function is a strength of FA, but there are limitations regarding the amount of time, resources, and expertise required to conduct a valid functional analysis. Also, due to the experimental rigor of an FA, it is often difficult to implement them in applied settings.

The indirect FBA is a shortened version of the assessment and is most appropriate when the behavior is less serious and/or occurs infrequently, and when only a small group of individuals are involved (i.e., parent, child) (Gresham et al., 2001). Indirect FBA

consists of verbal or written interviews/surveys completed by stakeholders (e.g., family, parents, child) to identify the target challenging behavior(s), circumstances that prevent the challenging behavior(s) and promote positive appropriate behaviors, and the possible function(s) of the behavior. For instance, Functional Assessment Checklist for Teachers and Staff (FACTS; March et al., 2000) or Questions About Behavioral Function (QABF; Paclawskyj et al., 2000) are both questionnaires used to gather information to develop a hypothesis about the function of the behavior. Direct observation should be used to confirm the information obtained from the indirect assessment procedures. Descriptive assessments typically are conducted in the natural environment, and environmental variables are not manipulated (Anderson et al., 2006). Instead, descriptive assessments involve recording instances of the target behavior and environmental events that precede or follow the behavior. The most common method of descriptive assessment is Antecedent-Behavior-Consequence (ABC) recording (Bijou, Peterson, & Ault, 1968). In using this procedure, the child's behavior is observed in the relevant setting and the events occurring immediately prior to and following the behavior are recorded. The A-B-C procedure can lead to a determination of the plausible function of behavior. Based on this information, a hypothesis is developed and a written plan can be formulated. Follow-up interviews and other data are used to determine the success of the intervention or if a direct FBA needs to occur. A strength of the indirect FBA method is it provides a practical way to develop a hypothesis related to function and design interventions in a natural setting, but direct observation in the natural environment can be a limitation. Natural environments can be complex where children can engage in a variety of

competing behaviors or demonstrate low frequencies of target behaviors, both may limit the clear determination of behavioral function.

The BSP is based upon the information from the FBA and is a detailed description of how a child's environment should be redesigned to promote appropriate behaviors (Sugai, Horner, & Gresham, 2002). The BSP interventions should include antecedent control strategies, interventions for teaching replacement behaviors, and reinforcement strategies (Umbreit, Ferro, Liaupsin, & Lane, 2007). Antecedent manipulations alter access to the events that function as establishing operations and discriminative stimuli for problem behavior, the new teaching objectives focus on building appropriate behaviors that serve the same function as the problem behaviors, and the consequences are redesigned both to minimize reinforcement of problem behavior and to increase reinforcement of desired alternative behaviors (Benazzi, Horner, & Good, 2006). If all pieces are in place, the FBA information functions as the foundation of a technically adequate and effective behavior support plan (O'Neill et al., 1997; Sugai et al., 1999).

The goal of BSP development is to build a plan that is both technically adequate and contextually appropriate. "Technical adequacy" refers to the degree to which the procedures and supports included in the BSP are both logically linked to the functional behavioral assessment hypothesis and are evidence-based (i.e., empirical or clinical application data should support the effectiveness of the procedures used in the plan; Alberto & Troutman, 2009). "Contextual fit" of plan refers to the consistency of plan procedures with the values, skills, resources, and support of those who must implement the plan (Albin, Lucyshyn, Horner, & Flannery, 1996). To build behavior support plans that are both technically sound and that have strong contextual fit, the behavior specialist

will likely need to combine at least three forms of knowledge (a) knowledge about the child and his or her behavior, (b) knowledge about the context in which support will be provided, and (c) knowledge about behavioral theory (Benazzi et al., 2006). Having a BSP that is both technically sound and has a strong contextual fit will increase likelihood that a plan is implemented with adequate fidelity (Benazzi et al., 2006; Dunlap, Ester, Langhans, & Fox, 2006; Moes, & Frea, 2002; Sandler, Albin, Horner, & Yovanoff, 2002).

Although functional assessment has been widely used by professionals in a variety of settings, parent involvement in the process has largely been limited to providing data to clinicians (Mullen & Frea, 1995). However, some studies have included parents in the FBA process more directly. For instance, Stokes and Luiselli (2008) trained parents to implement a functional analysis with their child and Frea and Hepburn (1999) taught parents to perform functional assessments to plan interventions for extremely disruptive behaviors. Teaching parents to assess the functions of interfering behaviors and to teach appropriate, functional responses to their children may help to increase appropriate behavior, promote generalization, and provide parents with the tools to manage the continually changing behaviors of their child (Mullen & Frea, 1995). Family participation in intervention planning and implementation is presently viewed with growing importance in the area of behavior problems (Durand et al., 2013; Lucyshyn, Albin, Horner, Mann, Mann, & Wadsworth, 2007; Park, Alber-Morgan, & Fleming, 2011).

Research on Parent Training

Parent training has emerged over the past 40 years as an important target for interventions regarding children with developmental disabilities (Kaminski et al., 2008; Lundahl, Risser, & Lovejoy, 2006; Maughan, Christiansen, Jenson, Olympia, & Clark, 2005; Serketich & Dumas, 1996). Parents are recognized as the best intervention agents because of the amount of time they spend with their child as well as the variety of settings they have the chance to teach skills in (Sears, 2010). Research also indicates that parent training is time- and cost-effective and leads to better generalization and maintenance than therapist-implemented intervention models (Brookman-Frazee et al., 2009). For example, one early study found increased generalization in children whose parents had been trained to use a behavioral intervention compared with children who received five times as many hours of intervention from a therapist (Koegel et al., 1982). Rickards and colleagues (2007) conducted a study and found that preschoolers with developmental delays including autism who were randomly assigned to center-based services plus weekly home-based parent training services made significantly greater gains in cognitive and behavioral functioning than children assigned to center-based instruction only.

Two basic systems have developed for training parents to address challenging behavior of their children with developmental disabilities; one is the expert-driven model (e.g., Feldman & Werner 2002) and the other is the ecological model (e.g., Becker-Cottrill, McFarland, & Anderson, 2003; Brookman-Frazee, 2004).

Expert Driven Model

The expert driven model is often designed and implemented by someone considered an expert in parent training in a clinic or home setting, with a focus on training the parents how to decrease behaviors. The expert model can include teaching the basic principles of behavior analysis (e.g., prompting, reinforcement, extinction), or teaching the parents to implement specific behavioral strategies that the expert has deemed necessary (Becker-Cottrill et al., 2003). For instance, Rotto and Kratochwill (1994) used a competency-based parent training (i.e., written guidelines and performance feedback) with a consultant to train parents in a private clinic room for approximately 10-12 weeks, 1-2 hours in length, to use differential attention, instruction giving, and time-out from positive reinforcement to reduce noncompliance in children.

Feldman and Werner (2002) examined a behavioral parent training (BPT) model where consultants visited the home for 1-2 hours weekly for 3 to 6 months to train parents to record behavioral data on problem behavior and implement strategies derived from the functional assessment that the consultant conducted with the child. The interventions usually included (a) arranging/removing setting events and antecedents, (b) replacement skill training (e.g. Functional Communication Training (FCT), noncontingent and differential reinforcement, errorless procedures, and (c) extinction, response interruption and redirection, or response cost.

Similarly, Swanson and colleagues (2011) used a capacity-building approach to natural learning environment intervention practices to promote four parents' skills, abilities, and confidence to provide children everyday natural learning opportunities. In a

capacity-building approach, practitioners provide parents information, guidance, and support on behavioral skills and efficacy beliefs to help them adopt practices that promote their children's development, which in turn strengthens parenting confidence and competence (Dunst, Trivette, Humphries, Raab, & Roper, 2001). Participants were visited every week or every other week for 20-37 weeks to review progress, provide guidance with modifying or changing the interest-based everyday learning opportunities, describe the parenting behavior that supported and encouraged child competence, and evaluate the benefits to themselves and their children. With intervention, parents were able to improve their competence and confidence in providing natural learning opportunities.

Frea and Hepburn (1999) studied the effects of a self-administered manual to teach two parents of children with autism to perform functional assessments to plan interventions for extremely disruptive behaviors. The lead researcher met with the family twice a week in their homes to discussed chapters out of a manual that is designed to guide parents through the process of the assessment and identification of an alternative behavior. Data on frequency of problem behaviors and alternative responses were collected by videotape twice per week during the evening routines for each family. Sessions ranged from 16 to 38 minutes and 15-17 total sessions. The parents were able to decrease disruptive behavior and increase the alternative responses with the manual and an additional lesson on effective prompting.

Stokes and Luiselli (2008) examined the effects of a consultant teaching two sets of parents to conduct a functional analysis under simulated condition with a graduate student in their homes using verbal, written, and video performance feedback. Each

simulated session lasted 5 minutes and consisted of either the social disapproval, demand, or play condition. During sessions, one parent from each family interacted with the student. There were 3 sessions per day (17 total sessions), implemented in random order, and scheduled over a one-week period. The participants first received verbal and written feedback for each step in the form of praise or correction immediately following each FA session. The trainer met with each participant for 3-5 minutes. The trainer used a flow chart to discuss each step comprising the FA condition that had been implemented. Video feedback was added next. The participants viewed a videotape that had been made of them conducting each of the three FA conditions. The trainer watched the videotape with each participant, using verbal feedback (praise and correction) as each step of the FA condition was reviewed. The parents FA skills improved when family members received verbal and written feedback, and their performance was enhanced further after observing themselves on videotape. The parents were able to learn quickly how to implement a functional analysis and generalize implementation with their child in the home environment.

In summary, the expert driven model research designed and implemented parent training programs in a clinic or home setting that focused on training the parents how to decrease behaviors. The training usually included written material, weekly home visits, and performance feedback. The experts taught the parents how to conduct a FA and functional assessments to plan interventions, and how to implement specific behavioral strategies that the expert had deemed necessary to decrease their child's challenging behavior. The research in the expert driven model was successful in teaching parents to plan and implement the strategies to decrease their child's challenging behavior.

Ecological Model

The ecological model generally focuses on familial needs with interventions and services designed to include and support the specific family that the expert is working with, the focus is on collaboration more than provider management. These interventions generally attempt to enable parents with the skills necessary to change behaviors on their own without the persistent need for an intervention specialist (Brookman-Frazee, 2004). Positive Behavior Support (PBS) is considered an ecological model of parent training, and is derived from the fundamental concepts of applied behavior analysis, normalization/inclusion movement, and person-centered values (Carr et al., 2002). The goal of the PBS approach is to enable parents and other parents, to implement strategies that will result in decreases in problem behavior and improved family and child functioning by promoting effective, meaningful, acceptable, and durable changes in the behavior in the context of family routines (Dunlap & Fox, 1999; Lucyshyn et al., 2007). This is done by collaboration between the professionals and family members to ensure that the values of the family are addressed as well as their desired outcomes. Functional behavior assessment is used to comprehend the function of problem behaviors, and a multi-component individualized intervention is then incorporated into existing family routines (Moes & Frea, 2000). PBS specialists seek to create a good contextual fit for each family they work with so that families are able to successfully incorporate the support plans into their routines. The support plans are often revised during intervention to ensure that family values, desires, and abilities are addressed (Buschbacher, Fox, & Clark, 2004; Lucyshyn & Albin, 1993). Developing these plans typically occurs in

several stages, and the intervention components generally include antecedent manipulations, teaching replacement behaviors or engagement in incompatible responses, and contingency management; this may include a variety of strategies for each routine and behavior targeted (Dunlap, Iovannone, Wilson, Kincaid, & Strain, 2009).

Becker-Cottrill and colleagues (2003) provided a case example that illustrates the family-focused PBS process with a 4-year-old boy that was diagnosed with autism. Team members included his parents, brother, aunt, grandparents, babysitter, a family friend, two special education teachers, a general education teacher, the special education director, a school psychologist and a case manager. The team determined that increasing his mean length of utterances, teaching him to follow directions, increasing his ability to toilet independently, and decreasing his outbursts would be the target areas and data was collected on each of these. The team developed a task analysis of his toileting routine and posted this visually as a reminder for those working with him. They also modeled appropriate verbalizations, expanded on his verbalizations, and taught him specific phrases to request attention so that the outbursts that were motivated by the opportunity to gain attention were ignored. When outbursts were motivated by the opportunity to escape requests, the adult ignored the outburst, assisted him in following through on the request, and then provided praise for following the request, even though he was prompted to do so. Direct observation data were collected following implementation of the plan and approximately 1 year later as a follow-up to the PBS training. There was an increase in his mean length of verbal utterances, percentage of steps of the toileting routine that he could complete independently, and his ability to follow directions. His outbursts decreased in frequency.

Buschbacher and Fox (2003) also provide a case study to demonstrate the value of the PBS approach for young children with autism. The participant was a 3-year-old boy that was diagnosed with an autism spectrum disorder. Team members included his parents, grandparents, teacher, speech language pathologist, occupational therapist, paraprofessionals, and two couples who were friends of the family. He demonstrated intense and prolonged tantrums during transitions, self-care activities, and when his parents or peers attempted to join his play. The team decided to provide photo/icon schedule activities, transition warnings, icons to request help/break/all done, choice board, use "First…Then" board to help with transitions, wellness/emotion board, honor his "no" at times, a 4-second wait time after giving him a direction or asking a question so he can process what has been said, read 'social stories' to him to prepare him for novel situations, and model replacement skills. Six months later, his tantrums decreased, he used his visual schedules and choice boards, his verbalized requests and protests increased, he engaged in simple dramatic play with others, and his participation increased.

Lucyshyn and colleagues (2007) conducted a study to strengthen the internal and external validity of the PBS approach with families by employing an experimental, single-subject research design, offer additional empirical evidence of quality-of-life improvements in the life of a child with a developmental disability and severe problem behaviors, and adequately address a lifespan perspective by extending repeated follow-up measurement for a period of 7 years post intervention. The participant was a 5-year-old girl when the study began and 15 years old when it concluded. She was diagnosed as having autism and a severe intellectual disability. Her problem behaviors included

screaming and screeching at a high pitch and volume, physically resisting prompts to do tasks and activities, and leaving her assigned area by running away. The routines were the dinner routine, going to bed routine, restaurant routine and grocery shopping routine. A multiple-baseline design across four settings was used to evaluate the functional relationship between the positive behavior support approach and improvements in the problem behavior and routine participation. There was a 94% decrease in the rate of problem behaviors from baseline to intervention and sustained and continued improvement during the 86-month follow-up period.

Durand and colleagues (2013) assessed the effects of adding a cognitive-behavioral intervention to PBS to decrease challenging behavior in children with developmental disabilities. The authors compared interventions by randomly assigning 54 families to a group that just received PBS (27 families; 17 completed all sessions) or a group that received PBS with the addition of optimism training that helps parents identify patterns in their thoughts and feelings and strategies for cognitive restructuring (27 families; 18 completed all sessions). In the PBS condition, parents were provided with eight weekly sessions lasting 90 min each based on principles of applied behavior analysis and PBS. The other group's sessions were identical to the PBS condition with the addition of an adaptation of optimism training, which included teaching the parents how to identify patterns in their own thoughts and feelings and strategies for cognitive restructuring. The group that received PBS with the optimism training had significantly improved scores on the General Maladaptive Index of the *Scales of Independent Behavior-Revised* compared to the group who received PBS alone. Both groups decreased challenging behavior in their children.

In summary, the ecological model research involved a team to support the family in designing a comprehensive plan and train the parents to implement the programs in the home setting. The model usually included person-centered planning and team building, comprehensive functional assessment, hypothesis development, comprehensive support plan development, and implementation of the support plan and outcomes measurement. A professional from the team taught the parents how to implement specific behavioral strategies that the team had decided on to increase their child's adaptive behavior and decrease challenging behavior. The research in the ecological model was successful in teaching parents to plan and implement the strategies to increase their child's adaptive behavior and decrease their child's challenging behavior.

Both the expert-driven and ecological models have been successful in training parents to decrease challenging behaviors. Combining aspects of each model to develop a family-centered behavioral consultation model that includes collaboration to ensure good contextual fit and weekly visits with performance feedback from an expert would contribute to the literature. Furthermore, parent training is usually conducted in a clinic or home setting by a consultant who is a researcher, graduate student, or service provider (i.e., BCBA), but due to limited access to clinicians with training to provide adequate services, telehealth has become a viable alternative to face-to-face training.

Research on Telehealth Service Delivery Model

As previously discussed, performance feedback is a necessity to train parents to become proficient agents of intervention and implement strategies in the child's natural

environment with fidelity. When intervention is implemented by individuals who have insufficient training, to the extent the fidelity of implementation is reduced, intervention outcomes for children with ASD suffer (National Academy of Sciences-National Research Council, 2001). However, it is not always logistically or fiscally possible to routinely travel the distances it would require to link trained specialists to children with ASD who require their services (Boisvert, Lang, Andrianopoulos, & Boscardin, 2010). There is a reported shortage of healthcare, educational, and medical services for families who offer intervention programs for children diagnosed with an ASD (Koegel et al., 2002; World Health Organization [WHO], 2007). This is especially true for families who live in rural areas due to a lack of specialized training and professionals, the distance to and transportation of services, and the increased expense of providing services (Belfer & Saxena, 2006; Graeff-Martins, Flament, Fayyad, Tyano, Jensen, & Rohde, 2008). This situation has created a significant gap between the intensive service requirements for children with a disability and service providers' availability (Baharav & Reiser, 2010).

Telepractice (also called ‘telehealth’ and ‘telemedicine’) - "the application of telecommunications technology to deliver professional services at a distance by linking clinician to client, or clinician to clinician for assessment, intervention, and/or consultation" (American Speech-Language Hearing Association [ASHA], 2005) has proved to be a desirable solution in bridging this gap in service delivery (Barretto, Wacker, Harding, Lee, & Berg, 2006; Gibson, Pennington, Stenhoff, & Hopper, 2010; Machalicek et al., 2009a; Machalicek et al., 2009b; Machalicek et al., 2010; Rule, Salzberg, Higbee, Menlove, & Smith, 2006; Savin, Garry, Zuccaro, & Novins, 2006; Vismara, Young, Stahmer, Griffith, & Rogers, 2009). Previous studies of other health

care disciplines have shown that telemedicine can be a cost-effective service-delivery model (Berkhof, Berg, Uil, & Kerstjens, 2014; Dorsey et al., 2010; Kim, Yoo, Park, Choa, Bae, Kim, & Heo, 2009; McCrossan, Morgan, Grant, Sands, Craig, & Casey, 2007; McIntosh, Cirillo, Wood, Dozier, Alarie, & McConnochie, 2014). Through the use of remote technology, parents can be served in their home, while interacting with their child under the remote supervision and coaching of a trained professional who can guide the parent to become an effective service provider in the child's most natural environment (Baharav & Reiser, 2010).

Barretto and colleagues (2006) described the use of telemedicine to conduct brief functional analyses for children with developmental and behavioral disorders who live in rural areas of Iowa. The experimenters conducted brief functional analyses of problem behavior for 75 individuals with disabilities during a 3-year period. Specifically, the authors coached parents to conduct functional analyses through a fiber-optic telecommunication system referred to as the Iowa Communication Network (ICN) that connected most of the hospitals and high schools located in Iowa. The brief functional analyses were completed in the children's local environments by their parent. The functional analyses were successfully conducted using telemedicine technology. This allowed families to forego making long trips to the university for the evaluation.

Gibson and colleagues (2009) evaluated the impact of functional communication training on elopement when consultation support was delivered via desktop videoconferencing. The intervention development, teacher training, and data collection were conducted at a distance using technology. The teaching staff were able to implement

the intervention with a high degree of fidelity and elopement was significantly reduced during intervention phases.

Machalicek and colleagues (2009a) used videoconferencing equipment to support teachers to conduct preference assessments for three students with autism and developmental disabilities. University-based behavior analysts guided the pre-service teachers' implementation of a paired-choice preference assessment and collected data on students' choice of items, the fidelity of teacher implementation of the assessment protocol, and challenging behavior in the school. The intervention based on the result of the preference assessment was successful in increasing desirable behavior. Machalicek and colleagues (2009b) again used videoconferencing equipment to conduct a functional analysis of challenging behavior for two students with autism. University-based behavior analysts guided the teachers' implementation of a functional analysis and collected data on challenging behavior in the school. The intervention created based on the results of the functional analysis was successful in reducing challenging behavior and increasing on-task behavior. Machalicek and colleagues (2010) followed-up with a study that examined the effects of performance feedback provided via video tele-conferencing (VTC) on the acquisition of functional analysis procedures by six teachers. A university supervisor used VTC equipment to provide feedback to teachers learning to implement functional analysis conditions with students with autism. The university supervisor guided the teachers' implementation of a functional analysis and collected data on challenging behavior and implementation fidelity in the school. With performance feedback, teachers learned to implement the functional analysis procedure. This skill was maintained

without expert guidance across teachers for a mean of 5 weeks following videoconferencing.

Baharav and Reiser (2010) compared traditional in-person interventions (i.e., speech therapy twice per week in a clinic setting) to speech therapy interventions provided weekly in a clinic setting, followed by a remote session whereby the clinician coached the parent and provided real-time feedback via videoconferencing. The researchers concluded that the children's skills improved with both service delivery models, and parents perceived the sessions provided via telehealth to be as valuable as those provided directly by the clinician.

Vismara and colleagues piloted (2012) a 12 one-hour per week parent intervention program using telehealth delivery with nine families with ASD. The parents became skilled at using teachable moments to promote children's spontaneous language and imitation skills. They were pleased with the support and ease of telehealth learning, so the pilot was followed-up with a randomized control trial contrasting the telehealth intervention to an online control group. The study reported on the first eight families who used a telehealth program consisting of two-way, live video conferencing and a self-guided website to conduct the 12-week parent training in the homes of families of young children with ASD. Parents' intervention skills and engagement with the website, as well as children's verbal language and joint attention skills were assessed and the preliminary results suggests that parents were able to implement the intervention strategies with fidelity and alter their engagement styles to be more attentive and responsive to their children after the hybrid telehealth programs. Furthermore, children in both studies

demonstrated gains in important social communicative behaviors (e.g., language, imitative behaviors) as their parents participated in the telehealth programs.

Hay-Hansson and Eldevik (2013) investigated the effect of videoconferencing in training staff to implement discrete trial teaching with children with autism. Fourteen participants were randomly assigned to two groups. One group received training on-site and the other group received training via videoconference. The participants in both groups received three, 15-minute training sessions of on three different teaching programs: matching, receptive and expressive labeling. Both groups improved significantly following training and there was no significant differences between the groups in the post-test.

Wacker and colleagues (2013a) examined behavior consultants' use of telehealth consultation to coach parents to conduct functional analyses (FAs) with 20 young children with autism spectrum disorders between the ages of 29 and 80 months who displayed problem behavior and lived an average of 222 miles from the tertiary hospital that housed the behavior consultants. The children's parents conducted all procedures during weekly telehealth consultations in regional clinics located an average of 15 miles from the participants' homes. Parent assistants were briefly trained by the behavior consultants and were on-site to provide support for families during consultations. The FAs identified environmental variables that maintained problem behavior for 18 of the 20 cases, as a result, this suggest that behavior analysts can conduct FAs effectively and efficiently via telehealth. Wacker and colleagues (2013b) followed-up with a study investigating behavior consultants' coaching parents of 17 young children with ASD who displayed problem behavior via telehealth to conduct FAs with telehealth consultation

and then conducted functional communication training (FCT) that was matched to the identified function of problem behavior. All procedures were conducted at regional clinics located an average of 15 miles from the families' homes and the behavior consultants were located an average of 222 miles from the regional clinics. Parent assistants located at the regional clinics supported the families during the clinic visits. The FCT conducted by the parents reduced problem behavior by an average of 93.5 %. These results suggest that when experienced applied behavior analysts provide consultation, FCT can be conducted by parents via telehealth.

Suess and colleagues (2014) examined a retrospective, descriptive evaluation of the fidelity with which parents of three children with ASD conducted FCT in their homes. All training was provided to the parents via telehealth by a behavior consultant. FCT trials coached by the behavior consultant were conducted during weekly 1-h visits. Parents made video recordings of treatment trials in which they conducted the procedures independent of coaching. Levels of fidelity were evaluated during both coached and independent trials and the results showed no consistent differentiation between the coached and the independent trials. All children showed substantial reductions in problem behavior during the final treatment trials and especially during the coached trials. These results suggest that behavior analysts can use telehealth to train parents to implement FCT with acceptable fidelity and achieve substantial reductions in children's problem behavior.

In summary, the telehealth research coached teachers and parents to conduct FAs, preference assessments, and to implement interventions to increase language and decrease challenging behavior. The procedures usually included weekly distance sessions

with coaching and performance feedback from a consultant. The research in telehealth was successful in teaching teachers and parents to implement the strategies to decrease challenging behavior. The review of literature suggests that parents can be trained to implement interventions with their children in the home environment when coached via telehealth consultation by a professional service provider. To broaden the focus of the existing research base, professional service providers need to be trained to deliver behavioral consultation via telehealth to train parents on how to implement multi-component interventions in their home.

Study Purpose and Research Questions

The current study evaluated the efficacy of behavior specialists' use of coaching and performance feedback to increase parent implementation fidelity of the BSP strategies in their home to decrease their child's challenging behavior via the previously described telehealth behavioral consultation model. The purpose of the study was to first determine if, following two, five-hour total training sessions, and weekly expert mentoring from a BCBA, participating behavior specialists could (a) conduct an indirect FBA and collaboratively develop a BSP that is contextually fit for the home routines via telehealth and (b) train parents to implement BSP strategies using performance feedback via the telehealth behavior consultation model. The second purpose was to assess (a) if parents can then implement targeted strategies with sufficient fidelity resulting in decreased child target challenging behavior and improved child target adaptive behavior and (b) to examine the perceived feasibility and acceptability of the telehealth model for families of children with IDD.

The research study was conducted in three phases. In the first phase, behavior specialists were trained on (a) how to collaborate with parents of children with an IDD on an indirect functional behavior assessment (FBA), and (b) development of behavior support plan (BSP) via telehealth. The second phase of the study was the baseline assessment. During the third phase, the behavior specialists were trained and then implemented the use of performance feedback and coaching via telehealth to train parents. A multiple-probe design across parent-child dyads was employed to examine if there is a functional relation between implementation of coaching and performance feedback from the behavior specialists via the telehealth model and the parents' level of implementation fidelity of the strategies in the BSP and the improvement in the level of child's target challenging behavior and adaptive behavior. Specifically, the study addressed the following research questions:

1. Is there a functional relation between the coaching and performance feedback intervention delivered by behavior specialists' and increased percentage of parent correct implementation of BSP strategies?
2. Is there a functional relation between increased percentage of parent implementation of BSP strategies and decreased frequency of child target challenging behavior?
3. Is there a functional relation between increased percentage of parent implementation of BSP strategies and increased frequency of child target adaptive behavior?

4. What are the parent's perceptions of the feasibility and acceptability of the family-centered telehealth behavioral consultation model? (non-experimental question)
5. What are the behavior specialist's perceptions of the feasibility and acceptability of the family-centered telehealth behavioral consultation model? (non-experimental question)

CHAPTER II

METHODS

The purpose of this study was to investigate the behavior specialists' ability to (a) collaborate with parents of children with IDD via telehealth on the implementation of indirect functional behavior assessments (FBA), (b) develop behavior support plans (BSP) via telehealth, and (c) coach and deliver performance feedback via telehealth to increase parent implementation fidelity of the BSP strategies in their home to decrease their child's challenging behavior and increase their child's adaptive behavior. This chapter contains a detailed description of study procedures. First, the participants and settings are described. A description of the materials and telehealth equipment follows. Next, the procedures for each experimental phase are detailed. Then, the data collection procedures and assessment instruments are explained, followed by a discussion of implementation fidelity and interobserver agreement.

Participants and Setting

Parent Child Dyads and Setting

Letters of support were obtained and recruitment flyers were sent out to (a) organizations located in Lane County including: Pearl Duck Autism Center, Lane Education Service District (Lane ESD), the Early Education Program (EEP), Head Start Programs, Early Childhood CARES, and the Oregon Health Sciences University Child Development and Rehabilitation Center Child Development and Rehabilitation Center, and (b) other educational service districts outside of Lane County (e.g., South Coast

ESD). Nine mothers and their children were consented to participate in the study. Three mothers and their children dropped out before the study started and never started baseline due to either deciding they did not have enough time to participate or decided to participate in a different study. Two mothers and their children dropped out during baseline. One mother and child had to drop out because they had extended family coming to stay with them for a prolonged amount of time and, due to their family's cultural values, the family did not want to be recorded on video. The second mother and child dropped out because they moved an hour away and started receiving more intensive services in their community. Four of the nine participated fully in the study.

The following three inclusion criteria were used to identify potential child participants: (a) 3-12 years of age at the onset of the study; (b) medical diagnosis and/or educational classification of autism spectrum disorder, intellectual disability, developmental disability, or emotional and behavioral disorder; and (c) frequent and consistent mild to moderate severity challenging behavior across at least two desired family routines. Challenging behavior included topographies such as aggression, screaming, elopement, and non-compliance, but were determined through the functional behavior assessment (FBA) to not place the child or others at risk for physical harm, and did not occur with an intensity to suggest that a more intensive level of behavioral assistance was warranted. Additionally, participants needed to report a family level variable increasing the potential utility of telehealth behavioral consultation: (a) their home residence is a minimum of a 30-minute drive from campus; (b) the family has routine transportation issues that prevent travel to clinical setting (e.g., no car); or (c) have multiple young children without formal childcare arrangements.

To assist with participant selection, the parent conducted a pre-interview with the researcher over the telephone and the researcher completed a questionnaire related to the aforementioned inclusion criteria. During the consenting process, each parent completed a brief demographic questionnaire (see Appendix B). Specific parent and child participant information are shown in Table 1 and Table 2, respectively. Parental consent was obtained for all child participants in-person per IRB protocol.

Four parents (i.e., mothers) and their child with an IDD participated in each experimental phase of the study. Three biological mothers and one adoptive mother participated. Each mother had previously received didactic training on behavior strategies, but none reported individualized training in using behavioral strategies.

Christy and Owen

Owen (pseudonyms were used for all each child) was an 11-year-old White male with a diagnosis of autism spectrum disorder (ASD). Owen engaged in challenging behavior on a regular basis during dinner and during unstructured time after school. During dinner, Owen's behaviors of concern were grabbing food from the plate of another family member and leaving the kitchen table without parent permission before the end of dinner. During unstructured time after school, Owen's behaviors of concern were throwing objects (i.e., rocks, cell phones) over the backyard fence into the neighbor's yard. Owen's parents were married, had four other young children, and reported an annual income of $80,000+. Owen's mother, Christy (pseudonyms used for each parent), a 44-year-old White female with a Master's degree and full-time

employment, also participated in the study. Christy reported a lack of formal childcare arrangements made it difficult for the family to participate in community-based behavioral services.

Melissa and Mercedez

Mercedez was a 6-year-old White female with a diagnosis of an emotional and behavioral disorder (EBD) and sensory processing disorder (SPD). Mercedez engaged in challenging behavior on a regular basis during the morning routine (i.e., eating, getting dressed, gathering school supplies) and dinner time. During the morning routine, Mercedez's engaged in non-compliance, aggression (i.e., hitting, kicking), and elopement from designated area and hiding when given a demand. During dinner, behaviors of concern included aggression (i.e., hitting, kicking), elopement from designated area, and protesting. Her mother, Melissa, a 45-year-old White female with an Associate degree and full-time employment, also participated in the study. Mercedez's mother was divorced and reported an annual income of $20,000-$40,000. Melissa reported difficulty in participating in community-based behavioral services due to a lack of formal childcare arrangements for her three young children, two of whom had a disability.

Angie and Ella

Ella was a 5-year-old Black female with a diagnosis of autism spectrum disorder. Ella engaged in challenging behavior on a regular basis during dinner and bath time.

During dinner, Ella's behaviors of concern were refusing to eat non-preferred food, aggression (i.e., biting, hitting, kicking), leaving a designated area without permission, protesting (i.e., yelling, saying "no"), and disruption of the environment (i.e., pushing food away). During bath time, Ella's behaviors of concern non-compliance, aggression (i.e., biting, hitting, kicking), elopement from designated area, and protesting (i.e., yelling, saying "no"). Ella's mother, Angie, a 25-year-old Latino female with a Bachelor degree and part-time employment, also participated in the study. Ella's parents were married and reported an annual income of less than $15,000. Angie reported difficulty participating in community-based behavioral services due sharing a motor vehicle with her husband who had a different work schedule.

Amanda and Sophie

Sophie was a 5-year-old White female who has been diagnosed with reactive attachment disorder (RAD), fetal alcohol spectrum disorder (FASD) and oppositional defiant disorder (ODD). Sophie engaged in challenging behavior on a regular basis during dinner and bedtime. During dinner, Sophie's behaviors of concern were elopement from designated area, protesting (i.e., yelling, saying "no", arguing), and manipulating edible (i.e., pushes, picks up, or throws food). During bed time, Sophie's behaviors of concern were throwing objects, elopement from designated area, protesting (i.e., yelling, saying "no", arguing), and crying. Sophie's parents were married and reported an annual income of $20,000-$40,000. Sophie's mother, Amanda, a 41-year-old White female with an Associate degree and a stay at home mom, also participated in the study. Amanda

reported that Sophie engaged in serious challenging behavior in public (i.e., eloping from store into parking lot, tantrums) and engaged in unsafe behavior in the car (i.e., kicking the back of the car seat, getting out of seat) making it difficult to participate in community-based behavioral services.

Table 1

Parent Participant Information

Mother-child dyad	Parent	Race/ ethnicity	Age	Marital status	Income	Education
Dyad 1	Christy	White	44	Married	$80,000+	Master's
Dyad 2	Melissa	White	45	Divorced	$20,000 - $40,000	Associate
Dyad 3	Angie	Latino	25	Married	< $15,000	Bachelor
Dyad 4	Amanda	White	41	Married	$20,000 - $40,000	Associate

Setting

All experimental sessions took place via web-based videoconferencing technology (i.e., laptop computer, external web camera, broadband wireless Internet, wireless Bluetooth headset, and VSee videoconferencing software) in the family's home during two routines selected by the mother. Each parent indicated variables in the inclusion criteria that increased the potential utility of telehealth behavioral consultation. Telehealth took place in the locations (e.g., child bedroom, family living area, kitchen, bathroom) where the routine typically took place. The parent would set the computer on a

Table 2

Child Participant Information

Mother-child dyad	Child	Race/ ethnicity	Age	Diagnoses	Challenging behaviors
Dyad 1	Owen	White	11	ASD	Elopement Grabbing Food Throwing Objects
Dyad 2	Mercedez	White	6	EBD SPD	Aggression Elopement Non-Compliance Protesting
Dyad 3	Ella	Black Latino	5	ASD	Aggression Disruption Elopement Non-Compliance Protesting
Dyad 4	Sophie	White	5	RAD FASD ODD	Crying Elopement Manipulating Edibles Protesting Throwing Objects

Note. ASD = Autism Spectrum Disorder. EBD = Emotional and Behavioral Disorder. SPD = Sensory Processing Disorder. RAD = Reactive Attachment Disorder. FASD = Fetal Alcohol Spectrum Disorder. ODD = Oppositional Defiant Disorder.

flat surface (i.e., kitchen chair, bathroom counter, or shelf) with the webcam facing the area where the routine takes place (i.e., living room, kitchen table, bathtub, bed in the room). If the space was too big for the webcam on the computer to properly capture the routine, the parent would plug in the external webcam into the USB port on the computer to capture a bird's eye view of the area. The computer would remain on the flat surface and the external webcam would be placed on an object that was higher up in the

environment (i.e., tall lamp, shelf). The child's own toys and other items were used during sessions.

Behavior Specialists and Setting

One board certified behavior analyst (BCBA) from the Eugene community and three graduate students from either the University of Oregon (UO) Doctoral Program in Special Education or the Doctoral Program in School Psychology participated in the study as behavior specialists. Each behavioral specialist had (a) at least one graduate level course in behavioral assessment and treatment of challenging behavior; and (b) at least two years of experience implementing FBAs and designing BSPs. The behavior specialists had little to no exposure or formal training in a telehealth model of behavioral consultation to families. Christy and Owen's behavior specialist, Audrey, was a 28-year-old White female who was in her fourth year of the school psychology doctoral program. Audrey has a Bachelor's degree, has had four graduate level courses in behavior assessment and treatment of challenging behavior, and six years of experience conducting FBAs and designing BSPs. Melissa and Mercedez's behavior specialist, Sarah, was a 30-year-old White female who was in her third year of the special education doctoral program. Sarah has a Master's degree, has had one graduate level course in behavior assessment and treatment of challenging behavior, and two years of experience conducting FBAs and designing BSPs. Angie and Ella's behavior specialist, Dawn, was a 26-year-old white female who was in her third year of the school psychology doctoral program. Dawn has a Bachelor's degree, has had one graduate level course in behavior assessment and treatment of challenging behavior and two-and-a-half years of experience

conducting FBAs and designing BSPs. Amanda and Sophie's behavior specialist, Heather, was a 28-year-old White female who has her Master's degree and is a BCBA in the community. Heather has had five graduate courses in behavior assessment and treatment of challenging behavior and five years of experience conducting FBAs and designing BSPs.

To assist with selection, the behavior specialists completed a demographic questionnaire and a 9-item pre-assessment to document their experience and knowledge pertaining to the assessment and treatment of challenging behavior (see Appendix B). Questions included (a) defining the ABCs of behavior (i.e., demonstrate understanding of the behavioral principles underlying the operant function of challenging behavior); (b) operationally defining behavior (i.e., behaviors need to explained in observable and measurable way); (c) the operant function of behaviors (i.e., all behavior serves a communicative function: either to avoid or obtain); (d) replacement behaviors (i.e., an appropriate replacement behavior should serve the same function, efficient and socially appropriate); (e) preventing and responding to challenging behavior (i.e., directly addressing antecedents to prevent challenging behaviors); (f) competing behavior pathway (given a client vignette, build a competing behavior pathway); and (g) identifying function-based, neutral or contraindicated interventions. The average score on the assessment was 85%, with scores ranging from 80% to 92%. Specific behavior specialist demographic information and scores on the assessment of experience and knowledge are shown in Table 3. Prior to the baseline phase, each behavior specialist was randomly assigned to a single mother-child dyad.

Table 3

Behavior Specialist Demographics and Knowledge Assessment Scores

Behavior specialist	Position/ graduate program	Gender	Age	Race	Number of courses	Years of experience	Pre-assessment score %
Audrey	School Psychology	Female	28	White	4	6	92
Sarah	Special Education	Female	30	White	1	2	80
Dawn	School Psychology	Female	26	White	1	2.5	80
Heather	Community BCBA	Female	28	White	5	5	88

Note. BCBA = Board Certified Behavior Analyst.

Setting

The Family-Centered Telehealth Behavior Consultation trainings and supervision meetings were conducted in a small meeting room on the UO campus. Each behavior specialist conducted all their assessment and consultation sessions (i.e., baseline assessment, FBA/BSP and weekly performance feedback) with their target mother-child dyad via telehealth equipment in a small room within home where they could insure that the area is private and secure (i.e., a lockable door to prevent unexpected entry), and reasonably soundproof. During the intervention phase, behavior specialists participated in supervision by an advanced doctoral student in Special Education with certification as a BCBA. During the supervision meeting, the BCBA provided the behavior specialist with

delayed performance feedback on her use of coaching and performance feedback via telehealth.

Materials

Equipment

Parents and behavior specialists used their personal laptop computers equipped with an internal web camera and connected to the Internet using a wireless router. Specifications of parent and behavior specialists' personal computers and Internets speeds were not obtained. If a parent did not have access to a laptop computer with a webcamera equipped for two-way audio-visual videoconference and in real time sharing of electronic documents, a 13.3 inches 2.4 GHz/250 GB hard drive/SuperDrive MacBook™ laptop computer was loaned for the duration of the study. One parent was loaned a laptop computer due to her personal MacBook™ laptop stopped working while the study was ongoing. Each parent was also loaned a Logitech HD C615™ Webcam with a 10-foot extension cord so the laptop computer and external web-camera could be arranged on a flat surface (i.e., table or shelf) in such a way as to offer a bird's eye view of the parent and child during the routine. The Logitech webcam utilizes full HD 1080p video capture (up to 1920 x 1080 pixels), autofocus, built-in microphones with automatic noise reduction, face tracking, and motion detection. A Jabra WAVE™ Bluetooth headset was also loaned to the parent so that the behavior specialists could coach and give immediate performance feedback to the parent during telehealth consultation

sessions without unduly distracting their child. For the behavior specialists, sound was transmitted through their computer's external webcam's internal microphone and computer's speakers. For the parent, with the exception of Amanda, sound was transmitted through the Bluetooth wireless headset. For Amanda, the Bluetooth headset was not used due to mother's chronic Otitis Media. Instead, the behavior specialist gave delayed performance feedback through their computer's external webcam's internal microphone and computer's speakers. The researcher visited each family in their home prior to baseline assessment to assist with equipment and software set up including a trial simulated run of the equipment. During the initial 60-minute home visit, the parents were trained by the researcher on how to set up the external webcamera to record the sessions and use the Bluetooth headset. They also were trained on how to use VSee video-conferencing software to start a video call for their weekly telehealth sessions, and to record, save, and passively share the independent videos using BitTorrent Sync. The parents were provided a task analysis detailing use of the equipment and software.

Software

Weekly telehealth calls to the parent were initiated by the behavior specialist using the free version of VSee software (http://vsee.com). This software was chosen because it is federal Health Insurance Portability and Accountability Act of 1996 (HIPAA), Pub. L. 104-191, 42 U.S.C. §§ 1320d et seq. approved; audio/video communication is securely encrypted and transmitted from point-to-point such that even VSee does not have access to any identifiable health information that may be

communicated. VSee requires between 80 to 120 kbps bandwidth Internet connection (about 50% less bandwidth needed by Skype™ or Polycom™) and has instantaneous, drag and drop screen share capability that can be used by either party to share files.

During baseline and intervention phases, the parent was asked to use their own or the loaned laptop, webcamera, and the recording application within VSee video-conferencing software to record two to three independently captured videos for each targeted 20-minute routine weekly. Specifically, when the parent stops recording, VSee software prompted the parent to save the video. The video was saved into the BitTorrent Sync file folder on the laptop's desktop (this preference for the "save" folder was arranged before baseline). Once the video was in the designated folder and the laptop computer was connected to the parent's Internet, it automatically synced with the researcher, behavior specialist, and interobserver agreement (IOA) data collectors who have access to that folder so they could view the video for data collection.

BitTorrent Sync™ was then passively used by parents to share independently recorded videos of targeted family routines with the behavior specialist for data collection purposes. BitTorrent Sync is a peer-to-peer file synchronization tool that syncs files between devices on a local network, or between remote devices over the Internet via secure, distributed peer-to-peer (P2P) technology (http://www.getsync.com). The user's data is stored on the user's local device instead of in a 'cloud', therefore requiring at least two Internet connected user devices (i.e., the parent's computer and the behavior specialist computer) to be connected to the Internet in order to directly synchronize files between them. BitTorrent Sync encrypts data with an Advanced Encryption Standard AES-128 key in counter mode, which may either be randomly generated or set by the

user. This key is derived from a 'secret' that can be shared with other users in order to share data. Many devices can be connected simultaneously and there is no limit on the amount of data that can be synced. When any problems with equipment or software occurred, the researcher used TeamViewer software (www.teamviewer.com/en/index.aspx) already installed on the family's computer to connect to the family's computer remotely in an effort to troubleshoot the difficulty and when necessary travelled to the family's home. The lead researcher had to make one trip out to Christy's home to drop off a loaned MacBook laptop because her personal computer stopped working.

Telehealth Behavioral Consultation Training Manual

During the Family-Centered TBC Training, the behavior specialists were given a 63 page training manual (see Appendix C) that covered: (a) telehealth practice guidelines, HIPPA regulations, and UO/Oregon mandatory reporting requirements for suspicion of abuse and neglect; (b) procedures for how to use equipment and software (i.e., VSee and BitTorrent Sync™) use; (c) a discussion of best practices for behavioral consultation via telehealth (i.e., interpersonal communication skills while video-conferencing, collaboration strategies, indirect FBA, direct behavioral observation during family routines, and BSP development); (d) a discussion of best practices for the delivery of coaching and performance feedback via telehealth platform; and (e) strategies for troubleshooting technical difficulties. The behavior specialists followed along and took notes in their manual while the lead researcher presented the training slides. The behavior

specialists used the manual content and forms to referred back to if they had any questions during the intervention when working with the parents.

Experimental Design and Procedures

Experimental Design

A concurrent multiple-probe design across three mother-child dyads (Horner & Baer, 1978) with a non-concurrent addition of a fourth mother-child dyad was used to examine the following three research questions: (a) if there is a functional relation between the behavior specialist's use of coaching and performance feedback steps via telehealth and the parent's increased percentage of correct implementation of target BSP strategies; and (b) if a functional relation exists between the parent's increased percentage of correct implementation of target BSP strategies and decreased level of child challenging behavior and increased level of child adaptive behavior. A concurrent multiple-baseline with the addition of a non-concurrent dyad design was necessary because of the amount of attrition that occurred during the study and the lack of available participants for recruitment.

The distinguishing features of multiple-probe designs are: (a) an initial baseline probe session of all participants, (b) an additional probe session for all participants when intervention is introduced to any tier's baseline, and (c) a series of repeated baseline sessions for participants immediately prior to the introduction of the intervention (Horner & Baer, 1978). Per multiple-probe design logic, the intervention was introduced in a staggered, time-lagged fashion across triads (i.e., mother-child-behavior specialist). The

multiple probe design allows for comparisons between the behavior of participants receiving the intervention and the behavior of participants who have not yet been exposed to the intervention.

Procedural Overview

The study was conducted in three distinct phases: (a) Family-Centered TBC Training Part I and BSP development; (b) Baseline Assessment; and (c) Family-Centered TBC Training Part 2 and BSP Implementation. Figure 1 provides a flow chart and timeline of the specific procedures.

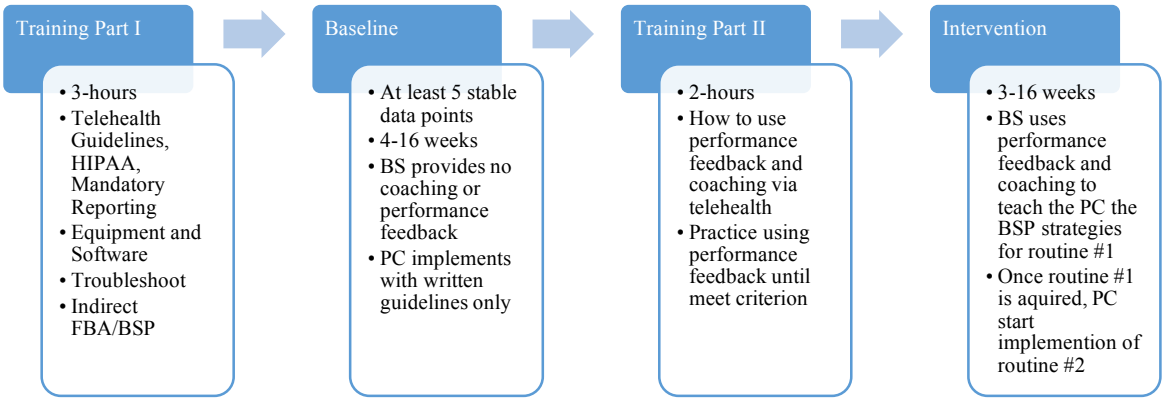


Figure 1. Flow chart of procedures and timeline.

First, behavior specialists completed the 3-hour Family-Centered TBC Training Part 1 (on university campus) and then via telehealth conducted an indirect FBA and developed a BSP for two family routines with the participating parents. Following this training and development of the BSP, baseline assessment was conducted via telehealth sessions conducted by the behavior specialist and independent videos of the same family

routines submitted by the parent to document (a) parent ability to implement behavior support strategies without feedback; (b) child target challenging behavior; and (c) child target adaptive behavior. Parents had access to a written description of the BSP strategies and were asked by the behavior specialist to implement the behavior support strategies with their child to the best of her ability.

Next, the behavior specialists completed the 2-hour Family-Centered TBC Training Part 2 (on university campus) and then trained the parent via telehealth to implement the BSP strategies for targeted family routine #1 with their child in their home. Training the parents on routine #2 strategies did not occur as the parents did not meet the criteria. Table 4 summarizes the three phases of the study. Each column represents the three phases of the study and the rows summarize the research question(s), participants, procedures, and measures that align with each phase. In the sections that follow, procedural details for each distinct phase are presented.

Phase I: Family-Centered Telehealth Behavioral Consultation Training Part I and BSP Development

The behavior specialist participants completed a pre- and post-assessment at the beginning and end of the training on the training objectives to assess the behavior specialists' knowledge from the training (see Appendix D). The Family-Centered TBC Part I training was a 3-hour in person training conducted by the researcher. A Family-Centered Telehealth Behavioral Consultation Training Fidelity checklist was used by the researcher during the training to ensure fidelity to the training objectives (see Appendix

E). Part I training instructed behavior specialists (a) how to collaborate with parents, (b) build BSPs with good contextual fit, and (c) telehealth guidelines and troubleshooting (i.e., HIPAA/confidentiality, legality, mandatory reporting, interpersonal skills, how to use prescribed technology). The researcher presented the information from the manual using PowerPoint slides (see Appendix F) while the behavior specialists followed along and took notes in their printed manual. When the information was done being presented, the researcher guided the behavior specialist in setting up their personal computer with the software needed to conduct telehealth sessions. Once the software was installed on their computer, the researcher modeled how to use the software followed then by individual practice using the software.

Following the first 3-hour training, each behavior specialist completed an indirect FBA via telehealth with their assigned parent. An interview between the behavior specialist and parent was conducted via telehealth using an adapted version of the Functional Assessment Checklist for Teachers and Staff – Home Version (FACTS – Home Version; Freeman & Anderson, 2005; March et al., 2000; see Appendix G). The FACTS – Home Version was adapted by adding some additional questions on the child's socially appropriate behavior, how the child communicates, and the child's likes and interests from the *Functional Assessment Interview* (FAI; O'Neill et al., 1997). Based on the adapted FACTS, the two routines rated with the highest likelihood for challenging behaviors were selected for intervention. The topographies and suspected operant functions of challenging behavior exhibited in the routines were the same or differed across the two routines.

Table 4

Methods by Phase

	Phase I: Family-centered TBC training part I and BSP development	Phase II: Baseline assessment	Phase III: Family-centered TBC training part II and BSP implementation
Research Question(s)	1. Are BSPs developed by behavior specialist technically adequate? 2. Are plans contextually appropriate?	1. Is caregiver implementation of BSP strategies functionally related to decreased child challenging behavior and increased child adaptive behavior?	1. Is the behavior specialists' increased use of performance feedback functionally related to parent implementation of BSP strategies in the home? 2. Is caregiver implementation of BSP strategies functionally related to decreased child challenging behavior and increased child adaptive behavior?
Participants	5 behavior specialists with: a) at least 1 course in behavior assessment and treatment of CB b) at least 2 years of conducting FBAs and designing BSPs c) little to no training in behavioral consultation via telehealth	5 primary caregivers with: a) little to no training in using behavioral strategies b) reside 30-minute drive from campus, have transportation issues that prevent travel to clinical setting (e.g., no car), or have multiple children with no formal childcare 4 children who are: a) 3-12 years of age b) diagnosed with ASD, ID, DD, or EBD c) engages in challenging behavior across at least two family routines	Behavior specialists will intervene with the same 5 primary caregivers and their children.
Procedures	• Conduct one 3-hour training on collaboration on FBA and BSPs via telehealth. • Assess BSPs for technical adequacy and contextual fit. • Caregiver develops a BSP for their child with behavior specialists.	• Behavior specialists give coaching and performance feedback while watching baseline videos submitted by the parent during simulated consultation session with researcher • Caregivers implement BSP strategies with only written description. • Directly observe behavior specialist, caregiver and child behavior.	• Conduct second 2-hour training post-baseline on coaching and performance feedback via telehealth • Behavior specialist train caregivers using performance feedback via telehealth • Caregivers implement BSPs for their children. • Directly observe behavior specialist, caregiver and child behavior. • Once caregiver has acquired routine #1, behavior specialist will start coaching and performance feedback to train caregiver on strategies for routine #2.

Table 4 (continued)

	Phase I: Family-centered TBC training part I and BSP development	Phase II: Baseline assessment	Phase III: Family-centered TBC training part II and BSP implementation
Measures	1. Pre and post-assessment on training knowledge 2. Quality-of-Life pre-assessment 3. Analysis of BSPs using Technical Adequacy of BSP checklist 4. Pre-assessment of Contextual Fit Rating Scale	1. Direct observation data of caregiver percentage of implementation fidelity steps completed correctly 2. Direct observation data on 10-s partial and whole interval child challenging and adaptive behavior	1. Direct observation of behavior specialist percentage of performance feedback task analysis steps completed correctly 2. Direct observation data of caregiver percentage of implementation fidelity steps completed correctly 3. Direct observation data on 10-s partial and whole interval child challenging and adaptive behavior 4. Post-assessment of Quality-of-Life 5. Post-assessment of Contextual Fit Rating Scale

Note. BSP = Behavior Support Plan. CB = Challenging Behavior. ASD = Autism Spectrum Disorder. ID = Intellectual Disability. DD = Developmental Disability. EBD = Emotional and Behavioral Disorder. FBA = Functional Behavioral Assessment.

The behavior specialist then developed a function-based summary statement for each of the two routines providing (a) an operational definition of the challenging behavior; (b) identification of events that reliably predict challenging behavior and the consequences that typically followed the behavior; and (c) identification of the purpose or function of the behavior. To confirm the summary statements, the behavior specialist also conducted 20-minute direct observations of the parent and child via telehealth for each of the two routines. During these observations, the behavior specialist took antecedent-behavior-consequence data using an A-B-C data collection form to determine patterns suggesting potential operant functions maintaining the target challenging behaviors (see Appendix H). The behavior specialist revised summary statements as needed based on their observations.

Following the indirect FBA and telehealth observations of the targeted routines, each behavior specialist engaged in a 60 - 120-minute telehealth conversation with the parent to develop a contextually fit BSP for each routine. The behavior specialist used the screen share function of the videoconferencing software to share the indirect FBA data collected on the two routines identified by the parent. First, the behavior specialist interpreted the results of the FBA with the parent. Second, the behavior specialist and parent used the summary statements from the FBA to collaboratively develop a competing behavior pathway (shared through the screen share function) for each routine. The behavior specialist talked through and filled out the competing behavior pathway with the parent following along with screen share. Together they identified the challenging behavior(s), setting events, antecedents, consequences, and the probable function of the challenging behavior based on the summary statement.

Following completion of the competing behavior pathway, intervention strategies were introduced by the behavior specialist according to commonly recognized categories of evidence-based strategies that are designed to (a) prevent the occurrence of challenging behavior (e.g., providing choices), (b) teach alternative and desired behaviors (e.g., functional communication training), and (c) minimize reinforcement for challenging behavior (e.g., extinction), while maximizing reinforcement for alternative and desired behaviors. The behavior specialist described each of the specific strategies in turn and modeled the use of these strategies where feasible using materials in her possession. The parents were given basic instruction on the rationale and procedures of each strategy so they could actively participate in the discussion. The behavior specialist encouraged the parent to ask questions and asked the parent about her previous

experience in using the discussed strategies. The behavior specialist supported the parent in identifying and operationally defining a less effortful, functionally equivalent, alternative and desired behavior (e.g., request for an item using picture symbol card, request a break by saying, "I want a break") to replace the target challenging behavior by providing examples and the rationale for their selection. The parent was also encouraged to provide possible behavioral support strategies. After discussion, the parent selected the strategies that they prefer and deemed feasible. The behavior specialist ensured that the selected strategies included function-based interventions and no contraindicated strategies, and that the parent felt the selected strategies were contextually appropriate. The parent was asked to complete a pre-assessment of the adapted *Contextual Fit in the Home* rating scale (Horner et al., 2003; see Appendix I) to evaluate the extent to which the strategies and interventions included in the plan were consistent with the skills, values, and available resources of the plan implementers and their homes. Additionally, the researcher assessed the BSPs for technical adequacy and made any changes needed. Finally, once the behavior support strategies were selected, the behavior specialist created any materials (e.g., picture activity schedule, break cards) needed. An implementation plan that included a list of basic instructions for each selected strategy (i.e., a task analysis of anticipated parent implementation of the behavior support strategies) and hardcopies of the materials were shared with the parent via United States Postal mail and electronic copies via email. The researcher provided the behavior specialist with any raw materials needed to create materials.

Phase II: Baseline Assessment

Once the FBA and BSPs were completed, baseline data collection began (Phase II). In Phase II, the parent implemented the BSP strategies and interventions with only written material of the implementation plan. During baseline assessment, the behavior specialist conducted two to four, 20-60 minute independently recorded or telehealth sessions with the parent where data was collected on dependent variables during approximately 20-minute observation sessions per routine. Telehealth sessions were scheduled at the time of day when the routine naturally occurs (e.g., if the routine of after school snack is selected it will be scheduled after school). To facilitate the selection of 20-minute routines, behavior specialists were trained by the researcher to guide parents to select family routines with repeatable steps (e.g., morning routine, dinner routine, bedtime routine). If the targeted routine took longer than 20-minutes to complete, data was taken on the first 20-minutes of the routine. In addition, the parent used the provided laptop and external web camera to independently video these 20-minute routines two to three days per week and shared with the researcher via BitTorrent software. The behavior specialist took data on dependent variables on these independent videos. For each video or telehealth session, data was collected on (a) parent implementation fidelity of BSP with written material only, (b) 10-second partial interval data on child challenging, and (c) 10-second partial interval or frequency data on child adaptive behavior. The parent was asked to implement the BSP strategies to the best of her ability with their child during the identified routines. The parent had access to the implementation plan during the identified routine, but the behavior specialist was asked by the researcher to not

provide coaching or performance feedback to the parent during baseline telehealth sessions. At the end of the session, the behavior specialist thanked the parent for her time and scheduled the next telehealth session.

Phase III: Family-Centered Telehealth Behavioral Consultation Training II and BSP Implementation

Following a minimum of five data points (Gast & Ledford, 2014; Kratochwill, Hitchcock, Horner, Levin, Odom, Rindskopf, & Shadish, 2010) and a stable trend for the primary dependent variable of parent implementation fidelity, the Family-Centered TBC Training Part II occurred to instruct the behavior specialists on how to train parents using coaching and performance feedback strategies to decrease their child's challenging behavior and improve adaptive behavior in the home. The 2-hour training covered the (a) research and components of an applied behavioral analysis model of coaching and performance feedback (see Appendix J) followed by (b) modeling of coaching and performance feedback via telehealth using videos of parent-child interactions captured during baseline and (c) embedded practice.

During training of coaching and performance feedback, baseline videos were shown to the behavior specialists and the researcher modeled performance feedback and coaching during the routines while the video is playing by starting and stopping the video as necessary. Then, additional baseline videos were shown to the behavior specialists and they were asked to model the performance feedback and coaching sessions while starting and stopping the video. The researcher provided corrective feedback and praise during this second viewing. Finally, embedded practice consisted of role-play during simulated

telehealth sessions to provide the context for the behavior specialist to practice the coaching and performance feedback strategies until the behavior specialists met 80% of coaching and performance feedback steps criterion.

Once Part II of the training was complete, the parent continued to implement the BSP strategies with their child in the home, but with the addition of coaching and performance feedback from the behavior specialists for routine #1. The behavior specialist conducted daily 60-minute telehealth sessions with the parent until the parent met 80% criterion of the implementation fidelity steps for the chosen strategies over two consecutive telehealth sessions (i.e., approximately 3-5 consecutive sessions). Once the parent met criterion, the behavior specialist conducted one telehealth session per week depending on the parent's implementation fidelity data and her availability. If the parent's implementation fidelity data fell below 80% for two consecutive sessions, the behavior specialist conducted a second telehealth session that week. Intervention continued for 3-15 weeks for routine #1. Once the parent acquired fluency for routine #1 (i.e., determined by observation of performance above 90% mastery criterion for 3 consecutive weeks), the behavior specialist started using coaching and performance feedback to train the parent on the BSP strategies for targeted routine #2. Training the parents on routine #2 strategies did not occur due to the parents failing to meet performance criteria.

In addition to telehealth sessions, the parent was asked to use their own or the loaned laptop, webcamera, and the recording application within VSee videoconferencing software to record two to three independent videos for each 20-minute routine each week. Additional details were provided earlier in the materials and equipment section. These

videos were passively synced to the researcher's computer via BitTorrent when the laptop computer is connected to the Internet. Once these videos synced with the researcher's computer, they were readied for scoring by the researcher, relevant behavior specialist, and IOA data collectors.

Once the intervention phase began, when the behavior specialist was conducting daily telehealth sessions with the parent, the behavior specialist met with the researcher once for 30-60-minutes to review and reflect on their coaching and performance feedback with the parent. The meeting included delayed performance feedback by the researcher while watching video clips of the first targeted family routine from their previously conducted consultation sessions with the parents. The behavior specialists met 90% mastery criterion of coaching and performance feedback steps for three consecutive sessions within the first week of the intervention phase; therefore, the researcher discontinued meeting with the behavior specialists to review their consultation sessions after the one meeting. The researcher actively monitored the performance of behavior specialists by taking data on their treatment fidelity for each session from recorded consultation sessions.

Once intervention was complete, the parent was asked to complete the post-assessment of the adapted *Contextual Fit in the Home* rating scale (Horner et al., 2003; see Appendix I) to evaluate the extent to which the strategies and interventions included in the plan were consistent with the skills, values, and available resources of the parents and their homes and the post-assessment of *Family Quality of Life Survey* (FQOL; Summers et al., 2005; see Appendix K). The behavior specialists and parents were also

asked to complete *Treatment Acceptability Rating Form- Revised* (TARF-R; Reimers & Wacker, 1988; see Appendix L, M and N).

Response Definitions and Data Collection

Direct behavioral observation data and pre/post-test assessments were both used to obtain data during this study. The direct behavioral observation data include (a) Behavior Specialist Coaching and Performance Feedback; (b) Parent Implementation Fidelity; (c) Child Challenging Behavior; (d) Child Adaptive Behavior; and (e) Treatment Fidelity. The pre/post assessments include (a) Technical Adequacy of the BSP; (b) Quality-of-Life Measure; (c) Contextual Fit Rating Scale; and (d) Social Validation.

Behavioral Observation

Observation periods occurred one to four times per week (i.e., either via telehealth or independent videos sent in by the parent) and last approximately 20 to 60-minutes for each routine. Data on the number of coaching and performance feedback task analysis steps (see Appendix J), implementation fidelity task analysis steps (see Appendix O, and challenging and adaptive behavior (see example in Appendix P), were recorded using paper-based data collection sheets pens, a smartphone vibrating interval timer, and 10-s partial interval measurement.

Behavior Specialist Coaching and Performance Feedback Data

To assess the behavior specialist's ability to use coaching and performance feedback during intervention, the researcher collected direct observation data on the number of coaching and performance feedback task analysis steps (see Appendix J) completed correctly and incorrectly while watching the videos from the behavior specialist and parent's telehealth consultation sessions. These task analyses steps were used to assess the degree to which behavior specialists implement coaching and performance feedback with fidelity. Observers used paper copies of these task analyses and pen to collect direct observation data on the number of coaching and performance steps completed correctly and incorrectly to evaluate the extent to which the coaching and performance was implemented by the behavior specialist. Steps completed correctly and incorrectly by the behavior specialist were scored for each step of the task analysis. A total percentage of steps completed correctly were calculated by dividing the total number of steps completed correctly by the total number of steps completed incorrectly and multiplying by 100 for each observation.

Coaching and performance feedback steps include: (a) Behavior specialist begins home visit by greeting and briefly stating agenda and timeline; (b) Behavior specialist begins coaching session with parent by briefly describing targeted skill and model demonstration or show video clip of targeted skill; (c) Behavior specialist asks parent to demonstrate targeted skill with their child during the pre-identified routine/activity; (d) Behavior specialist uses both planned and spontaneous events (if occur) during the routine/activity to improve parent's knowledge and use of targeted skill; (e) While parent

demonstrates targeted skill, behavior specialist comments on overall parent performance specific to targeted skill indicating areas of positive performance; (f) If parent makes an error in implementing targeted skill, behavior specialist interrupts the parent by saying their name, asks them what they did wrong, and give them an opportunity to do it correctly. If they don't know or incorrectly state what they should do next, the behavior specialist accurately describes next step to them and allows them to practice again until the parent demonstrates the correct response; (g) Behavior specialist interacts with the parent in a nonjudgmental and constructive manner during coaching; (h) Behavior specialist encourages parent to ask questions; (i) Coaching session ends with the behavior specialist inviting the parent to reflect on their progress; and (j) Coaching session ends with the behavior specialist summarizing the parent's positive growth in knowledge and use of targeted skill.

Parent Implementation Fidelity Data

Individualized task analyzed implementation fidelity checklists were created by the behavior specialist and researcher based on the selected BSP strategies for each routine to ensure accuracy of data collection and contextual fit (see Appendices O, P, Q and R for the routine #1 treatment fidelity data sheets for Christy-Owen, Melissa-Mercedez, Angie-Ella, and Amanda-Sophie respectively.). These task analyses were used to assess the degree to which parents implement BSP strategies with fidelity. Observers used paper copies of these task analyses and pen to collect direct observation data on the number of implementation fidelity steps for the BSP strategies completed correctly and

incorrectly to evaluate the extent to which the BSP strategies were implemented by the parent. Steps completed correctly (and independently) and incorrectly by the parent were scored for each step of the task analysis. A total percentage of steps completed correctly were calculated by dividing the total number of steps completed correctly (including steps scored as "not applicable") by the total number of steps completed incorrectly and multiplying by 100 for each observation. For consistency, so that the total number of steps would not change with each observation due to some items being scored as "not applicable", items scored as "not applicable" were added into the total number of steps completed correctly. Each checklist consisted of six to fourteen items scored as either "yes," "no," or "not applicable." Items included (a) one-time discreet events (e.g., "Give a 5-minute warning before dinner"); and (b) conditional probabilities (e.g., "If whining or asking to get out of dinner, provide option for 1-minute break, and prompt child to ask for break."). The checklist generated a percentage-of-items-implemented score. Fidelity of implementation was assessed during all intervention observation sessions.

Child Challenging Behavior

Challenging behavior were mild to moderate in severity and included grabbing, elopement, throwing objects, non-compliance, aggression, protesting, disruption, manipulating edibles, and crying. The target behaviors were identified and operationally defined for each participating child through the FBA. *Grabbing* was defined as grabbing food without permission, either off of other peoples' plates or from serving containers, or grabbing containers of food besides his own (i.e., plate/bowl, cup). *Elopement* was

defined as (a) leaving the designated area without permission and is 2 ft. or more away from the table, (b) physically removing self from activity by hiding in a corner or other room, or (c) any time child leaves designated area without permission, gathers items, and returns to the table with tangibles. *Throwing objects* was defined as throwing any items that are not meant to be thrown (non-examples include throwing items like Frisbees or ball, or throwing trash into a trashcan) or throwing items over the fence. *Non-compliance* was defined as during the routine, the child will not engage in the routine activities by not responding to the given verbal instruction by parent (e.g. no response, walking away without responding). *Aggression* was defined as hitting or kicking mom or siblings, or using arms and/or legs forcefully to make contact or attempt to make contact. *Protesting* was defined as yelling, saying "no", or other words to indicate the child will not comply with parent request or the child does not initiate parent request/direction within 5s. *Disruption* was defined as any instance in which the child uses hands to push food away. *Manipulating edibles* was defined as any time child pushes edibles around plate, picks up food with fingers, throws food. *Crying* was defined as any time the child cries.

Data on challenging behavior were recorded using paper-based data collection sheets (see example in Appendix S). Intervals with challenging behavior were marked and a percentage of 10-s partial intervals with collapsed target behavior were calculated by dividing the number of 10-s partial intervals with challenging behavior by the total number of intervals and multiplying by 100 to obtain a percentage.

Child Adaptive Behavior

Adaptive behaviors included alternative communication, getting ready for school, sitting, bites of food, compliance, dinner time engagement, and follow through with bedtime routine. The target behaviors were identified and operationally defined for each child through the FBA. *Alternative communication* was defined as the child using any part of his hand to make contact with the surface of the SGD that is sufficient to cause the recording to play. This included independent responses. *Getting ready for school* was defined as the child getting dressed, eating breakfast, brushing hair, or getting ready for the bus during the morning routine. This includes prompts. *Sitting* was defined as the child remains within at least 1 foot of her chair during dinner time. *Bites of non-preferred food* was defined as any instance the child takes a bite of the non-preferred food, chews, and swallows. *Compliance* was defined as the child complies with parent request within 5 seconds. *Dinner time engagement* was defined as the child's shoulders and eyes are directed toward the table, consuming edibles, participating and/or contributing, verbal or non-verbal, to the current conversation for a minimum of 5 consecutive sec. *Follow through with bedtime routine* was defined as the child follows through with routine steps outlined in visual support – including, but not limited to, saying prayers, proprioceptive input, laying down in bed, and closing the eyes.

Data on adaptive behavior were recorded using paper-based data collection sheets (see example in Appendix S). Frequency data or 10-s partial intervals with adaptive behavior were marked and a percentage of 10-s partial intervals with collapsed target behavior were calculated by dividing the number of 10-s partial intervals with adaptive behavior by the total number of intervals and multiplying by 100 to obtain a percentage.

Interobserver Agreement

Interobserver agreement (IOA) was collected and calculated for 40% of baseline and 38% of intervention sessions for each one of the participants. The behavior specialists collected primary data on child challenging behavior, child adaptive behavior and parent implementation of behavior support strategies during each telehealth session. All primary observers were either a BCBA from the Eugene community or university graduate students with previous training related to both direct observation data collection methods. Behavior specialists and observers were provided with behavioral definitions and trained by the researcher using example videos to a minimum level of 90% total agreement across three consecutive novel videos prior to beginning formal data collection. The primary observers randomly selected videos for data collection. The trained observer independently collected data from recorded video on each dependent variable (i.e., percentage of behavior support plan strategy implementation fidelity steps completed correctly by the parent, percentage of coaching and performance feedback steps completed correctly by the behavior specialist, percentage of 10-s partial intervals with challenging and adaptive behavior) for the occurrence or nonoccurrence of specified target behavior on a printed data sheet. Agreements between observers were defined as intervals scored in an identical manner by both observers. Total agreement was calculated by the researcher for each dependent variable. Total percentage agreement was calculated by taking the number of intervals in which the two observers agreed, dividing by the total number of intervals, and multiplying by 100 to obtain percentage. For performance feedback and fidelity of implementation of child BSP strategies, total agreement was

calculated by taking the number of items on which the two observers agreed, dividing by the total number of items, and multiplying by 100 to obtain a percentage score. The minimal acceptable level of reliability was 85% agreement. IOA did not fall below the minimal acceptable level of reliability during the study. To prevent treatment fidelity drift, the researcher randomly selected videos coded by the observers for inter-rater reliability, independently coded the video, and compared her score to that obtained by the observer.

Average IOA across participants for challenging behavior was 96% (range, 93% to 100%) for baseline and 99% (range, 98% to 100%) for intervention for total agreement. For adaptive behavior, average IOA across participants was 94% (range, 91% to 99%) baseline and 97.5% (range, 96% to 100%) for intervention for total agreement. Total percentage agreement was calculated by taking the number of intervals in which the two observers agreed and dividing by the total number of intervals. For the fidelity of implementation, total agreement was calculated by taking the number of items on which the two observers agreed and dividing by the total number of items. Average IOA across participants for parent fidelity of implementation was 89% (range, 86.5% to 93%) for baseline and 99% (range, 98% to 99%) for intervention and behavior specialist fidelity was 93% (range, 90% to 100%) for baseline and 98% (range, 95% to 100%) for intervention. Table 5 shows the average IOA for each behavior by participant and across experimental phases.

Pre/Post Assessments

Family-Centered Telehealth Behavioral Consultation Training Knowledge Assessment

To assess participant knowledge related to the training objectives, each behavior specialist completed the "Family-Centered Telehealth Behavioral Consultation Training Knowledge Assessment". The test consisted of five open-ended questions, two multiple choice questions, and four fill-in the blank questions related to telehealth behavioral consultation and performance feedback (see Appendix B). Prior to the study, the test was expert-reviewed for content validity. Participants were administered the test at the beginning of Part I training session, and then again upon completion of Part II training session. The total percentage of correctly answered test items pre- and post-training were calculated for each participant (range of possible scores = 0 to 100%).

Technical Adequacy of the BSP

The researcher and two additional experts in BSP planning used the "Technical Adequacy of BSP", a pre-established rubric based on the *Intensive Individualized Interventions Critical Features Checklist* (see Appendix T; Lewis-Palmer, Todd, Horner, Sugai, & Sampson, 2004), to evaluate the technical adequacy of the BSPs developed by the behavior specialists and parent. The lead research, who is a BCBA, rated the BSPs for technical adequacy once completed by the behavior specialist. When the BSP was scored as technically adequate, the next phase of the study was initiated.

Table 5

Mean and Range of Interobserver Agreement Across Participants

	Behavior specialist fidelity %		Parent fidelity %		Challenging behavior %		Adaptive behavior %	
Participants	Baseline	Intervention	Baseline	Intervention	Baseline	Intervention	Baseline	Intervention
Audrey-Christy-Owen	100 (100-100)	100 (100-100)	87.5 (87.5-87.5)	100 (100-100)	93 (91-95)	99 (98-100)	92 (92-92)	96 (89-100)
Sarah-Melissa-Mercedez	90 (90-90)	95 (90-100)	86.5 (82-91)	98 (91-100)	100 (100-100)	100 (100-100)	94 (92-96)	98 (96-99)
Dawn-Angie-Ella	90 (90-90)	98 (95-100)	90 (80-100)	99 (90-100)	94 (92-96)	98 (96-100)	91 (85-100)	96 (88-100)
Heather-Amanda-Sophie	90 (90-90)	100 (100-100)	93 (93-93)	100 (100-100)	98.5 (97-100)	100 (100-100)	99 (98-100)	100 (100-100)
Mean	93	98	89	99	96	99	94	97.5

If the BSP was scored as technically inadequate, the lead researcher supported the behavior specialist and parent in developing a BSP that met criteria for technical adequacy. Two expert behavior analysts unconnected with the present research, were also recruited to judge the technical adequacy of BSPs generated by the behavior specialist for reliability. Each faculty/student had (a) expertise in developing function-based supports as evidenced by at least 5 years of conducting and teaching applied behavior analysis (ABA), and (b) three or more peer-reviewed publications focused on functional behavioral assessment and implementation of function-based supports. Curriculum vitaes were collected from each expert to facilitate accurate reporting of their expertise. The first expert was a graduate student in the special education doctoral program who was a licensed special education teacher, a BCBA with eight years of experience conducting and teaching ABA, and had 10 peer-reviewed publications. The second expert was an Assistant Professor at another university who was a BCBA with 15 years of experience conducting and teaching ABA, and had 10 peer-reviewed publications.

Each expert used the Technical Adequacy of BSP measure to independently score whether the BSP included (a) an operational description of the challenging behavior, (b) strategies for preventing the challenging behavior, (c) instructional strategies for teaching alternative and desired behavior(s), (d) strategies for minimizing reinforcement for challenging behavior and maximizing reinforcement for alternative and desired behaviors, (e) whether the preventive, teaching, and consequence strategies developed were function-based, and (f) a plan for implementing the BSP strategies and for evaluating the effects on child behavior. Using the BSP checklist, both expert panel members scored each behavior support plan from zero to 12. Scores were averaged across

panel members so that each BSP was ultimately awarded one score for technical adequacy. The expert technical adequacy data was compared to the independent assessment conducted by the researcher for each item on the measure and scored as an agreement or disagreement for each item. The total number of agreements were divided by the total number of items scored and multiplied by 100 to obtain overall agreement for each BSP.

Quality-of-Life Measure

The family's well-being was measured by the *Family Quality of Life Survey* (FQOL; Summers et al., 2005; see Appendix K), administered via Qualtrics online survey to the parents once pre-intervention (i.e., before baseline) and once post-intervention. The FQOL survey is a 25-item respondent-based measure developed to capture a range of elements that interact to determine the quality of life for a family raising a child with intellectual or developmental disabilities. The survey assesses five family quality-of-life domains: Family Interaction; Parenting; Emotional Well-Being; Physical/Material Well-Being; and Disability-Related Support. For each item, parents rate levels of importance and satisfaction on a Likert-type scale (1 = very unimportant or dissatisfied, 5 = very important or satisfied). Psychometric evaluations of the instrument have shown that it possesses excellent reliability (Cronbach alpha of .94 on importance ratings and .88 on satisfaction ratings) and concurrent validity (correlation coefficients of .68 and .60, $p < .001$) with two relevant measures of family quality of life (Hoffman, Marquis, Poston, Summers, & Turnbull, 2006; Park et al., 2003).

Contextual Fit Rating Scale

The parent evaluated the collaboratively developed behavior support plans to assess the extent to which the strategies and interventions included in each plan reflected the skills, values, knowledge, and resources of the family. The parent rated each of the BSP plans pre- and post-intervention using the *Self-Assessment of Contextual Fit in the Home* (adapted from Horner, Salentine, & Albin, 2003; see Appendix I). The assessment was administered via Qualtrics online survey. The assessment included 16-items organized into eight domain areas: knowledge of the elements of the plan, skills needed to implement the plan, values reflected in the plan, resources available to implement the plan, behavior specialist support, effectiveness of the plan, whether the plan is in the best interest of the child, and whether the plan would be efficient to implement. Assessment items were rated on a 6-point Likert scale from strongly agree to strongly disagree (1 = strongly disagree to 6 = strongly agree). The range of possible scores is 16-96, with higher scores indicating higher levels of contextual fit. The Contextual Fit Rating Scale was based on factor analysis results provided by Sandier et al. (2002) and from content validity results reported by Salentine & Homer (2002), documenting statistically significant covariation between contextual fit scores from the Contextual Fit Rating Scale and the likelihood that typical behavior support team members would select an intervention for implementation.

Social Validation

The behavior specialists and parents evaluated the social validity of the intervention goals, procedures, and outcomes using an adapted version of the *Treatment Acceptability Rating Form-Revised* (TARF-R; Reimers & Wacker, 1988; see Appendix L and M). They also evaluated the social validity of the telehealth procedures (see Appendix N). The TARF-R questions were adapted to reflect the study's content (i.e., Family-Centered Telehealth Behavioral Consultation training; performance feedback procedures, BSP strategies), so the participants knew what the questions were referring to. The TARF-R consists of 16 questions with 15 pertaining to treatment acceptability, and one question that addresses understanding of the intervention. The questions were rated on a 5-point Likert-type scale with varying anchor point descriptors for each item. Total scores were obtained by summing all items, with higher summed scores representing greater levels of acceptability. The internal consistency of this instrument was reported to be 0.92. The participants will anonymously complete the evaluations via Qualtrics online survey post-intervention.

CHAPTER III

RESULTS AND DATA ANALYSIS

Family-Centered Telehealth Behavioral Consultation Training Knowledge Assessment

To assess the extent to which there was a change in behavior specialist knowledge from before to after completing the Family-Centered TBC trainings, pre- and post-test scores were used. Table 6 shows the results of the Family-Centered Telehealth Behavioral Consultation Training Knowledge Assessment provided to each of the 4 behavior specialists before and after participating in the two-part training. Overall, the average percent change for participants from pre- to post-training assessment was an increase of 64%. The average participant pre-training score was 31%, ranging from 15% to 42%. After training, all of the behavior specialists scored at least 80% on the post-test assessment. The average post-training assessment score for participants was 94%, ranging from 85% to 100%.

BSP Development

During Phase I, behavior specialists led parents in the development of BSPs for their child. Individualized function-based plans were developed for each routine based on the information provided in the FACTS summary statement(s). All plans were multi-component and included (a) a completed competing behavior pathway, including

Table 6

Pre/Post-Test Results: Family-Centered TBC Training Knowledge Assessment

Behavior specialist	Pre-test %	Post-test %	Percentage change
Audrey	42	100	+58
Sarah	31	92	+61
Dawn	35	100	+65
Heather	15	85	+70
Mean	31	94	+64

identified alterative and desired behaviors; (b) strategies designed to prevent problem behavior from occurring; (c) strategies to teach new alternative and desired behaviors/skills; and (d) consequence strategies to maximize reinforcement of appropriate behavior and minimize reinforcement of challenging behavior. The individualized BSP strategies selected for each child are described below and summarized in Table 7. For a sample copy of a complete BSP, see Appendix A.

Owen

Christy and Audrey, the behavior specialist, met via telehealth to complete the FACTS interview and developed a BSP for two routines based on the Competing Behavior Pathway Model. For routine #1 (dinner), the FBA resulted in a hypothesis that during dinner time, when there are many people at the kitchen table and a lack of direct adult attention, he will grab food, either off of other peoples' plates or from serving dishes without permission and elope from the kitchen table (e.g., leave the designated area by being 2 ft. or more away from the table without permission) to gain a tangible

(i.e. food) and adult attention. Strategies developed to prevent Owen from engaging in challenging behavior included having Owen sit next his mom or dad at the table, brief verbal and physical attention before the rest of the family sat down to eat, verbal and/or physical attention about every 2-minutes while eating dinner (i.e., VI-2-minute reinforcement schedule), and prompt him to "Show me what you want" when he activated the food speech generating device (SGD). Audrey and Christy decided to teach Owen to use a SGD to request food and parent attention as a functional communication response (FCR). The SGDs were two GoTalk Buttons, one single button to request food and one single button to request attention. The food button had a picture of a plate of food attached to it and when pressed would say "food, please" in a male voice. The attention button had a picture of a cartoon boys face and when pressed would say "look at me" in a male voice. The strategy to reward alternative and desired behaviors was providing Owen with immediate adult verbal and physical attention and access to food. Consequence based strategies included physically blocking Owen from grabbing food and redirecting him instead to the alternative behavior of activating the SGD while minimizing adult attention during and immediately after challenging behavior.

For routine #2 (after school), the FBA resulted in a hypothesis that during unstructured after school time, when there is a lack of direct adult attention, he will throw items that are not meant to be thrown and/or throw items over the fence to gain adult attention. Strategies developed to prevent Owen from engaging in challenging behavior included having a picture activity schedule that provided structured preferred activities and providing neutral redirections that include the expected current behavior (i.e., sorry, strawberries are all done but you can have some water). Audrey and Christy also decided

to teach Owen to use a SGD to request adult attention. The strategy to reward alternative and desired behaviors was providing Owen with immediate adult verbal and positive physical attention, specific verbal praise followed task completion per the activity schedule (e.g., great job doing your puzzle), and a highly preferred activity (iPad or highly preferred edible) at the conclusion of the schedule (i.e., FR-1 reinforcement schedule). Consequence strategies included blocking Owen from throwing items and redirecting him to the alternative behavior of SGD activation to request attention and to the desired activity (i.e., picture activity schedule) using least to most prompting (i.e., verbal, gesture, physical guidance) while minimizing adult attention during or immediately following challenging behavior.

Mercedez

For routine #1 (morning), Mercedez's FBA resulted in a hypothesis that during the morning routine, when asked to get ready for school, Mercedez will be non-compliant, engage in physical aggression (i.e., hit, kick), and will hide by eloping from the area (operationally defined as described in Owen's BSP) to escape the demand and gain adult attention. Strategies developed to prevent Mercedez from engaging in challenging behavior included having Mercedez use a visual schedule of the steps in her morning routine, giving her choices (i.e., brush hair or brush teeth first, eat for breakfast, clothes for school), using the Premack principle (i.e., "First get dressed, then you get a puff ball"), and requesting breaks (i.e., 3, 1-minute breaks). The strategy to reward alternative and desired behaviors was providing Mercedez with immediate descriptive

praise for positive behaviors, earning a token for each step competed on the visual schedule, and a small pre-identified highly preferred activity when all steps were completed. Consequence strategies included redirecting her instead to the alternative behavior of using her visual schedule and requesting breaks and following through with the demand using least to most prompting while minimizing adult attention during and immediately after challenging behavior.

For routine #2 (dinner), the FBA resulted in a hypothesis that during dinner time, when asked to sit down and eat a certain number of bites of dinner food, she will protest (i.e., crying, yelling "no"), engage in physical aggression (i.e., hit, kick) and will hide by eloping from the area (operationally defined as described in Owen's BSP) to escape the demand. To prevent the occurrence of challenging behavior, Sarah and Melissa decided on giving her choices (i.e., what food to eat first, food item she would like, what her reward will be for eating bites) and using a break card. The strategy to reward alternative and desired behaviors was providing Mercedez with immediate specific verbal praise after she eats her bites of food and following dinner, and a small reward once dinner is done. Consequence strategies included redirecting her instead to the alternative behavior of using the break card to request a break while minimizing adult attention during and immediately after challenging behavior.

Ella

For routine #1 (dinner), Ella's FBA resulted in a hypothesis that during dinner time, when presented with non-preferred food, Ella will protest (i.e., yelling, saying

"no"), engage in physical aggression (i.e., hit, kick, bite), disrupt by pushing her food away, and will elope from the area (operationally defined as described in Owen's BSP) to escape the demand and gain some adult attention. Strategies developed to prevent Ella from engaging in challenging behavior included having Ella pick one preferred food to eat along with the non-preferred food during dinner, having her food out of reach on the table, giving her a 5-minute warning before dinner, and having her request breaks (i.e., 3, 1-minute breaks). The strategy to reward alternative and desired behaviors was providing Ella with immediate adult physical attention and descriptive praise for taking a bite of non-preferred food, and immediate access to preferred food. Consequence strategies included redirecting her instead to the alternative behavior of requesting breaks while minimizing adult attention during and immediately after challenging behavior.

For routine #2 (bath), the FBA resulted in a hypothesis that during bath time, when told it is time to take a bath, she will protest (i.e., crying, yelling "no"), engage in physical aggression (i.e., hit, kick) and will elope from the area (operationally defined as described in Owen's BSP) to escape the demand and gain some adult attention. To prevent the occurrence of challenging behavior, Dawn and Angie decided on giving her a 5-minute warning before bath time, using a visual schedule of the steps in the bath time routine, and using a break card. The strategy to reward alternative and desired behaviors was providing Ella with immediate adult physical attention and specific verbal praise after each step of the routine is completed and a highly preferred activity (iPad) once bath time is done. Consequence strategies included redirecting her instead to the alternative behavior of using the visual schedule and break card to request a break while minimizing adult attention during and immediately after challenging behavior.

Sophie

For routine #1 (dinner), Sophie's FBA resulted in a hypothesis that during dinner time, when both parents are present at the dinner table, Sophie will protest (i.e., yelling, saying "no"), manipulate edibles by pushing her food away or throwing her food, and will elope from the area (operationally defined as described in Owen's BSP) to gain adult attention. Strategies developed to prevent Sophie from engaging in challenging behavior included having Sophie be a part of dinner preparation, age appropriate conversation topic spinner for visual support, independent play with toys at the table, and access to leaving the table when finished eating. The strategy to reward alternative and desired behaviors was providing Sophie with stickers for positive behaviors and access to a highly preferred reward at the end of the week. Consequence based strategies included redirecting her instead to the alternative behavior of using the conversation spinner while minimizing adult attention during and immediately after challenging behavior.

For routine #2 (bedtime), the FBA resulted in a hypothesis that during bedtime, when the parents leave the bedroom, she will protest (i.e., crying, screaming, yelling "no"), throw objects, and elope from the area (operationally defined as described in Owen's BSP) to gain adult attention. To prevent the occurrence of challenging behavior, Heather and Amanda decided on using a visual schedule of the steps in the bedtime routine and calming exercises (i.e., deep breaths, deep pressure messages) prior to bed. The strategy to reward alternative and desired behaviors was providing Sophie with immediate specific verbal praise after each step of the routine and a highly preferred reward the next morning. Consequence based strategies included redirecting her instead

to the alternative behavior of using the visual schedule while minimizing adult attention during and immediately after challenging behavior.

Quality-of-Life Measure

Before the intervention began, the mothers rated their family's well-being using the *Family Quality of Life Survey* (FQOL). The survey was re-administered post-intervention. Mothers rated each items satisfaction on a Likert-type scale (1 = very unimportant or dissatisfied, 5 = very important or satisfied). Table 7 shows the Pre/Post Family Quality of Life Ratings. The range of possible scores is 15-125, with higher scores indicating higher levels of quality of life. The overall quality of life score for pre-intervention was 95 points, with a range of 83 to 104 points. These scores indicate that overall before intervention, mothers perceived themselves as having a moderate to high degree of quality of life, with the lowest scores relating to their perceptions of their family interactions and disability related support. Following intervention, the overall quality of life score was 100 points, with a range of 94 to 111 points. These scores indicate that overall after intervention, most of the mothers' quality of life slightly improved and each perceived themselves as having a high degree of quality of life, with the lowest score relating to their perceptions of their families emotional well-being.

Table 7

Participant Behavior Support Strategies

	Antecedents		Teaching		Consequence		Function	
Participants	Routine 1	Routine 2	Routine 1	Routine 2	Routine 1	Routine 2	Routine 1	Routine 2
Owen	Prompting VI-2[a] Attention	Visual schedule	FCT	FCT	DRA EXT	DRA FR-1[b]	Attention Tangible	Attention
Mercedez	Choices Visual schedule	Choices	Token Economy FCT	FCT	FR-1 EXT	DRA FR-1	Escape Attention	Escape
Ella	5-min warning Preferred food	5-min warning Visual support	FCT	FCT	DRA EXT	EXT FR-1	Escape Attention	Escape Attention
Sophie	Pre-warning Visual support	Pre-warning Visual schedule Calming strategies	FCT	Token Economy	DRA EXT FR-1	EXT FR-1	Attention	Attention

Note. FCT = functional communication training. DRA = differential reinforcement of the alternative behavior. EXT = extinction.

[a]Providing attention on a variable-interval schedule about every 2-minutes. [b]Providing a preferred reward once all the steps in the routine are complete.

Table 8

Pre/Post Family Quality-of-Life Ratings (FQOL)

	Owen		Mercedez		Ella		Sophie	
FQOL subscales	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Family interaction	3.50	4.50	3.50	4.33	4.33	3.67	3.67	3.83
Parenting	4.17	4.50	4.00	3.83	4.50	3.83	4.00	4.00
Emotional well-being	4.50	4.50	2.75	3.75	3.75	3.75	4.00	3.75
Physical/material well-being	4.20	4.60	3.00	3.00	4.00	3.80	4.00	4.00
Disability-related support	3.75	4.00	3.00	4.75	4.00	3.75	3.00	3.75
Overall FQOL	100	111	83	98	104	94	94	97

Note. FQOL was reported on a scale of 1 (very dissatisfied) to 5 (very satisfied). All domain ratings are reported as *Means*. Possible scores for overall FQOL ranged from 15-125, with higher scores indicating higher levels of quality of life

Contextual Fit

Upon completion of each BSP, mothers rated the extent to which they felt the plans were contextually appropriate using the *Self-Assessment of Contextual Fit in the Home*. The survey was re-administered post-intervention. Assessment items were rated on a 6-point Likert scale from strongly agree to strongly disagree (1 = strongly disagree to 6 = strongly agree). Table 8 shows the Pre/Post Contextual Fit Ratings. The range of possible scores is 16-96, with higher scores indicating higher levels of contextual fit. The average contextual fit score for the pre-intervention BSPs was 87 points, with a range of 80 to 92 points. The average contextual fit score for the post-intervention BSPs was 86.5 points, with a range of 75 to 94 points. These scores indicate that overall parents perceived the plans as having a high degree of contextual fit. The lowest scores before

and after intervention were relating to their perceptions of the effectiveness of the BSP and efficiency of implementing the BSP.

Technical Adequacy

To rate the technical adequacy of each of the BSPs, two experts in the area of Function Based Support were recruited to evaluate the plans using the BSP Critical Features Checklist. Both experts used the BSP checklist to score each student BSP from zero to 12. Scores were averaged across experts so that each BSP was ultimately awarded one score for technical adequacy. The average score on the BSP Critical Features Checklist for each BSP was 11.79 points, with a range of 11 to 12 total points.

Direct Observation Data

Direct observation data were collected during 20-minute observation sessions for Owen, Mercedez, Ella, and Sophie. Figure 2 shows the percentage of BSP components implemented with fidelity by the child's mother for routine #1 for all four mother-child dyads (i.e., Christy-Owen, Melissa-Mercedez, Angie-Ella, Amanda-Sophie) across baseline and telehealth consultation conditions. Figure 3 presents general differences between coached and independent sessions for routine #1. Figure 4 displays the percentage of 10-second partial intervals with challenging behavior and adaptive behavior for routine #1 for all four mother-child dyads (i.e., Christy-Owen, Melissa-

Table 9

Pre/Post Contextual Fit Ratings

Domain	Owen		Mercedez		Ella		Sophie	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Knowledge of the elements of the BSP	10	11	12	10	12	12	10	10
Skills needed to implement the BSP	11	12	11	11	11	12	10	10
Values reflected in the BSP	12	12	12	12	12	12	10	10
Resources available to implement the BSP	12	12	11	11	12	12	10	10
Behavior specialist support	11	12	12	12	12	12	10	10
Effectiveness of the BSP	11	12	9	10	11	11	10	6
The BSP is in the best interest of the child	11	12	12	12	12	12	10	10
The BSP is efficient to implement	11	11	11	7	10	9	10	9
Overall contextual fit	89	94	88	85	92	92	80	75

Note. Possible scores for each domain area ranged from 2-12, with higher scores indicating perceived contextual fit.

Mercedez, Angie-Ella, Amanda-Sophie) across baseline and telehealth consultation conditions. Figures 5, 6, 7, and 8 illustrate the results for challenging behavior, adaptive behavior, and fidelity of implementation for routine #1 and routine #2 for Christy-Owen, Melissa-Mercedez, Angie-Ella, and Amanda-Sophie, respectively. Data were collected using a concurrent multiple-probe design across three mother-child dyads with a non-concurrent additional mother-child dyad with Christy and Owen starting baseline in June 2015, and Melissa-Mercedez, Angie-Ella, and Amanda-Sophie starting baseline in October 2015. All 10-second partial interval data for child challenging behavior and adaptive behavior and parent implementation fidelity were visually analyzed for (a) changes in level, trend, and variability of data within and across baseline and intervention

phases; (b) immediacy of effect between phases; (c) overlapping data across phases; and (d) consistency of data patterns in similar phases across participants.

Behavior Specialist and Parent Fidelity

During baseline for routine #1, the level of parent treatment fidelity was low for each of the four dyads (see Figure 2). During assessment and BSP development for routine #1, the level of parent treatment fidelity was moderate to low with a stable trend for each of the four dyads. Amanda demonstrated a small increasing trend, but due to the amount of time in baseline and low levels of treatment fidelity, the lead researcher decided to intervene. Mean level of fidelity was 30% (range, 25% to 37.5%) for Christy, 31% (range, 11% to 46%) for Melissa, 24% (range, 20% to 30%) for Angie, and 26% (range, 14% to 36%) for Amanda. Following the introduction of the telehealth consultation (i.e., performance feedback via telehealth), each of the parents demonstrated an immediate and sustained increase in their ability to implement the BSP strategies with fidelity, with Christy achieving a mean fidelity of 88% (range, 63% to 100%), Melissa demonstrating a mean fidelity of 89% (range, 73% to 100%), and Angie achieving a mean fidelity of 92% (range, 80% to 100%). Amanda refused to wear the headset during the routine; therefore, Heather gave delayed performance feedback after the routine was finished. Consequently, treatment fidelity for Amanda demonstrated a slight immediate increase in level with a mean fidelity of 64%.

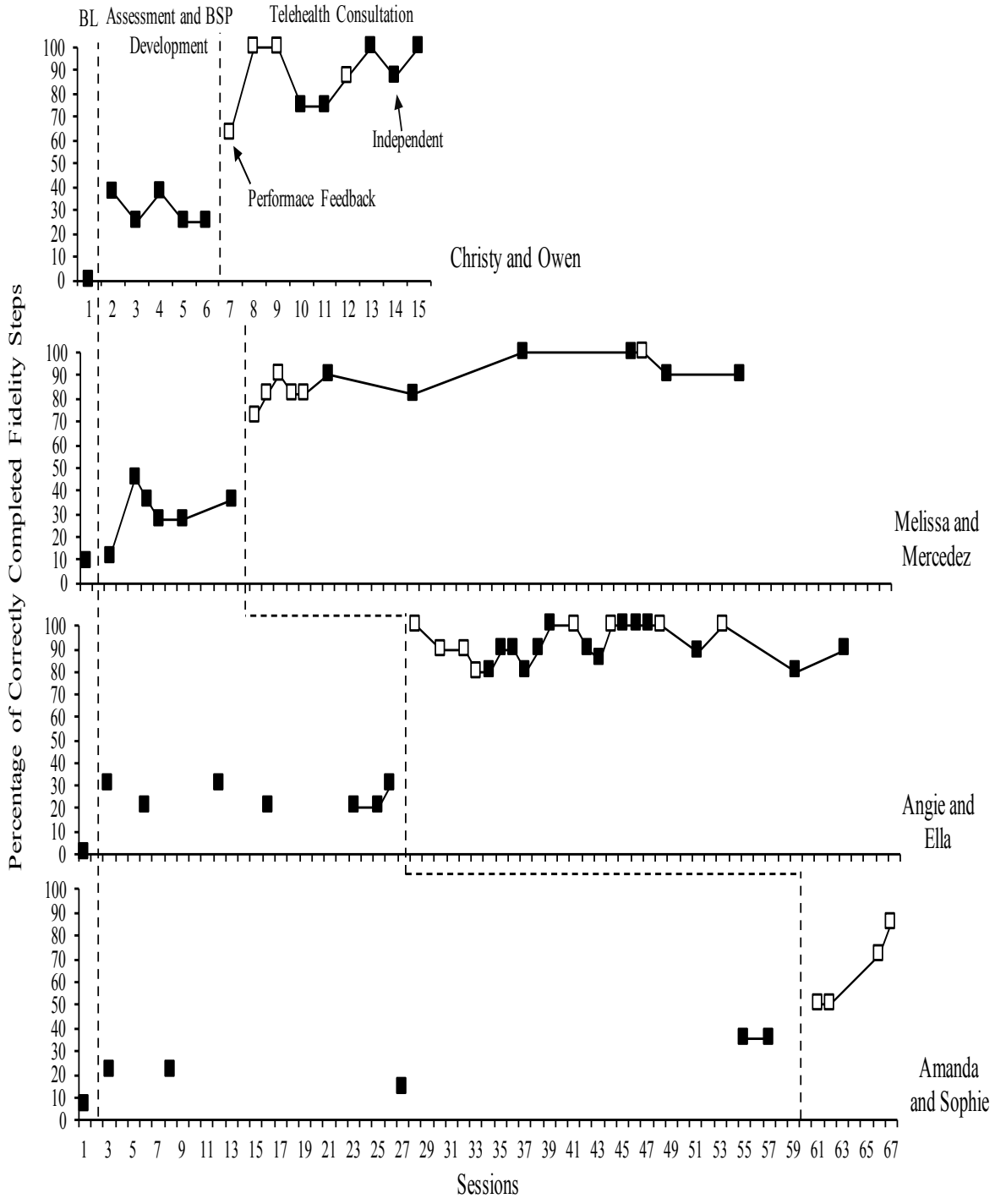


Figure 2. Percentage of parent implementation fidelity observed during routine #1.

There were no overlapping data points between Baseline and Telehealth Consultation conditions, and variability following Telehealth Consultation was low with a range of 100% to 50% of BSP components across the four dyads.

During the baseline assessment of routine #2, the level of parent treatment fidelity was moderate with an increasing trend for each of the four dyads with the mean level of fidelity of BSP components implemented demonstrated at 50% (range, 50% to 50%), 21% (range, 0% to 50%), 61% (range, 33% to 83%), and 34% (range, 10% to 60%) for Christy, Melissa, Angie, and Amanda, respectively. Introduction of the intervention on routine #2 did not occur for any of the dyads. The behavior specialists mean level of fidelity was 100%, 98% (range, 90% to 100%), 100%, and 100% for Audrey, Sarah, Dawn, and Heather, respectively.

Each parent's fidelity was further divided into performance feedback (i.e., coached) sessions or independent sessions (without behavior specialist virtually present) to show general differences between BSP components implemented, challenging behavior, and adaptive behavior (see Figure 3). It appeared that coached sessions yielded slightly higher fidelity for Angie (M = 95%; range, 80% to 100%) than the independent sessions (M = 90%; range, 80% to 100%). A similar difference in fidelity occurred for Melissa with slightly higher fidelity during the independent sessions (M = 92%; range, 82% to 100%) than during the coached sessions (M = 85%; range, 73% to 100%). There was no difference between coached sessions (M = 88%; range, 62.5% to 100%) and independent sessions (M = 88%; range, 75% to 100%) for Christy. Sophie's parent did not meet the 80% fidelity criteria to withdraw performance feedback and move to independent sessions. For Christy and Angie, challenging behavior was more likely to

occur during the coached sessions (*M* = 0.6%; range, 0% to 1.4% and 20%; range, 3% to 59%, respectively) than during the independent sessions (*M* = 0.3%; range, 0% to 1.5% and 16%; range, 0% to 59%, respectively). Melissa showed a different pattern, in which more challenging behavior occurred during the independent sessions (*M* = 28%; range, 5% to 55%) than during the coached sessions (*M* = 21%; range, 7.5% to 41%). Adaptive behavior yielded slight differences for Christy, in which Owen's independent use of his SGD occurred slightly more during the coached sessions (*M* = 4; range, 0 to 8) than during the independent sessions (*M* = 3; range, 0 to 6). Similarly, during Angie and Ella's sessions, Ella ate more bites of food during the independent sessions (*M* =15; range, 4 to 58) than during the coached sessions (*M* = 11; range, 2 to 19). No differences in compliance occurred for Melissa during coached sessions (*M* = 73%; range, 58% to 82%) than independent sessions (*M* = 73%; range, 50% to 95%). Overall, the general mean analyses showed no consistent differences between the coached and the independent sessions across dyads.

Challenging Behavior

During baseline for routine #1, the level of challenging behavior was moderate for Owen, high for Mercedez and Ella, and low for Sophie (see Figure 4). During assessment and BSP development for routine #1, the level of challenging behavior was low for Owen, moderate to high for Mercedez, moderate for Ella and low for Sophie with a stable trend for each of the four children. Sophie's challenging behavior defied video capture

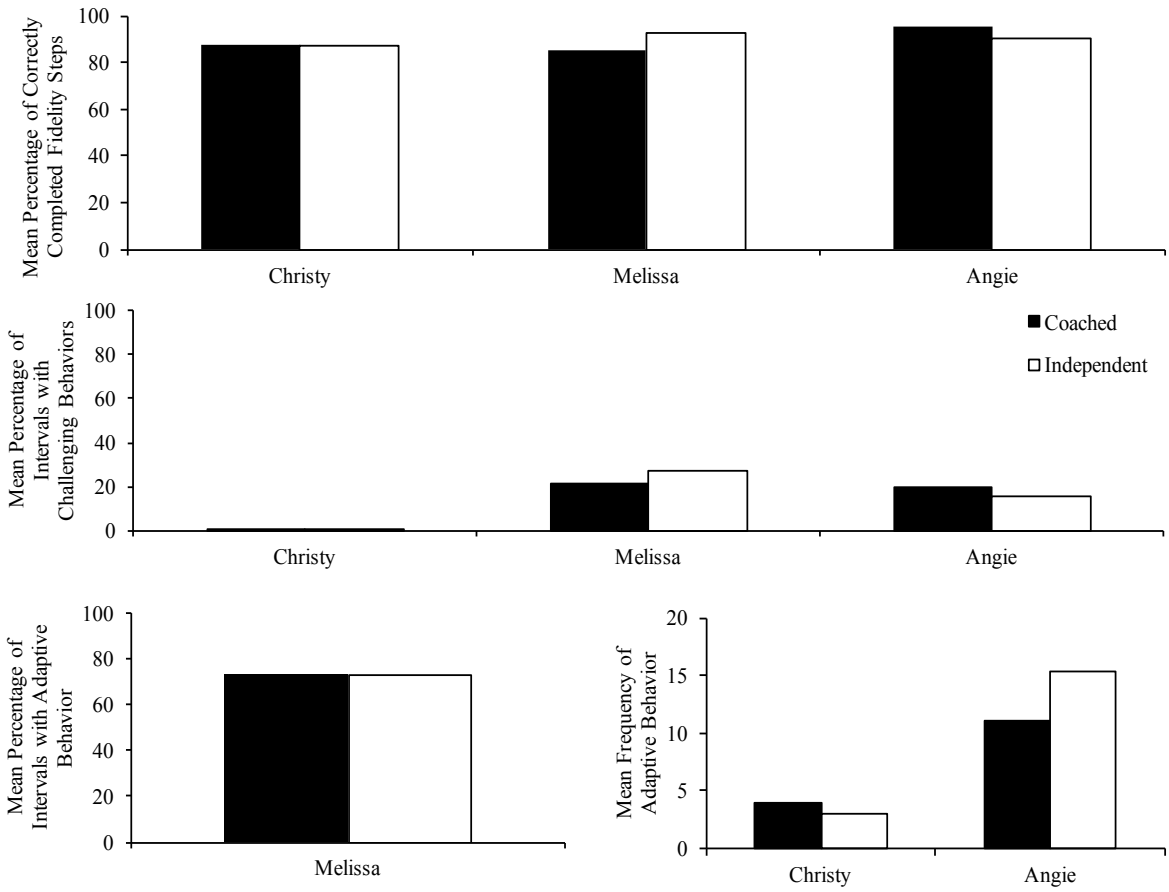


Figure 3. General differences between coached and independent sessions.

due to the fact that when she knew she was being recorded she would not engage in challenging behavior. Anecdotally, Sophie's mother reported that she was still engaging in challenging behavior during dinner. Mean level of challenging behavior was 5% (range, 0% to 11%), 72% (range, 48% to 82%), 42% (range, 10% to 92%), and 4% (range, 0% to 11%) for Owen, Mercedez, Ella, and Sophie, respectively. Following the introduction of the telehealth consultation, Mercedez and Ella demonstrated an immediate decrease in level, Owen's challenging behavior decreased to a

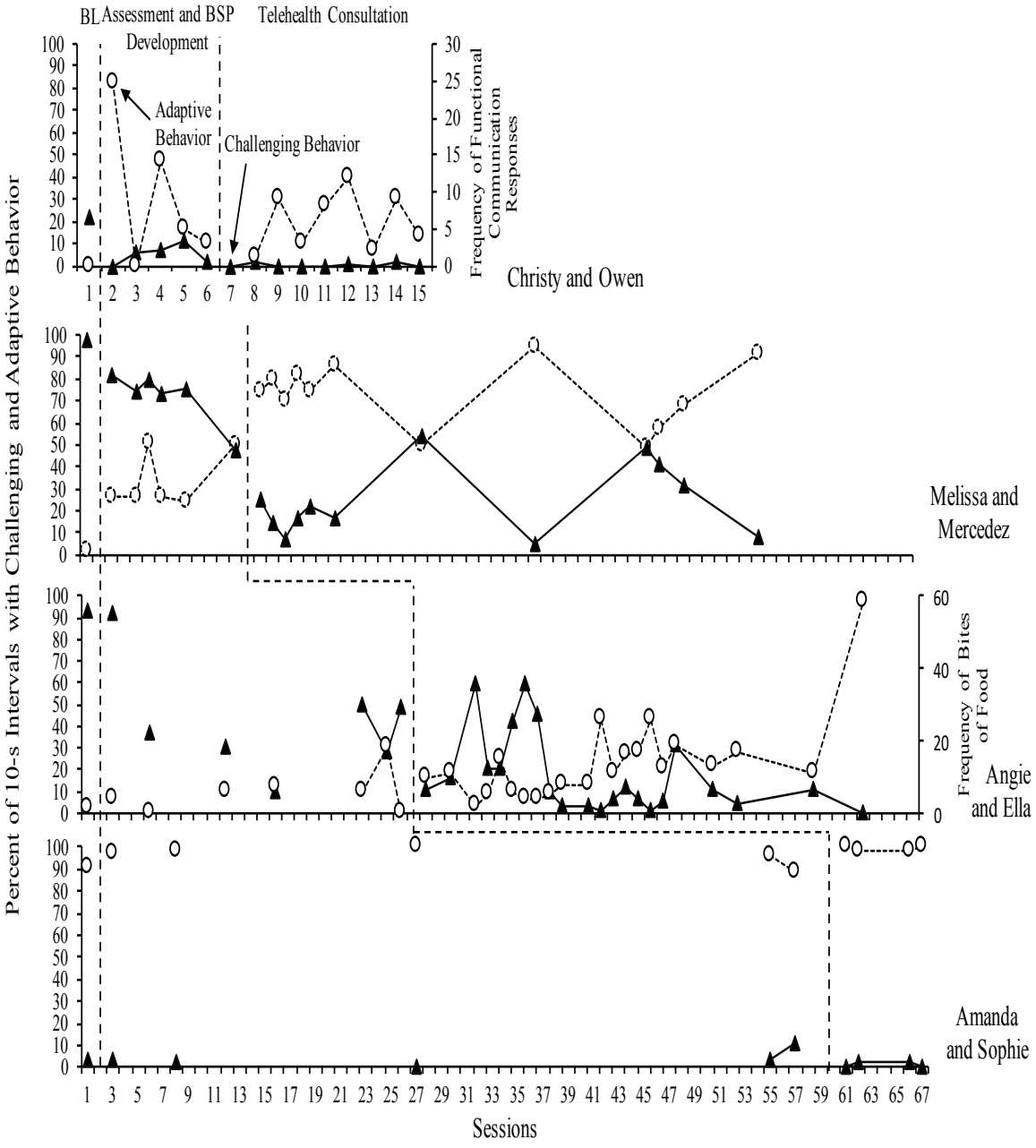


Figure 4. Percentage of 10-second partial intervals with challenging and adaptive behavior, and frequency of adaptive behavior observed during 20-minute sessions of routine #1.

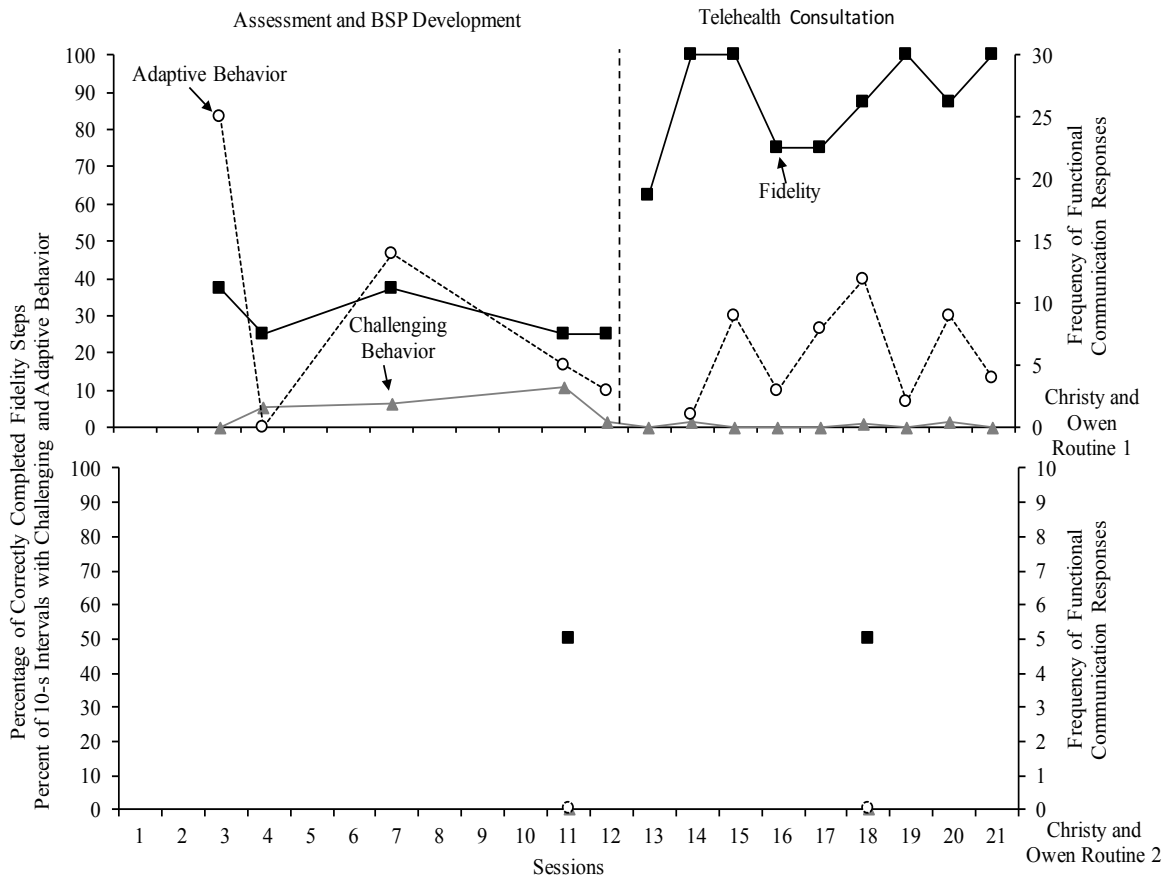


Figure 5. Percentage of parent implementation fidelity, percentage of 10-second partial intervals with challenging and adaptive behavior, and frequency of adaptive behavior observed during 20-minute sessions of routine #1 and #2 for Christy and Owen.

consistent low level, and Sophie's level of challenging behavior remained low, with a mean level of challenging behavior of 0.4% (range, 0% to 1.5%), 25% (range, 5% to 49%), 17% (range, 0% to 59%), and 1% (range, 0% to 2%) for Owen, Mercedez, Ella, and Sophie, respectively. Ella's challenging behavior was variable and demonstrated an increasing trend at the onset of the intervention phase due to the fact that her mother was trying to introduce new food instead of known non-preferred food during independently recorded sessions. Angie was having a hard time handling Ella's escalation in

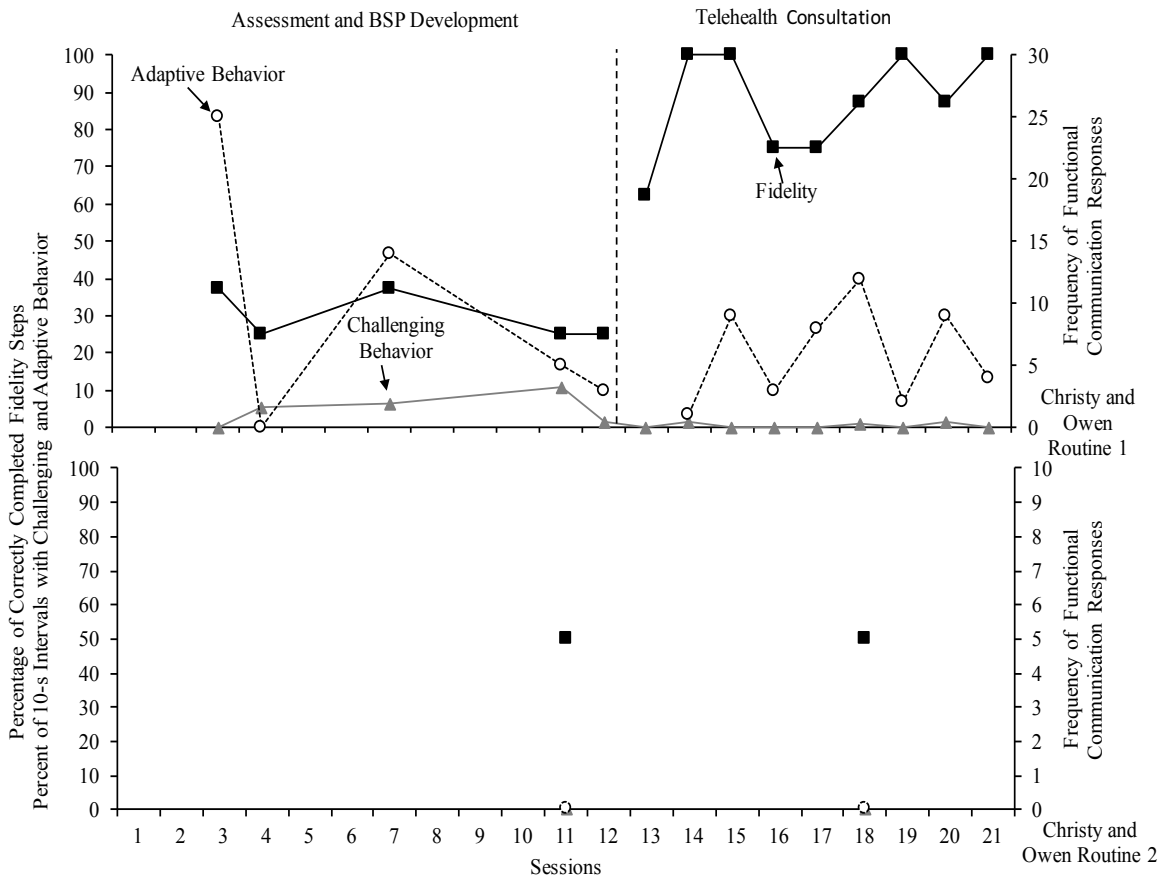


Figure 6. Percentage of parent implementation fidelity and percentage of 10-second partial intervals with challenging and adaptive behavior, observed during 20-minute sessions of routine #1 and #2 for Melissa and Mercedez.

challenging behavior. The decision was made to only try new foods during telehealth consultation sessions so the behavior specialist could coach Angie if Ella's challenging behavior escalated to higher levels. There were two overlapping data points between Baseline and Telehealth Consultation conditions for Owen and Mercedez and several overlapping data points for Ella and Sophie. Variability following Telehealth Consultation was low for Owen and Sophie with a range of 0% to 2% and moderate for Mercedez and Ella with a range of 0% to 59%. For baseline of routine #2, the mean level of challenging behavior was 0%, 6%, 53%, and 18% for Owen (see Figure 5), Mercedez

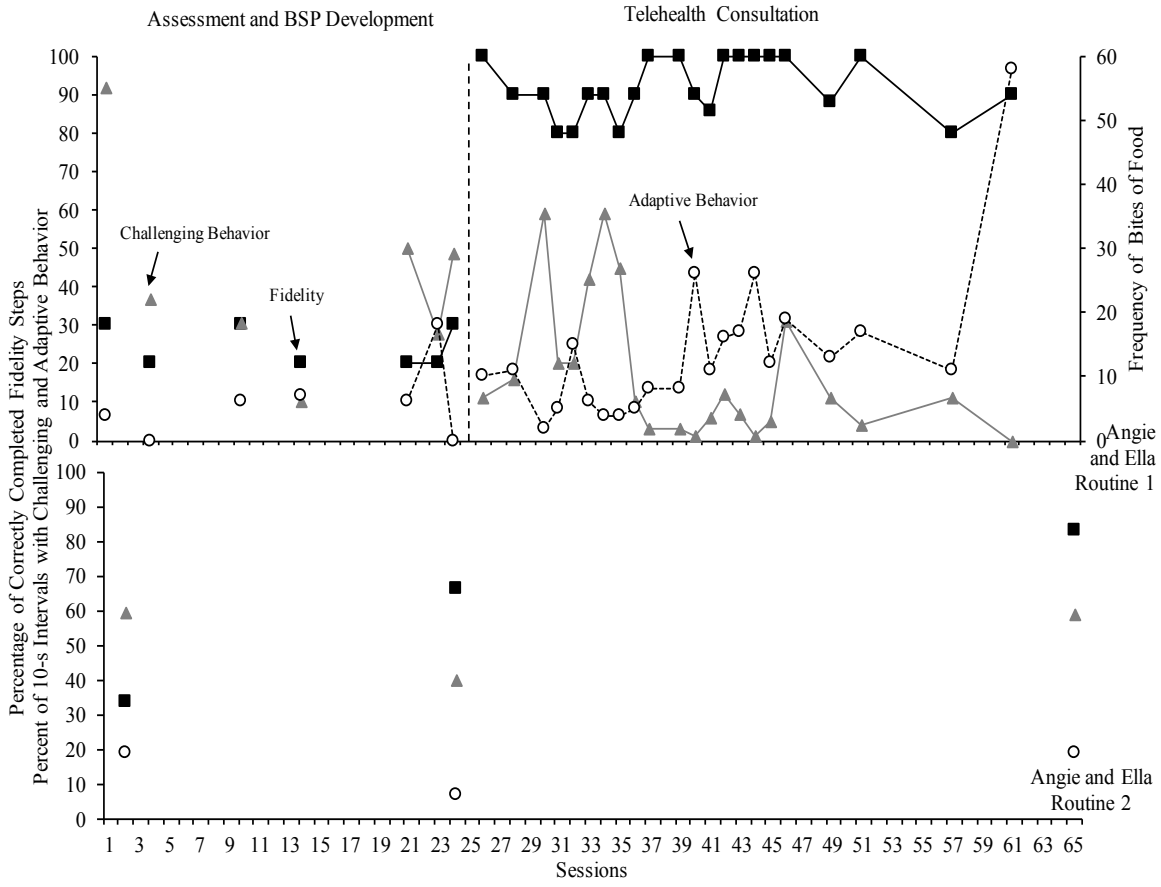


Figure 7. Percentage of parent implementation fidelity, percentage of 10-second partial intervals with challenging and adaptive behavior, and frequency of adaptive behavior observed during 20-minute sessions of routine #1 and #2 for Angie and Ella.

(see Figure 6), Ella (see Figure 7), and Sophie (see Figure 8), respectively. Introduction of the intervention on routine #2 did not occur for any of the dyads.

Alternative Behavior

During baseline for routine #1, the level of adaptive behavior was low for Owen, Mercedez and Ella, and high for Sophie (see Figure 4). During assessment and BSP

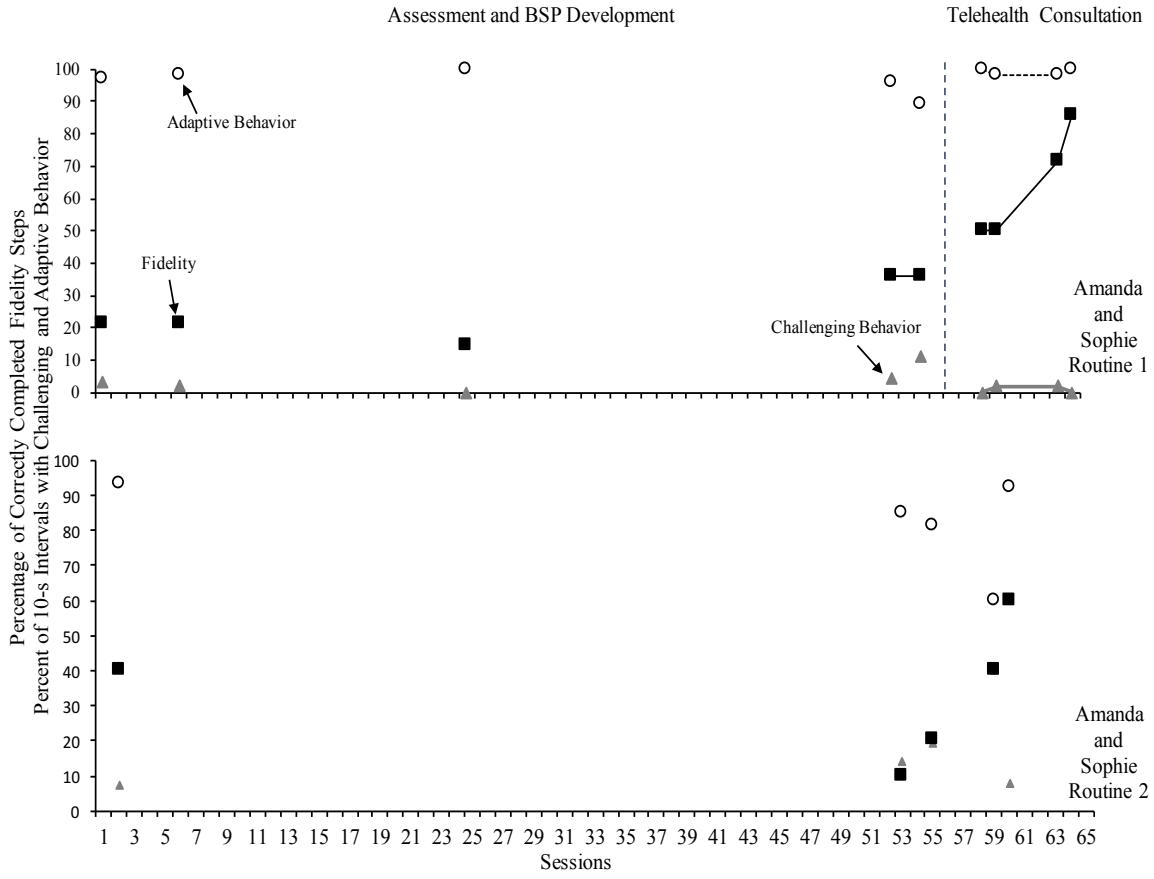


Figure 8. Percentage of parent implementation fidelity and percentage of 10-second partial intervals with challenging and adaptive behavior observed during 20-minute sessions of routine #1 and #2 for Amanda and Sophie.

development for routine #1, the level of adaptive behavior was high with a decreasing trend for Owen, moderate to low for Mercedez and Ella, and high for Sophie with a stable trend for each of the four dyads. Sophie's adaptive behavior was high due to the fact that when she knew she was being recorded she would not engage in challenging behavior. Anecdotally, Sophie's mother reported that she did not engage in adaptive behavior during dinner on a consistent basis. Mean level of adaptive behavior was 9 independent FCRs (range, 0 to 25), 34% (range, 25% to 50%), 6 bites of food (range, 0 to 18), and 96% (range, 89% to 100%) for Owen, Mercedez, Ella, and Sophie, respectively.

Following the introduction of the telehealth consultation, Mercedez demonstrated an immediate increase in level, Ella's adaptive behavior demonstrated an increasing trend, a consistent moderate level of FCRs was observed for Owen, and a high level of adaptive behavior was observed for Sophie. Mean level of adaptive behavior was 6 (range, 0 to 12), 73% (range, 50% to 95%), 14 (range, 2 to 58), and 99% (range, 98% to 100%) for Owen, Mercedez, Ella, and Sophie, respectively. There were two overlapping data points between Baseline and Telehealth Consultation conditions for Mercedez and several overlapping data points for Owen, Ella and Sophie. Variability following Telehealth Consultation was low both for Owen (range, 0 to 8) and Sophie (range, 98% to 100%) and moderate for both Mercedez (range, 50% to 95%) and Ella (range, 2 to 58). For baseline of routine #2, the mean level of adaptive behavior was 0 independent responses, 94%, 15%, and 82% for Owen, Mercedez, Ella, and Sophie, respectively. Introduction of the intervention on routine #2 did not occur for any of the dyads.

Statistical Analysis of Direct Observation Data

Nonoverlap estimator Tau-U was used for statistical analysis (Parker, Vannest, Davis, & Sauber, 2011; Parker, Vannest, & Davis, 2014). Tau-U is a method for measuring data non-overlap between two phases (A and B). It is a "distribution free" nonparametric technique, with statistical power of 91% to 95% of (OLS) linear regression when data conform to parametric assumptions. Tau-U follows the "S" sampling distribution (as does Mann-Whitney U and Kendall's Rank Correlation), so p-values and confidence intervals are available. Tau U controls for baseline trend, controls

for serial dependency in the data, and is consistent in logic with single-case visual analysis. The Tau-U calculator available at www.singlecaseresearch.org was used to calculate this statistic (Vannest, Parker, & Gonen, 2011). Tau-U results are presented in Table 10.

For parent fidelity for three dyads, Tau U = 1.0 and was found to be statistically significant. For Christy, Tau U = 1.0 (p = 0.0011, 90% CI [0.54, 1.64]). For Melissa, Tau U = 0.99 (p = 0.0009, 90% CI [0.50, 1.48]). For Angie, Tau U = 1.0 (p = 0.0001, 90% CI [0.59, 1.43]). And for Amanda, Tau U = 0.73 (p = 0.1011, 90% CI [0.00, 1.47). For total study parent fidelity, Tau U = 0.97 and was found to be statistically significant (p = 0.0000, 90% CI [0.69, 1.20]). Tau U scores range from 0.0 – 1.0. Because there are no overlapping data points for treatment fidelity, Tau-U has a ceiling of 1.0.

For challenging behavior for each dyad, Tau U was found to be statistically significant for Owen, Mercedez, and Ella. For Owen, Tau U = 0.73 (p = 0.0278, 90% CI [1.28, 0.19]). For Mercedez, Tau U = 0.94 (p = 0.0015, 90% CI [1.43, 0.46]). For Ella, Tau U = 0.61 (p = 0.0166, 90% CI [1.03, 0.19]). And for Sophie, Tau U = 0.53 (p = 0.233, 90% CI [1.27, 0.20]). For total study challenging behavior, Tau U = 0.72 and was found to be statistically significant (p = 0.0000, 90% CI [1.05, 0.38]).

For adaptive behavior for each dyad, Tau U was found to be statistically significant for Mercedez and Ella. For Owen, Tau U = 0.13 (p = 0.7144, 90% CI [0.69, 0.44]). For Mercedez, Tau U = 0.92 (p = 0.002, 90% CI [0.43, 1.41]). For Ella, Tau U = 0.52 (p = 0.0415, 90% CI [0.10, 0.94]). And for Sophie, Tau U = 0.53 (p = 0.0233, 90% CI [-0.20, 1.27]). For total study adaptive behavior, Tau U = 0.48 and was found to be statistically significant (p = 0.0053, 90% CI [0.20, 0.76]).

Social Validity

At the conclusion of the study, behavior specialists completed surveys to identify the level of acceptability of the Family-Centered TBC Training and telehealth procedures using an adapted version of the Treatment Acceptability Rating Form-Revised. The results of the behavior specialist acceptability are presented in Table 11. Parents also completed surveys to identify the

Table 10

Tau U Statistical Results

Tau U	Owen	Mercedez	Ella	Sophie	Total study *Mean*
Mean fidelity	1*	0.99*	1*	0.73	0.97*
Mean challenging behavior	0.73*	0.94*	0.61*	0.53	0.72*
Mean adaptive behavior	0.13	0.92*	0.52*	0.53	0.48*

Note. *$p < .05$

level of acceptability of the BSP strategies and telehealth procedures using the TARF-R. The TARF-R consists of 16 questions and were rated on a 5-point Likert-type scale with varying anchor point descriptors for each item (i.e., 1 = not at all acceptable, 3 = neutral, 5 = very acceptable). For questions five, nine, and 12, the scores were inversed when shown in the tables (i.e., 1 = 5; 2 = 4; 3 = 3) since a lower rating indicated a more acceptable response because of how the questions were worded (i.e., To what extent do you think there might be disadvantages in following these procedures?). Total scores were obtained by summing all items, with higher summed scores representing greater

levels of acceptability with the exception of questions five, nine, and 12, where lower scores represent greater levels of acceptability. Table 12 shows the results of the parent acceptability survey. The parent and behavior specialist acceptability ratings of the telehealth procedures are presented in Table 13.

Table 11

Behavior Specialist Acceptability Ratings

Item	*Mean*	*SD*	Min	Max
1. How clear is your understanding of the Family-Centered TBC Training?	4.25	.50	4.00	5.00
2. How acceptable do you find the Family-Centered TBC Training?	4.50	.58	4.00	5.00
3. How willing would you be to carry out these procedures with other parents of children with challenging behavior?	4.00	.82	3.00	5.00
4. To what extent did the "Family-Centered TBC" training equip me to develop a BSP with parents?	4.00	.82	3.00	5.00
5. To what extent do you think there might be disadvantages in following these procedures?	3.25	.50	3.00	4.00
6. How much time will be needed each week for you to carry out these procedures for a single family?	3.25	.50	3.00	4.00
7. How confident are you that the BSP and performance feedback via telehealth procedures will provide effective service delivery for parents of children with challenging behavior?	3.50	1.29	2.00	5.00
8. How likely are these BSP and performance feedback via telehealth procedures to make permanent improvements in a parent's behavior?	3.00	1.15	2.00	4.00
9. How disruptive will it be to carry out these BSP and performance feedback via telehealth procedures?	3.75	.50	3.00	4.00
10. How much do you like the BSP and performance feedback via telehealth procedures used in the intervention?	3.75	1.26	2.00	5.00
11. How willing would you be to suggest this training to other behavior specialists needing to learn to develop BSPs via telehealth?	4.00	.82	3.00	5.00
12. How much discomfort is the parent likely to experience during this type of service delivery model?	3.50	.58	3.00	4.00
13. How willing would you be to change your routines to carry out these procedures?	3.50	1.29	2.00	5.00
14. How well will carrying out these procedures fit into your existing routine?	3.50	1.29	2.00	5.00
15. How effective will the intervention be in teaching and supporting parents?	3.75	.96	3.00	5.00
16. How well do the goals of BSP and performance feedback via telehealth fit with the team's goals to improve parent use of research-based strategies to improve their child's behavior?	4.50	.58	4.00	5.00

Note. $N = 4$. Likert Scale for participant responses ranged from 1 = low rating to 5 = high rating.

Table 12

Parent Acceptability Ratings

Item	*Mean*	*SD*	Min	Max
1. How clear is your understanding of the BSPs strategies?	4.75	.50	4.00	5.00
2. How acceptable do you find the BSPs strategies?	4.75	.50	4.00	5.00
3. How willing are you to carry out these strategies/ procedures?	4.50	.58	4.00	5.00
4. To what extent did the behavior specialists' use of performance feedback train me to implement the BSP strategies at home with my child?	4.50	1.00	3.00	5.00
5. To what extent do you think there might be disadvantages in following these strategies/procedures?	3.50	1.29	2.00	5.00
6. How much time will be needed each week for you to carry out these strategies/procedures with your child?	4.00	.82	3.00	5.00
7. How confident are you that the BSP strategies will provide effective interventions for decreasing your child's challenging behavior?	3.50	1.00	2.00	4.00
8. How likely are these BSP strategies to make permanent improvements in your child's behavior?	3.25	.96	2.00	4.00
9. How disruptive will it be to carry out these BSP strategies/procedures?	3.00	.00	3.00	3.00
10. How much do you like the BSP strategies and performance feedback procedures used in the intervention?	4.50	.58	4.00	5.00
11. How willing would you be to suggest this BSP strategies and performance feedback procedures to other parents needing to assistance decreasing their child's challenging behavior at home?	4.25	.50	4.00	5.00
12. How much discomfort is your child likely to experience during this intervention?	2.75	1.71	1.00	5.00
13. How willing would you be to change your routines to carry out these procedures?	4.00	.82	3.00	5.00
14. How well will carrying out these procedures fit into your existing routine?	3.00	1.15	2.00	4.00
15. How effective will the intervention be in teaching and supporting your child?	3.75	.50	3.00	4.00
16. How well do the goals of BSP strategies fit to improve your use of research-based strategies to improve your child's behavior?	3.50	.58	3.00	4.00

Note. $N = 4$. Likert Scale for participant responses ranged from 1 = low rating to 5 = high rating.

Table 13

Telehealth Procedures Acceptability Ratings

Item	*Mean*	*SD*	Min	Max
1. How clear is your understanding of the telehealth procedures?	4.13	.35	4.00	5.00
2. How acceptable do you find the telehealth procedures?	4.25	.46	4.00	5.00
3. The telehealth procedures were easy to use.	4.13	.64	3.00	5.00
4. If you had the opportunity to conduct the intervention face to face rather than through telehealth sessions, how acceptable would it be to make the switch to face to face sessions?	4.38	.74	3.00	5.00
5. To what extent do you think there might be disadvantages in telehealth procedures?	3.00	1.07	2.00	4.00
6. How much time will be needed each week for you to carry out these procedures?	3.50	.76	3.00	5.00
7. How acceptable did you find recording and submitting the independent videos outside of the telehealth sessions?	3.63	1.06	2.00	5.00
8. How much were the weekly telehealth sessions helpful?	4.13	.99	2.00	5.00
9. How disruptive will it be to carry out the telehealth procedures?	3.00	.76	2.00	4.00
10. How much do you like the telehealth procedures used in the intervention?	3.75	.89	2.00	5.00
11. How willing would you be to suggest the telehealth procedures to others needing assistance?	3.75	.46	3.00	4.00
12. How much discomfort are you likely to experience while using telehealth procedures?	3.50	.76	3.00	5.00
13. How well supported did you feel using the telehealth procedures?	4.38	.74	3.00	5.00
14. How well will carrying out the telehealth procedures fit into your existing routine?	3.00	.93	2.00	4.00
15. How effective will the telehealth procedures be in teaching and supporting other parents?	4.13	.83	3.00	5.00
16. How well do the telehealth procedures fit to improve your use of research-based strategies to improve children's behavior?	4.00	1.07	2.00	5.00

Note. $N = 8$. Likert Scale for participant responses ranged from 1 = low rating to 5 = high rating.

CHAPTER IV

DISCUSSION

Challenging behaviors are common among children with IDD and cause direct harm to an individual, to other people, or reduce an individual's access to community resources (Emerson, 1995). Challenging behavior tends to persist and may increase in frequency and intensity; however, persistent challenging behaviors can be prevented and decreased with individualized function-based interventions and supports based on a prior functional behavioral assessment (Conroy, Dunlap, Clarke, & Alter, 2005; Ingram, Lewis-Palmer, & Sugai, 2005; Newcomer & Lewis; 2004). Parents have been trained to effectively implement FBAs and function-based interventions, but parents struggle to find expert parent education to address the challenging behavior when there are barriers that prevent them from traveling to a clinical setting for services for their child (Koegel, Symon, & Koegel, 2002). Telehealth (i.e., video conferencing) has been demonstrated to be effective in delivering socially-valid, low-cost, and clinically efficacious parent education. The study sought to assess the extent to which behavior specialists' use of targeted performance feedback and coaching strategies via telehealth increased the parents' implementation fidelity of the BSP strategies in their home to decrease their child's challenging behavior. In this chapter, the results of the study are summarized and interpretations of the findings are presented. The limitations of the current study are also discussed, along with implications for practice and directions for future research.

Family-Centered Telehealth Behavioral Consultation Training Knowledge Assessment

Each behavior specialist completed the Family-Centered TBC Training Knowledge Assessment prior to part I of the training and upon completion of part II of the training. The pre-training assessment results suggest that despite having at least one class in behavior assessment and two years of experience in developing BSPs, the behavior specialists did not have sufficient knowledge and skills necessary to develop BSPs via telehealth (as indicated by a score of 80% or above on the pre-assessment). Following training, the average assessment score was 94%, with an average gain of 64%. The overall average gain from pre-assessment to post-assessment indicates that all of the behavior specialists gained knowledge related to the development of BSPs via telehealth for children with mild to moderate challenging behavior.

Quality-of-Life Measure

Each parent completed the Family Quality of Life survey prior to the intervention starting and again when the study was complete. Two parents were neither satisfied or dissatisfied with their family's overall quality of their life and two parents were satisfied with their family's overall quality of life prior to the inventions starting. Family interaction, emotional well-being, and disability-related support domains were rated the lowest prior to intervention. Following intervention, one parent was neither satisfied nor dissatisfied with their family's overall quality of their life and three parents were satisfied with their family's overall quality of life post-intervention. Emotional well-being and

physical/material well-being domains were rated the lowest after intervention. Overall, parents rated their family's quality of life as moderate to high on the satisfaction scale.

BSP Contextual Fit and Technical Adequacy

The extent to which the developed BSPs were technically adequate (i.e., contained all critical BSP features and strategies that were indicated by the FBA) and contextually appropriate (i.e., rated as feasible and appropriate for use in the home setting) was assessed. Parents rated their child's BSPs using the *Self-Assessment of Contextual Fit in the Home* during the baseline phase and then again once intervention started. Interventions that are viewed by change agents to reflect their skills, values, and resources are more likely to be implemented with fidelity, and subsequently to affect behavior change (Benazzi et al., 2006; Cook et al., 2012). The results of the contextual fit survey before and after intervention showed that the parents scored their child's BSPs as having a high degree of "contextual fit," meaning that plan developers all agreed that (a) they had knowledge of the elements of the plan and the skills needed to implement the plan; (b) the plan reflected their values; (c) they had the available resources and support to implement the plan; and (d) the plan was effective, efficient, and in the best interest of the child.

In addition to being scored for contextual fit, the BSPs were also rated for technical adequacy. The results of survey ratings for each BSP indicated that following the training, the behavior specialists were able to develop BSPs with the parent via telehealth that were both technically adequate and contextually appropriate. Completed

BSPs were scored for technical adequacy by the members of an expert panel using the 20-item BSP Critical Features Checklist. The checklist assessed the extent to which each plan included (a) an operational description of the challenging behavior: (b) preventive, teaching, and consequence strategies consistent with the function of the challenging behavior as identified in the FBA; and (c) a plan for implementing the BSP strategies and for evaluating the effects of the plan on child behavior. Both experts rated all of the BSPs as having a high degree of technical adequacy (i.e., the average score was 19.88 out of 20 possible points).

Direct Observation Data

Parent Fidelity

A concurrent multiple-probe design across three mother-child dyads with a non-concurrent addition of a fourth mother-child dyad was used to examine the effects of behavior specialists use of coaching and performance feedback via telehealth on parent's implementation fidelity of BSP strategies and child challenging and adaptive behavior. Direct observation data documented an immediate and consistent increase in parent implementation fidelity following the introduction of the coaching and performance feedback of the BSP strategies by the behavior specialist via telehealth, with no overlapping data between baseline and intervention phases for all four parent participants. These results suggest a strong functional relation between the implementation of the coaching and performance feedback via telehealth and improvement in parent

implementation fidelity. Overall, fidelity of implementation during intervention by parents was high, averaging over 80%. For routine #2, there was an increasing trend for three of the four parent participants, especially for Amanda. For Amanda, there seems to be stimulus control transfer of her responses (i.e., neutral vocal tone, "If/then" statements, minimal attention) to Sophie's similar challenging behaviors (i.e., elopement, protesting) occurring during routine #2. Routine #2 occurred directly after the completion of routine #1, so even though the behavior specialist was not providing feedback to the parent she was still virtually present. Also, the two routines shared similar BSP strategies and since the parent was using those strategies for the routine that occurred directly before it, it could have increased the likelihood of her use of those similar targeted BSP strategies during routine #2.

When comparing coached and independent sessions, there were no consistent differences in treatment fidelity, challenging behavior, or adaptive behavior. Suess and colleagues (2014) also found no general differences between coached FCT trials and independent FCT trials for treatment fidelity, problem behavior, and manding. Overall, these findings suggest individual differences across participants. All parents showed improvement or high fidelity across both coached and independent trials; this is hopeful. These findings suggest that behavior specialists can expect coached sessions to assist parents in implementing strategies at times when the behavior specialist is not available to provide feedback. These preliminary findings on treatment fidelity continue to support the use of telehealth to deliver a multi-component intervention and that a telehealth model of behavioral consultation does not disrupt the efficacy of treatment.

Child Challenging and Adaptive Behavior

Direct observation data documented an immediate decrease with moderate variability in child challenging behavior for two participants (Mercedez and Ella) following the introduction of the coaching and performance feedback of the BSP strategies by the behavior specialist via telehealth, with some overlapping data between baseline and intervention phases. These results suggest a functional relation between the implementation of the coaching and performance feedback via telehealth and decreased child challenging behavior for one participant (Mercedez). Overall, child challenging behavior either decreased or remained low during intervention, averaging 11% overall.

Following the introduction of the intervention, for adaptive behavior, direct observation data documented an immediate increase in level for one participant (Mercedez) and an increasing trend for another (Ella) with some overlapping data between baseline and intervention phases. These results suggest a functional relation between the implementation of the coaching and performance feedback via telehealth and improvement in child adaptive behavior for one participant (Mercedez). Overall, child adaptive behavior either increased or remained high during intervention, averaging 86% overall.

Social Validity

Social validity is necessary to the effectiveness and sustainability of interventions in applied settings. The primary purpose of measuring social validity is to hopefully

predict and prevent the rejection of behavior change interventions by typical stakeholders (Schwartz & Baer, 1991). The results of the acceptability ratings completed at the end of this study suggest that the Family-Centered TCB Training and telehealth procedures were considered socially valid by both the behavior specialists who helped develop the BSPs and the parents who implemented the BSP strategies in their homes.

The behavior specialists were overall neutral or agreed (an average score of 3 or above) with all of the statements in the acceptability rating questionnaires about the Family-Centered TBC training. Behavior specialists agreed that (a) the Family-Centered TBC training was clear, acceptable, and equipped them to the develop BSPs with parents, (b) they would be willing to carry out the procedures with other parents of children with challenging behavior, (c) they would be willing to suggest this training to other behavior specialists needing to learn to develop BSPs via telehealth, and (d) they felt the goals of BSP and performance feedback via telehealth fit with the team's goals to improve parent use of research-based strategies to improve their child's behavior. Additional comments the behavior specialists had about the training were "I just didn't like the way we gave performance feedback. I'd rather just tell the parent exactly what to do in the moment instead of gently guiding them"; "Many of the answers I gave above are based on my specific experience with my participant"; and "It is very difficult to develop rapport using these procedures without having met with the family first. I would have preferred to do the FBA with the family in person and then switched to the telehealth model. There was also a lot of time spent resolving technological issues that took away from coaching".

All parents who implemented the BSP strategies developed with their child reported that they were overall neutral or agreed (an average score of 3 or above) with all

of the statements in the acceptability rating questionnaires about the BSP strategies. Parents agreed that (a) the BSP strategies were clear, acceptable, and trained to implement them in the home with their child, (b) they would be willing to carry out the BSP strategies and procedures, (c) they liked the BSP strategies and performance feedback procedures used in the intervention, (d) they would be willing to suggest BSP strategies and performance feedback procedures to other parents needing to assistance decreasing their child's challenging behavior at home, and (e) they would be willing to change your routines to carry out these procedures. The parents did feel like a great deal of time would be needed each week for them to carry out these strategies/procedures with their child and that their child would likely experience some discomfort during the intervention. Additional comments the parents had about the BSP strategies were "Sometimes, the live sessions were a challenge - we have 5 kids & it was difficult to hear & follow through with the behavior specialist's ideas in the midst of 'regular' conversations. In more 1:1 activities with the target child, it would be great!!"; "The strategies we were provided with were great; however, our daughter does not respond to them at all, choosing to ignore or tantrum louder. Her therapist says this is part of the ODD and FASD she was diagnosed with. Perhaps in time she will respond, but for now, she's not. They are very good strategies though."; "This was a good learning experience for me (another set of eyes) on behavior my daughter was exhibiting. I think for me it all boiled down to time. With my graveyard shift and all the things going on with the kids schedules we seemed to always be in hyper drive. I am trying to see how I can slow things down a bit (at least for me) so I can stop, reflect and address".

All behavior specialists and parents reported that they were overall neutral or agreed (an average score of 3 or above) with all of the statements in the acceptability rating questionnaires about the telehealth procedures. Behavior specialists and parents agreed that (a) the telehealth procedures were clear, acceptable, and easy to use, (b) making the switch to face-to-face sessions would be acceptable, (c) the weekly telehealth sessions were helpful, (d) they felt well supported using the telehealth procedures, (e) they think the telehealth procedures will be effective in teaching and supporting other parents, and (f) they think the telehealth procedures fit to improve the use of research-based strategies to improve children's behavior. Additional comments one behavior specialist had about the telehealth procedures were "Some of my [lower rated] responses are based off of my specific experience with my participant". Additional comments the parents had about the telehealth procedures were "We had several technical glitches along the way, but once we worked through those, it was a pretty smooth system"; "I think the program itself is a good one, aside from computer/equipment glitches. (Someone more computer savvy may do better), but time was our biggest hindrance in all of this. Personally I feel like I am constantly running around (with no time for myself) and in turn am not taking care of myself. It would be interesting to see if there is help for the parent in the midst of all this behavior with children, and making sure they are taking care of themselves too so that they can be 100% present and there for their kids".

Implications for Practice

Research has shown that families struggle to find expert parent education to support their child's development and to address challenging behaviors in their homes due to the shortage of trained professionals and expense of routinely traveling the distance required (Boisvert et al., 2010; WHO, 2007). This has created a significant gap between the intense service requirements for children with a disability and service providers' availability (Baharav & Reiser, 2010). The current study presents preliminary findings supporting the efficacy of a 5-hour training designed to teach typical behavior specialists to lead parents in using FBA data to develop efficient and effective multi-component BSPs via telehealth for their children who exhibit persistent challenging behaviors. Each of the behavior specialists reported having the knowledge and experience to conduct FBAs and develop BSPs prior to the training, but did not have the training to do them remotely via telehealth. A pre-assessment of behavior knowledge prior to the training and the Family-Centered Telehealth Behavioral Consultation Training Knowledge pre-assessment scores indicated that each participant did have the conceptual knowledge related to basic behavioral principles and did not possess the knowledge needed to use telehealth procedures. These data highlight the importance of building a training specifically on how to conduct an FBA, develop a BSP, and give performance feedback using telehealth. The results of the Family-Centered TBC Training Knowledge post-assessment suggest that all behavior specialists gained knowledge related to (a) telehealth guidelines, HIPPA regulations, and mandatory reporting requirements; (b) how to use equipment and software (i.e., VSee and BitTorrent Sync); (c) behavioral consultation via

telehealth (i.e., interpersonal communication skills while video-conferencing, collaboration strategies, indirect FBA, direct behavioral observation during family routines, and BSP development); (d) coaching and performance feedback via telehealth platform; and (e) troubleshooting technical difficulties. Following the training, four behavior specialists conducted an FBA and developed a BSP for two routines with the parent via telehealth that were rated contextually appropriate by the parent and technically adequate by an independent expert panel. Finally, the most convincing evidence supporting the efficacy of the training was the demonstrated effectiveness of the use of coaching and performance feedback in increasing parent treatment fidelity and the BSP strategies in an overall reduction of challenging behavior and increase in adaptive behavior for child participants. This study provides an example of how the multifaceted task of BSP development can be adapted for remote services via telehealth. Using the tools and procedures presented in the Family-Centered TBC training model, typical community BCBA providers or other behavior specialists may be able to utilize telehealth procedures, thereby serving more families who need to address persistent challenging behaviors and providing intense services more cost-effectively.

In past research, telehealth has been used to reduce more severe challenging behavior with a single component (i.e., FCT) intervention (Gibson et al., 2009; Suess et al., 2014; Wacker et al., 2013b). This study supports the use of telehealth procedures to increase parent fidelity to intervene on mild to moderate challenging behavior using a multi-component intervention. Data were collected during baseline on parent fidelity with written materials only. Parents were only able to implement 28% of the BSP strategies on average without the support of the behavior specialist. Once the behavior specialists

started coaching and using performance feedback, the parents on average were able to implement 90% of the BSP strategies. This study presents more supporting evidence that even when given written materials, parents still need coaching and performance feedback to implement the BSP strategies in their home with their children with challenging behaviors with a high degree of fidelity. A large amount of response effort was needed to reach the fidelity criteria by the behavior specialist and parent, but only three to five telehealth consultation session were needed to reach criteria and were done within a week's time. Once the parents met criteria, the behavior specialist only conducted zero to one telehealth session per week, so this is evidence that the parents were able to generalize their use of the BSP strategies during independent sessions when the behavior specialist was not there to sustain the high rates of fidelity over time. Independent videos were helpful in reducing the amount of time needed on the behavior specialist to serve the family by only having to conduct one telehealth session per week once the parent met fidelity criteria, while also tracking the families progress over time by collecting data from the independently recorded videos. Although the independent videos were helpful, they were also difficult for the parents to follow through with since they were easy to avoid when other life events arose. It is important to establish stimulus control for the parents around recording independent videos and reinforcement early on when starting services with the family by giving the parents a schedule of when to record videos along with reminders before each recording and acknowledgement in the form of encouragement and praise after each recording. Also, checking in with the parent frequently and providing positive feedback or helpful information around other concerns

or life events will help build and sustain rapport over time since it is harder to build a relationship with the distance.

Limitations

There are several limitations that should be considered when interpreting the outcomes of the present study. The first limitation is the small sample size of study participants and nonrandom selection of study participants. Most of the behavior specialist were attending the same university and the parent participants contacted were from a waitlist from a small research and outreach center affiliated with the university. Self-selection represents a significant threat to external validity since it is unclear how these participants differ from those who would choose to inquire based on the recruitment flyer. More research is needed to determine the extent to which these study finding can be generalized to individuals with characteristics that differ from those of the study participants.

Another limitation of the study is that the Family-Centered TBC training was conducted by the researcher, who has extensive training in FBA and BSP development and has provided a variety of parents and professionals with a number of trainings on how to intervene on challenging behavior. Further research is needed to assess the generalizability of this study's findings by evaluation whether typical community BCBAs well-versed in FBA/BSP and telehealth procedures can utilize the Family-Centered TBC training materials to effectively train other behavior specialists to use the telehealth procedures.

The psychometrics of the behavioral theory pre-assessment and the pre/post Family-Centered TBC Training Knowledge assessment also represents a potential limitation of the current study. The content of both assessments were designed by the author to evaluate behavior specialists' knowledge of critical BSP components and telehealth procedures. Prior to the beginning of the study, both assessments were expert-reviewed for content validity; however, the psychometric properties of this assessment have not been evaluated. Therefore, the resulting outcomes should be interpreted with caution.

A final limitation to the findings of the study relates to the study design. Although a concurrent multiple baseline design across four dyads was originally planned, attrition of three participants for various reasons left a single participant completing the intervention. A second concurrent multiple-baseline design across four participants was again planned but one participant dropped out of the study early in the process leaving three participants beginning baseline concurrently with the addition of the previously completing dyad non-concurrently. Concurrent multiple-baseline designs control for threats to internal validity by documenting similar behaviors in baseline and by documenting change in only one participant following intervention while other participants continue to engage in consistent patterns of responding. The non-concurrent multiple-baseline design controls for the length of time spent in the baseline condition, but it does not control for other threats to internal validity. However, in this study, the required three opportunities to demonstrate a functional relation were provided by the concurrent multiple baseline design (Horner, Carr, et al., 2005); the non-concurrent multiple-baseline design simply added a fourth opportunity to demonstrate a functional

relation. Another threat to internal validity was the low level of challenging behavior and high rates of adaptive behavior during baseline for Owen, Ella, and Sophie. Since challenging behavior and adaptive behavior continued at similarly levels during intervention, a large percentage of intervention data points overlapped with baseline data points so a functional relation between parent implemented behavior support plans and child behavior could not be concluded for three of the four child participants.

Future Research

Telehealth technology has been successfully leveraged to coached teachers and parents to conduct FAs, preference assessments, and to implement interventions to increase language and decrease challenging behavior (e.g., Barretto et al., 2006; Gibson et al., 2009; Machalicek et al. 2009a/b; Machalicek et al., 2010; Suess et al., 2014; Wacker et al., 2013). However, there is little research to date examining the use of telehealth technology to coach parents to implement multi-component behavioral interventions. Furthermore, combining aspects of each parent education delivery model to develop a family-centered behavioral consultation model that includes collaboration to ensure good contextual fit and weekly telehealth sessions with performance feedback from an expert would be a viable alternative to face-to-face training. This study provides preliminary results demonstrating behavior specialists' use of coaching and performance feedback via telehealth increased parents' implementation fidelity of BSP strategies with their child during naturally occurring routines at home.

As previously stated, one limitation of the study was the lack of finding a functional relation between improved parent implementation of the targeted BSP

strategies and challenging behavior and adaptive child behavior. Replicating the methods used in this study employing a concurrent multiple-baseline design would provide the opportunity to establish more convincing experimental control across participants and phases. A replication is also needed to improve external validity of findings for other participant groups, interventionists, and settings. The results of this study represent positive outcomes for four mothers and their children, all from the same geographical region. Three of the children were female between the ages of 5 and 6. Future replications and extensions, including larger participant samples, families from diverse backgrounds and with varying behavioral needs, fathers and male children, different age groups (e.g., early intervention, adolescents, young adults), and using typical community BCBA providers, would allow for greater generalization of results to other participant populations. Future research could also examine what degree of fidelity is necessary to decrease mild to moderate challenging behavior. The parents in the study were given the written implementation plan and were implementing the BSP strategies with a mild to moderate degree of accuracy; consequently, this level of fidelity could have been adequate to decrease the challenging behavior to a low level.

To assess long-term effectiveness and social importance of the intervention, future studies should collect data on the generalized effects of the intervention to other family routines and the maintenance of treatment effects following the conclusion of the research study. Future studies should also include systematic procedures for actively programming for generalization of newly learned BSP strategies and alternative behaviors, as well as observation sessions in additional settings and during times of the

day when the BSP strategies are not being implemented. This would allow for a more complete understanding of behavior change.

Additional studies might also evaluate for whom using coaching and performance feedback via telehealth is appropriate. Multiple problems came up during the study that got in the way of the intervention working smoothly. Some of the behavior specialists and parents were more tech savvy than others, therefore making the technical difficulties more or less stressful for that individual. Future research should utilize a technology assessment as a helpful component of practitioner training in order to determine the appropriateness of the telehealth model and to identify any support needs to facilitate technology use. Also, specifications of the hardware (i.e., laptop, webcam) and Internet speed were not gathered for this study. Ideally, future studies should gather hardware and Internet speeds to ensure the participants have the minimal hardware and Internet speeds needed for Telehealth. Two mothers had multiple children present during some intervention sessions which made listening and following through with the behavior specialist's feedback difficult despite the Bluetooth headset. Future research could evaluate the telehealth approach in a one parent to one child environment verses a one parent to multiple sibling environment verses a two parent to one or multiple sibling environment to determine what environment is best for the telehealth model. Parents perceptions (i.e., optimistic or pessimistic) about their ability to change their child's behavior before the onset of services can have an effect on the parent's participation in the training and/or carrying out the plan (Durand et al., 2013). Families who view their situations as quite negative and have little confidence in their ability to successfully intervene with the child (i.e., pessimism) are less likely to persist in difficult situations

than those who have an optimistic view (Peterson, 2000). One mother had chronic health issues, so she may have needed a treatment package the integrates cognitive-behavioral intervention with function-based behavioral parent training to increase her participation and confidence to carry out the plan. Future research could assess parents before beginning services to determine their perceptions on parenting to help establish if the telehealth model is the appropriate approach or if more support is needed for the family.

In conclusion, the findings present promising evidence that coaching and immediate performance feedback via telehealth can be used to train parents to implement BSP strategies in their home with their children who engage in mild to moderate challenging behavior. More empirical data are needed to (a) replicate the findings of this study for participants with varying characteristics, (b) better understand the appropriateness of the telehealth procedures, and (c) document longitudinal parent and child outcomes. The findings from this study represent an important contribution to our understanding of how to effectively and efficiently develop and train parents to implement a multi-component BSP to enhance behavioral outcomes for their children in the home setting.

Appendix A.

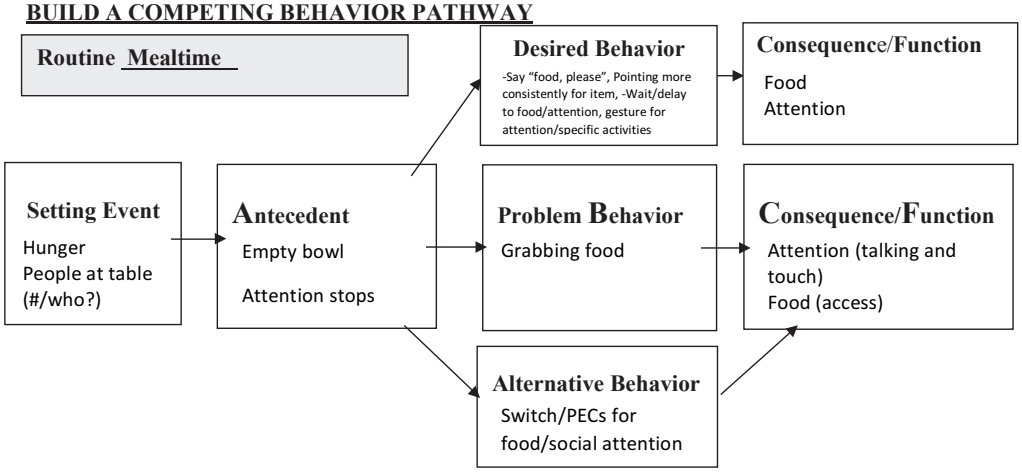
Behavior Support Plan Example

Behavior Support Plan

Developed from a Functional Behavioral Assessment

Name Owen Date 5-1-2015

***Appropriately request things even outside of the home (consistently pointing and waiting)**
BUILD A COMPETING BEHAVIOR PATHWAY



Setting Event Strategies	Antecedent Strategies	Teaching Strategies	Consequence Strategies
Eliminate/ Neutralize Setting Events 1. Limit snacking. 2. Seating arrangements seat new people farther away. 3. Mom or dad sit next to him	Eliminate/ Modify Antecedents -At table before everyone sits, brief verbal/physical attention (30s) -Every 2 minutes w/in interval (verbal and physical attention) -Give small portions of food so motivated to request. Prompt Alt/Des Behavior -Hold up buttons on the board and show -"Show me what you want/Point to" (if presses food item)	Teach Alternate Behavior 1) Differential reinforcement of alternative behavior 2) Before dinner expose to each button 2 X. (physically guide to touch button and then give corresponding item/ activity (small piece of food). Teach Desired Behavior/ Skills -Part of larger communication device/pointing to items on board (Portable system, iPad) -Hand him communication device, say "show me" and then give item	Reinforce Alt/Des Behavior - Attention w/ button (physical/verbal) - Access to food Respond to Problem Behavior/ Redirect Extinguish -Block if trying to get at food -Sit down/hands down

*Data will be collected at least 2-3 timers per week. Data will be assessed weekly and changes to the BSP will be made if needed.

Appendix B.

Demographic Questionnaire (Behavior Specialist and Primary Caregiver) and Pre-Assessment (Behavior Specialist)

Demographic Questionnaire (Behavior Specialist)

This is a survey to help better understand your background and to assist with selecting the behavior specialist participants for this study. Please fill out a demographic questionnaire and pre-assessment to document their experience.

After reading each of the following questions, please answer the questions.

1. What is your age? _____

2. What gender do you identify as?

   ○ Male ○ Female ○ Other

3. What is your race/ethnicity?

   ○ African American ○ American Indian ○ Asian ○ Caucasian ○ Latino

   ○ Other _____

4. What is your highest education level achieved?

   ○ High school diploma or GED ○ Associate ○ Bachelor ○ Master's

   ○ Other_____

5. What program are you in at the University of Oregon?

   ○ SPED Doctoral ○ School Psychology Master's ○ School Psychology Doctoral

   ○ Other _____

6. How many courses have you had in behavior assessment and treatment of challenging behavior? _____

7. How many years of experience have you had conducting Functional Behavior Assessments (FBA) and designing Behavior Support Plans (BSP)? _____

8. Have you had any training in parent training experiences/procedures via a telehealth model?

○ No ○ Yes ○ If yes, what and how much was it? _____

Complete the following pre-assessment to document your knowledge of designing BSPs.

1. Define the ABC's of understanding the function of behavior:

   a. _____

   b. _____

   c. _____

2. Behaviors need to be explained in an _____ and _____ way, so that anyone who does not know the child could point out the behavior

3. All behavior serves a function: either to _____ or _____ something.

4. An appropriate replacement behavior should be:

   a. _____

   b. _____

   c. _____

5. Prevent challenging behaviors by directly addressing _____ and prompting replacement behaviors based on the _____ of behavior.

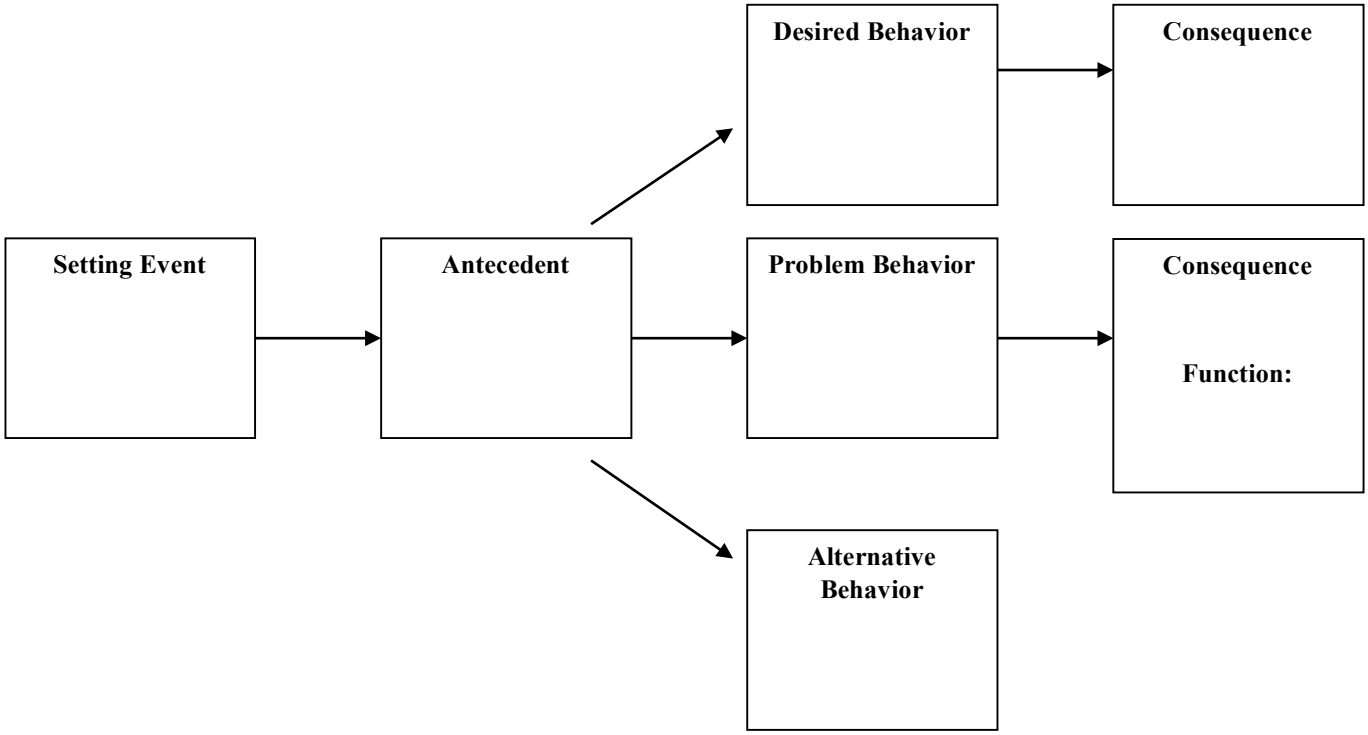
6. Responses to challenging behavior should focus on two things: _____ to the replacement behavior and _____ of the problem behavior.

7. Complete a summary statement for the vignette.

   At the end of snack time, when asked to transition to homework, Charlie verbally refuses, cries, and falls to the floor to avoid difficult academic tasks. This is most likely to occur on days when Charlie does not take her medicine. Charlie's "tantrums" occur 3-4 times per week and can last up to 10 minutes.

Setting Events & Predictors	Problem Behavior(s)	Maintaining Consequence(s)

8. Use the information from the summary statement to build a competing behavior pathway



9. Based on the information provided, please indicate if you would rate the proposed interventions as a:

FB- Function-based intervention = an intervention that directly addresses the function of the challenging behavior and is expected to improve behavior

N- Neutral intervention = an intervention that might be effective or is a good behavior management practice, but is unrelated to the function of the challenging behavior

C- Contraindicated intervention = an intervention that conflicts with the function of the challenging behavior (i.e., provides access to maintaining consequence(s) following challenging behavior) and may increase challenging behavior

1. ____ Remind him to take his medication in the morning.

2. ____ Give him a 5-minute warning before transitioning to homework

3. ____ When problem behavior occurs, put him in a time-out.

4. ____ Teach him to ask for help when he has difficulty with academic tasks.

5. ____ Have him earn stars each time he completes a task. Once all the tasks are complete, he can trade them in for an incentive.

6. ____ When it appears that the student is becoming frustrated, send him to his room to calm down.

7. ____ When problem behavior occurs, do not allow him to escape the task. Instead, prompt him to ask appropriately for help or for a break from the task, and only provide help or a break after he asks appropriately.

8. ____ Provide descriptive praise when he transitions appropriately.

9. ____ Set a timer for the length of the break to help him transition back to homework.

Demographic Questionnaire (Primary Caregiver)

This is a survey to help us better understand our participants' backgrounds. Answering these questions is voluntary; however, your answers will better help us understand the results of our study and how they may apply to other families.

After reading each of the following questions, please answer the questions.

Primary Caregiver Information:

1. What is your date of birth? _____month_____day_____year
2. What gender do you identify as?

   ς Male ς Female ς Other

3. What is your race/ethnicity?

   ς African American ς American Indian ς Asian ς Caucasian ςLatino
   ς Other _____

4. Which category is appropriate for your annual income last year?

   ς Less than 15,000/year
   ς $15,000 - 19,999
   ς $20,000 – 40,000
   ς $40,000 – 60,000
   ς $60,000-80,000
   ς $80,000 +

   .

5. What is your highest education level achieved?

   ς High school diploma or GED
   ς Associate degree
   ς Bachelor degree
   ς Master's degree
   ς Doctorate
   ς Other_____

6. What is your current marital status?

   ς never married ς separated
   ς living with someone ς divorced
   ς married ς widowed

7. Have you ever had training in using behavioral strategies with your child?

   ς No ςYes, please

   specify_____

8. How long of a drive (in minutes) is it from your residence to the University of Oregon campus? _____

9. Do you have transportation issues that prevent you from traveling to a clinical setting for services for your child (e.g., no car, multiple young children in your home, no childcare)?

   ς No ςYes, please

   specify_____

Child Information:

10. What is your relationship to the child participating in this study?
    _____

11. What is this child's date of birth? _____month_____day_____year

12. What is this child's gender? ____male ____female

13. What disability diagnosis does your child have?

    ς Autism Spectrum Disorder ς Intellectual Developmental Disability

    ςEmotional and Behavioral Disorders ςOther, please

    specify_____

14. Besides your son or daughter with a disability, with whom do you currently live?

    - ς no one else
    - ς spouse
    - ς other children/siblings, how many _____
    - ς relatives, specify _____

15. Does your child engage in challenging behavior across at least two family routines on a regular basis that creates a significant barrier to participation in family life?

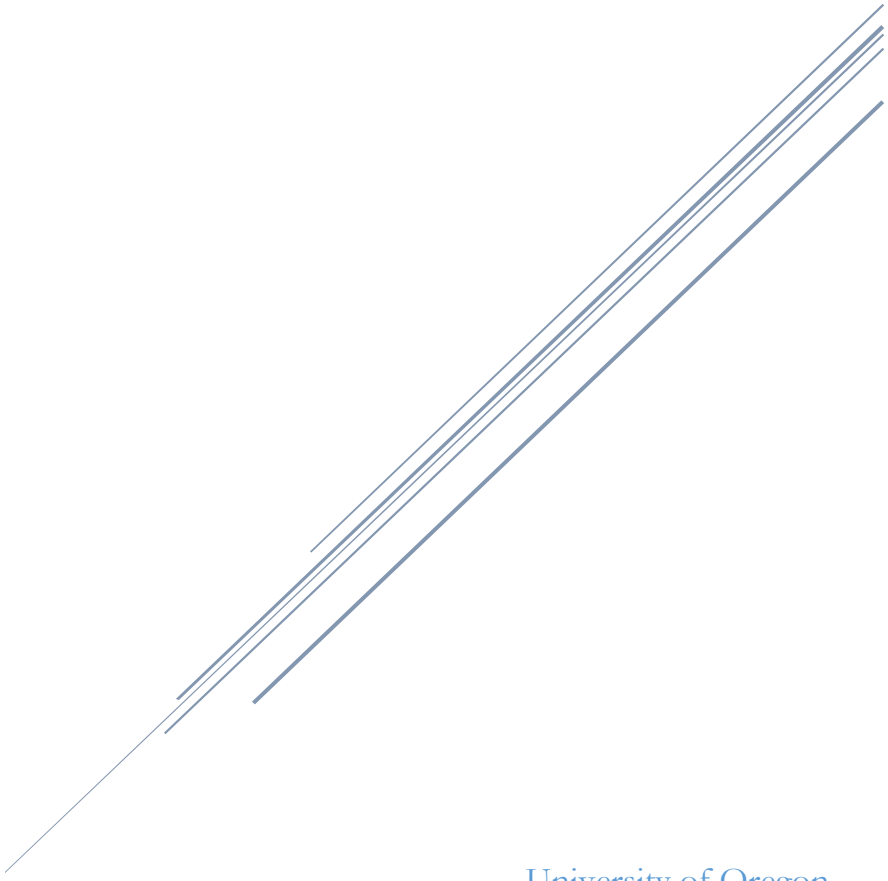
ς No ςYes, please specify_____

Appendix C.

Training Manual

FAMILY-CENTERED TELEHEALTH BEHAVIORAL CONSULTATION

Training Manual



University of Oregon
Traci Ruppert, M.S., BCBA 2015

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Purpose of Training Manual

This manual presents procedures to train behavior specialists to conduct behavioral consultation via telehealth. The behavior specialists will learn (a) how to collaborate with primary caregivers of children with an intellectual and developmental disability (IDD) or emotional and behavioral disorders (EBD) on an indirect functional behavior assessment (FBA), (b) development of behavior support plan (BSP), and (c) implementation of the BSP using performance feedback via telehealth behavioral consultation. The 5-hour training is designed to train behavior specialists with at least 2 years of experience conducting functional behavioral assessments (FBA) and developing function-based behavior support plans (BSP). The Family-Centered Telehealth Consultation model is specifically designed for use with primary caregivers of children with an IDD or EBD who exhibit mild to moderate challenging behavior daily across multiple family routines in the home. This distance model may be of particular utility for families who cannot access expert parent education services due to distance or a lack of appropriate services in their local community. Children with serious challenging behavior resulting in physical harm to self or others will benefit from more intensive face-to-face behavioral consultation that utilizes direct functional behavior assessment procedures.

The 5-hour training detailed in this manual is intended to be guided by professionals who are (a) well-versed in basic behavior analytic concepts and principles, (b) proficient in the collaborative development and implementation of function-based support, and (c) experienced in using the telehealth behavioral consultation model. Although background and areas of expertise should guide which professionals lead the behavioral consultation, the following professionals may be well-qualified to implement this model of behavioral consultation: Board certified behavior analysts (BCBA), school psychologists, and positive behavioral support coaches.

Your role as the behavior specialist in telehealth behavioral consultation is to collaborate with the family in the development of a behavior support plan and to support the primary caregiver by teaching him/her to implement the specific behavioral strategies that will result in decreased challenging behavior and improved family and child functioning by promoting effective, meaningful, acceptable, and durable changes in the behavior in the context of desired family routines.

Telehealth Behavioral Consultation

Challenging behaviors such as tantrums, self-injury, and aggression are common among children with intellectual and developmental disabilities (IDD)[1] and cause direct harm to an individual, to other people, or reduce an individual's access to community resources.[2] Serious forms of these behaviors are estimated to be present in 10% to 15% of this population.[3] Although some research has shown that challenging behavior decreases over time, without intervention, challenging behavior tends to persist and may increase in frequency and intensity as a child enters adulthood. Research indicates that persistent challenging behaviors can be prevented and decreased with individualized function-based interventions and supports based on a prior functional behavioral assessment.[4] These approaches recognize the reason that challenging behaviors serve and develop alternative, socially accepted ways to meet an individual's needs.

Primary caregivers have been trained to effectively implement FBAs and function-based interventions.[5] Teaching primary caregivers to conduct FBAs to identify the antecedents and consequences of problem behavior and come to a conclusion about possible functions for the behavior is beneficial because primary caregivers learn how to choose functionally appropriate treatment for challenging behaviors. The most common package used to train primary caregivers is behavioral primary caregiver training[6] and it typically involves describing behavioral procedures, modeling of the procedures, involving primary caregivers in role plays, and providing corrective feedback while the primary caregiver practices targeted intervention strategies with their child. Performance feedback is integral to improving adult use of evidence-based strategies[7] and is an effective strategy for modifying staff and caregiver behavior.[8] However, delivery of performance feedback can be expensive and burdensome with the physical distance between the client and service provider, especially if there is a shortage of services for families who offer intervention programs.

[1] Durand, Hieneman, Clarke, Wang, & Rinaldi, 2013
[2] Emerson, 1995
[3] Gore & Umizawa, 2011
[4] Conroy, Dunlap, Clarke, & Alter, 2005; Ingram, Lewis-Palmer, & Sugai, 2005; Newcomer & Lewis; 2004
[5] Buschbacher, Fox, & Clarke, 2004; Feldman & Werner, 2002; Frea & Hepburn, 1999; Stokes & Luiselli, 2008
[6] Serketich & Dumas, 1996; Van Camp et al., 2008
[7] Barton & Fettig, 2013; Hattie & Timperley, 2007
[8] Alvero, Bucklin, & Austin, 2001; Fixsen, Naoom, Blase, Friedman, & Wallace, 2005

Given these logistical barriers, research has evaluated the use of telehealth to deliver professional consultation with performance feedback more efficiently now that there is increased consumer availability and decreased costs associated with telecommunication technologies. Telehealth (also called 'telepractice' and 'telemedicine') is "the application of telecommunications technology to deliver professional services at a distance by linking clinician to client, or clinician to clinician for assessment, intervention, and/or consultation".[9] This method of providing services has proved to be a desirable solution in bridging this gap in service delivery and previous studies of other health care disciplines have shown that telemedicine can be a cost-effective service-delivery model. Through the use of remote technology, primary caregivers can be served in their home, while interacting with their child under the remote supervision and coaching of a trained professional who can guide the primary caregiver to become an effective service provider in the child's most natural environment.

The research on telehealth consultation in the IDD field has been supported to be a suitable solution in bridging this gap in service delivery by demonstrating that primary caregivers can be trained to implement behavioral interventions with their children in the home environment when coached via telehealth consultation by a professional service provider.[10] To further the existing research base, this manual was developed to be validated as a model for training professional service providers to implement behavioral consultation with performance feedback via the telehealth model.

[9] American Speech-Language Hearing Association [ASHA], 2005
[10] Baharav and Reiser, 2010; Barretto, Wacker, Harding, Lee, & Berg, 2006; Wacker et al., 2013a; Wacker et al., 2013b; Suess et al., 2013

Telehealth Guidelines and HIPAA

Telehealth Guidelines

The American Telemedicine Association (ATA; 2014) and American Psychological Association (APA; 2013) have published guidelines for the practice of telehealth services. These guidelines are to assure uniform quality of service to patients, and to promote reasonable and informed patient and provider expectations. The ATA guidelines have three categories: (a) Administrative (i.e., organizations and health professionals); (b) Clinical (i.e., patient verification, familiar with device, etc.); and (d) Technical (i.e., communications modes and applications, devices and equipment, connectivity for real-time interactive encounters, and privacy). This manual will only focus on the guidelines that are relevant for our purpose.

The ATA Core Operational Guidelines for Telehealth Services Involving Provider-Patient Interactions is available for download here: http://www.americantelemed.org/resources/telemedicine-practice-guidelines/telemedicine-practice-guidelines/core-operational-guidelines-for-telehealth-services-involving-provider-patient-interactions

The APA Guidelines for the Practice of Telepsychology here: http://www.apa.org/practice/guidelines/telepsychology.aspx.

American Telemedicine Association (2014) Telehealth Guidelines
Administrative Guidelines
1. Prior to the start of the telemedicine encounter, the provider shall inform and educate the patient in real-time of all pertinent information such as: discussion of the structure and timing of services, record keeping, scheduling, privacy and security, potential risks, confidentiality, mandatory reporting, billing, and any information specific to the nature of videoconferencing.
2. Key topics that shall be reviewed include: confidentiality and the limits to confidentiality in electronic communication; an agreed upon emergency plan, particularly for patients in settings without clinical staff immediately available; process by which patient information will be documented and stored; the potential for technical failure, procedures for coordination of care with other professionals; a protocol for contact between visits; and conditions under which telemedicine services may be terminated and a referral made to in-person care.

3. Health professionals providing telehealth services shall have the necessary education, training/orientation, licensure, and ongoing continuing education/professional development, in order to ensure the necessary knowledge and competencies for safe provision of quality health services in their specialty area.
4. Healthcare professionals providing telehealth services should insure that workspaces are secure, private, reasonably soundproof, and have a lockable door to prevent unexpected entry. Efforts shall be made to ensure privacy so provider discussion cannot be overheard by others outside of the room where the service is provided. If other people are in either the patient's or the professional's room, both the professional and patient shall be made aware of the other person and agree to their presence.
Clinical Guidelines
1. The organization and health professionals shall review with the patient expectations regarding additional contact between patient and provider (e.g., whether or not the provider will be available for phone or electronic contact between sessions and the conditions under which such contact is appropriate). This review should also include a discussion of emergency management between sessions.
2. Health professionals providing telehealth services shall be familiar with the use of any devices and software employed in delivering care over distances. This may include receiving specific training in such devices and software prior to providing patient services.
3. Professionals shall be culturally competent to deliver services to the populations that they serve. Examples of factors to consider include awareness of the client's language, ethnicity, race, age, gender, sexual orientation, geographical location, socioeconomic, and cultural backgrounds. Health professionals are encouraged to use online resources to learn about the community in which the patient resides including any recent significant events and cultural mores of that community.
Technical Guidelines
1. Communication Modes & Applications: All efforts shall be taken to use communication modes and applications that have appropriate verification, confidentiality, and security parameters necessary to be utilized properly. Software platforms should not be used when they include social media functions that notify users when anyone on a contact list logs on. When there are situations where multiple participants at different sites (i.e., more than 2) are involved such as with virtual care team conferences or two consultants interacting with the patient simultaneously, the guidelines apply to all participating sites.

2. Devices & Equipment:
   Both the professional and patient site should when available use high quality cameras (video and/or still as clinically appropriate for the intended application), audio, and related data capture and transmission equipment that is appropriate for the telehealth clinical encounter, and which meet any existing practice-specific guidelines. Devices shall have up-to-date security software per the manufacturer's recommendations. Health professionals/organizations should use device management software to provide consistent oversight of applications, device and data configuration and security. In the event of a technology fault or failure the organization and health professionals shall have a backup plan in place that outlines an alternate method of communication between sites. The plan shall be communicated to the patient or referring provider prior to commencement of the initial treatment encounter, and it may also be included in the general emergency management protocol. The professional should review the technology backup plan on a routine basis.

In addition, organizations shall:

   a. Ensure that equipment sufficient to support diagnostic needs is available and functioning properly at the time of facility encounters.
   b. Have strategies in place to address environmental elements of care necessary for safe use of telehealth equipment.
   c. Comply with all relevant laws, regulations, and codes for technology and technical safety.
   d. Have infection control policies and procedures in place for the use of telehealth equipment and patient peripherals that comply with organizational, legal, and regulatory requirements.
   e. Have processes in place to ensure the safety and effectiveness of equipment through on-going maintenance.
   f. Meet required published technical standards and regulations (e.g., Food and Drug Administration) for safety and efficacy for devices that interact with patients or are integral to the diagnostic capabilities of the practitioner when and where applicable.

3. Privacy
   a. Audio, video, and all other data transmission shall be secure through the use of encryption (at least on the side of the healthcare professional) that meets recognized standards.
   b. Individuals in charge of technology should familiarize themselves with the technologies available regarding computer and mobile device security, and should help educate the patient with respect to such issues as privacy and security options. Videoconferencing privacy features should be available to both the provider and patient. Privacy features should include audio muting, video muting, and the ability to easily change from public to

private audio mode.

c. When the patient and/or provider use a mobile device, special attention should be placed on the relative privacy of information being communicated over such technology.
d. Providers should ensure that access to any patient contact information stored on any device is adequately restricted. Devices shall require a passphrase or equivalent security feature before the device can be accessed. If multi-factor authentication is available, it should be used. Devices should be configured to utilize an inactivity timeout function that requires a passphrase or reauthentication to access the device after the timeout threshold has been exceeded. This timeout should not exceed 15 minutes. Mobile devices should be kept in the possession of the provider when traveling or in an uncontrolled environment. Unauthorized persons shall not be allowed access to sensitive information stored on any device, or use the device to access sensitive applications or network resources. Providers should have the capability to remotely disable or wipe their mobile device in the event it is lost or stolen. Providers and organizations may consider establishing guidelines for periodic purging or deletion of telehealth related files from mobile devices.
e. Videoconferencing software shall allow only a single session to be opened, although the session may include more than two sites/participants. If there is an attempt to open a second session, the system shall either log off the first session or block the second session from being opened. Session logs stored in third party locations (i.e., not on patients' or providers' access device) shall be secure. Access to these session logs shall only be granted to authorized users. This does not preclude the use of multiple cameras during the same session (e.g., videoconferencing camera plus hand-held examination camera).
f. Protected health information and other confidential data shall only be backed up to or stored on secure data storage locations. Cloud services unable to achieve compliance shall not be used for personal health information (PHI) or confidential data. Professionals may monitor whether any of the transmission data is intentionally or inadvertently stored on the patient's or professional's computer hard drive. If so, the hard drive of the provider should use whole disk encryption as providing acceptable levels of security to ensure security and privacy.
g. Professionals should provide information to patients about the potential for inadvertently storing data and patient information, and they should provide guidance about how best to protect privacy. Professionals and patients shall discuss any intention to record services, how this information will be stored, and how privacy will be protected.
h. When organizations and health professionals make recordings of telehealth

encounters, they should be encrypted for maximum security. Access to the recordings shall only be granted to authorized users and should be streamed to protect from accidental or unauthorized file sharing and/or transfer. The professional may also want to discuss his or her policy with regards to the patient sharing portions of this information with the general public. Written agreements pertaining to this issue can protect both the patient and the professional. If services are recorded, the recordings shall be stored in a secured location. Access to the recordings shall only be granted to authorized users.

American Psychological Association Guidelines (2013)
1. Psychologists who provide telepsychology services strive to take reasonable steps to ensure their competence with both the technologies used and the potential impact of the technologies on clients/patients, supervisees, or other professionals.
2. Psychologists make every effort to ensure that ethical and professional standards of care and practice are met at the outset and throughout the duration of the telepsychology services they provide.
3. Psychologists strive to obtain and document informed consent that specifically addresses the unique concerns related to the telepsychology services they provide. When doing so, psychologists are cognizant of the applicable laws and regulations, as well as organizational requirements, that govern informed consent in this area.
4. Psychologists who provide telepsychology services make reasonable efforts to protect and maintain the confidentiality of the data and information relating to their clients/patients and inform them of the potentially increased risks of loss of confidentiality inherent in the use of the telecommunication technologies, if any.
5. Psychologists who provide telepsychology services take reasonable steps to ensure that security measures are in place to protect data and information related to their clients/patients from unintended access or disclosure.
6. Psychologists who provide telepsychology services make reasonable efforts to dispose of data and information and the technologies used in a manner that facilitates protection from unauthorized access and accounts for safe and appropriate disposal.
7. Psychologists are encouraged to consider the unique issues that may arise with test instruments and assessment approaches designed for in-person implementation when providing telepsychology services.
8. Psychologists are encouraged to be familiar with and comply with all relevant laws and regulations when providing telepsychology services to clients/patients across jurisdictional and international borders.

HIPAA

The Health Insurance Portability and Accountability Act (HIPAA) was enacted in 1996 to protect person health information (PHI). Only certain parties, called "covered entities," are subject to HIPAA. These entities include: (a) health plans; (b) health care providers; (c) health care clearing houses; and (d) business associates. Telehealth provision or use does not alter a covered entity's obligations under HIPAA, nor does HIPAA contain any special section devoted to telehealth. Therefore, if a covered entity is utilizing telehealth that involves PHI, the entity must meet the same HIPAA requirements that it would if the service was provided in person. The entity will need to conduct an accurate and thorough assessment of the potential risks and vulnerabilities to the confidentiality, integrity and availability, of PHI. While there are some specifications, each entity must assess what are reasonable and appropriate security measures for their situation.

Use of specific telehealth equipment or technology cannot ensure that an entity is "HIPAA compliant" because HIPAA addresses more than features or technical specifications. HIPAA compliance entails an organized set of secure, monitored, and documented practices within and between covered entities. Though products cannot ensure compliance, some products may contain elements or features that allow them to be operated in a HIPAA-compliant way. The telehealth software program may contain an encryption feature, or the technology might provide security through the use of passwords. However, these features only provide elements or tools to help a covered entity meet its obligations under HIPAA; they do not ensure compliance and cannot substitute for an organized, documented set of security practices.

Mandatory Reporting

Along with confidentiality, you will be in regular contact with at-risk populations (i.e., infants and children, individuals with mental illness or developmental disabilities); therefore, you are legally required to report (or cause a report to be made) when abuse or neglect is observed or suspected. The abuse that must be reported may include physical injury, neglect, sexual or emotional abuse, or financial exploitation. If you observe or suspect abuse, contact your supervisor, Traci Ruppert or Wendy Machalicek (faculty advisor of this project) to discuss further steps.

Equipment and Software

During this training you will learn how to use equipment and software that you probably have already used in your professional capacity as a behavior specialist, but we will be using this equipment and software in specific ways to facilitate behavioral consultation at a distance with two way audio and visual exchange. You and the caregiver will be using VSee for video conferencing over a wireless or wired broadband Internet connection. VSee reports HIPAA compliant characteristics and has in real time screen share capability. You will also be using BitTorrent software to sync your files directly between devices. There are no accounts, no file size limits, and they are password protected. You and the caregiver will download the folder directly to your computer, so once you place a file or video into that folder, the syncing process starts and you have access to the file or video within a few minutes. Only individuals with the password will have access to the folder to help with maintaining confidentiality. A task analysis of how to set up the software on your personal computer can be found in Form 1.

Equipment

You will use your personal computers and webcam. Your personal computer can be a password protected desktop or laptop computer. You should be the only person that uses the computer. If a caregiver does not have a computer, a laptop will be loaned to them. The laptop will be a 13.3 inches 2.4 GHz/250 GB hard drive/SuperDrive MacBook™ computer. The caregiver will be loaned a Logitech HD C615TM Webcam with extension cord so the webcam can be placed for a full room view. A Jabra WAVE™ Bluetooth headset will also be loaned so you can be give performance feedback to the caregiver during the consultation sessions without the child becoming distracted. The researcher will visit each family in their home prior to baseline assessment to assist with technology set up.

Software

The video calls will be initiated using VSee software. This software was chosen because it is HIPPA approved; which means it protects data privacy in that all audio/video communication is securely encrypted and transmitted from point-to-point such that even VSee does not have access to any identifiable health information that may be communicated. Also, it only needs between 80 to 120 kbps bandwidth Internet connection, has screen share capability, and drag-and-

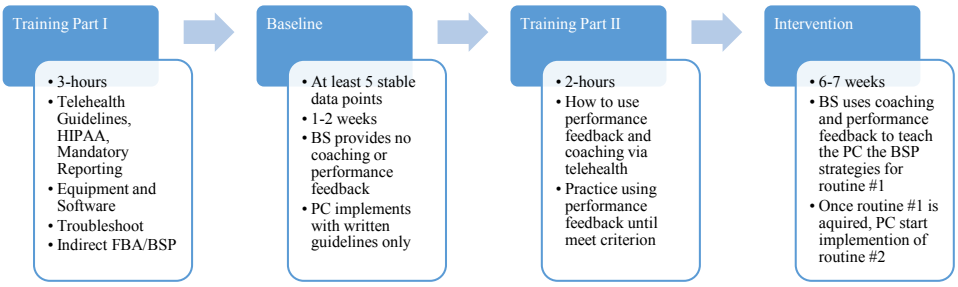
drop file transfer to send files. Directions on how to use screen share and the drag-and-drop file transfer can be found in Form 2.

BitTorrent Sync will be used to share the independent recorded videos from the caregiver for data collection. BitTorrent Sync is a peer-to-peer file synchronization tool that syncs files between devices on a local network, or between remote devices over the Internet via secure, distributed P2P technology. The user's data is stored on the user's local device instead of in a 'cloud', therefore requiring at least two user devices to be online in order to synchronize files between them. BitTorrent Sync encrypts data with an Advanced Encryption Standard AES-128 key in counter mode which may either be randomly generated or set by the user. This key is derived from a 'secret' which can be shared to other users to share data. Data is sent between devices directly. Many devices can be connected simultaneously and there is no limit on the amount of data that can be synced. If any problems with equipment or software occur, the lead researcher (Traci Ruppert) will travel to the family's home or use TeamViewer to connect to their computer remotely.

Part I. Behavioral Consultation via Telehealth

The Family-Centered Telehealth Behavioral Consultation training for behavior specialists will be conducted in two parts. Part I of the training will be 3-hours in length and will cover (a) telehealth guidelines, HIPPA, and mandatory reporting; (b) how to set-up the equipment and software on your computer; (c) how to collaborate with the caregivers via videoconferencing to conduct an indirect FBA and build a contextually fit BSP; and (d) troubleshooting technical difficulties. Part II of the training will occur after baseline assessment is complete and will be 2-hours in length. The second part of the training will cover how to use performance feedback and coaching via telehealth to teach the caregivers how to use the BSP strategies with their child during the identified family routine in the home. After Part II of the training is complete, the caregiver will be trained via telehealth by the behavior specialist to implement the BSP strategies for targeted family routine #1 with their child in their home with weekly mentoring consisting of coaching, performance feedback, and local problem solving discussions from the researcher. Once the caregiver has met acquisition and fluency for routine #1, the behavior specialist will train the caregiver via telehealth to implement the BSP strategies for targeted family routine #2 with their child in their home. Figure 1 presents a flow chart that details what the procedures and timeline of the study.

Figure 1. Flow Chart of Procedures and Timeline



Indirect FBA and BSP Development Procedures

Step 1: Functional behavior assessment

Once the computer is set up, you will build rapport while interviewing the caregiver via videoconference to complete an indirect functional behavior assessment using an adapted version of the *Functional Assessment Checklist for Teachers and Staff – Home Version* (FACTS - Home Version; Freeman & Anderson, 2005; March et al., 2000). The adapted FACTS – Home Version can be found in Form 3. The FACTS – Home Version is a three-page interview used by clinicians to identify the operant function(s) maintaining an individual's challenging behavior and subsequently building behavior support plans. The FACTS is intended to be an efficient strategy for initial functional behavioral assessment. The FACTS is completed by people (family, clinicians) who know the child best, and used to either build behavior support plans, or guide more complete functional behavior assessment efforts. The FACTS can be completed in a short period of time (30-45 min).

During your telehealth session where you complete the FACT interview, make sure you are self-monitoring your interpersonal communication skills. This is harder when you are actually not meeting in person with someone.

Some tips

- Make sure you are looking at the camera rather than the caregiver's image on your computer screen. Do not pay attention to other distractions (e.g., email, etc.).
- Be an active listener and use clarifying statements/questions.
- Also, pay attention to your non-verbal facial expressions, tone and pitch of voice, and gestures displayed through body language. Sometimes these things are forgotten when meeting via telehealth.

During the FACTS interview, you are the investigator.

- Ask follow-up questions to get specific information you can use to inform interventions
- Understand from the child perspective...
- You need to be convinced...
- You need to be confident in the results of the interview...

How to Complete the FACTS-Part A:

- **Step #1: Complete Demographic Information:**
  - ✓ Indicate the name and age of the child, the date the assessment data were collected, the name of the person completing the form (the interviewer), and the name(s) of the people providing information (respondents).

- **Step #2: Complete Child Profile:**
  - ✓ Begin each assessment with a review of the positive and contributing characteristics of the child. Begin with focus on positive skills and attributes of the child.
  - ✓ Identify at least three strengths or contributions the child offers.

- **Step #3: Identify Problem Behaviors:**
  - ✓ Identify the specific child behaviors that are barriers and disrupt the family routines, interfere with social development, or compromise safety at home.
  - ✓ Provide a brief description of exactly how the child engages in these behaviors.
  - ✓ Identify the most problematic behaviors, but also identify any problem behaviors that occur regularly.

- **Step #4: Identify Where, When and With Whom the Problem Behaviors are Most Likely**
  - ✓ **Time:** List the times that define the child's daily schedule.
  - ✓ **Activity:** For each time listed indicate the activity typically engaged in during that time (e.g. morning routines, eating times, transitions, play times, bedtime routines, etc).
  - ✓ **Likelihood of Problem Behavior:** Use the 1 to 6 scale to rate (in general) which times/activities are most and least likely to be associated with problem behaviors. A "1" indicates low likelihood of problems, and a "6" indicates high likelihood of problem behaviors.
  - ✓ **Problem Behavior:** Indicate the specific problem behavior(s) that occur during each time with a rating of 4, 5 or 6.

- **Step #5: Select Routines for Further Assessment:**
  - ✓ Examine each time/activity listed as 4, 5 or 6 in the Table from Step #4.
  - ✓ If activities are similar (e.g. activities that are unstructured; activities with peers/siblings; following a routine) and have similar problem behaviors treat them as "routines for future analysis". Select between 2 routines for further analysis.
  - ✓ Write the name of the routine, and the most common problem behavior(s). Within each routine identify the problem behavior(s) that are most likely or most problematic.
  - ✓ For each routine identify in Step #5 complete a FACTS-Part B

How to Complete the FACTS-Part B:

- **Step #1: Complete Demographic Information:**
  - ✓ Identify the name and age of the child, the date that the FACTS-Part B was completed, who completed the form, and who provided information for completing the form.

- **Step #2: Identify the Target Routine:**
  - ✓ List the targeted routine and problem behavior from the bottom of the FACTS-Part A.
  - ✓ The FACTS-Part B provides information about ONE routine. Use multiple Part B forms if multiple routines are identified.

- **Step #3: Provide Specifics about the Problem Behavior(s):**
  - ✓ Provide more detail about the features of the problem behavior(s).
  - ✓ Describe prioritized problem behavior(s) in observable terms. This definition should be so clear that you could clearly identify when the behavior does or does not occur.
  - ✓ What is the frequency of the Problem Behavior in the targeted routine (# x's /day or hour)?
  - ✓ What is the duration of the Problem Behavior in the targeted routine (in seconds or min)?
  - ✓ Is behavior immediate danger to self/others (Y/N)? Ask the interviewee if the child engages in behaviors that pose a danger to themselves or others. Dangerous behaviors are: behaviors that directly injure others (e.g., hitting, throwing dangerous objects, etc.)

- **Step #4: Identify Events that Predict Occurrence of the Problem Behavior(s):**
  - ✓ Within each routine, what (a) setting events, and (b) immediate preceding events predict when the problem behavior(s) will occur.
  - ✓ What would you do to make the problem behaviors happen in this routine?
  - ✓ When asking about antecedents remember to do the following:
    1. Remind the respondent that you are only talking about the target routine
    2. Have the person initially check all setting events and antecedents in the list that apply
    3. Then, have the person rank order the 2 strongest predictors from those selected
  - ✓ After identifying the strongest predictor(s) ask follow-up question(s).
  - ✓ It is the job of the interviewer to ask the additional follow-up questions necessary to obtain the clearest understanding of the antecedents triggering the problem behavior.
  - ✓ You as the interviewer should have a clear enough understanding of the antecedents to be able to make changes to, or eliminate, the triggers and make the child need for the problem behavior irrelevant.
  - ✓ Before moving on with the interview, ask yourself the following about the antecedent response.
    1. Are there further follow-up questions I should ask to get a clearer understanding of what triggers the problem behavior?
    2. Is the antecedent clear enough that I can identify specific environmental changes that should prevent the problem behavior?

- **Step #5: Identify the Consequences that May Maintain the Problem Behavior:**
  - ✓ What consequences appear to reward the problem behavior?
  - ✓ Consider that the child may get/obtain something they want, or that they may escape/avoid something they find unpleasant.
  - ✓ Identify the most powerful maintaining consequence with a "1", and other possible consequences with a "2" or "3." Do not check more than three options.

- ✓ The focus here is on the consequence that has the greatest impact. When problems involve minor events that escalate into very difficult events, separate the consequences that maintain the minor problem behavior from the events that may maintain problem behavior later in the escalation.
- ✓ After identifying the strongest consequence(s) ask follow-up question(s):
    1. Whose attention is obtained?
    2. How is the (positive or negative) attention provided?
    3. What specific items, activities, or sensations are obtained?
    4. Describe specific task/activity/sensation avoided?
- ✓ It is the job of the interviewer to ask additional follow-up questions necessary to obtain the clearest understanding of the consequences maintaining the problem behavior.
- ✓ You as the interviewer should feel that you understand how the problem behavior is functional in paying off for the child in getting a desired outcome.
- ✓ Before moving on ask yourself the following questions about the consequence response:
    1. Are there further follow-up questions I should ask to get a clearer understanding of what consequences are maintaining the problem behavior?
    2. Are the consequences and function of behavior clear enough that I can understand how the problem behavior is paying off for the child?
    3. When considering the antecedent and consequence together, do they make sense?

- **Step #6: Build a Summary Statement:**
    - ✓ The summary statement indicates the setting events, immediate predictors, problem behaviors, and maintaining consequences.
    - ✓ The summary statement is the foundation for building an effective behavior support plan.
    - ✓ Build the summary statement from the information in the FACTS-A and FACTS-B (Especially the information in Steps #3, #4, and #5 of the FACTS-B).

1. **Setting events and Predictors:** Write the highest ranked item from the Setting Events and Antecedents category
    - Provide additional details provided through the follow-up questions.
2. **Problem behavior(s):** Write in the description of problem behavior identified in the Identifying the Target Routine box at the top of the FACTS — Part B form.
3. **Maintaining Consequence(s):** Write the highest ranked item from consequences category
    - Provide additional details provided through the follow-up questions.

✓ After completing the Summary of Behavior, read the summary back to the respondent according to the following format:

1. "During <insert target routine>, <insert child name> is likely to <insert problem behaviors> when he/she is <insert details of antecedent conditions that trigger behavior>, and you believe that he/she does this to <insert details of consequence/ function>."
2. Ask the person interviewed "Do you agree with this Summary of Behavior or is there anything you would like to add or change?"

- **Step #7: Determine "Level of Confidence":**
    - ✓ Use the 1-6 scale to define the extent to which you, the interviewer or the team are "confident" that the summary statement is accurate.
    - ✓ Confidence may be affected by factors such as (a) how often the problem behavior occurs, (b) how long you have known the focus person, (c) how consistent the problem behaviors are, (d) if multiple functions are identified, and (e) if multiple behaviors occur together.

- **Step #8: Define what has been done to date to prevent/control the problem behavior:**
    - ✓ In some cases, caregivers will have tried some strategies already. List events that have been tried, and organize these by (a) those things that have been to prevent the problem from getting started, (b) those things that were delivered as consequences to control or punish the problem behavior (or reward alternative behavior).

- **Step #9: Socially appropriate behaviors:**
  - ✓ Ask the caregivers what are some socially appropriate behaviors or skills their child can already perform that may generate the same outcomes or reinforcers produced by the problem behaviors.
  - ✓ This could be asking for help, following a visual schedule, getting your attention appropriately, etc.

- **Step #10: Primary ways the child communicates:**
  - ✓ This sections is most important for children who are nonverbal or have a limited verbal repertoire.
  - ✓ Ask the caregiver about the way their child communicates.
  - ✓ Questions include both expressive and receptive ways of communicating.
  - ✓ Some of the questions can be skipped if he/she has a large verbal repertoire.

- **Step #11: Things the child likes and could be reinforcers:**
  - ✓ To get a sense of what could be used as incentives and reinforcers, ask the caregiver about the child's likes and interests.

STEP 2: Direct Observation with ABC Recording

From the FBA, a function-based summary hypothesis statement will be developed providing an operational definition of the challenging behavior, identification of events that reliably predict challenging behavior and the consequences that typically followed the behavior, and identification of the purpose or function of the behavior. After the interview is complete, you will conduct one 20-minute direct observation for each of the identified home routines with the child via telehealth and collect ABC data to confirm the developed summary statement. Observe until you are convinced (record at least 5 problem behaviors to establish a pattern). The ABC data collection sheet can be found in Form 4.

Purpose of observation:

1. Confirm the accuracy of the FACTS interview summary of behavior
2. Identify antecedents and consequences that the parent may have overlooked
3. Verify the function of the child 's behavior
4. Develop the most accurate summary statement for intervention development

During the Observation:

1. Always start with recording the behavior first — be as specific as possible
2. Write the activity/task occurring during the routine
3. Write the antecedent that occurs before the behavior
4. Write what happened right after the behavior occurred in the consequence box

After the Observation:

1. Compare summary statement from ABC observation with that from the FACTS interview with the parent
2. Does the summary statement from the FACTS accurately explains the identified behavior occurring? If not, conduct another 20 min observation. After 2 observations, if summary statement disagrees with observation, change the summary statement to accurately reflect the behavior that is occurring.

Step 3: Behavior Support Plan Development

Following the indirect FBA and observation, you will lead the caregiver to develop a contextually fit BSP using the indirect FBA data collected on each of the selected routines that the caregiver identified for their child. The BSP template can be found in Form 5.

How to complete the BSP:

1. First, you and the caregiver will use the summary statement from the FACTS to collaboratively develop a competing behavior pathway.
    - ✓ Identify the challenging behavior, setting events, antecedents, consequences, and the probable function of the challenging behavior.

2. Next, discuss with the caregiver to identify a possible functionally equivalent alternative and desired behavior they want their child to engage in.
    - ✓ Make sure you are asking the caregiver for their input in deciding what they feel is an appropriate alternative behavior.
    - ✓ Operationally defined the alternative behavior so data can be collected on this as well as the challenging behavior.

3. Intervention strategies will be collaboratively discussed next and selected that are designed to (a) prevent the occurrence of challenging behavior, (b) teach alternative and desired behaviors, and (c) minimize reinforcement for challenging behavior, while maximizing reinforcement for alternative and desired behaviors.
    - ✓ You should be flexible by giving the caregiver choices and asking for their preference of which intervention he/she feels comfortable with implementing.
    - ✓ You will ensure that the selected strategies will include function-based interventions and no contraindicated strategies, and that the caregiver feels the selected strategies are contextually appropriate.
    - ✓ Finally, once the behavior support strategies are selected, you will create an implementation plan that includes a list of basic instructions for each selected strategy.
    - ✓ The caregivers will be given basic instruction on the rationale and procedures of each strategy

Essential Components of a Behavior Support Plan:

1. **Replace** problem behavior by teaching a socially acceptable, efficient behavior that allows the child to obtain the pay-off/function. An appropriate replacement behavior:
    - ✓ Serves the same function as the problem behavior
    - ✓ Is easier to do and more efficient than the problem behavior
    - ✓ Is socially acceptable
2. **Prevent** problem behaviors by directly addressing triggers and prompting replacement behaviors based on the function of behavior. Prevention interventions should:
    - ✓ Directly address the identified antecedent/trigger
    - ✓ Directly address the function of the problem behavior
    - ✓ Remind the child to use the replacement behavior
3. **Reinforce replacement and desired behaviors** based on function/pay off for the child.
    - ✓ Immediately reinforce the use of replacement behaviors
    - ✓ Reinforce these desired behaviors by ensuring that the reinforcer is valued (matches function)
4. **Redirect** problem behaviors by quickly and effectively redirecting the child to replacement behavior. At the earliest sign of problem behavior:

- ✓ Redirect or prompt the child to the replacement behavior

5. **Minimize Reinforcement** by ensuring that problem behaviors do NOT pay off for the child (i.e. does not result in the function of behavior).
   - ✓ When problem behaviors occur, identify a response that does not result in the desired pay-off for the child.
   - ✓ Minimizing reinforcement for problem behavior by redirecting to the replacement behavior and extinction of the problem behavior.

To ensure the BSP is contextually fit, the caregiver will be asked to complete a pre-assessment after baseline is complete and a post-assessment after intervention is complete of the adapted 16-item *Self-Assessment of Contextual Fit in the Home* rating scale (Horner et al., 2003; see Form 6) to evaluate the extent to which the strategies and interventions included in the plan were consistent with the skills, values, and available resources of the caregiver and their homes. This will be delivered via Qualtrics.

The caregiver will also be asked to fill out a pre- and post-*Family Quality of Life Survey* (FQOL; Summers et al., 2005; see Form 7) to capture a range of elements that interact to determine the quality of life for a family raising a child with IDD. This will be delivered via Qualtrics.

Baseline Assessment

Once the BSPs are developed, baseline assessment will begin. You will conduct daily 20-minute observation sessions for routine #1 and probes for routine #2 via telehealth sessions with the caregiver where data will be collected on:

a. caregiver implementation fidelity of BSP with written material only
b. 10-second partial/whole interval data on child challenging and adaptive behavior

The caregiver will be asked to implement the BSP strategies to the best of his/her ability with their child during the identified routines. You will not provide coaching or performance feedback to the caregiver during baseline sessions. At the end of the session, you will thank the caregiver for his/her time and schedule the next telehealth session. After baseline assessment is complete, you will complete Family-Centered TBC Training Part 2 and then train the caregiver via telehealth to implement the BSP strategies for targeted family routine #1 with their child in their home.

Part II. Coaching and Performance Feedback

Past research suggests that performance feedback is integral to improving adult use of evidence-based strategies.[11] Common elements in performance feedback protocols include: (a) positive feedback for strategies implemented correctly, (b) corrective feedback for strategies not implemented correctly, and (c) ensuring understanding of corrective feedback by asking questions or asking the individual to repeat corrective feedback.[12]

Once the BSP is developed, you will develop a caregiver implementation fidelity checklist. The checklist will be a task analysis of the steps for the strategies chosen in the BSP. You will use the fidelity checklist to train the caregiver on the BSP strategies during the home routine using performance feedback via telehealth. For routine #1, you will meet with the researcher for weekly mentoring consisting of coaching, performance feedback, and local problem solving discussions.

During each session, you will collect data on:

- ✓ The number of implementation fidelity task analysis steps completed correctly and incorrectly to evaluate the extent to which the BSP strategies and interventions were implemented by the caregiver.
- ✓ 10-second partial interval data on the child's target challenging and adaptive behavior.

Each session:

- ✓ Will be recorded and the parent will have a Bluetooth headset (with their computer speaker turned off) so you can give feedback during the routine without unduly disrupting the home environment.
- ✓ Observation periods will occur three to five times per week (i.e., either via telehealth or independent videos sent in by the caregiver) and last 20-minutes in duration for each of 2 routines for a total of 40 minutes data collection each session.
- ✓ A second observer will collect inter-observer agreement (IOA) measures.

[11] Barton & Fettig, 2013; Hattie & Timperley, 2007; Sprick, Knight, Reinke, Skyles, & Barnes, 2010
[12] O'Reilly et al., 1992; Parsons & Reid, 1995

Performance Feedback Steps (see Form 8):

1. You will start each session with a greeting, quickly stating the agenda, and timeline for the session.
2. The coaching session will begin by you briefly describing the targeted skill and providing a model demonstration or video clip of targeted skill for the caregiver.
3. You will then ask the caregiver to demonstrate the targeted skill with their child during the pre-identified routine/activity.
4. During the routine/activity, you will use both planned and spontaneous events (if occur) to improve the caregiver's knowledge and use of targeted skill.
5. While the caregiver demonstrates the targeted skill, you should make positive comments on the caregiver's overall performance specific to the targeted skill indicating areas of positive performance.
6. If primary caregiver makes an error in implementing targeted skill, you will interrupt the caregiver by saying their name, ask them what they did wrong, and give them an opportunity to do it correctly. If they don't know or incorrectly state what they should do next, you accurately describes next step to them and allow them to practice again until the caregiver demonstrates the correct response.
    a. If the caregiver is not getting it, make a video model for the caregiver to view and practice with on his/her own time. Also, building a script for the caregiver to use in challenging situations can help.
7. During coaching of the routine, you should interact with the caregiver in a nonjudgmental and constructive manner
8. You will encourage the caregiver to ask questions.
9. The coaching session should end with you inviting the caregiver to reflect on their progress
10. You will end the session by summarizing the caregiver's positive growth in knowledge and use of the targeted skill.

You will conduct telehealth session with the caregiver until the caregiver meets 80% criterion of the implementation steps for the chosen strategy. Once the caregiver has met criterion, you will conduct telehealth session 1-2 times per week and the caregiver will record 2-4 independent videos of the routines per week. Independent videos will be shared through BitTorrent Sync and you will take data on the dependent variables. You will graph the data and use visual analysis to see

if the caregiver is staying above 80% criterion. If they fall below 80% criterion, you will conduct a second telehealth session that week. Once the caregiver has acquired fluency for routine #1 (i.e., determined by staying above 90% mastery criterion for 3 consecutive weeks), you will start using coaching and performance feedback to train the caregiver on the BSP strategies for targeted routine #2.

Troubleshooting

Some problems may arise with sessions and technology. Here are some strategies and suggestions.

1. Send the caregiver a reminder text or email before the scheduled coaching session or independent video.

2. Have the child complete a neutralizing routine prior to initiating video call/video to decrease challenging behavior.

3. If the child is distracted by the computer screen, put a piece of paper over the screen to block their view.

4. If you become a stimulus for challenging behavior, involve the child into the greeting and build reinforcement from you into the routine.

5. Sometimes the VSee program will quit working. This can be fixed by having the caregiver restart the program by closing it completely and then reopening it.

6. If the video is not working, this can usually be fixed by restarting the computer and checking the webcam.

7. If the videos are not syncing, have the caregiver check to make sure that the videos are in the BitTorrent Sync folder and that the BitTorrent Sync program is running in the background. The icon should be in the task bar on the bottom right.

8. See VSee Quick Guide and Tips (Form 9) for troubling shooting tips on sound and video quality

Form 1

Task Analysis of How to Set Up the Computers (PC and Mac)

Requirements:

- Computer: Desktop or Laptop
- Computer Platform: 'Windows 7 or later' or 'Mac OS X 10.7 Lion or later'
- Webcam
- Internet

Initial Set up Instructions for the Windows Platform

1. Download 'BitTorrent Sync' at: http://www.bittorrent.com/sync
2. Install BitTorrent Sync:
    - Check the box to agree and click 'Continue' twice
    - Click on 'This is my first sync 2.0 device'
    - Type name in to 'Create Identity'
    - Check the following:
        - Create Desktop icon
        - Open BitTorrent Sync after installation
        - Add an exception for BitTorrent Sync in Windows Firewall
        - Start BitTorrent Sync when Windows starts up
3. BitTorrent Sync set up:
    - Click on link
    - Click on 'I already have sync 2.0'
    - Choose BitTorrent Sync to launch application
        - click 'ok'
    - Save to location
        - Save location of folder to desktop
        - Click 'Connect'
    - Click the X in the upper right corner of the BitTorrent Sync window to minimize to the task bar
4. Download 'VSee' at: http://vsee.com/start/download for Windows
5. Install Vsee
6. VSee set up:
    - Enter username, password and check Stay signed in
    - Set up webcam

- Click on the green camera icon (the webcam window should pop up)
  - Click on the settings icon in the lower right corner:
    - Video Setting > Resolution (check 480p) - this setting only has to be set up once
    - Video Setting > Frame Rate (adaptive) - this setting only has to be set up once
- To Record
  - Go to Tools > Record…
    - A window will pop up, navigate to the folder you created on the desktop named 'Participant (and the number you are assigned)' and name the file as: today's date (1), example: 2014-10-26 (1). If you create another video on the same day name it: today's date (2), today's date (3), etc. example: 2014-10-26 (2). Make sure you do not overwrite an existing file that was created on the same day.
    - It will begin recording as soon as you click the save button.
- To Stop Recording
  - Go to Tools > Stop Recording
- Click the X in the upper right corner of the VSee windows to minimize to the task bar

Regular Use Instructions for the Windows Platform

- Make sure BitTorrent Sync is running in the background (if the BitTorrent Sync icon is in the task bar, it's running in the background, you don't have to click on it or anything)
- Open VSee
- Click on the green camera icon (the webcam window should pop up)
- To Record
  - Go to Tools > Record…
    - A window will pop up, navigate to the folder you created on the desktop named 'Participant (and the number you are assigned)' and name the file as: today's date (1), example: 2014-10-26 (1). If you create another video on the same day name it: today's date (2), today's date (3), etc. example: 2014-10-26 (2). Make sure you do not overwrite an existing file that was created on the same day.
    - It will begin recording as soon as you click the save button.

- To Stop Recording
  - Go to Tools > Stop Recording
- Click the X in the upper right corner of the VSee windows to minimize to the task bar

Initial Set up Instructions for the Mac Platform

1. Download 'BitTorrent Sync' at: http://www.bittorrent.com/sync
2. Exit out of the Internet when the download is completed
3. Click on the BitTorrent Sync download (located in Downloads folder):
   - A box pops up with the BitTorrent Sync Icon and the Applications folder
     - Drag the BitTorrent Sync Icon to the Applications folder and quickly release
   - Close the pop up with the BitTorrent Sync Icon and Application folder
   - Close the Downloads folder (don't delete the BitTorrent Sync file in the downloads folder until the setup is complete)
   - In the Applications folder, click on the BitTorrent Sync icon to install
     - A box pops up "BitTorrent Sync is an application downloaded from the internet. Are you sure you want to open it?"
       - Click Open
   - Check the box to agree and click 'Continue'
   - Click on 'This is my first sync 2.0 device'
   - Type name in to 'Create Identity'
4. BitTorrent Sync folder set up:
   - Click on link in email
   - Click on 'I already have sync 2.0'
   - Save to location
     - Save location of folder to desktop
     - Click 'Connect'
   - Click the red X in the upper left corner of the BitTorrent Sync window to minimize to the task bar
   - BitTorrent Sync is still running in the background if the icon is in the bar on top of the screen
5. Install 'VSee' from Apple App Store (Participant must have an apple id)
6. Vsee set up:
   - Enter username, password and check Stay signed in
   - Set up webcam quality settings

- Go to the bar on top of the desktop and go to Vsee > Preferences:
  - Video > Resolution: Check, (480p) - this setting only has to be set up once
  - Video > Frame Rate: Check, (adaptive) - this setting only has to be set up once
  - Exit screen

- To Record
  - Click on the camera icon (the webcam window should pop up)
  - Go to the bar on top of the desktop and go to File > Start Recording…
    - A window will pop up, navigate into the 'Participant (and the number you are assigned)' folder on the desktop and click open
    - It will begin recording as soon as you click the open button.
- To Stop Recording
  - Go to File > Stop Recording
  - Go into the 'Participant (and the number you are assigned)' folder on the desktop
  - Rename the newly created video file as: today's date (2), example: 2014-10-26 (2). If you create another video on the same day name it: today's date (2), today's date (3), etc. example: 2014-10-26 (2). Make sure you do not overwrite an existing file that was created on the same day.
- Click the red X in the upper left corner of the VSee windows to minimize to the task bar

Regular Use Instructions for the Mac Platform

1. Make sure BitTorrent Sync is running in the background (if the BitTorrent Sync icon is in the bar on top of the screen, it's running in the background, you don't have to click on it or anything)
2. Open VSee
3. Click on the camera icon (the webcam window should pop up)
4. To Record
   - Click on the camera icon (the webcam window should pop up)
   - Go to the bar on top of the desktop and go to File > Start Recording…
     - A window will pop up, navigate into the 'Participant (and the number you are assigned)' folder on the desktop and click open

- It will begin recording as soon as you click the open button.

5. To Stop Recording
    - Go to File > Stop Recording
    - Go into the 'Participant (and the number you are assigned)' folder on the desktop
    - Rename the newly created video file as: today's date (2), example: 2014-10-26 (2). If you create another video on the same day name it: today's date (2), today's date (3), etc. example: 2014-10-26 (2). Make sure you do not overwrite an existing file that was created on the same day.
6. Click the red X in the upper left corner of the VSee windows to minimize to the task bar

Form 2

How to Use Screen Share and Drag-and-Drop

Screen Share

While drafting a document, writing a program, or doing work in any application, all you have to do is click on the "Share" button that appears on the top of the application to share that application. It's easy and immediate. While sharing an application, or receiving a shared application, you still continue to have full video capability.

Drag-and-Drop File Transfer

VSee creates a working experience similar to sitting next to someone. To send a file, all you have to do is drag the file onto the other person's video window. Once you see the document appear on your window, you just drag it to your desktop to open. It's so easy, and it's just like handing a document to someone in person.

Form 3

Functional Assessment Checklist for Teachers and Staff (FACTS) – Home Version

FACTS—Home Version (Part A)

Step 1 Child/Age: _____ Date:_____
Interviewer: _____ Respondent(s):_____

Step 2 **Child Profile:** Please identify at least three of your child's strengths; things he or she is good at.

_____

_____

Step 3 **Problem Behavior(s): Identify problem behaviors**

___ Dawdles	___ Physical Aggression (Peers)	___ Disruptive	___ Self-injury
___ Unresponsive	___ Physical Aggression (Sibs)	___ Destructive	___ Inappropriate language
___ Withdrawn	___ Physical Aggression (Adults)	___ Tantrums	___ Screams
___ Noncompliant	___ Physical Aggression (Parents)	___ Steals	

Describe problem behavior:
_____
_____
_____
_____

Step 4 **Identifying Routines: Where, When and With Whom Problem Behaviors are Most Likely.**

Schedule (Times)	Activity	Likelihood of Problem Behavior	Specific Problem Behavior
	Morning Routine	Low 1 2 3 4 5 6 High	
	Breakfast	1 2 3 4 5 6	
	Lunch	1 2 3 4 5 6	
	Dinner	1 2 3 4 5 6	
	Transition To School	1 2 3 4 5 6	
	Transition Home from School	1 2 3 4 5 6	
	Trips to Stores/Errands	1 2 3 4 5 6	
	Independent Play Time	1 2 3 4 5 6	
	Play with Siblings	1 2 3 4 5 6	

	Play with Peers	1 2 3 4 5 6	
	Bath Time	1 2 3 4 5 6	
	Clean-up	1 2 3 4 5 6	
	Bedtime	1 2 3 4 5 6	
	Completing chores:	1 2 3 4 5 6	
	Other:	1 2 3 4 5 6	

Step 5 **Select 1-3 Routines for further assessment: Select routines based on (a) similarity of activities (conditions) with ratings of 4, 5, or 6 and (b) similarity of problem behavior(s). Complete the FACTS-Part B for each routine identified.**

FACTS—Home Version (Part B)

Step 1 Child/Age: _____ Date:_____
Interviewer: _____ Respondent(s):_____

Step 2 **Routine/Activities/Context:** Which routine (only one) from the FACTS-Part A is assessed?

Routine/Activities/Context	Problem Behavior(s)

Step 3 **Provide more detail about the problem behavior(s):**

What does the problem behavior(s) look like?

How often does the problem behavior(s) occur?

How long does the problem behavior(s) last when it does occur?

What is the intensity/level of danger of the problem behavior(s)?

Step 4 **What are the events that predict when the problem behavior(s) will occur? (Predictors)**

Related Issues (setting events)		**Environmental Features**	
___ Illness	Other:_____	___ Reprimand/correction	___ Activity too difficult
___ Drug use	_____	___ Physical demands	___ Activity requires physical effort
___ Fight with sibling	_____	___ Alone/no one around	___ Tasks too boring
___ Problems at school	_____	___ With sibling(s)	___ Structured activity, specific expectations
___ Poor sleep	_____	___ With peers	___ Unstructured time
___ Poor eating habits		___ With mother	___ Crowded/noisy
___ Negative interaction with parent		___ With father	___ Interrupt/unexpected change in routine
___ Medications		___ Transitions	
___ Medical/physical condition		___ Other	

Step 5 **What consequences appear most likely to maintain the problem behavior(s)?**

Things that are Obtained		**Things Avoided or Escaped From**	
___ Adult attention	Other:_____	___ Hard tasks	Other:_____
___ Sibling attention	_____	___ Physical effort	_____
___ Preferred activity	_____	___ Adult attention	_____
___ Toys/things ___	_____	___ Reprimands	_____
Peer attention	_____	___ Peer attention	_____
	_____	___Sibling attention	_____

SUMMARY OF BEHAVIOR

Step 6 **A. Identify the summary that will be used to build a plan of behavior support.**

Setting Events & Predictors	**Problem Behavior(s)**	**Maintaining Consequence(s)**

Steps 7 **How confident are you that the *Summary of Behavior A* is accurate?**

Not Very Confident					Very Confident
1	2	3	4	5	6

Step 8 **What current efforts have been used to control the problem behavior?**

Strategies for preventing problem behavior			**Strategies for responding to problem behavior**		
___ Avoid situation	Other:_____	None:____	___ Reprimand	Other:_____	None:_____
___ Pre-warn	_____		___ Time out	_____	
___ Assist	_____		___ Ignore	_____	
___ Offer incentive	_____		___ Loss of privilege	_____	

Step 9 **What socially appropriate behaviors or skills can your child already perform that may generate the same outcomes or reinforcers produced by the problem behaviors?**

_____

_____

Step 10 **What are the primary ways the child communicates with other people?**

1. What are the general expressive communication strategies used by or available to your child? These might include vocal speech, signs/gestures, communication boards/books, or electronic devices. How consistently are the strategies used?

   _____

   _____

2. With regard to your child's receptive communication, or ability to understand other persons ...

   a. Does your child follow spoken requests or instructions? If so, approximately how many?

      (List if only a few.)_____

b. Does your child respond to signed or gestural requests or instructions? If so, approximately how many? (List if only a few.)

_____

c. Is your child able to imitate if you provide physical models for various tasks or activities? (List if only a few.)

_____

d. How does your child typically indicate *yes or no* when asked if she or he wants something, wants to go somewhere, and so on?

_____

Step 11 **What are things your child likes and are reinforcing for him or her?**

Food items: _____

Toys and objects: _____

Activities at home: _____

Activities/outings in the community: _____

Form 4

ABC Data Collection Sheet

Name		Date	
Observer		Setting	

Time	Activity	Antecedent	Behavior	Consequence

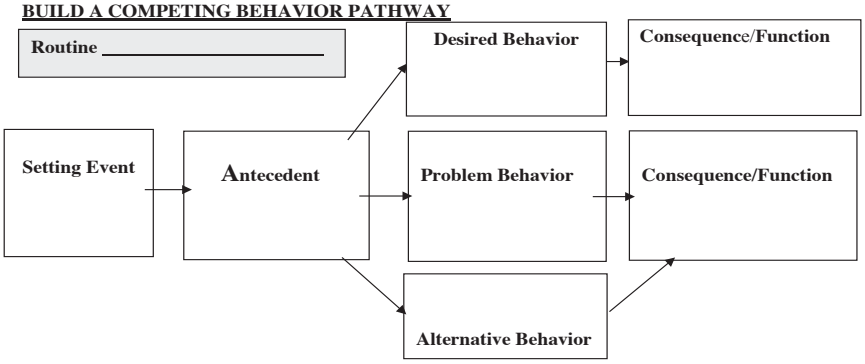
Form 5

Behavior Support Plan Template

Behavior Support Plan

Name _____Date _____

BUILD A COMPETING BEHAVIOR PATHWAY



Setting Event Strategies	Antecedent Strategies	Teaching Strategies	Consequence Strategies
Eliminate/ Neutralize Setting Events	Eliminate/ Modify Antecedents	Teach Alternate Behavior	Reinforce Alt/Des Behavior
	Prompt Alt/Des Behavior	Teach Desired Behavior/ Skills	Respond to Problem Behavior/ Redirect Extinguish

Form 6

Self-Assessment of Contextual Fit in the Home

Adapted from Horner, Salentine, & Albin, 2003

The purpose of this interview is to assess the extent to which the elements of a behavior support plan fit the contextual features of your home environment. The interview asks you to rate (a) your knowledge of the elements of the plan, (b) your perception of the extent to which the elements of the behavior support plan are consistent with your personal values, and skills, and (c) the behavior specialist's ability to support implementation of the plan. This information will be used to design practical procedures that will help primary caregivers support children with problem behaviors. The information you provide will be maintained and reported in a confidential manner consistent with the standards of the American Psychological Association. You will never be identified.

Please read the attached behavior support plan, and provide your perceptions of the specific elements in this plan. Thank you for your contribution and assistance.

Name of Interviewee: _____ Role : _____
Support plan reviewed: _____

Knowledge of elements in the Behavior Support Plan.

1. I am aware of the elements of this behavior support plan.

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Barely Disagree	Barely Agree	Moderately Agree	Strongly Agree

2. I know what I am expected to do to implement this behavior support plan.

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Barely Disagree	Barely Agree	Moderately Agree	Strongly Agree

Skills needed to implement the Behavior Support Plan

3. I have the skills needed to implement this behavior support plan.

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Barely Disagree	Barely Agree	Moderately Agree	Strongly Agree

4. I have received any training that I need to be able to implement this behavior support plan.

   No training needed _____

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Barely Disagree	Barely Agree	Moderately Agree	Strongly Agree

Values are consistent with elements of the behavior support plan

5. I am comfortable implementing the elements of this behavior support plan

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Barely Disagree	Barely Agree	Moderately Agree	Strongly Agree

6. The elements of this behavior support plan are consistent with the way I believe my child should be treated.

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Barely Disagree	Barely Agree	Moderately Agree	Strongly Agree

Resources available to implement the plan

7. My behavior specialist provides me with the time needed to train me to implement this behavior support plan.

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Barely Disagree	Barely Agree	Moderately Agree	Strongly Agree

8. My behavior specialist provides the materials needed to implement this behavior support plan.

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Barely Disagree	Barely Agree	Moderately Agree	Strongly Agree

Behavior specialist Support

9. My behavior specialist provides the supervision support needed for effective implementation of this behavior support plan.

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Barely Disagree	Barely Agree	Moderately Agree	Strongly Agree

10. My behavior specialist is committed to investing in effective design and implementation of behavior support plans.

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Barely Disagree	Barely Agree	Moderately Agree	Strongly Agree

Effectiveness of Behavior Support Plan

11. I believe the behavior support plan will be (or is being) effective in achieving targeted outcomes.

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Barely Disagree	Barely Agree	Moderately Agree	Strongly Agree

12. I believe the behavior support plan will help prevent future occurrence of problem behaviors for this child.

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Barely Disagree	Barely Agree	Moderately Agree	Strongly Agree

Behavior Support Plan is in the best interest of the child

13. I believe this behavior support plan is in the best interest of my child.

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Barely Disagree	Barely Agree	Moderately Agree	Strongly Agree

14. This behavior support plan is likely to assist my child to be more successful at home.

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Barely Disagree	Barely Agree	Moderately Agree	Strongly Agree

The Behavior Support Plan is efficient to implement

15. Implementing this behavior support plan will not be stressful.

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Barely Disagree	Barely Agree	Moderately Agree	Strongly Agree

16. The amount of time, money and energy needed to implement this behavior support plan is reasonable.

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Barely Disagree	Barely Agree	Moderately Agree	Strongly Agree

Form 7

Family Quality of Life Survey

(FQOL; Summers et al., 2005)

How satisfied am I that…	*Very Dissatisfied*	*Dissatisfied*	*Neither*	*Satisfied*	*Very Satisfied*
1. My family enjoys spending time together.					
2. My family members help the children learn to be independent.					
3. My family has the support we need to relieve stress.					
4. My family members have friends or others who provide support.					
5. My family members help the children with schoolwork and activities.					
6. My family members have transportation to get to the places they need to be.					
7. My family members talk openly with each other.					
8. My family members teach the children how to get along with others.					
9. My family members have some time to pursue our own interests.					
10. Our family solves problems together.					
11. My family members support each other to accomplish goals.					
12. My family members show that they love and care for each other.					
13. My family has outside help available to us to take care of special needs of all family members.					

14. Adults in our family teach the children to make good decisions.					
15. My family gets medical care when needed.					
16. My family has a way to take care of our expenses.					
17. Adults in my family know other people in the children's lives (friends, teachers, etc.).					
18. My family is able to handle life's ups and downs.					
19. Adults in my family have time to take care of the individual needs of every child.					
20. My family gets dental care when needed.					
21. My family feels safe at home, work, school, and in our neighborhood.					
22. My family member with a disability has support to accomplish goals at school or at workplace.					
23. My family member with a disability has support to accomplish goals at home.					
24. My family member with a disability has support to make friends.					
25. My family has good relationships with the service providers who provide services and support to our family member with a disability.					

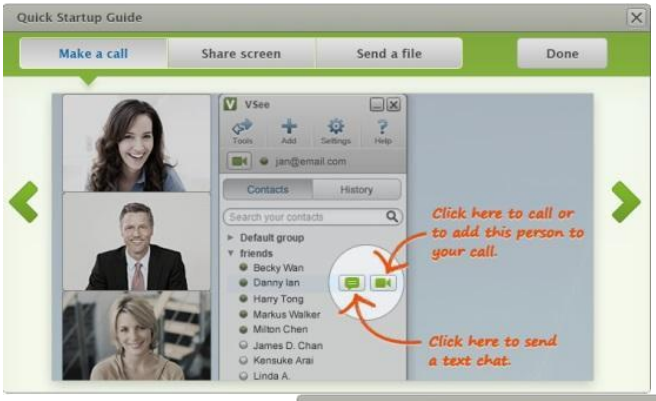
Form 8

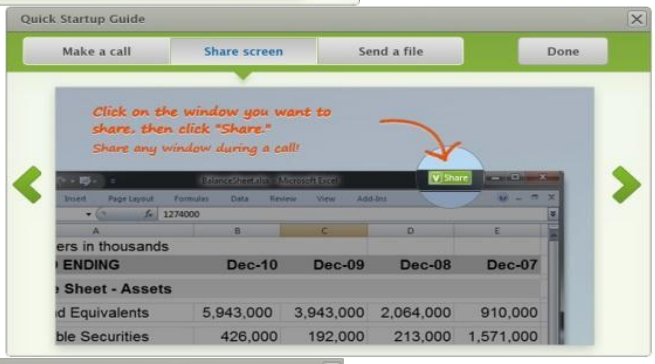
Performance Feedback Steps

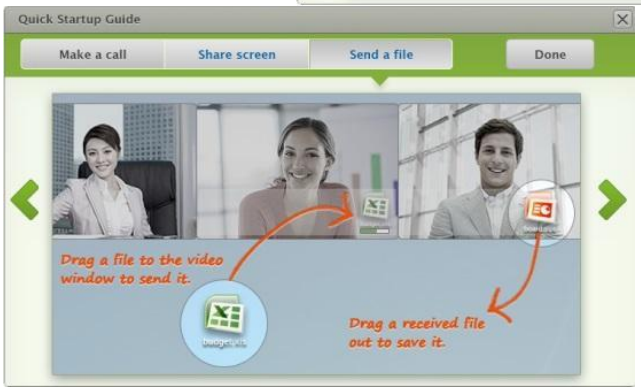
Performance Feedback Steps	
ς	1. Behavior specialist begins home visit by greeting and briefly stating agenda and timeline.
ς	2. Behavior specialist begins coaching session with caregiver by briefly describing targeted skill and providing a model demonstration or a video clip of targeted skill.
ς	3. Behavior specialist asks caregiver to demonstrate targeted skill with their child during the pre-identified routine/activity.
ς	4. Behavior specialist uses both planned and spontaneous events (if occur) during the routine/activity to improve caregiver's knowledge and use of targeted skill.
ς	5. While caregiver demonstrates targeted skill, behavior specialist comments on overall primary caregiver performance specific to targeted skill indicating areas of positive performance.
ς	6. If caregiver makes an error in implementing targeted skill, behavior specialist interrupts the caregiver by saying their name, asks them what they did wrong, and give them an opportunity to do it correctly. If they don't know or incorrectly state what they should do next, the behavior specialist accurately describes next step to them and allows them to practice again until the primary caregiver demonstrates the correct response.
ς	7. Behavior specialist interacts with the caregiver in a nonjudgmental and constructive manner during coaching.
ς	8. Behavior specialist encourages caregiver to ask questions.
ς	9. Coaching session ends with the behavior specialist inviting the caregiver to reflect on their progress.
ς	10. Coaching session ends with the behavior specialist summarizing the caregiver's positive growth in knowledge and use of targeted skill.

Form 9

VSee Quick Guide and Tips

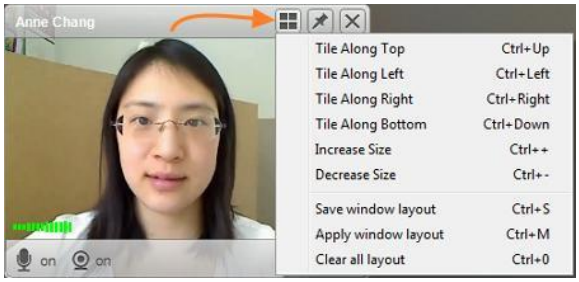






Easy Tips for Using VSee

Tip #1 – Control Your Video Windows



Make video windows bigger and smaller

- CTRL + plus key (+) to make video bigger
- CTRL + minus key (-) to make video smaller

Line up video windows along one side of your screen

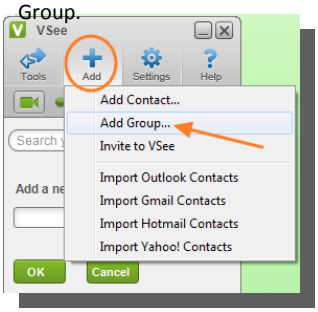
- CTRL + [Arrow Keys] in the direction you want the windows to align
  - CTRL + ← to tile left
  - CTRL + ↑ to tile top
  - CTRL + → to tile right
  - CTRL + ↓ to tile bottom

***Mac users should substitute CMD (⌘) key in place of CTRL**

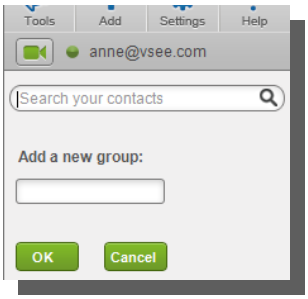
Tip #2 – Starting a Group Call

First create and set up a new group in your contact list:

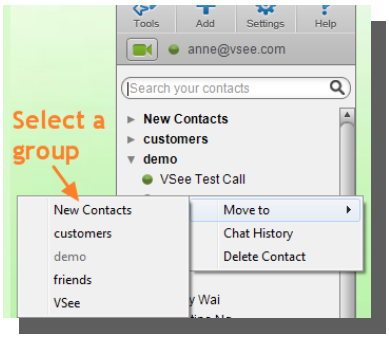
A. Go to your VSee address book, click the Add icon → Add Group.



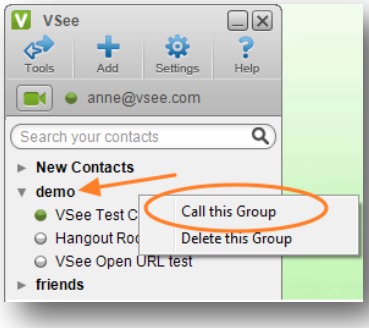
B. Type in the new group name and click OK.



C. Drag and drop contacts into your new group OR
Right-click on the contact's name, select
"Move to…", and choose the group.



To call your group, right-click the group name and select "Call this group."



Tip #3 – Trouble shooting Poor Video

The bars on the bottom right of a caller's video window show you the strength of the network or connection between you and the caller.

- **Green** ♦ (strong) – great audio and video
- **Yellow** ♦ (medium) – possibility of some audio and video interruptions
- **Red** ♦ (weak) – likely to have audio and video interruptions

If you have a weak connection and your call keeps breaking up, you can try one of the following to improve the call:

- **Lower the screen resolution** – Go to the bottom right of your video window, click gear icon –> video settings –> resolution--> default
- **Decrease the frame rate** – Go to the bottom right of your video window, click gear icon –> video settings –> frame rate → adaptive
- **Completely mute your video** – Go to the bottom left of your video window, click the video camera icon
- **Use a wired instead of a wireless network**

Tip #4a – Troubleshooting Audio - Can't Hear

If you cannot hear the other person:

1. Make sure that the other party has not muted his/her microphone.

2. Check if your remote person has selected the correct **audio input device** (i.e. microphone) and the correct **audio output device** (i.e. speaker). On PC, have her go to the bottom right of her local video window, click the gear icon –>"Audio and Camera Setup". If this doesn't resolve the issue, restart VSee to sync with the device; then, re-select the device.

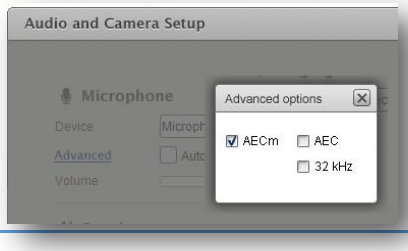
If the other person can't hear you:

1. Make sure you are not running other video conferencing software on your PC, e.g. Skype. If you are, please make sure you quit those programs, and then restart VSee. (You can restart by going to your system task tray at the bottom right of your desktop, find the VSee icon. Right click on it and select "Quit." then go to your program files and start VSee again.)
2. Upon restarting VSee, please go to your VSee address book, under Settings → "Audio and Camera setup" make sure you have selected the right microphone and speaker device. Use the test sound buttons to verify if they are selected correctly.

Tip #4b – Troubleshooting Audio - Echo

Echo is caused by a user's microphone capturing the audio being output by the speaker. Here are a few things you can do to troubleshoot echo:

1. Toggle between AEC (Audio Echo Cancellation) and AECm in the "Audio and Camera Setup." On PC, go to your local video window, click gear icon →Audio and Camera Setup. On Mac, select Audio Setup from the VSee menu. Click on the "Advanced" link under Microphone.

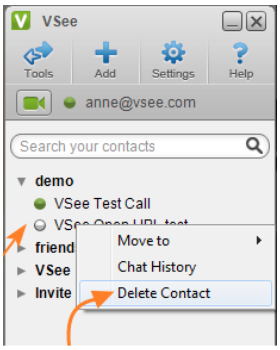


2. If you are hearing an echo of your voice, it means that the OTHER user's microphone is causing the echo. Ask the call participant to turn down their speaker volume, or use headphones instead of speakers (this completely eliminates the possibility of echo). Turning the speaker all the way up also causes clipping.

3. If you are using the webcam mic, we suggest using the built-in mic and speaker. Sometimes when the microphone and speaker are two different devices - there's clock drift - which would cause echo.

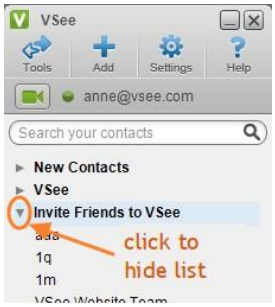
4. Use speaker phones. We recommend Jabra 410 Speakerphone (or Jabra 510 for BlueTooth support).

Tip #4 – Delete Contacts



To **delete a contact** from your VSee address book, move the cursor arrow over the contact's name until it is highlighted and right-click. Select "Delete Contact" from the menu that appears.

You can also **delete an entire group** in the same way, by simply right- clicking on the highlighted group.



* Note: the **Invite Friends to VSee** group cannot be deleted and will always appear in your VSee address book. You can hide this list of potential contacts by clicking on the gray triangle to the left of the group.

Tip #5 – Can't Log Into VSee

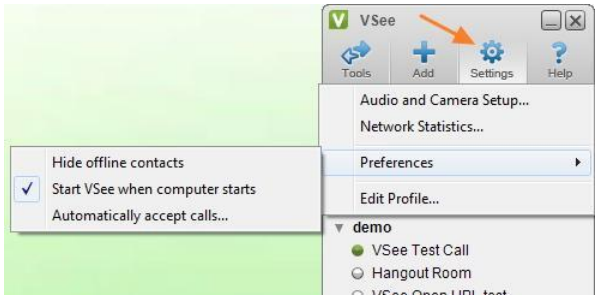
1. If you've forgotten your password, you can reset your password at http://vsee.com/passwordrequest

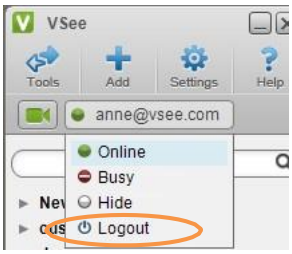
2. If you are able to login, but cannot connect, this is usually caused by a firewall. You may need to disable your computer's firewall or add VSee as an exception. If you are using a corporate network, please have your IT set the corporate firewall to the settings at http://vsee.com/firewall

Tip #6 – Automatically Logging Into VSee and Switching Accounts

For your convenience, you can have VSee automatically log you in whenever you start your computer. Just go to your VSee contacts, click

Settings icon → Preferences → Start VSee when computer starts





If you ever need to sign in with a different VSee account, simply log out of your current account and you will be taken to the VSee login window to sign in as a different user.

More General Troubleshooting

Sometimes you might experience poor quality audio or video. Most often this is caused by one or more users having:

1. A firewall that is preventing an optimal connection.
2. Insufficient bandwidth for the call(s).
3. Insufficient CPU (processing) power.

For problem (1): Disable any firewalls that may be running, or add an exception for the VSee program.

For problem (2): Reduce number of callers or video resolution/framerate.

For problem (3): Reduce number of callers or use a more powerful computer.

***Corporate firewall issues, please have your IT check settings at http://vsee.com/firewall**

Appendix D.

Assessment of Training Objectives

Family-Centered Telehealth Behavioral Consultation Training Knowledge Assessment

1. Define the distinguishing components of telehealth behavioral consultation.

   _____

   _____

2. What are 3 reasons to use 'telehealth' to deliver professional consultation with performance feedback?

   a. _____

   b. _____

   c. _____

3. Name 2 professional associations that have published guidelines for practice of telehealth services

   a. _____

   b. _____

4. You should inform and educate the client on:

   a. structure and timing of services
   b. record keeping
   c. privacy and security
   d. confidentiality and mandatory reporting
   e. all of the above

5. Professionals providing telehealth should insure that workspaces are _____. Circle all that apply:
   a. secure
   b. windowless
   c. private
   d. soundproof
   e. lockable

6. Professionals shall be _____ competent to deliver services to the populations that they serve. Example of factors to consider include awareness of the client's _____.

7. Audio, video, and all other data transmission shall be secure through the use of _____ and _____ protection.

8. _____ compliance entails an organized set of secure, monitored, and documented practices within and between covered entities.

9. Along with confidentiality, you are also a _____ _____, therefore, you are legally required to report _____ and/or _____.

10. What are the 3 steps you need to do to develop effective interventions for children with IDD who engage in challenging behavior?

    a. _____

    b. _____

    c. _____

11. What are the 3 important elements of performance feedback?

    a. _____

    b. _____

    c. _____

Appendix E.

Fidelity Checklist of the Training Objectives

Family-Centered Telehealth Behavioral Consultation Training Fidelity Checklist

Date of Training_____

Item Being Reviewed	Check Here	Initial
Explained the purpose of the training and the role of behavior specialist	❑	
Explained why there is a need for telehealth behavioral consultation and the need for this study	❑	
Described each part of the 2-part training and the study procedures and timeline	❑	
Reviewed the telehealth guidelines and describe how they apply to them: Administrative Guidelines Clinical Guidelines Technical Guidelines	❑ ❑ ❑ ❑	
Explained HIPAA and confidentiality as related to telehealth and the legal requirement of mandatory reporting	❑	
Described the equipment and software that will be used Went through the task analysis and helped them set-up their computers	❑ ❑	
Explained the behavioral consultation via telehealth procedures: Each step of the FACTS – home version form Tips for telehealth interpersonal communication skills Direct observation with ABC recording Behavior support plan development	❑ ❑ ❑ ❑ ❑	
Described the importance of performance feedback	❑	
Described the performance feedback steps	❑	
Provided time to the participants to practice the performance feedback steps until they met criterion	❑	
Provided troubleshooting strategies and suggestions	❑	

Appendix F.

Telehealth Training Slides

Telehealth Training: Part I

TRACI RUPPERT, M.S., BCBA

Agenda

- Purpose of training and role of behavior specialist
- Why do we need telehealth behavioral consultation?
- Study Procedures
- Telehealth guidelines
- HIPAA and confidentiality
- Set up computers
- FACTS, ABC observation, and BSP development

Purpose of Training and Role

- To learn:
  - How to collaborate with primary caregivers of children with an IDD or EBD on an indirect FBA
  - Develop a BSP via telehealth behavioral consultation
  - Implement the BSP using performance feedback via telehealth
- Model is specifically designed for children who exhibit mild to moderate challenging behavior daily across multiple family routines in the home
- Your role is to:
  - Collaborate with the family to develop a BSP
  - Support the caregiver by teaching him/her to implement the specific behavioral strategies

Need for Telehealth

- Challenging behaviors are common among children with IDD
  - Cause direct harm to self or others
  - Interfere with child's and others' physical well-being
  - Without intervention tend to persist and may increase in frequency
- Persistent challenging behaviors can be prevented and decreased with individualized function-based interventions and supports based on FBAs
- Parents have been trained to effectively implement FBAs and function-based interventions
- Teaching parents to conduct FBAs is beneficial because they learn how to choose functionally appropriate treatment

Telehealth Behavioral Consultation

- Behavioral Parent Training
  - Describing behavioral procedures
  - Modeling of the procedures
  - Role plays
  - Providing corrective feedback while the primary caregiver practices targeted intervention strategies with their child
- Past research suggests that performance feedback is integral to improving adult use of evidence-based strategies
- Can be expensive and burdensome with the physical distance between the client and service provider

Why Telehealth?

- Research has evaluated the use of telecommunication technologies to deliver professional consultation with performance feedback more efficiently
- Telehealth consultation has been supported to be a suitable solution in bridging this gap in service delivery
  - Cost-effective
  - Primary caregivers can be served in their home
  - Shortage of services for families who offer intervention programs
- Professional service providers need to be trained to implement behavioral consultation with performance feedback for multi-component interventions via the telehealth model
  - A model for training must be developed and validated

Telehealth Guidelines

- American Telemedicine Association (ATA; 2014) and American Psychological Association (APA; 2013)
- Guidelines are to assure uniform quality of service to patients, and to promote reasonable and informed patient and provider expectations
- Administrative Guidelines
- Clinical Guidelines
- Technical Guidelines

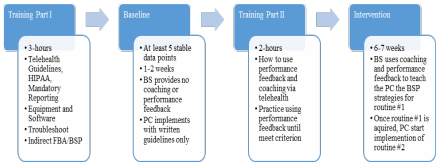
HIPAA and Mandatory Reporting

- Health Insurance Portability and Accountability Act (HIPAA) was enacted in 1996 to protect person health information (PHI)
- HIPAA compliance entails an organized set of secure, monitored, and documented practices within and between covered entities
- The telehealth software program may contain an encryption feature, or the technology might provide security through the use of passwords.
- Along with confidentiality, you are a mandatory reporter; therefore, you are legally required to report when abuse or neglect is observed or suspected.
  - This may include physical injury, neglect, sexual or emotional abuse, or financial exploitation

Equipment and Software

- Personal Computers and webcam
  - Must be password protected
  - Only person that uses the computer
- Caregivers will use their own computer or a loaned Macbook
  - Logitech HD Webcam
  - Jabra Bluetooth headset
- Software
  - BitTorrent Sync
  - VSee videoconferencing
  - Teamviewer

Procedures and Timeline

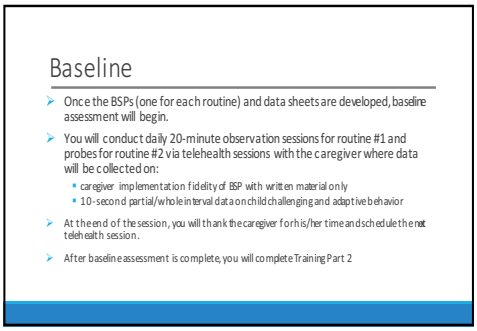


FACTS and Interpersonal Skills

- You will build rapport while interviewing the caregiver via videoconference to complete an indirect FBA
  - *Functional Assessment Checklist for Teachers and Staff – Home Version* (FACTS – Home Version)
- Some tips for Interpersonal Communication Skills
  - Make sure you are looking at the camera rather than the caregiver's image on your computer screen. Do not pay attention to other distractions (e.g., email, calls, text messages, etc.)
  - Be an active listener and use clarifying statements/questions.
  - Pay attention to your non-verbal facial expressions, tone and pitch of voice, and gestures displayed through body language. Sometimes these things are forgotten when meeting via telehealth.

3 Steps to Develop Effective Interventions

- FACTS interview to identify the operant function maintaining the child's challenging behaviors
- ABC observation to confirm summary hypothesis statement
  - 20 minute observation
  - ABC data collection (at least 5 behaviors to establish pattern)
- Development of BSP
  - Contextually fit
  - **Collaboratively!**


Baseline
Once the BSPs (one for each routine) and data sheets are developed, baseline assessment will begin.
You will conduct daily 20-minute observation sessions for routine #1 and probes for routine #2 via telehealth sessions with the caregiver where data will be collected on:
caregiver implementation fidelity of BSP with written material only
10-second partial/whole interval data on child challenging and adaptive behavior
At the end of the session, you will thank the caregiver for his/her time and schedule the next telehealth session.
After baseline assessment is complete, you will complete Training Part 2

Telehealth Training: Part II

TRACI RUPPERT, M.S., BCBA

Agenda

- Importance of performance feedback
- Performance feedback steps
- Examples of performance feedback
- Practice!!!!!!!

Importance of Performance Feedback

- Past research suggests that performance feedback is integral to improving adult use of evidence-based strategies
- Performance feedback receives the most attention as an effective strategy for modifying staff and caregiver behavior
- Common 3 elements:
  - Positive feedback for strategies implemented correctly
  - Corrective feedback for strategies not implemented correctly
  - Ensuring understanding of corrective feedback by asking questions or asking the individual to repeat corrective feedback

Performance Feedback Steps

- Will be recorded and the parent will have a Bluetooth headset so you can give feedback during the routine without unduly disrupting the home environment.
- Observation periods will occur three to five times per week (i.e., either via telehealth or independent videos sent in by the caregiver) and last 20-minutes in duration
  - Routine 2 will be recorded 1-2 per week once intervention starts for Routine 1
- A second observer will collect inter-observer agreement (IOA) measures.

Performance Feedback Steps

1. You will start each session with a greeting, quickly stating the agenda, and timeline for the session.
2. The coaching session will begin by you briefly describing the targeted skill and providing a model demonstration or video clip of targeted skill for the caregiver.
3. You will then ask the caregiver to demonstrate the targeted skill with their child during the pre-identified routine/activity.

Performance Feedback Steps

4. During the routine/activity, you will use both planned and spontaneous events (if occur) to improve the caregiver's knowledge and use of targeted skill.
5. While the caregiver demonstrates the targeted skill, you should make positive comments on the caregiver's overall performance specific to the targeted skill indicating areas of positive performance.

Performance Feedback Steps

6. If primary caregiver makes an error in implementing targeted skill, you will:
   - interrupt the caregiver by saying their name
   - ask them what they did wrong
   - give them an opportunity to do it correctly
   - If they don't know or incorrectly state what they should do next, you accurately describes next step to them and allow them to practice again until the caregiver demonstrates the correct response.

- If the caregiver is not getting it, make a video model for the caregiver to view and practice with on his/her own time. Also, building a script for the caregiver to use in challenging situations can help.

Performance Feedback Steps

7. During coaching of the routine, you should interact with the caregiver in a nonjudgmental and constructive manner
8. You will encourage the caregiver to ask questions.
9. The coaching session should end with you inviting the caregiver to reflect on their progress
10. You will end the session by summarizing the caregiver's positive growth in knowledge and use of the targeted skill.

Intervention Procedures

- Conduct telehealth session with the caregiver until they meet 80% criterion of the implementation steps for the chosen strategy.
- Once the caregiver has met criterion, conduct telehealth session 1-2 times per week and the caregiver will record 2-4 independent videos of the routines per week.
- You will graph the data and use visual analysis
- If they fall below 80% criterion, you will conduct a second telehealth session that week.
- Once fluency is acquired for routine #1 (i.e., staying above 90% mastery criterion for 3 consecutive weeks), you will start to train the BSP strategies for routine #2.

Examples of Performance Feedback

Practice!

Appendix G.

Functional Assessment Checklist for Behavior Specialists and Staff - Home Version
(FACTS – Home Version; Freeman & Anderson, 2005; March et al., 2000)

FACTS—Home Version (Part A)

Step 1 Child/Age: _____ Date: _____
Interviewer: _____ Respondent(s): _____

Step 2 **Child Profile:** Please identify at least three of your child's strengths; things he or she is good at.

_____

_____

Step 3 **Problem Behavior(s): Identify problem behaviors**

___ Dawdles	___ Physical Aggression (Peers)	___ Disruptive	___ Self-injury
___ Unresponsive	___ Physical Aggression (Sibs)	___ Destructive	___ Inappropriate language
___ Withdrawn	___ Physical Aggression (Adults)	___ Tantrums	___ Screams
___ Noncompliant	___ Physical Aggression (Parents)	___ Steals	

Describe problem behavior:
_____
_____
_____

Step 4 **Identifying Routines: Where, When and With Whom Problem Behaviors are Most Likely.**

Schedule (Times)	Activity	Likelihood of Problem Behavior	Specific Problem Behavior
	Morning Routine	Low High 1 2 3 4 5 6	
	Breakfast	1 2 3 4 5 6	
	Lunch	1 2 3 4 5 6	
	Dinner	1 2 3 4 5 6	
	Transition To School	1 2 3 4 5 6	
	Transition Home from School	1 2 3 4 5 6	
	Trips to Stores/Errands	1 2 3 4 5 6	
	Independent Play Time	1 2 3 4 5 6	

	Play with Siblings	1 2 3 4 5 6	
	Play with Peers	1 2 3 4 5 6	
	Bath Time	1 2 3 4 5 6	
	Clean-up	1 2 3 4 5 6	
	Bedtime	1 2 3 4 5 6	
	Completing chores:	1 2 3 4 5 6	
	Other:	1 2 3 4 5 6	

Step 5 **Select 1-3 Routines for further assessment: Select routines based on (a) similarity of activities (conditions) with ratings of 4, 5, or 6 and (b) similarity of problem behavior(s). Complete the FACTS-Part B for each routine identified.**

FACTS—Home Version (Part B)

Step 1 Child/Age: _____ Date: _____
Interviewer: _____ Respondent(s): _____

Step 2 **Routine/Activities/Context:** Which routine (only one) from the FACTS-Part A is assessed?

Routine/Activities/Context	Problem Behavior(s)

What does the problem behavior(s) look like?

How often does the problem behavior(s) occur?

How long does the problem behavior(s) last when it does occur?

What is the intensity/level of danger of the problem behavior(s)?

Step 3 **Provide more detail about the problem behavior(s):**

Related Issues (setting events)		**Environmental Features**	
___ Illness	Other: _____	___ Reprimand/correction	___ Activity too difficult
___ Drug use	_____	___ Physical demands	___ Activity requires physical effort
___ Fight with sibling	_____	___ Alone/no one around	___ Tasks too boring
___ Problems at school	_____	___ With sibling(s)	___ Structured activity, specific expectations
___ Poor sleep	_____	___ With peers	___ Unstructured time
___ Poor eating habits		___ With mother	___ Crowded/noisy
___ Negative interaction with parent		___ With father	___ Interrupt/unexpected change in routine
___ Medications		___ Transitions	
___ Medical/physical condition		___ Other	

Step 4 **What are the events that predict when the problem behavior(s) will occur? (Predictors)**

Step 5 **What consequences appear most likely to maintain the problem behavior(s)?**

Things that are Obtained		**Things Avoided or Escaped From**	
___ Adult attention	Other:_____	___ Hard tasks	Other: _____
___ Sibling attention	_____	___ Physical effort	_____
___ Preferred activity	_____	___ Adult attention	_____
___ Toys/things	_____	___ Reprimands	_____
___ Peer attention	_____	___ Peer attention	_____
		___Sibling attention	

SUMMARY OF BEHAVIOR

Step 6 **A. Identify the summary that will be used to build a plan of behavior support.**

Setting Events & Predictors	Problem Behavior(s)	Maintaining Consequence(s)

Steps 7 **How confident are you that the *Summary of Behavior A* is accurate?**

Not Very Confident					Very Confident
1	2	3	4	5	6

Step 8 **What current efforts have been used to control the problem behavior?**

Strategies for preventing problem behavior			Strategies for responding to problem behavior		
___ Avoid situation	Other: ____	None: ____	___ Reprimand	Other: _____	None: _____
___ Pre-warn	_____		___ Time out	_____	
___ Assist	_____		___ Ignore	_____	
___ Offer incentive	_____		___ Loss of privilege	_____	

Step 9 **What socially appropriate behaviors or skills can your child already perform that may generate the same outcomes or reinforcers produced by the problem behaviors?**

_____

_____

Step 10 **What are the primary ways the child communicates with other people?**

1. What are the general expressive communication strategies used by or available to your child? These might include vocal speech, signs/gestures, communication boards/books, or electronic devices. How consistently are the strategies used?

   _____

   _____

2. With regard to your child's receptive communication, or ability to understand other persons ...

   a. Does your child follow spoken requests or instructions? If so, approximately how many? (List if only a few.)

      _____

   b. Does your child respond to signed or gestural requests or instructions? If so, approximately how many? (List if only a few.)

      _____

c. Is your child able to imitate if you provide physical models for various tasks or activities? (List if only a few.)

_____

d. How does your child typically indicate *yes or no* when asked if she or he wants something, wants to go somewhere, and so on?

_____

Step 11 **What are things your child likes and are reinforcing for him or her?**

Food items:

_____

Toys and objects:

_____

Activities at home:

_____

Activities/outings in the community:

_____

Appendix H.

ABC Data Collection Sheet

Name		**Date**	
Observer		**Setting**	

Time	Activity	Antecedent	Behavior	Consequence

Appendix I.

Self-Assessment of Contextual Fit in the Home

Adapted from Horner, Salentine, & Albin, 2003

The purpose of this interview is to assess the extent to which the elements of a behavior support plan fit the contextual features of your home environment. The interview asks you to rate (a) your knowledge of the elements of the plan, (b) your perception of the extent to which the elements of the behavior support plan are consistent with your personal values, and skills, and (c) the behavior specialist's ability to support implementation of the plan. This information will be used to design practical procedures that will help primary caregivers support children with problem behaviors. The information you provide will be maintained and reported in a confidential manner consistent with the standards of the American Psychological Association. You will never be identified.

Please read the attached behavior support plan, and provide your perceptions of the specific elements in this plan. Thank you for your contribution and assistance.

Name of Interviewee: _____ Role : _____
Support plan reviewed: _____

Knowledge of elements in the Behavior Support Plan.

1. I am aware of the elements of this behavior support plan.

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Barely Disagree	Barely Agree	Moderately Agree	Strongly Agree

2. I know what I am expected to do to implement this behavior support plan.

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Barely Disagree	Barely Agree	Moderately Agree	Strongly Agree

Skills needed to implement the Behavior Support Plan

3. I have the skills needed to implement this behavior support plan.

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Barely Disagree	Barely Agree	Moderately Agree	Strongly Agree

4. I have received any training that I need to be able to implement this behavior support plan.

   No training needed _____

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Barely Disagree	Barely Agree	Moderately Agree	Strongly Agree

Values are consistent with elements of the behavior support plan

5. I am comfortable implementing the elements of this behavior support plan

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Barely Disagree	Barely Agree	Moderately Agree	Strongly Agree

6. The elements of this behavior support plan are consistent with the way I believe my child should be treated.

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Barely Disagree	Barely Agree	Moderately Agree	Strongly Agree

Resources available to implement the plan

7. My behavior specialist provides me with the time needed to train me to implement this behavior support plan.

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Barely Disagree	Barely Agree	Moderately Agree	Strongly Agree

8. My behavior specialist provides the materials needed to implement this behavior support plan.

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Barely Disagree	Barely Agree	Moderately Agree	Strongly Agree

Behavior specialist Support

9. My behavior specialist provides the supervision support needed for effective implementation of this behavior support plan.

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Barely Disagree	Barely Agree	Moderately Agree	Strongly Agree

10. My behavior specialist is committed to investing in effective design and implementation of behavior support plans.

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Barely Disagree	Barely Agree	Moderately Agree	Strongly Agree

Effectiveness of Behavior Support Plan

11. I believe the behavior support plan will be (or is being) effective in achieving targeted outcomes.

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Barely Disagree	Barely Agree	Moderately Agree	Strongly Agree

12. I believe the behavior support plan will help prevent future occurrence of problem behaviors for this child.

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Barely Disagree	Barely Agree	Moderately Agree	Strongly Agree

Behavior Support Plan is in the best interest of the child

13. I believe this behavior support plan is in the best interest of my child.

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Barely Disagree	Barely Agree	Moderately Agree	Strongly Agree

14. This behavior support plan is likely to assist my child to be more successful at home.

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Barely Disagree	Barely Agree	Moderately Agree	Strongly Agree

<u>The Behavior Support Plan is efficient to implement</u>

15. Implementing this behavior support plan will not be stressful.

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Barely Disagree	Barely Agree	Moderately Agree	Strongly Agree

16. The amount of time, money and energy needed to implement this behavior support plan is reasonable.

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Barely Disagree	Barely Agree	Moderately Agree	Strongly Agree

Appendix J.

Performance Feedback Steps for Behavior Specialist use of Coaching Strategies

Performance Feedback Steps	Correct	Incorrect
Behavior specialist begins home visit by greeting and briefly stating agenda and timeline.		
Behavior specialist begins coaching session with primary caregiver by briefly describing targeted skill and model demonstration or show video clip of targeted skill.		
Behavior specialist asks primary caregiver to demonstrate targeted skill with their child during the pre-identified routine/activity.		
Behavior specialist uses both planned and spontaneous events (if occur) during the routine/activity to improve primary caregiver's knowledge and use of targeted skill.		
While primary caregiver demonstrates targeted skill, behavior specialist comments on overall primary caregiver performance specific to targeted skill indicating areas of positive performance.		
If primary caregiver makes an error in implementing targeted skill, behavior specialist interrupts the caregiver by saying their name, asks them what they did wrong, and give them an opportunity to do it correctly. If they don't know or incorrectly state what they should do next, the behavior specialist accurately describes next step to them and allows them to practice again until the primary caregiver demonstrates the correct response.		
Behavior specialist interacts with the primary caregiver in a nonjudgmental and constructive manner during coaching.		
Behavior specialist encourages primary caregiver to ask questions.		
Coaching session ends with the behavior specialist inviting the primary caregiver to reflect on their progress.		
Coaching session ends with the behavior specialist summarizing the primary caregiver's positive growth in knowledge and use of targeted skill.		
Percentage of steps completed correctly during coaching session		

Appendix K.

Family Quality-of-Life Survey (FQOL; Summers et al., 2005)

How satisfied am I that…	*Very Dissatisfied*	*Dissatisfied*	*Neither*	*Satisfied*	*Very Satisfied*
1. My family enjoys spending time together.					
2. My family members help the children learn to be independent.					
3. My family has the support we need to relieve stress.					
4. My family members have friends or others who provide support.					
5. My family members help the children with schoolwork and activities.					
6. My family members have transportation to get to the places they need to be.					
7. My family members talk openly with each other.					
8. My family members teach the children how to get along with others.					
9. My family members have some time to pursue our own interests.					
10. Our family solves problems together.					
11. My family members support each other to accomplish goals.					
12. My family members show that they love and care for each other.					
13. My family has outside help available to us to take care of special needs of all family members.					
14. Adults in our family teach the children to make good decisions.					

15. My family gets medical care when needed.					
16. My family has a way to take care of our expenses.					
17. Adults in my family know other people in the children's lives (friends, teachers, etc.).					
18. My family is able to handle life's ups and downs.					
19. Adults in my family have time to take care of the individual needs of every child.					
20. My family gets dental care when needed.					
21. My family feels safe at home, work, school, and in our neighborhood.					
22. My family member with a disability has support to accomplish goals at school or at workplace.					
23. My family member with a disability has support to accomplish goals at home.					
24. My family member with a disability has support to make friends.					
25. My family has good relationships with the service providers who provide services and support to our family member with a disability.					

Appendix L.

Social Validity Survey-Behavior specialists

(Adapted from the TREATMENT ACCEPTABILITY RATING FORM—REVISED; TARF-R, Reimers & Wacker, 1988)

Please score each item by circling the number that best indicates how you feel about the Family-Centered TBC training and performance feedback procedures.

1. How clear is your understanding of the Family-Centered TBC Training?

1	2	3	4	5
Not at all clear		Neutral		Very clear

2. How acceptable do you find the Family-Centered TBC Training?

1	2	3	4	5
Not at all acceptable		Neutral		Very acceptable

3. How willing would you be to carry out these procedures with other parents of children with challenging behavior?

1	2	3	4	5
Not at all willing		Neutral		Very willing

4. To what extent did the "Family-Centered TBC" training equip me to develop a BSP with parents?

1	2	3	4	5
Not at all		Neutral		Very equipped

5. To what extent do you think there might be disadvantages in following these 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 procedures for a single family?

1	2	3	4	5
Little time will be needed		Neutral		Much time will be needed

7. How confident are you that the BSP and performance feedback via telehealth procedures will provide effective service delivery for parents of children with challenging behavior?

1	2	3	4	5
Not at all confident		Neutral		Very confident

8. How likely are these BSP and performance feedback via telehealth procedures to make permanent improvements in a parent's behavior?

1	2	3	4	5
Unlikely		Neutral		Very likely

9. How disruptive will it be to carry out these BSP and performance feedback via telehealth procedures?

1	2	3	4	5
Not at all disruptive		Neutral		Very disruptive

10. How much do you like the BSP and performance feedback via telehealth procedures used in the intervention?

1	2	3	4	5
Do not like them at all		Neutral		Like them very much

11. How willing would you be to suggest this training to other behavior specialists needing to learn to develop BSPs via telehealth?

1	2	3	4	5
Not at all willing		Neutral		Very willing

12. How much discomfort is the parent likely to experience during this type of service delivery model?

1	2	3	4	5
No discomfort at all		Neutral		Very much discomfort

13. How willing would you be to change your routines to carry out these procedures?

1	2	3	4	5
Not at all		Neutral		Very willing

14. How well will carrying out these procedures 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 parents?

1	2	3	4	5
Not at all effective		Neutral		Very effective

16. How well do the goals of BSP and performance feedback via telehealth fit with the team's goals to improve parent use of research-based strategies to improve their child's behavior?

1	2	3	4	5
Not at all		Neutral		Very much

Addendum to Social Validity

Do you have any additional comments to make about the Family-Centered Telehealth Behavioral Consultation training or the performance feedback procedures and its effect on the parent and child?

Appendix M.

Social Validity Survey-Primary Caregivers

(Adapted from the TREATMENT ACCEPTABILITY RATING FORM—REVISED; TARF-R, Reimers & Wacker, 1988)

Please score each item by circling the number that best indicates how you feel about the BSP strategies and performance feedback procedures.

1. How clear is your understanding of the BSPs strategies?

1	2	3	4	5
Not at all clear		Neutral		Very clear

2. How acceptable do you find the BSPs 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 behavior specialists' use of performance feedback train me to implement the BSP 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/procedures 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 BSP strategies will provide effective interventions for decreasing your child's challenging behavior?

1	2	3	4	5
Not at all Confident		Neutral		Very confident

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

1	2	3	4	5
Unlikely		Neutral		Very likely

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

1	2	3	4	5
Not at all disruptive		Neutral		Very disruptive

10. How much do you like the BSP strategies and performance feedback procedures used in the intervention?

1	2	3	4	5
Do not like them at all		Neutral		Like them very much

11. How willing would you be to suggest this BSP strategies and performance feedback procedures 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

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

1	2	3	4	5
No discomfort at all		Neutral		Very much discomfort

13. How willing would you be to change your routines to carry out these procedures?

1	2	3	4	5
Not at all		Neutral		Very willing

14. How well will carrying out these procedures 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. How well do the goals of BSP strategies fit to improve your use of research-based strategies to improve your child's behavior?

1	2	3	4	5
Not at all		Neutral		Very much

Addendum to Social Validity

Do you have any additional comments to make about the BSP strategies or the performance feedback procedures and its effect on your child?

Appendix N.

Social Validity Survey-Telehealth

(Adapted from the TREATMENT ACCEPTABILITY RATING FORM—REVISED; TARF-R, Reimers & Wacker, 1988)

Please score each item by circling the number that best indicates how you feel about the telehealth procedures.

1. How clear is your understanding of the telehealth procedures?

1	2	3	4	5
Not at all clear		Neutral		Very clear

2. How acceptable do you find the telehealth procedures?

1	2	3	4	5
Not at all acceptable		Neutral		Very acceptable

3. The telehealth procedures were easy to use.

1	2	3	4	5
Not at all		Neutral		Very easy

4. If you had the opportunity to conduct the intervention face to face rather than through telehealth sessions, how acceptable would it be to make the switch to face to face sessions?

1	2	3	4	5
Not at all acceptable		Neutral		Very acceptable

5. To what extent do you think there might be disadvantages in telehealth 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 procedures?

1	2	3	4	5
Little time will be needed		Neutral		Much time will be needed

7. How acceptable did you find recording and submitting the independent videos outside of the telehealth sessions?

1	2	3	4	5
Not at all acceptable		Neutral		Very confident

8. How much were the weekly telehealth sessions helpful?

1	2	3	4	5
Not at all helpful		Neutral		Very helpful

9. How disruptive will it be to carry out the telehealth procedures?

1	2	3	4	5
Not at all disruptive		Neutral		Very disruptive

10. How much do you like the telehealth procedures used in the intervention?

1	2	3	4	5
Do not like them at all		Neutral		Like them very much

11. How willing would you be to suggest the telehealth procedures to others needing assistance?

1	2	3	4	5
Not at all willing		Neutral		Very willing

12. How much discomfort are you likely to experience while using telehealth procedures?

1	2	3	4	5
No discomfort at all		Neutral		Very much discomfort

13. How well supported did you feel using the telehealth procedures?

1	2	3	4	5
Not at all		Neutral		Very supported

14. How well will carrying out the telehealth procedures fit into your existing routine?

1	2	3	4	5
Not at all well		Neutral		Very well

15. How effective will the telehealth procedures be in teaching and supporting other parents?

1	2	3	4	5
Not at all effective		Neutral		Very effective

16. How well do the telehealth procedures fit to improve your use of research-based strategies to improve children's behavior?

1	2	3	4	5
Not at all		Neutral		Very much

Addendum to Social Validity

Do you have any additional comments to make about the telehealth procedures?

Appendix O.

BSP Fidelity Checklist for Christy-Owen Routine #1

Date:	Yes	No	N/A
Before dinner, practice using each button 2 x each. Physically guide to select each button, then provide corresponding item/activity.			
Provide 30 s of verbal and physical attention before everyone else sits at table.			
Place buttons board within arms length of child on table.			
Within every 2 min interval at the table, provide brief verbal and physical attention. If child leaves table before attention can be provided, wait until the next interval.			
If child hits attention button, provide brief verbal and physical attention (i.e., arm rub, pat on back) within 10 seconds of hitting the button.			
If child hits the food buttons, prompt child to show you which food he wants. (i.e., "Show me what you want", "Point to"). Provide food.			
Block access to food if child is grabbing. Look away while blocking to minimize eye contact. Do not comment about the behavior. Direct child to put "hands down" or "sit down."			
Prompt alternate response. Once child has been redirected after grabbing, hold up button board. Allow child to select a button.			
Totals			

Appendix P.

BSP Fidelity Checklist for Melissa-Mercedez Routine #1

Date:	Yes	No	N/A
Give at least one choice (e.g. choose what step of morning routine she wants to do first)			
Show her visual schedule			
Give her a token for completing each step of the routine			
Provide verbal prompts for each step (e.g. "You need to sit at the table to eat breakfast)			
After giving verbal reminder, remove attention.			
Remove attention for problem behavior.			
Provide descriptive verbal praise for completing steps of the routine			
Provide 1-minute breaks (only 3 times) when child requests. Provides an extra token if no breaks are taken			
Follow through with demands using least to most prompting (VP, PP, FP)			
Provides immediate reinforcement following morning routine for appropriate behavior (i.e. small reward agreed upon beforehand)			
Remind her "If you want your token, you will _____"			
Totals			

Appendix Q.

BSP Fidelity Checklist for Angie-Ella Routine #1

Date:	Yes	No	N/A
Give a 5-minute warning for dinner			
Put non-preferred food and preferred food on table, but out of reach			
Review steps of expectations for eating non-preferred food with aid of visual ('When I ask you to take a bite, first, you'll reach for ___, pick it up, put it in your mouth, and chew it."			
Put plate with a small bite in front of her; have preferred food out of reach			
Simple command: "First take a bite of [non-preferred food], then you can have a bite of [preferred food]"			
If whining or asking to get out of dinner, provide option for 1-minute break, and prompt TC to ask for break. Does not exceed three breaks.			
If she won't take the bite after first command, PC says: "You can take a big bite or a little bite."			
If she still won't take small bite of food, hold it right in front of her, and state command once: "First take a bite of this, then you can have a bite of [preferred food]"			
Incentive when task complete (i.e. when TC eats bite of non-preferred food)			
Planned ignoring of problem behavior and redirection back to activity			
Totals			

Appendix R.

BSP Fidelity Checklist for Amanda-Sophie Routine #1

Date:	Yes	No	N/A
Neutral vocal tone			
Respectful personal space			
Proactive (non-threatening/not reactive) language			
Timer for breaks if needed			
Pre-warn, use "If/Then" statements			
Earn same day or following day reward			
Keep topics of conversation age appropriate; engaging			
Use visual support (conversation spinner) at the table, two minutes at a time			
Include her in dinner preparation			
Excuse her from the table, allow independent play, prior to challenging behavior			
Use timer, minimum of 20 minutes, when timer goes off she can leave the table if she chooses			
Prompt her to use visual support if off-topic talk or protest is present			
Teach her about nutrition and the human body if not eating/pushing food			
Remove items that can be thrown, redirect to assisting in clean-up procedure with neutral vocal tone, minimal eye contact, minimal vocalization, and clear directions if food is thrown			
Totals			

Appendix S.

Example Data Collection Sheet for Child Participant

Child ID: Date:

Observer: IOA Observer:
Time Start: Activity:

Slash through intervals when on a contingent break.

+	**Academic Engagement**	During work time, the child's shoulders and eyes are directed toward the activity the parent is leading or the task the parent assigned for a minimum of 5 consecutive sec. Attending to parent instructions. This does not include attending to activities during breaks, free choice, etc.
—	**Not Academically Engaged**	During work time, child's shoulders and eyes are not directed toward the activity the parent is leading or the task the parent assigned for a minimum of 5 consecutive sec.
OT	**Off Topic Talk**	Child makes a comment or asks a question that does not relate to the current task at hand.
E	**Elopement**	Child leaves designated area without permission.
P	**Protest**	Yelling; saying "no" or other words to indicate he will not comply with parent request. Child does not initiate parent request/direction within 5s.
D	**Disruption**	Noises made with mouth; commenting or asking questions at a time when the expectation is to be quiet.

	0-10s	11-20s	21-30s	31-40s	41-50s	51-60s
1	+ — OT E P D	+ — OT E P D	+ — OT E P D	+ — OT E P D	+ — OT E P D	+ — OT E P D
2	+ — OT E P D	+ — OT E P D	+ — OT E P D	+ — OT E P D	+ — OT E P D	+ — OT E P D
3	+ — OT E P D	+ — OT E P D	+ — OT E P D	+ — OT E P D	+ — OT E P D	+ — OT E P D
4	+ — OT E P D	+ — OT E P D	+ — OT E P D	+ — OT E P D	+ — OT E P D	+ — OT E P D
5	+ — OT E P D	+ — OT E P D	+ — OT E P D	+ — OT E P D	+ — OT E P D	+ — OT E P D
6	+ — OT E P D	+ — OT E P D	+ — OT E P D	+ — OT E P D	+ — OT E P D	+ — OT E P D
7	+ — OT E P D	+ — OT E P D	+ — OT E P D	+ — OT E P D	+ — OT E P D	+ — OT E P D
8	+ — OT E P D	+ — OT E P D	+ — OT E P D	+ — OT E P D	+ — OT E P D	+ — OT E P D
9	+ — OT E P D	+ — OT E P D	+ — OT E P D	+ — OT E P D	+ — OT E P D	+ — OT E P D
10	+ — OT E P D	+ — OT E P D	+ — OT E P D	+ — OT E P D	+ — OT E P D	+ — OT E P D

Continued on next page…

Slash through intervals when on a contingent break.

+	**Academic Engagement/ Parent Choice**	During work time, the child's shoulders and eyes are directed toward the activity the parent is leading or the task the parent assigned for a minimum of 5 consecutive sec. Attending to parent instructions. This does not include attending to activities during breaks, free choice, etc.
—	**Not Academically Engaged**	During work time, child's shoulders and eyes are not directed toward the activity the parent is leading or the task the parent assigned for a minimum of 5 consecutive sec.
OT	**Off Topic Talk**	Child makes a comment or asks a question that does not relate to the current task at hand.
E	**Elopement**	Child leaves designated area without permission.
P	**Protest**	Yelling; saying "no" or other words to indicate he will not comply with parent request. Child does not initiate parent request/direction within 5s.
D	**Disruption**	Noises made with mouth; commenting or asking questions at a time when the expectation is to be quiet.

	0-10s	**11-20s**	**21-30s**	**31-40s**	**41-50s**	**51-60s**
11	+ — OT E P D	+ — OT E P D	+ — OT E P D	+ — OT E P D	+ — OT E P D	+ — OT E P D
12	+ — OT E P D	+ — OT E P D	+ — OT E P D	+ — OT E P D	+ — OT E P D	+ — OT E P D
13	+ — OT E P D	+ — OT E P D	+ — OT E P D	+ — OT E P D	+ — OT E P D	+ — OT E P D
14	+ — OT E P D	+ — OT E P D	+ — OT E P D	+ — OT E P D	+ — OT E P D	+ — OT E P D
15	+ — OT E P D	+ — OT E P D	+ — OT E P D	+ — OT E P D	+ — OT E P D	+ — OT E P D
16	+ — OT E P D	+ — OT E P D	+ — OT E P D	+ — OT E P D	+ — OT E P D	+ — OT E P D
17	+ — OT E P D	+ — OT E P D	+ — OT E P D	+ — OT E P D	+ — OT E P D	+ — OT E P D
18	+ — OT E P D	+ — OT E P D	+ — OT E P D	+ — OT E P D	+ — OT E P D	+ — OT E P D
19	+ — OT E P D	+ — OT E P D	+ — OT E P D	+ — OT E P D	+ — OT E P D	+ — OT E P D
20	+ — OT E P D	+ — OT E P D	+ — OT E P D	+ — OT E P D	+ — OT E P D	+ — OT E P D

Totals:

Academic Engagement	/ 120	%
Not Academically Engaged	/ 120	%
Problem Behavior	/ 120	%

Appendix T.

Technical Adequacy of BSP
(Lewis-Palmer, Todd, Horner, Sugai, & Sampson, 2004)

Critical Elements of the BSP	Rating Scale Y = Yes N = No	
1. The routine in which the challenging behavior is most likely to occur is identified	Y	N
2. The challenging behavior is operationally defined (i.e., observable and measureable)	Y	N
3. The antecedents are identified and consistent with the FBA summary statement	Y	N
4. The challenging behavior's function is identified and consistent with the FBA summary statement	Y	N
5. The consequences are identified and consistent with the FBA summary statement	Y	N
6. An alternative behavior is identified and consistent with the FBA summary statement	Y	N
7. The strategies for preventing challenging behavior are identified and included in the plan	Y	N
8. The prevention strategies are consistent with the FBA statement	Y	N
9. The plan includes teaching strategies for teaching the alternative and desired behavior	Y	N
10. The strategies for reinforcing alternative/desired behavior are identified and consistent with the FBA summary statement	Y	N
11. The strategies for minimizing rewards for challenging behavior are identified and consistent with the FBA summary statement	Y	N
12. The evaluation plan includes a strategy for assessing the goals identified for the child	Y	N

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